

Final Environmental Assessment

PROPOSED KULA RIDGE RESIDENTIAL WORKFORCE HOUSING SUBDIVISION (TMK 2-3-01:174)

Prepared for:

Kula Ridge, LLC

July 2008



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Executive Summary

Project Name: Kula Ridge Residential Workforce Housing Subdivision

Type of Document: Final Environmental Assessment

Legal Authority: Chapter 343, Hawai`i Revised Statutes

Agency Determination: Finding of No Significant Impact

Applicable Environmental Assessment Review “Trigger”: Use of State and County rights-of-way for intersection improvements

Location: Maui Island
Waiakoa, Kula
TMK 2-3-01:023 and 174

Applicant: Kula Ridge, LLC
1849 Wili Pa Loop
Wailuku, Hawai`i 96793

Approving Agency: County of Maui
Department of Housing and Human Concerns
One Main Plaza
2200 Main Street, Suite 546
Wailuku, Hawai`i 96793-2155
Contact: Vanessa Medeiros
Telephone: (808) 270-7805

Consultant: Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai`i 96793
Contact: Rowena Dagdag
Telephone: (808) 244-2015

Project Summary: The applicant is proposing the development of an approximately 116-lot single-family residential subdivision consisting of 70 affordable house-lot units and 46 market-priced lots, with onsite infrastructure improvements. Other improvements include site grading, and utilities installation covering water and drainage systems. The Department of Health has granted permission to utilize individual wastewater systems.

I. PROJECT OVERVIEW

I. PROJECT OVERVIEW

A. BACKGROUND

The applicant, Kula Ridge LLC, proposes to develop the Kula Ridge Residential Workforce Housing Subdivision Project in Kula, Maui, Hawai'i (TMK (2) 2-3-001:174). See **Figure 1** and **Figure 2**. For clarity purposes, the proposed Kula Ridge Residential Workforce Housing Subdivision Project is referred to as the "Ridge Project". Situated on the southwestern flank of Haleakala, the project site is currently undeveloped and vegetated with pasture grass. The subject property is approximately 48.12 acres in size and was formerly used as pasture land.

To the north of the site is Keahuaiwi Gulch. See **Figure 3**. Vacant pasture land bounds the property to the south. The Kula Community Center, Gateball Field and Tennis Courts and the Holy Ghost Church are located to the immediate west of the property along Lower Kula Road. Single-family residences are also found along the western boundary of the project site.

Bordering the project site to the north and east, is the proposed Kula Ridge Mauka subdivision. Refer to **Figure 1**. Kula Ridge Mauka is proposed to be a 21-lot agricultural subdivision at TMK (2) 2-3-001:023 (hereafter referred to as "Mauka Subdivision") and is owned by a separate entity, Kula Ridge Mauka LLC. Refer to **Figure 1**.

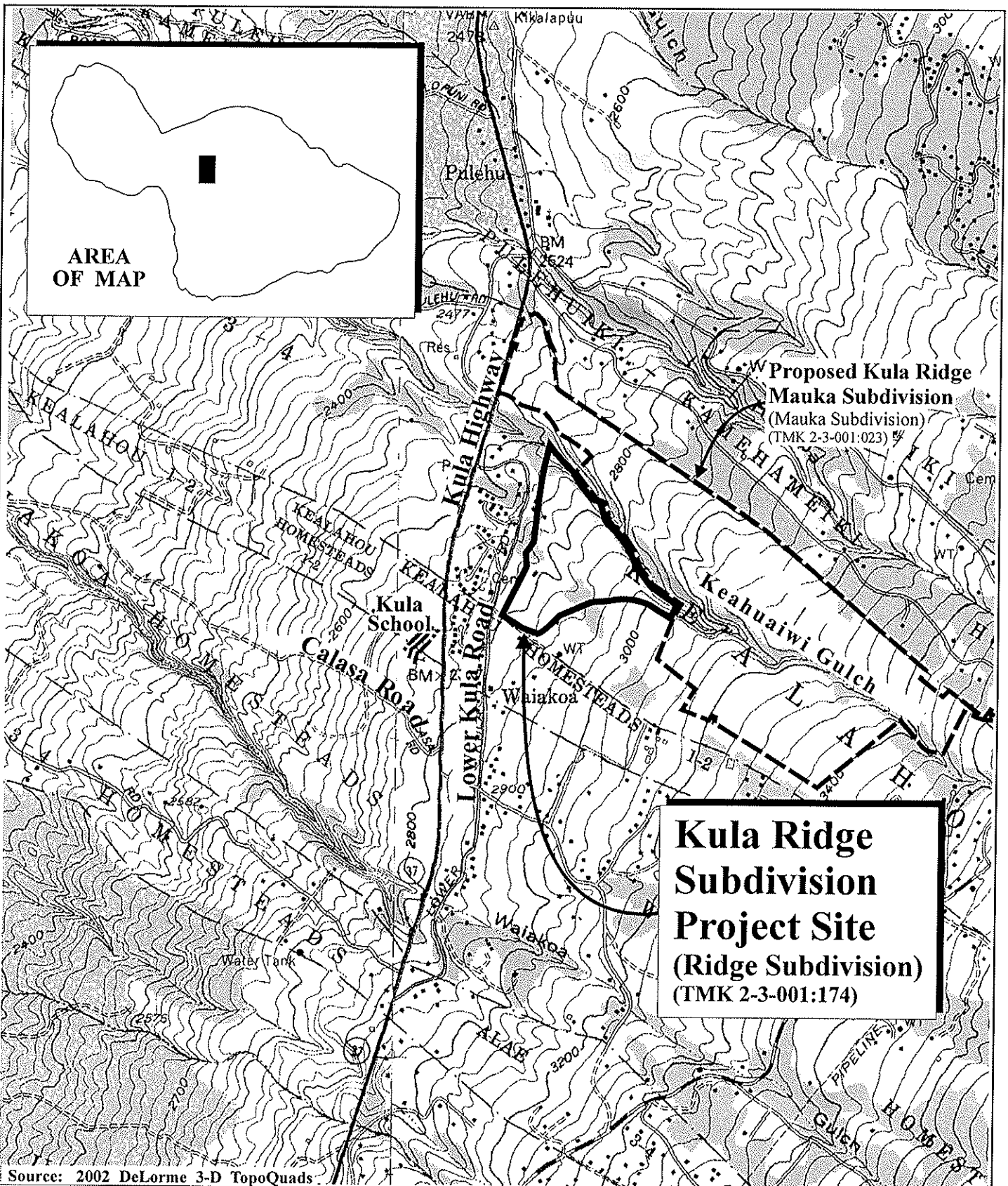
The land underlying the Ridge Project site lies within the State "Agricultural" district and is designated for "Rural" and "Single-Family" uses by the Makawao-Pukalani-Kula Community Plan. County zoning for the property is "Interim".

Kula Ridge, LLC is the fee owner of the Ridge Project lands.

B. PROPOSED ACTION

The Ridge Project involves the development of approximately 116 improved lots with approximately 70 lots set aside for workforce housing or affordable house-lot packages.

The Ridge Project will provide 59 workforce housing units for the project's proposed 116 lots, meeting the County's affordability criteria for Section 201H-38, Hawai'i Revised



Source: 2002 DeLorme 3-D TopoQuads

Figure 1 Proposed Kula Ridge Residential Workforce Housing Subdivision Regional Location Map

NOT TO SCALE



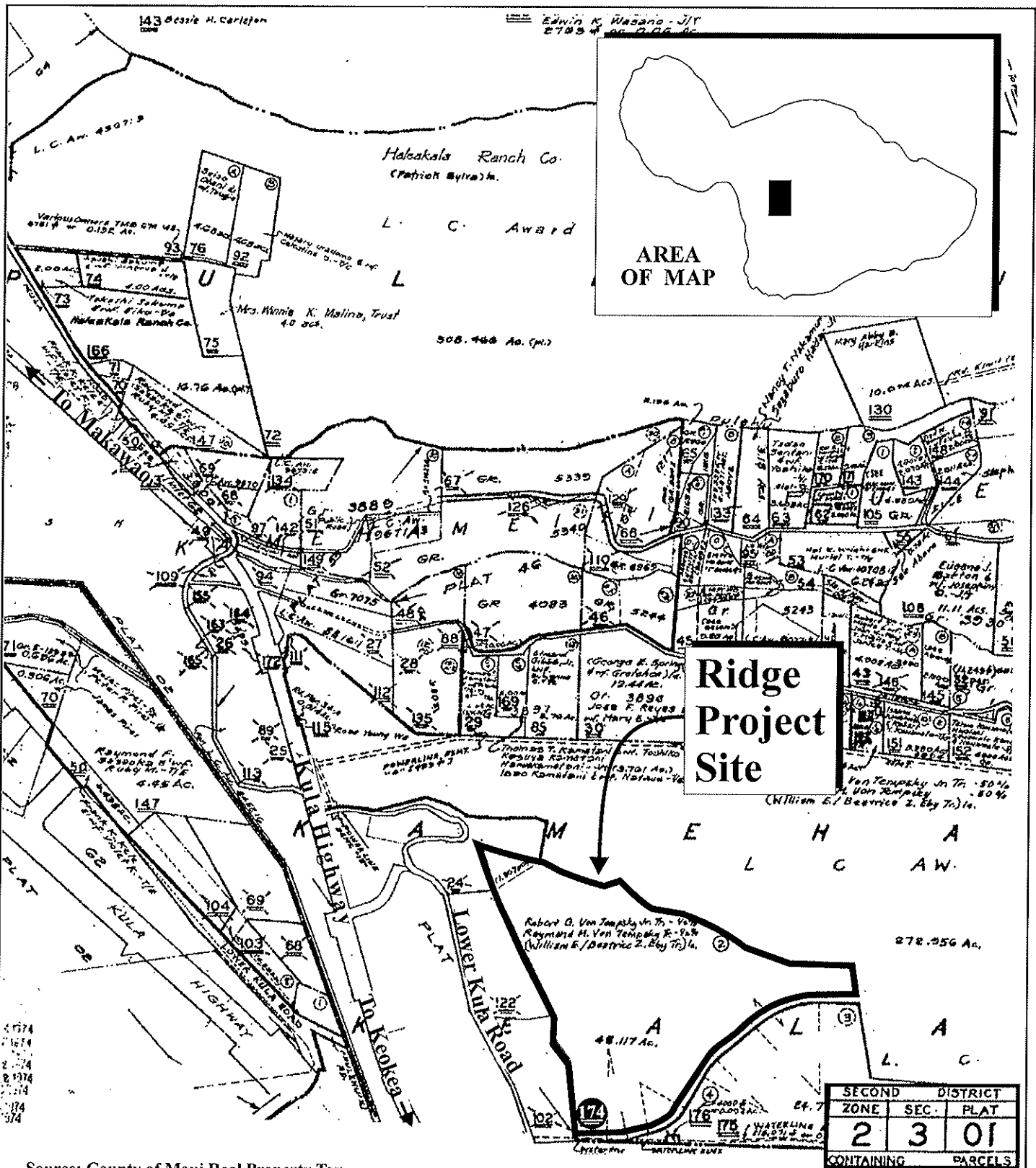


Figure 2 Proposed Kula Ridge Residential Workforce Housing Subdivision
 Tax Map for Proposed Subdivision

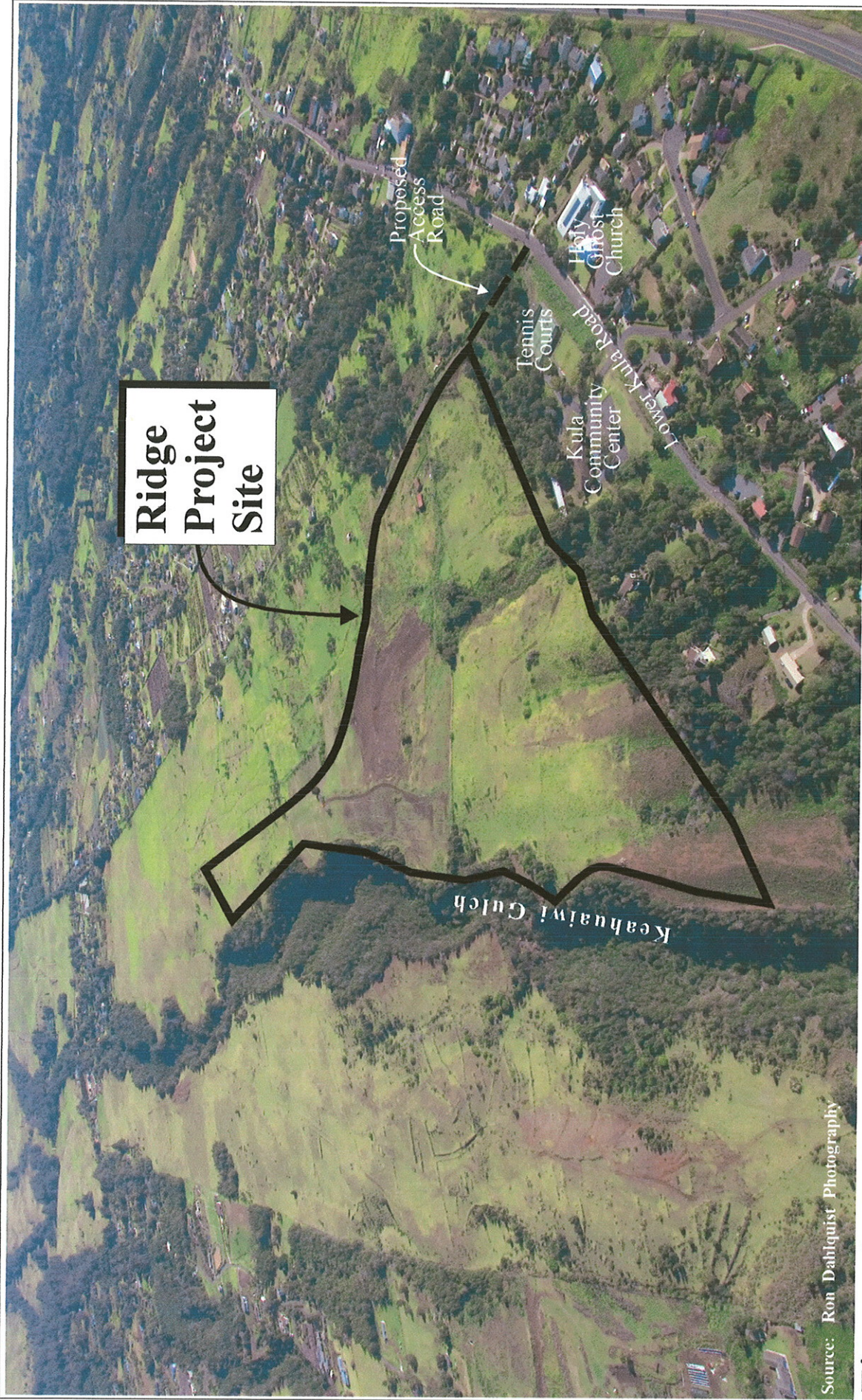
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Prepared for: Kula Ridge, LLC

MUNEKIYO & HIRAGA, INC.

Nishikawa/KulaAIRTaxMap



Source: Ron Dahlquist Photography

Figure 3

**Proposed Kula Ridge Residential
Workforce Housing Subdivision
Aerial Photograph of Project Area**

NOT TO SCALE



Prepared for: Kula Ridge, LLC



Statutes (HRS) projects. The remaining 11 workforce housing units will meet the requirements of the County of Maui Residential Workforce Housing Policy (RWHP) for the adjacent Mauka Subdivision. The affordable house-lot units are proposed to be integrated with market priced lots. See **Figure 4**.

1. Workforce Housing Overview

A summary of the project development for both the Ridge Project and Mauka Subdivision projects are provided in **Table 1**.

Table 1

PROJECT DEVELOPMENT SUMMARY				
Project Name	Total Number of Lots in Development	Affordable Housing Requirement	Number of Affordable Units Provided	Number of Market Units
Ridge Project	116	58	59*	46
Mauka Subdivision	21**	11	11***	21**
TOTAL	137	69	70	67
* Meets the affordability criteria for §201-H-38, HRS projects. ** Project development on TMK (2)2-3-001:023. *** Affordable Housing Units to be provided on TMK (2)2-3-001:174.				

The workforce housing lot sizes are proposed to be a minimum of approximately 4,600 square feet (s.f.) with a zero-lot line concept proposed for the homes.

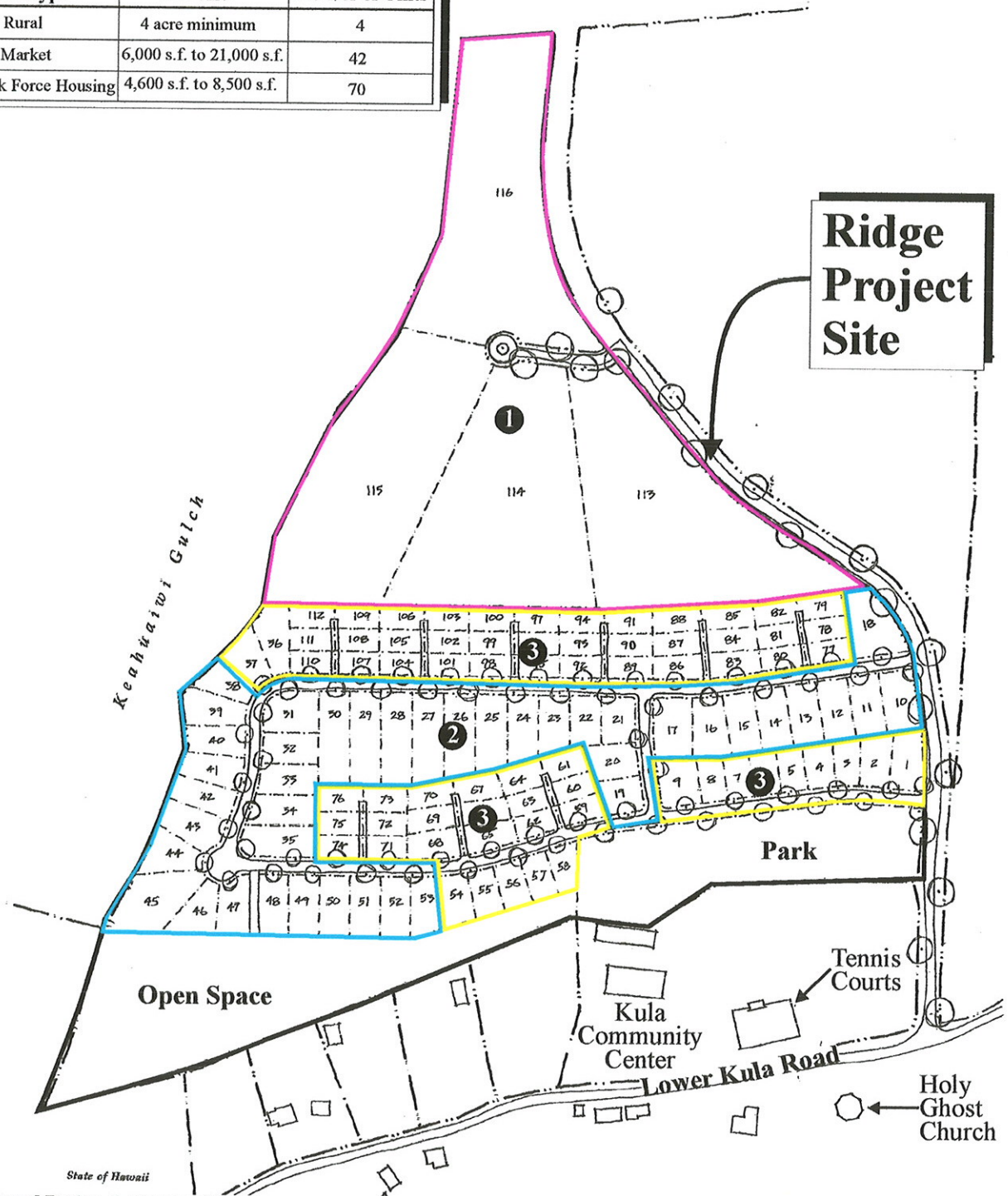
Sales prices, based on 2007 income guidelines, are projected to range from \$234,685.00 to \$490,900.00 for the house-lot packages. House models for the workforce housing units will provide approximately 1,200 s.f. of living area and are depicted in **Figure 5, Figure 6, Figure 7, Figure 8, Figure 9, Figure 10, Figure 11, Figure 12, and Figure 13**. Preliminary construction specifications for these units are included in this document as **Appendix “A”**.

a. Ridge Project’s Affordable Housing Component

The Ridge Project will provide 59 workforce housing units and is proposed as a 51 percent affordable housing project.

KEY

LAND USE SUMMARY			
	Lot Type	Lot Size	Number of Units
①	Rural	4 acre minimum	4
②	Market	6,000 s.f. to 21,000 s.f.	42
③	Work Force Housing	4,600 s.f. to 8,500 s.f.	70



Source: Architectural Design & Construction, Inc.

Figure 4 Proposed Kula Ridge Residential Workforce Housing Subdivision Conceptual Site Plan

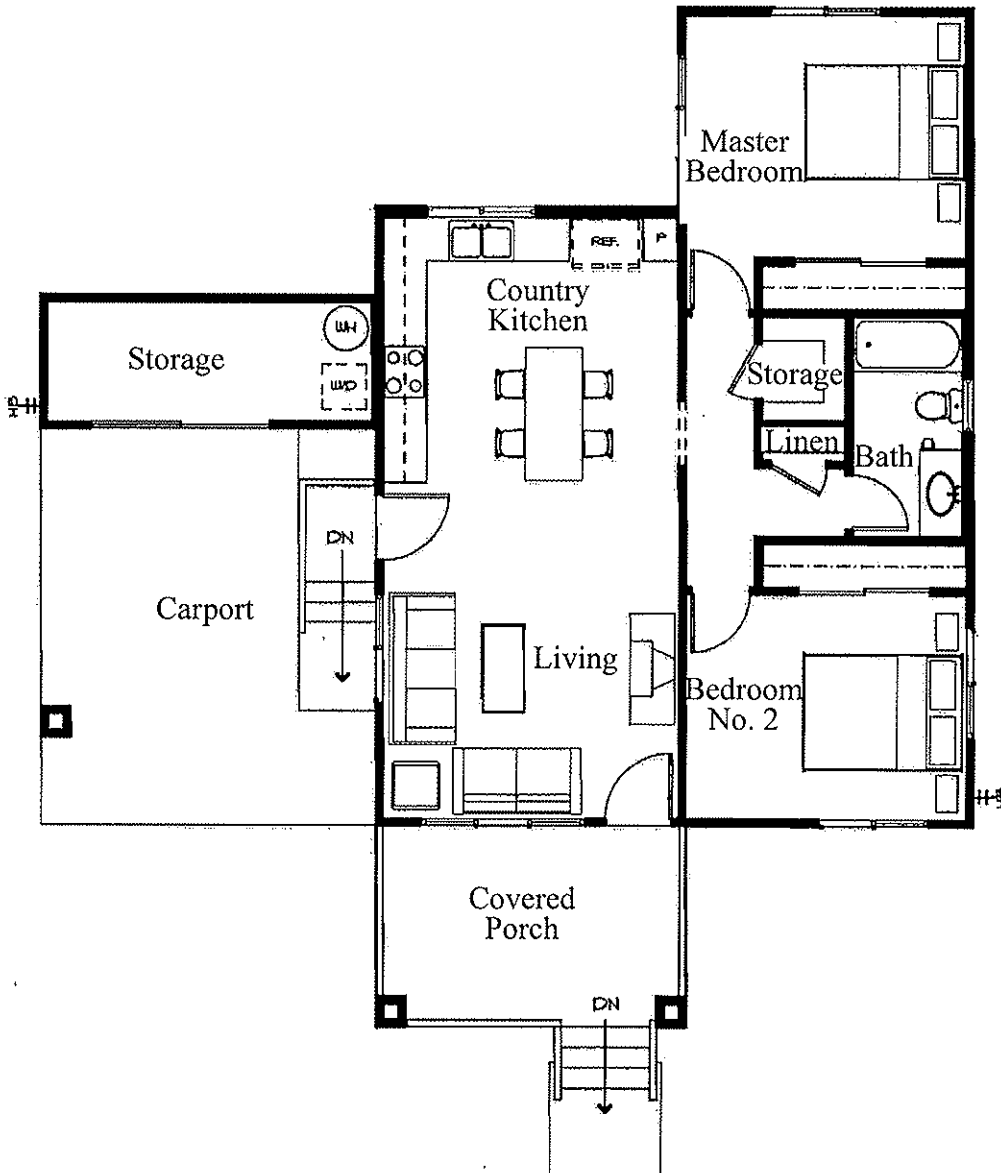
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Prepared for: Kula Ridge, LLC

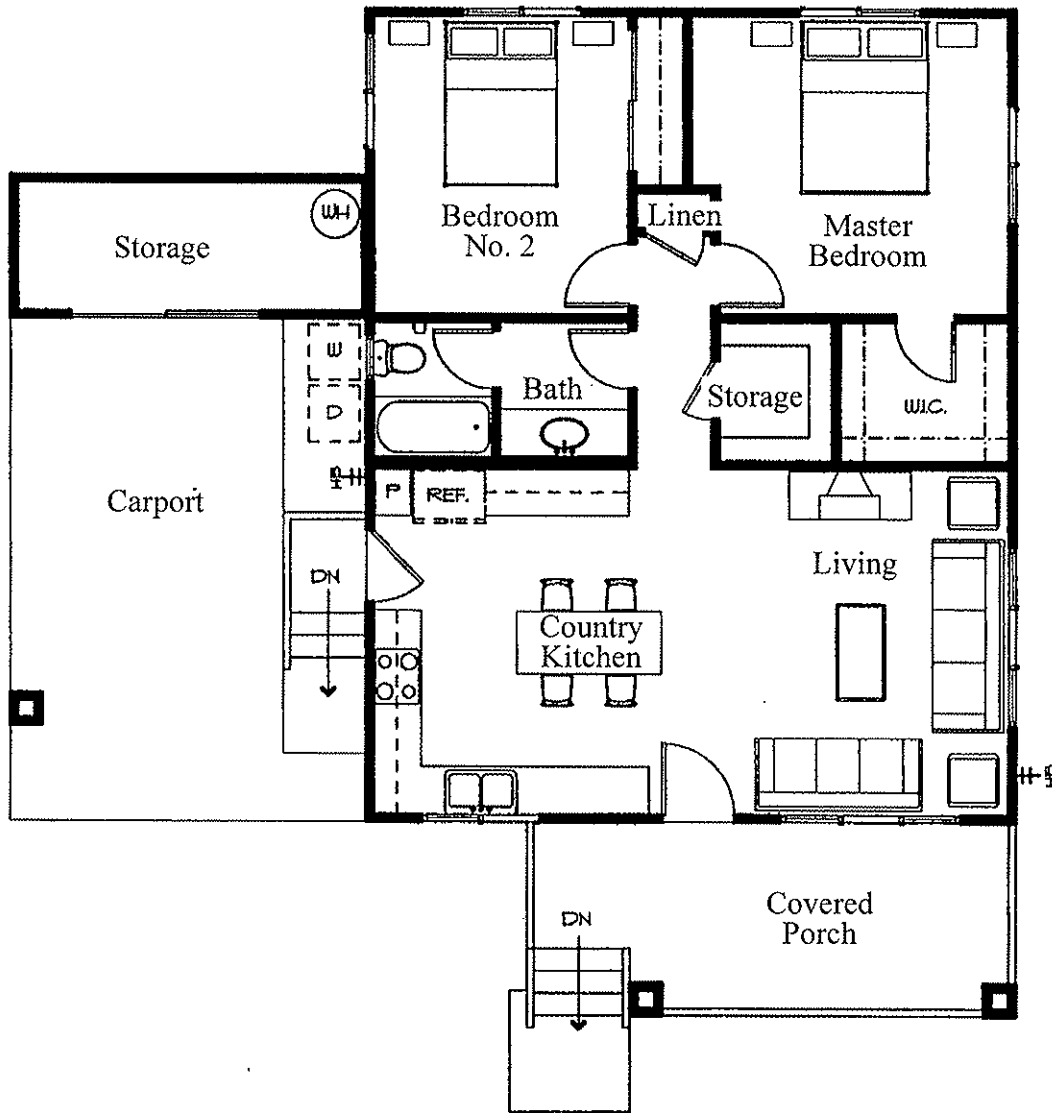
MUNEKIYO & HIRAGA, INC.

Nishikawa/Kula AH/ConceptSite



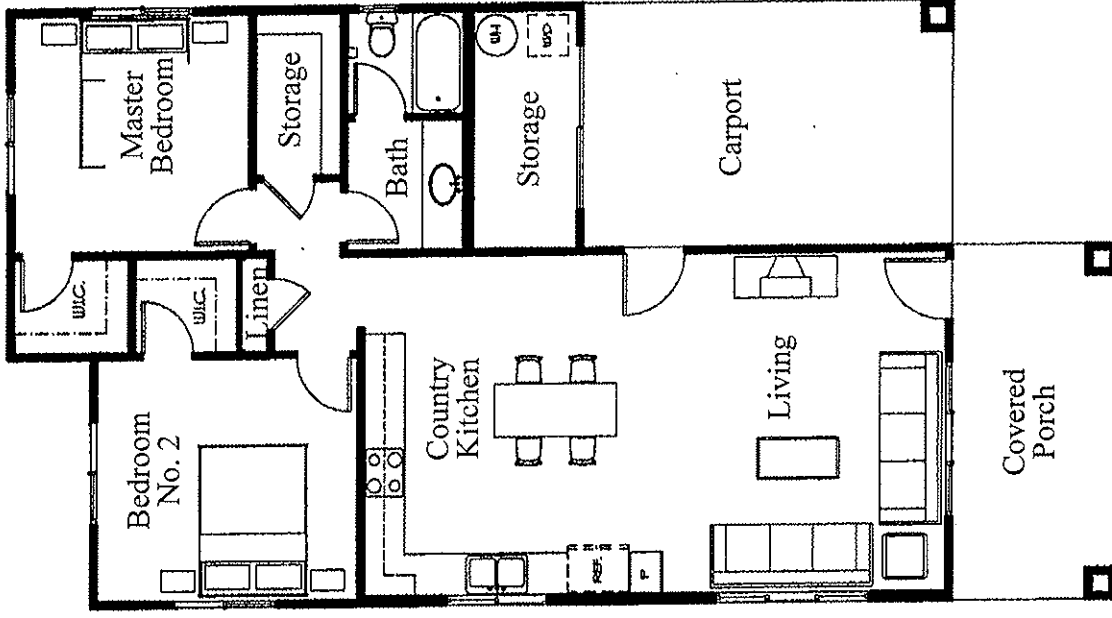
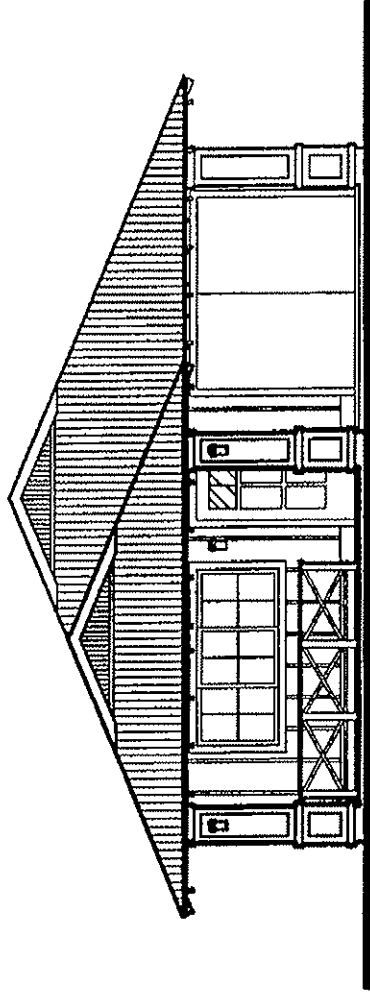
Source: Architectural Design & Construction, Inc.

Figure 5 Proposed Kula Ridge Residential Workforce Housing Subdivision NOT TO SCALE
House Model A



Source: Architectural Design & Construction, Inc.

Figure 6 Proposed Kula Ridge Residential Workforce Housing Subdivision NOT TO SCALE
House Model B



Source: Architectural Design & Construction, Inc.

Figure 7 Proposed Kula Ridge Residential Workforce Housing Subdivision House Model C

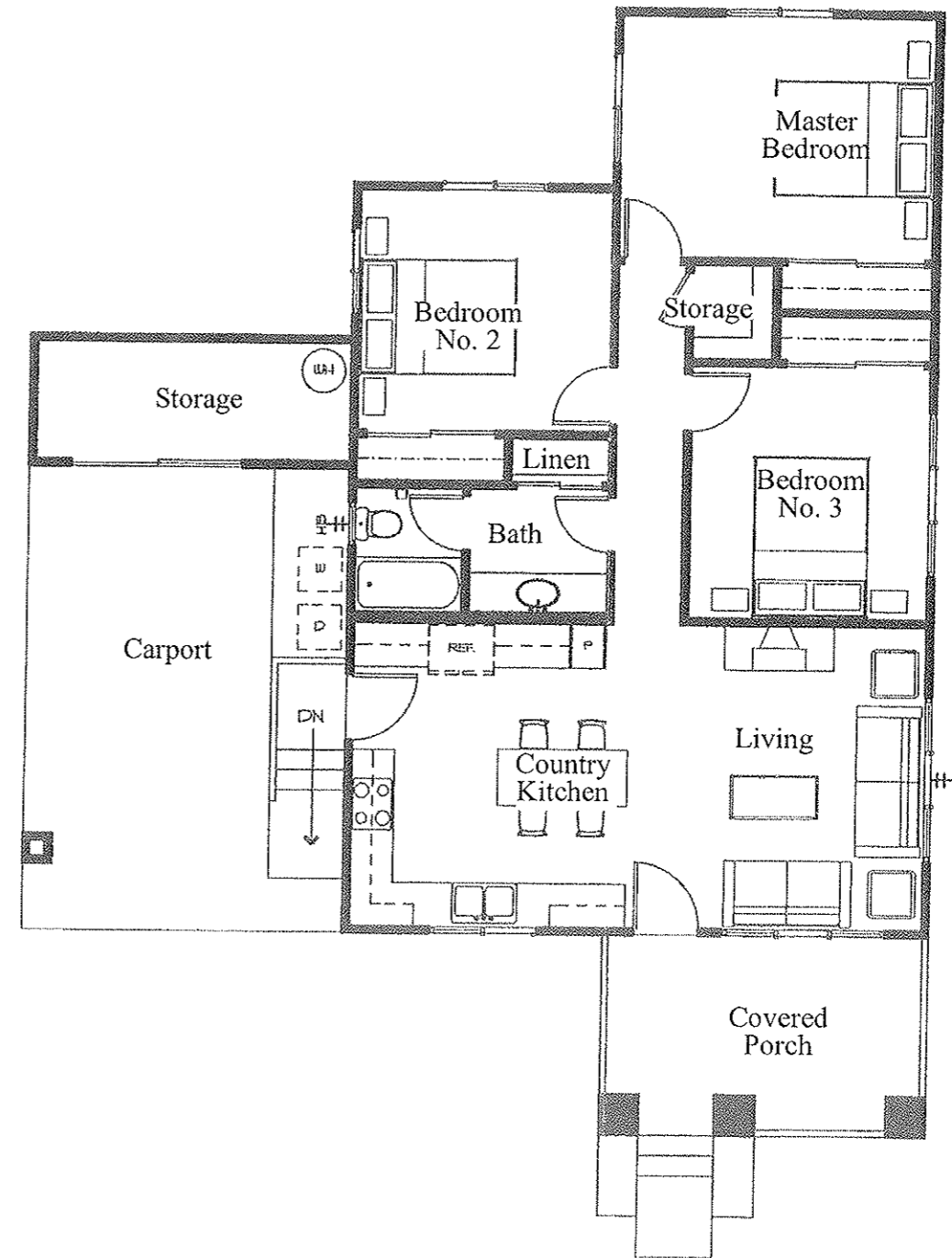
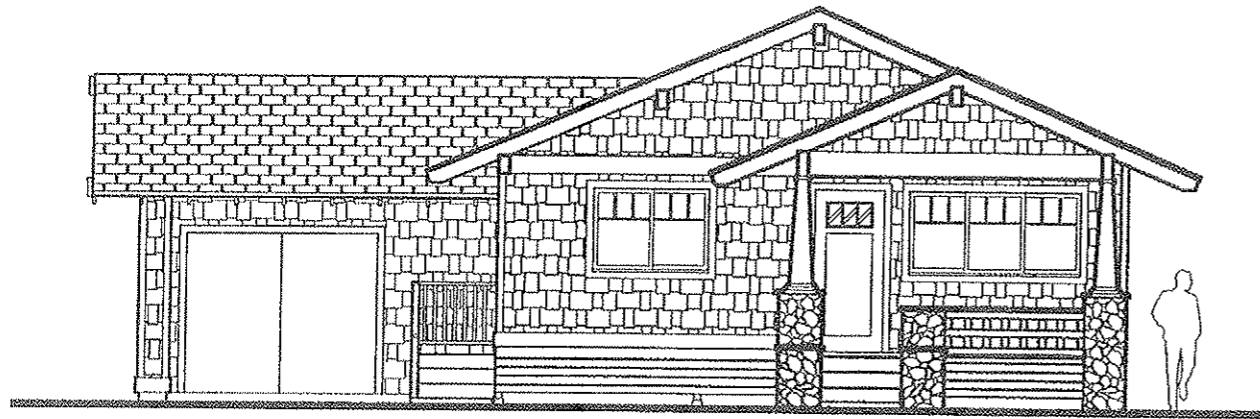
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Prepared for: Kula Ridge, LLC



MUNEKIYO & HIRAGA, INC.

Nishikawa/KulaARPlanC



Source: Architectural Design & Construction, Inc.

Figure 8

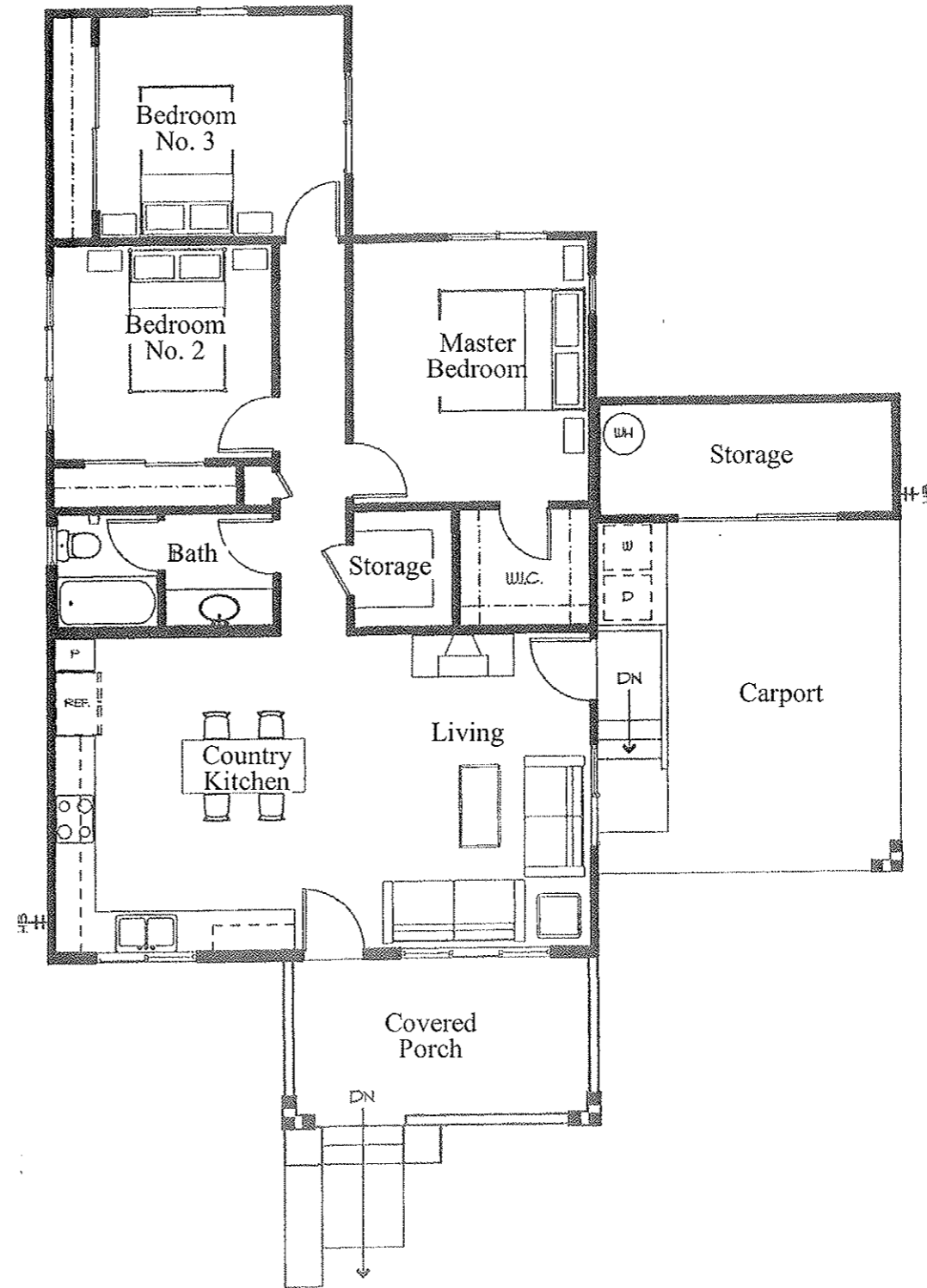
Proposed Kula Ridge Residential
Workforce Housing Subdivision
House Model D

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Prepared for: Kula Ridge, LLC

MUNEKIYO & HIRAGA, INC.

Nishikawa/KulaA/HouseD

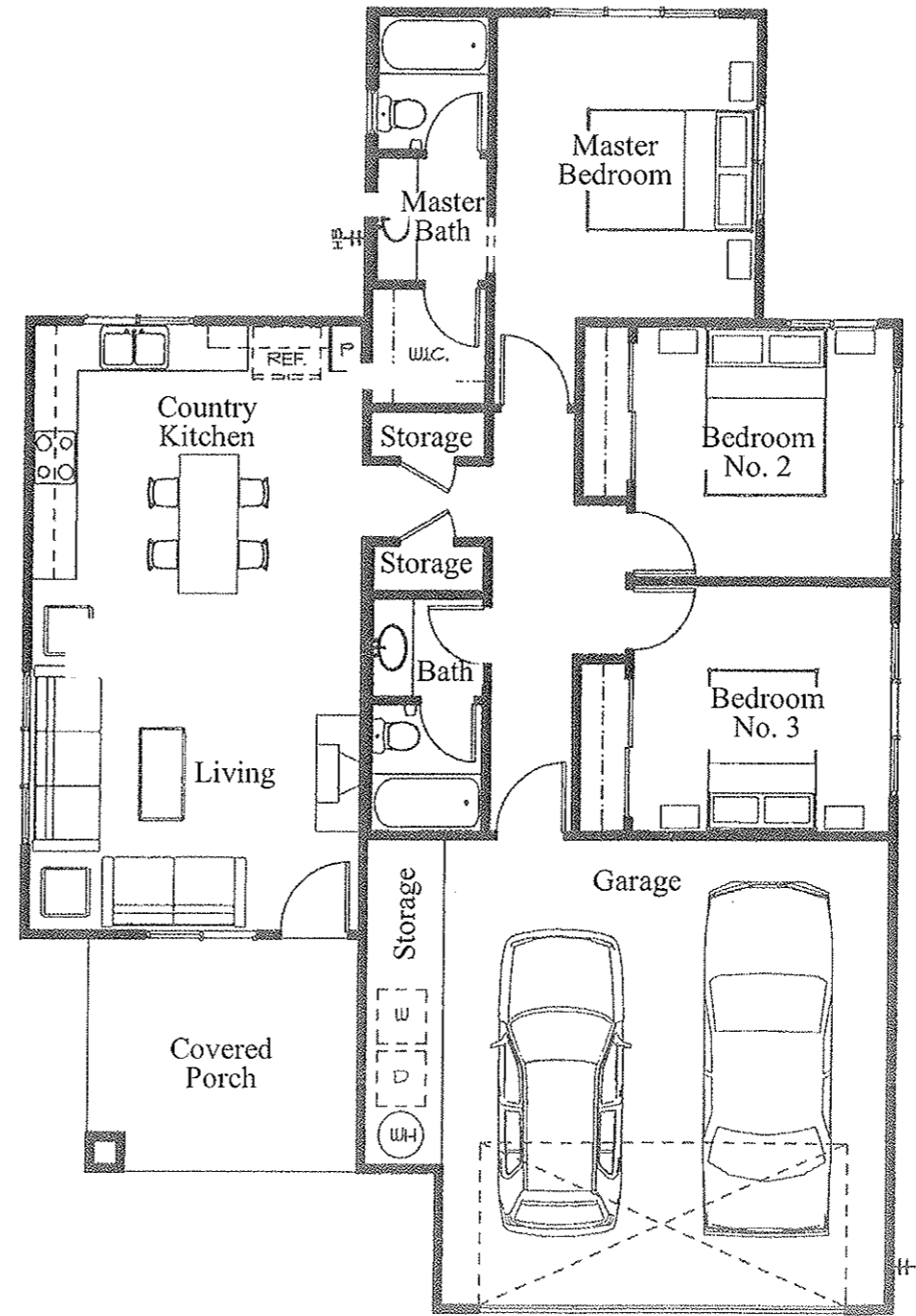
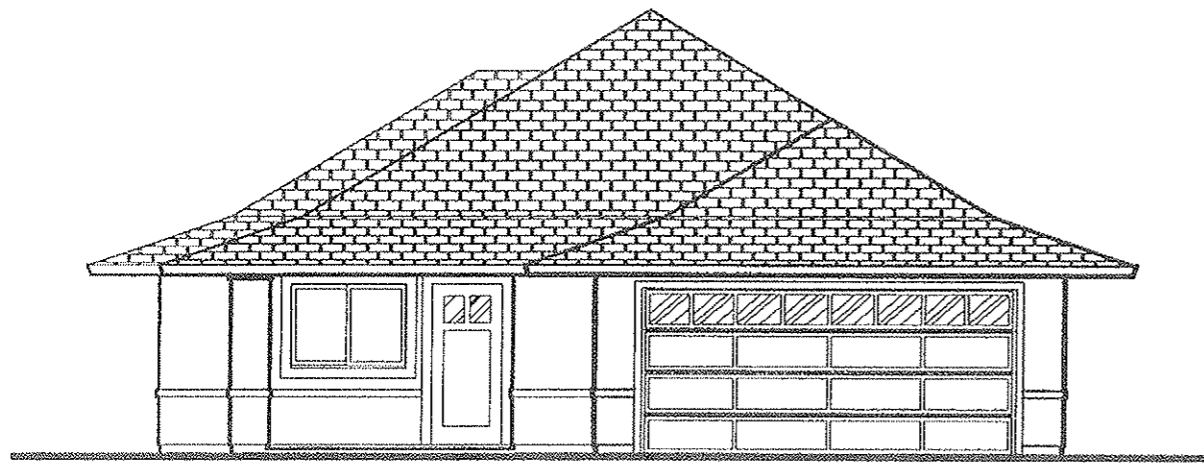


Source: Architectural Design & Construction, Inc.

Figure 9

Proposed Kula Ridge Residential
Workforce Housing Subdivision
House Model E

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Source: Architectural Design & Construction, Inc.

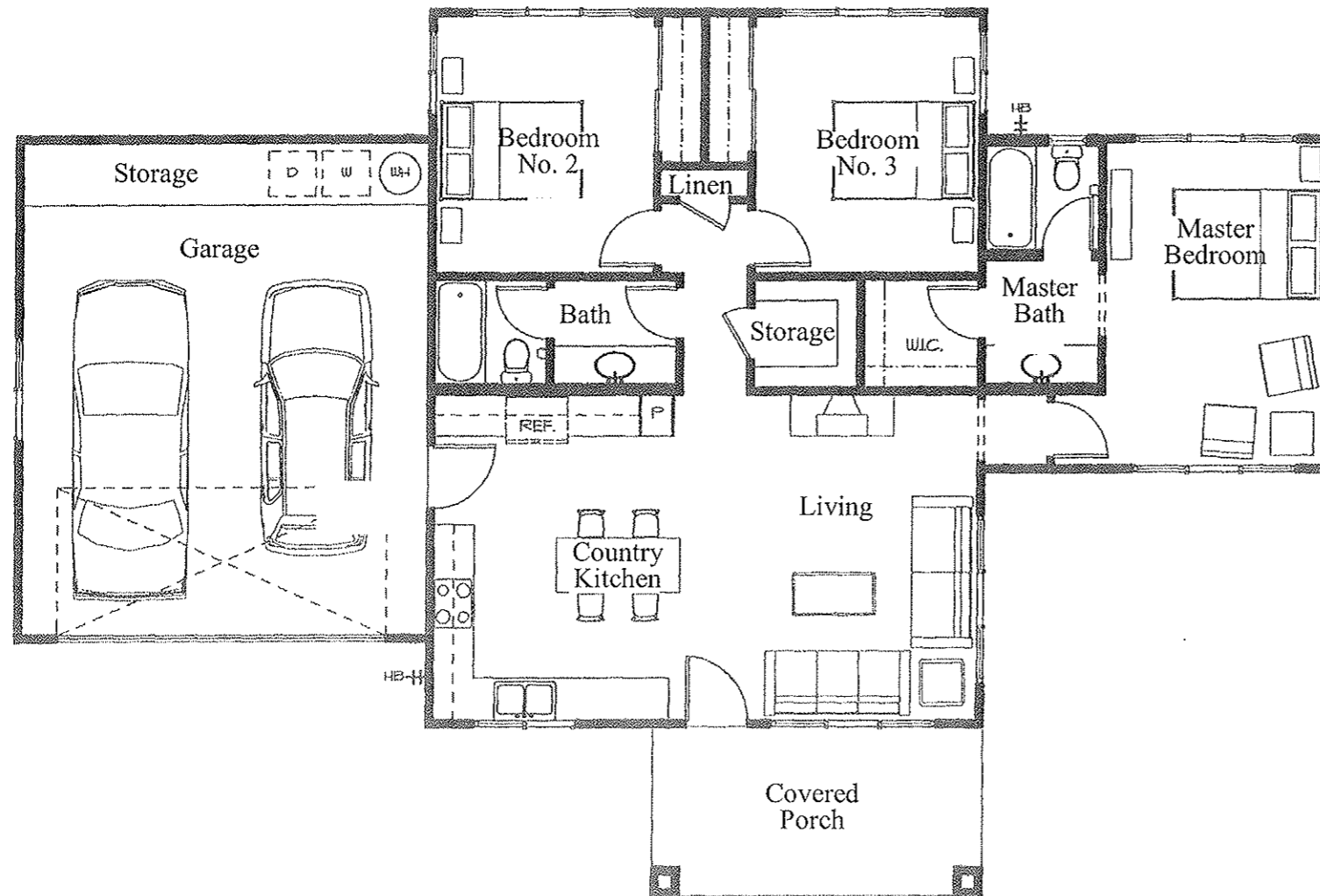
Figure 10

Proposed Kula Ridge Residential
Workforce Housing Subdivision
House Model F

NOT TO SCALE

Prepared for: Kula Ridge, LLC

MUNEKIYO & HIRAGA, INC.

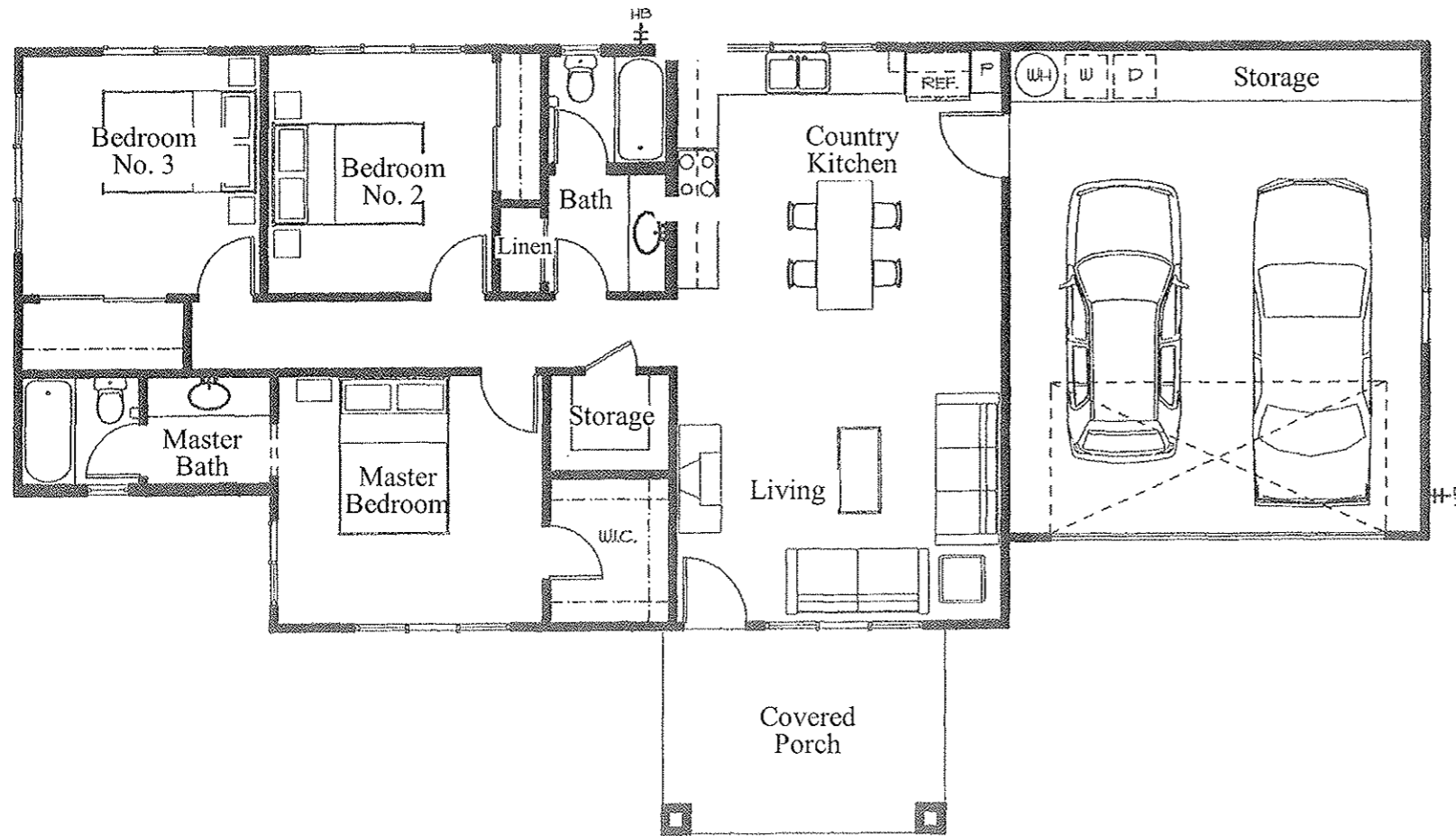
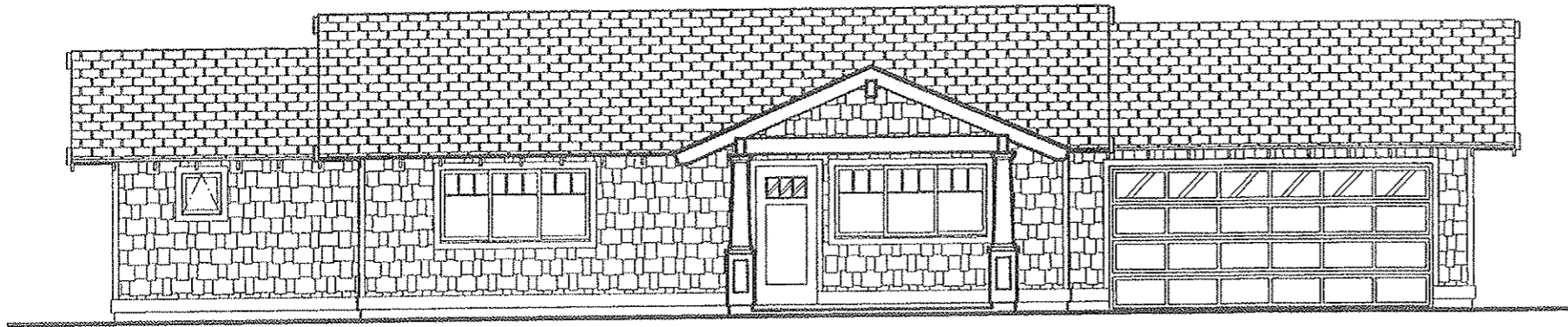


Source: Architectural Design & Construction, Inc.

Figure 11

Proposed Kula Ridge Residential
Workforce Housing Subdivision
House Model G

NOT TO SCALE



Source: Architectural Design & Construction, Inc.

Figure 12

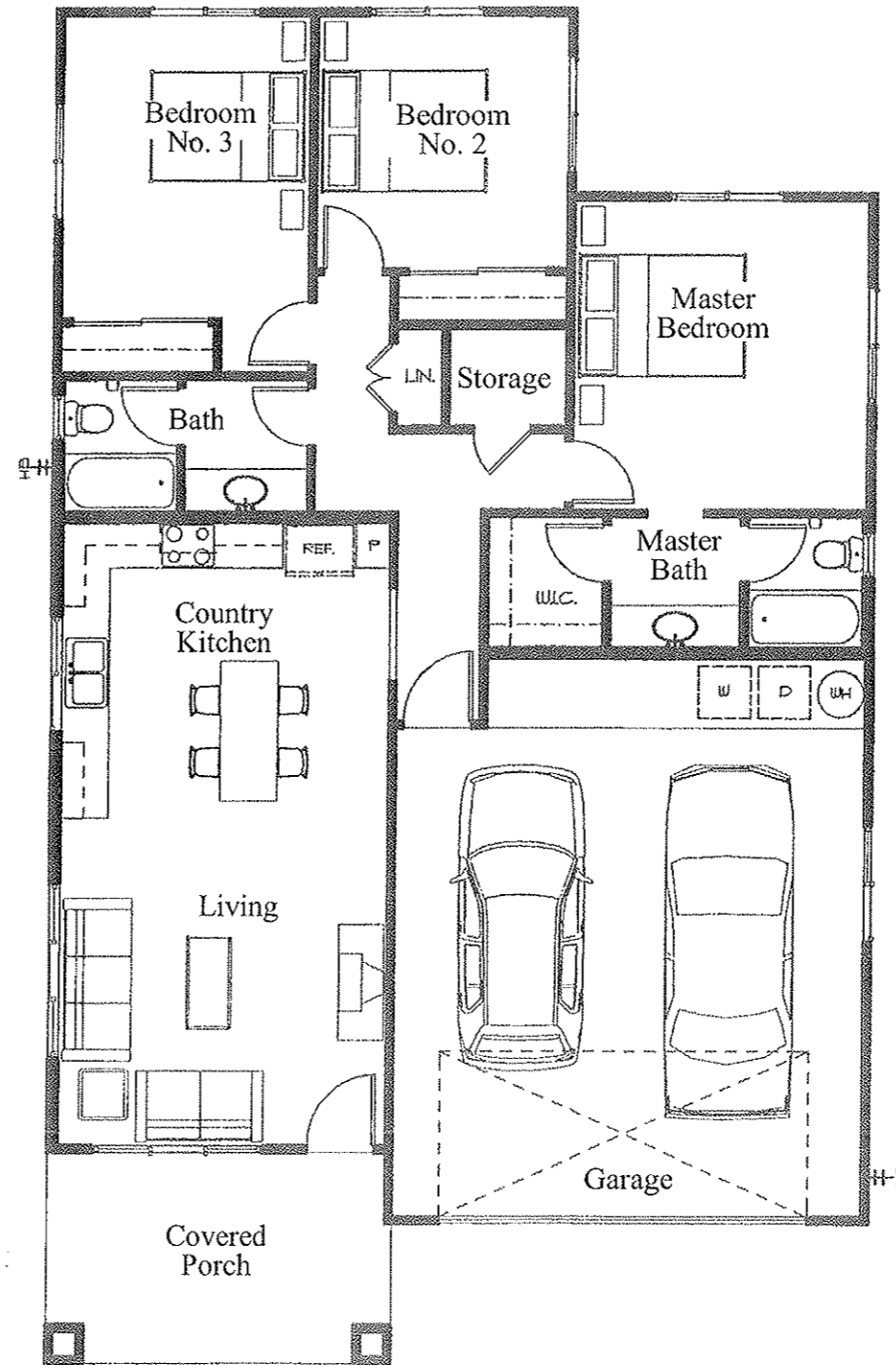
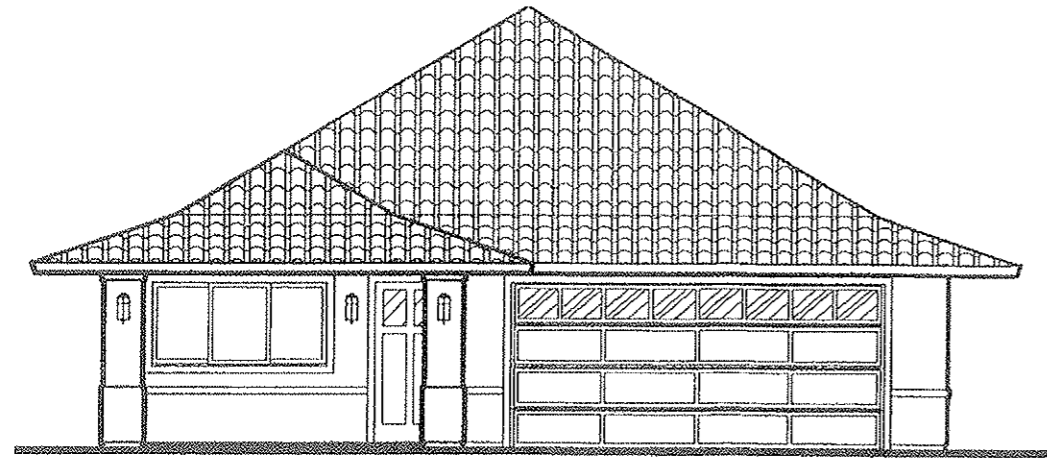
Proposed Kula Ridge Residential
Workforce Housing Subdivision
House Model H

NOT TO SCALE

Prepared for: Kula Ridge, LLC

MUNEKIYO & HIRAGA, INC.

Nishikawa/KulaA/HouseH



Source: Architectural Design & Construction, Inc.

Figure 13

Proposed Kula Ridge Residential
Workforce Housing Subdivision
House Model J

NOT TO SCALE

Prepared for: Kula Ridge, LLC

MUNEKIYO & HIRAGA, INC.

Nishikawa/KulaA11/HouseJ

The Ridge Project will be initiated upon receipt of State Land Use Commission approvals, the Section 201H-38, HRS and related construction plan approvals, with completion of the project anticipated within 12 months of the start of construction.

b. **Mauka Subdivision Workforce Housing Component**

The Mauka Subdivision's 11 workforce units will meet the County's RWHP requirements for that project's proposed 21 agricultural lots. Kula Ridge Mauka LLC has entered into an agreement with Kula Ridge LLC to provide 11 workforce housing units on the Ridge Project site for this purpose.

2. **Market Housing Component for the Ridge Project**

The remaining lots within the Ridge Project consist of approximately 42 residential lots to be sold at market price on the order of 6,000 s.f. to 21,000 s.f. These lots have an estimated sales price range of \$350,000.00 to \$450,000.00 based on current market conditions and will be sold as lots only with restrictions on further subdividing.

As shown in **Figure 4**, the project also includes four (4) large lots accessed via a separate cul-de-sac (Lot Nos. 113, 114, 115 and 116). These lots have an estimated average sale price of \$1.2 million. Development on these lots will be restricted to one (1) main dwelling unit and one (1) accessory dwelling unit. These restrictions have been developed in coordination with the County Department of Housing and Human Concerns.

3. **Onsite Work and Infrastructure Improvements**

A 3-acre park site is proposed to be dedicated to the County of Maui. The location of the park provides for a park area adjacent to the Kula Community Center.

Acreage distributions for the Ridge Project are summarized in **Table 2**.

Table 2

LAND USE ALLOCATIONS	
Land Use	Approximate Acreage
Affordable Housing	9.25
Market Priced Housing	27.37
Parks	3.0
Right-of-way/Common Areas	3.5
Open Space	5.0
Total	48.12

Proposed improvements include site grading and utilities installation covering onsite water and drainage systems. A variance has been granted by the Department of Health to utilize individual wastewater systems. Electrical, telephone and cable utility systems will be placed underground.

4. Offsite Improvements

a. Roadway Improvements

Access to the proposed subdivision will be provided via a new access road off of Lower Kula Road. Refer to **Figure 3**. Improvements to the westbound approach of Lower Kula Road at the northern intersection with Kula Highway will also be provided.

b. Offsite Water Improvements

It is also noted that Kula Ridge LLC, the applicant for the Ridge Project also proposes to install offsite waterline improvements at the adjacent Mauka Subdivision site (TMK (2) 2-3-001:023) to service the proposed residential subdivision. See **Figure 14**.

Kula Ridge LLC is pursuing the development of an offsite well at an elevation of 2,900 feet on the adjacent Mauka Subdivision site. The owner of the Mauka Subdivision property, Kula Ridge Mauka LLC, will enter into a partnership with Kula Ridge LLC for the development of the water source.

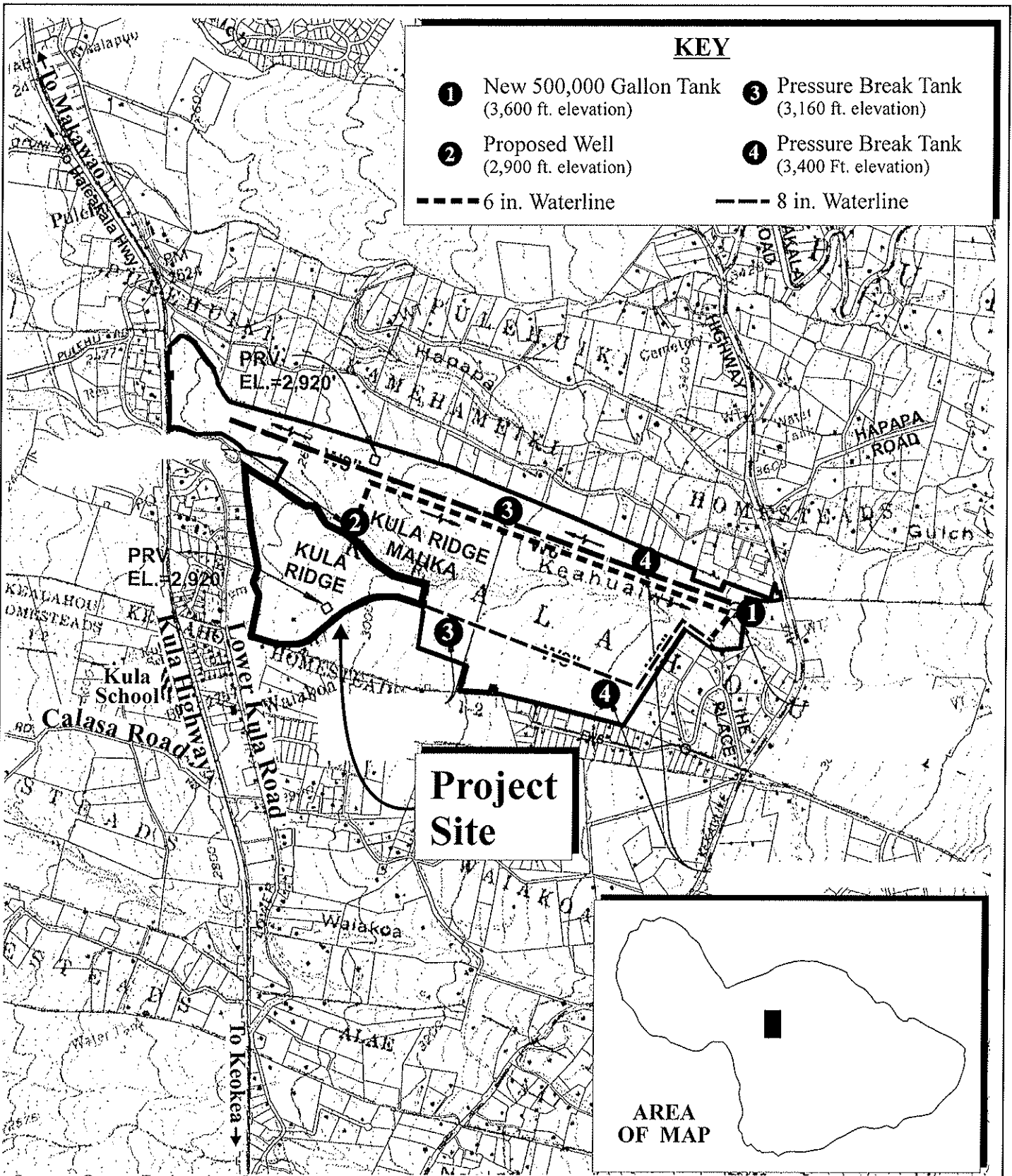


Figure 14 Proposed Kula Ridge Residential Workforce Housing Subdivision Proposed Water System

NOT TO SCALE



Water will be pumped from the well site to a new 500,000 gallon storage tank located near the mauka boundary of the Mauka Project site at an elevation of approximately 3,600 feet.

The 500,000 gallon storage tank will have two (2) distribution lines, one on the north side of Keahuaiwi Gulch, and one along the south. Water from the tank will be transported to the proposed Ridge Project by a new 8-inch transmission line. The water distribution lines will have pressure break tanks, to control the water service pressures, servicing both the Ridge Project and the Mauka Subdivision.

The waterline crossing of Keahuaiwi Gulch will occur in a single location. An 8-inch waterline will be installed approximately 1,500 feet makai of Kekaulike Highway in Keahuaiwi Gulch. The waterline will extend approximately 700 feet in a southwesterly direction to provide service to the Ridge Project.

5. Estimate of Project Costs

The estimated cost for the Ridge Project improvements, including water source development (excluding house construction on the affordable lots) is approximately \$9 million.

C. PROJECT NEED/REASONS JUSTIFYING THE REQUEST

The Kula area is surrounded by lands used historically for agricultural production. Agricultural operations have been significantly reduced in recent years, and the project site has since been used for pasture land. The Makawao-Pukalani-Kula Community Plan shows “Rural”, “Agriculture”, “Park”, and “Single-Family” residential use designations surrounding the proposed project site.

With continuing stability in local economic conditions, housing demand has exhibited an upward trend. Sales information for single-family subdivisions in Kula/Ulupalakua/Kanaio indicate that demand for single-family homes are strong, with continuing strength in demand anticipated. Recent median sales price information for the Kula/Ulupalakua/Kanaio area shows that single-family units sold for approximately \$764,000.00 in December of 2007 (Realtor Association of Maui, December 2007).

D. AFFORDABLE HOUSING PROGRAM

In accordance with the affordable housing conditions adopted by the Workforce Housing Ordinance No. 3418, the range in workforce housing for all projects on Maui is 80 percent to 160 percent of median family income. The present criteria requires that Section 201H-38, HRS projects primarily or exclusively include housing units made affordable to households with incomes at or below 140 percent or less of the County's median income.

1. Ridge Project Affordable Housing Program

The Ridge Project will provide workforce housing in keeping with affordability guidelines for Section 201H-38, HRS projects. In particular, the project will offer a minimum of 51 percent of the total number of lots or 59 workforce housing units to families having an annual income of not more than 140 percent of the Maui County median income. Specifically, thirty (30) Ridge Project units will be provided for above moderate income households. Twenty-nine (29) Ridge Project units will be provided for moderate income and below moderate income households.

2. Mauka Subdivision Affordable Housing Program

The Mauka Subdivision is required to provide the following number of workforce housing units within each of the income group categories, as provided for by the RWHP, 30 percent or three (3) workforce housing units for below moderate income households; 30 percent or four (4) workforce housing units for moderate income households; 20 percent or two (2) workforce housing units for above moderate income households; and 20 percent or two (2) workforce housing units for gap income households. A workforce housing distribution for the Mauka Subdivision is summarized in **Table 3**.

Table 3

WORKFORCE HOUSING DISTRIBUTION FOR MAUKA SUBDIVISION				
Ownership Income Group	Product Type	Percentage of Units Allocated to Income Group	Number of Affordable Units	*Sales Price Range
Below Moderate Income (80% to 100% of County Median Income)	Two Bedroom	30%	3	\$234,685.00 to \$260,790.00
Moderate Income (101% to 120% of County Median Income)	Two to Three Bedroom	30%	4	\$286,875.00 to \$368,200.00
Above Moderate Income (121% to 140% of County Median Income)	Three Bedroom	20%	2	\$398,900.00 to \$429,500.00
Gap Income (141% to 160% of County Median Income)	Three Bedroom	20%	2	\$460,200.00 to \$490,900.00
		TOTAL	11 Mauka Subdivision Units	

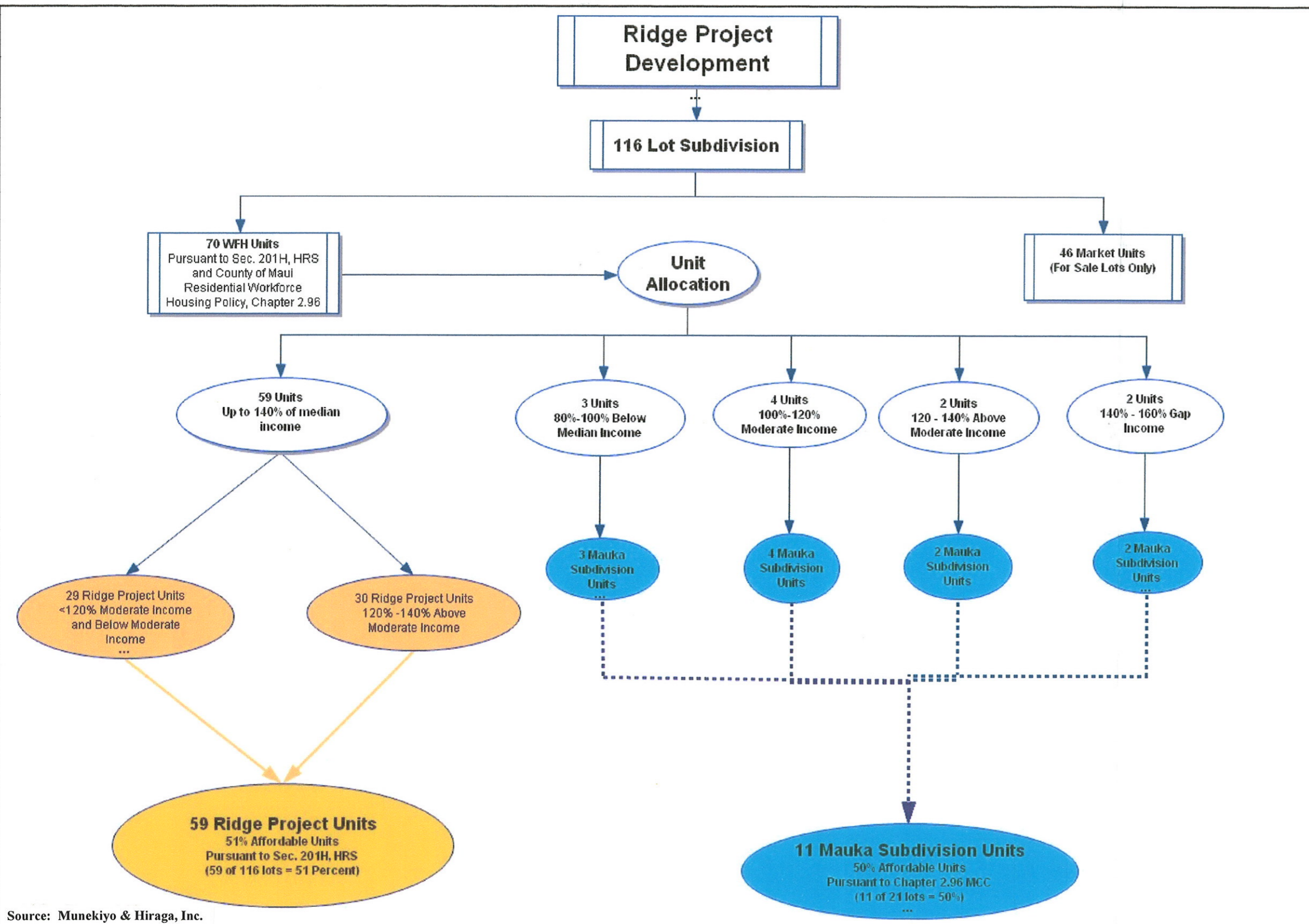
*Based on 2007 U.S. Department of Housing and Urban Development Income Guidelines at a prevailing interest rate of 6.0 percent.

The proposed sales prices for the house-lot packages have been preliminarily set at \$234,685.00 to \$490,000.00 based on 2007 income guidelines. At interest rates prevailing at the time of the filing of the Section 201H-38, HRS application, and at the preliminary prices noted herein, the house-lot packages would be affordable to families falling between the 80 to 160 percent of median income categories.

Kula Ridge, LLC will enter into an affordable housing agreement with the County of Maui to establish the specific terms and conditions for affordable sales price distribution, applicant selection process, and marketing requirements.

A summary of the proposed affordable housing program is graphically depicted in **Figure 15**.

Preliminary construction specifications for the affordable units are included in this document as **Appendix "A"**. The Ridge Project will be initiated upon receipt of State Land Use Commission approvals, the Section 201H-38, Hawai'i Revised Statutes (HRS) and related construction plan approvals, with completion of the project anticipated within 12 months of the start of construction.



Source: Munekiyo & Hiraga, Inc.

Figure 15

Proposed Kula Ridge Residential
Workforce Housing Subdivision
Affordable Housing Program Summary

NOT TO SCALE



E. ENTITLEMENTS REQUIRED

The Ridge Project has been developed to meet the criteria for a Section 201H-38, HRS project by County of Maui's, Department of Housing and Human Concerns. Section 201H-38, HRS promotes the delivery of affordable housing by allowing the exemption of 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, a Section 201H-38, HRS application will be filed with the Maui County Council to seek exemptions from the Community Plan Amendment and Change in Zoning processes, as well as other County requirements to support the timely implementation of the project, without compromising public health, safety or welfare considerations. Proposed exemptions are presented in **Appendix "B"**.

The current State Land Use designation for the plan area is "Agricultural". Concurrent with the County's 201H-38, HRS processing, a petition for a State Land Use Commission (SLUC) District Boundary Amendment (DBA) from the "Agricultural" to "Rural" and "Urban" Districts will be processed. The SLUC petition will encompass the entire 48-acre project area and follow the provisions of Section 15-15-97 of the Land Use Commission Rules, pertaining to Section 201H-38, HRS processing.

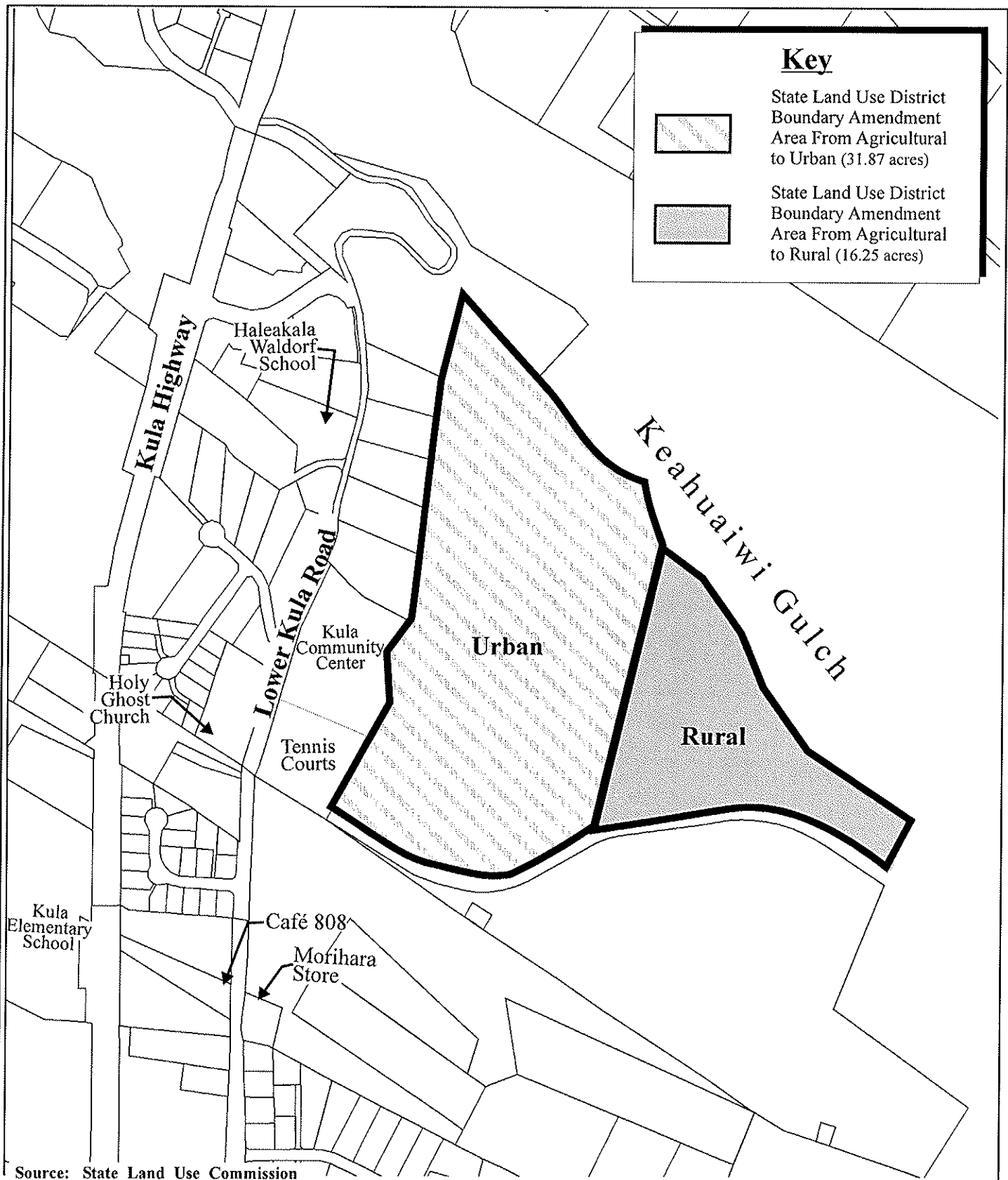
The District Boundary Amendment area from Agricultural to Urban is approximately 31.87 acres. The District Boundary Amendment area from Agricultural to Rural is approximately 16.25 acres. The proposed District Boundary Amendment areas are presented in **Figure 16**.

F. CHAPTER 343, HAWAII REVISED STATUTES (HRS REQUIREMENTS)

Roadway improvements are anticipated at the intersection of the subdivision access road and Lower Kula Road, a County roadway. Improvements at the intersection of Lower Kula Road and the State of Hawaii's Kula Highway may also be required. In addition, subdivision access road improvements will traverse along the south side of the Kula Community Center, a County-leased recreational facility. The scope of these actions are triggers for an environmental assessment pursuant to Chapter 343, HRS. Accordingly, this environmental

Key

- State Land Use District Boundary Amendment Area From Agricultural to Urban (31.87 acres)
- State Land Use District Boundary Amendment Area From Agricultural to Rural (16.25 acres)



Source: State Land Use Commission

Figure 16 Proposed Kula Ridge Residential Workforce Housing Subdivision Boundary Amendment Area

NOT TO SCALE



assessment is being prepared in accordance with Chapter 200 of Title 11, Department of Health Administrative Rules, Environmental Impact Statement Rules.

This document addresses the plan's technical characteristics, environmental impacts and alternatives, and advances findings and conclusions relative to the significance of the proposed single-family residential subdivision and the proposed offsite water system improvements. Based on discussions held with the County of Maui Planning Department, the County of Maui, Department of Housing and Human Concerns and the State Land Use Commission staff, it has been determined that the approving agency for the environmental assessment is the County of Maui, Department of Housing and Human Concerns.

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

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

This chapter has been prepared to describe the existing conditions and potential impacts and proposed mitigation measures at the Ridge Project site. A description of environmental impact considerations associated with the Mauka Subdivision's 11 workforce housing units and water system improvements on the Mauka Subdivision property is provided in Chapter III of this report.

A. PHYSICAL SETTING

1. Surrounding Land Uses

a. Existing Conditions

The Ridge Project site is located in the Waiakoa, Kula region on the southwestern slope of Haleakala. The Kula area is characterized by a combination of rural and agricultural uses. The produce and flowers grown in Kula are exported to domestic, mainland and international markets.

The project site lies in the vicinity of Keahuaiwi Gulch to the north and Waiakoa Gulch to the south. The property is surrounded by pastures to the south and east, and by the Kula Community Center and Holy Ghost Church on the west. Kula Elementary School is located southwest of the property, across Kula Highway. Haleakala Waldorf school is located west of the project site along Lower Kula Road. A restaurant, Café 808, and a grocery store, Morihara Store, are located southwest of the property along Lower Kula Road. Single- family homes are located to the south and west of the project site. Refer to **Figure 16**.

The Kula Fire Station and Kula Park are located southwest of the project area, along Kula Highway. The Kula Hospital lies south of the property, approximately 7.8 miles from the proposed project area.

b. **Impact and Mitigation**

The project site consists of pasture and abandoned farm land and is located in proximity to other single-family residential areas. Kealahou Subdivision is located in close proximity of the project site along with small farms and urban services. The proposed project will include single-family homes and small farms that are reflective of the region's rural character. The development of residential units at the project site is consistent with existing residential uses in the area. The use of the property for the proposed affordable housing subdivision would be functionally compatible with surrounding uses.

2. **Climate**

a. **Existing Conditions**

Kula's climate is typical of most mountainous areas in Hawai'i, with conditions varying by altitude and wind direction. Low land areas are generally typified by arid to semi-tropical climate, while higher elevations are characterized by more temperate conditions.

The Kula region is relatively dry, with rainfall of 20 to 30 inches per year. Generally, temperatures range from low 50 degrees Fahrenheit during the winter, to mid-80 degrees Fahrenheit during the summer. Maui is cooled by northeast tradewinds most of the year. These winds are constant during the spring and summer months. During the winter months, the island is often affected by Kona weather conditions, ranging from strong southerly winds with heavy rains, to calm, humid, or rainy weather.

b. **Impact and Mitigation**

The proposed project is not anticipated to affect climatic conditions in the area.

3. **Topography and Soil Characteristics**

a. **Existing Conditions**

Located on the southwestern flank of Haleakala, the project site slopes away from Lower Kula Road in a northwesterly direction at an average grade of

approximately 14.8 percent. Elevation at the site ranges from 2,780 to 3,085 feet above mean sea level (amsl).












Underlying the site for the proposed subdivision and surrounding lands is soil belonging to the Pu`u Pa-Kula-Pane association. See **Figure 17**. The Pu`u Pa-Kula-Pane soil association is found on the intermediate and high uplands, and consists of deep, gently sloping to steep, well-drained soils that have a medium or moderately textured subsoil. This association is used for orchards, pastures, truck crops, and wildlife habitat. The soil consists of Kula Cobbly Loam with 12 to 20 percent slopes (KxaD). See **Figure 18**. The surface layer of the soil is dark reddish-brown loam and subsoil is dark-reddish brown loam, silt loam and silty clay loam that has subangular, blocky structure. While the surface soil is slightly acid, the subsoil is slightly acid to neutral. Kula Cobbly Loam is characterized as having moderately rapid permeability, medium runoff and moderate hazard of erosion.

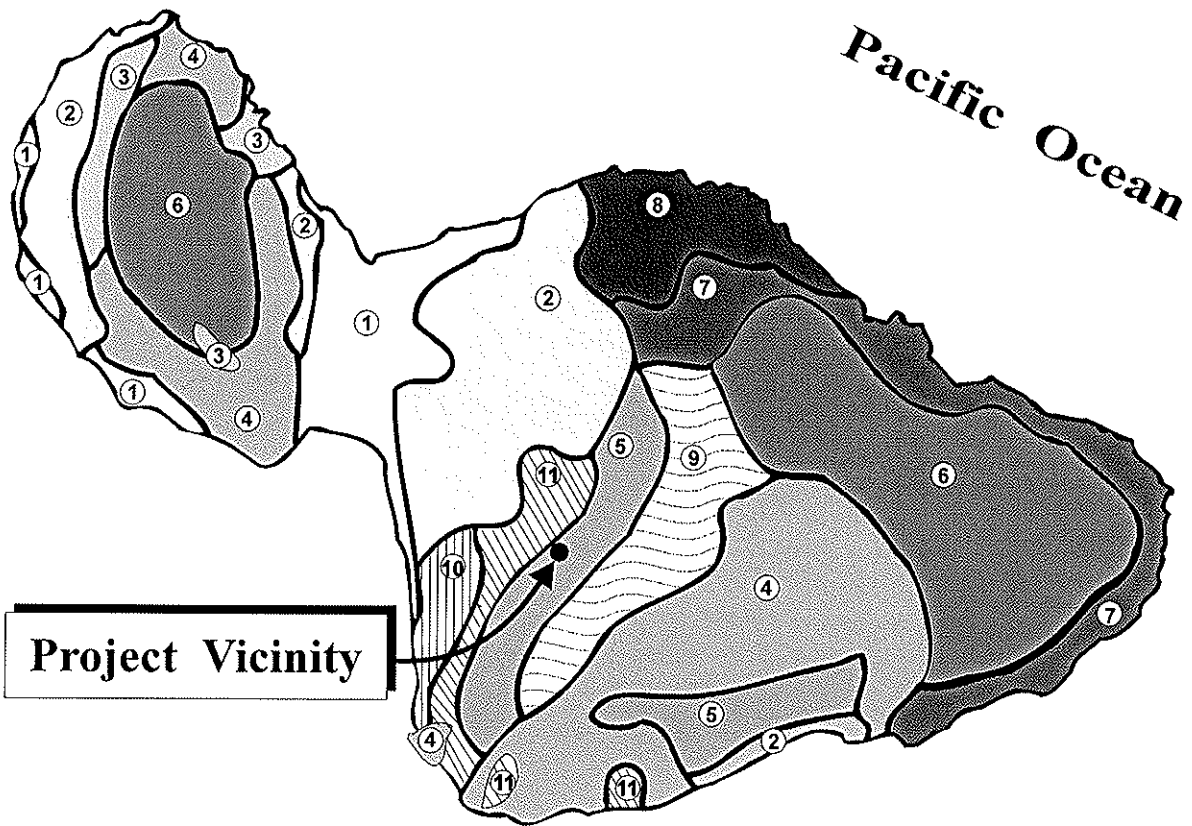
b. Impact and Mitigation

To prevent soil erosion during site work, the applicant will implement Best Management Practices, such as construction of drainage basins prior to mass grading for use as temporary sediment catchments; installation of a dust control fence, silt fence, gravel bag berms or other sediment-trapping devices downstream; diversion of storm runoff from graded areas through use of sand bag berms or lined temporary swales; and paving and grassing of exposed areas and permanently landscaping as soon as grading is completed. To minimize soil erosion, the contractor will be required to submit a soil erosion control plan prior to issuance of a grubbing and grading permit. Because the graded area will be larger than 1.0 acre, the applicant will obtain a National Pollutant Discharge Elimination System (NPDES) General Permit Coverage Authorizing Discharges of Storm Water, prior to commencement of construction activity, as required.

Temporary environmental effects due to construction of an off-site water system in the project area will occur. A 2,900-foot groundwater well will be constructed on the Mauka Subdivision site. A storage tank will be provided at the 3,600 ft. elevation. A single trench will be excavated in the Keahuiwi Gulch to facilitate the installation of the waterline. This activity is anticipated to have an insignificant effect on the water quality. This activity

LEGEND

- | | |
|--|---|
|  Pulehu-Ewa-Jaucas association |  Hana-Makaalae-Kailua association |
|  Waiakoa-Keahua-Molokai association |  Pauwela-Haiku association |
|  Honolua-Olelo association |  Laumaia-Kaipoi-Olinda association |
|  Rock land-Rough mountainous land association |  Keawakapu-Makena association |
|  Puu Pa-Kula-Pane association |  Kamaole-Oanapuka association |
|  Hydrandepts-Tropaquods association | |



Source: USDA, Soil Conservation Service

Figure 17 Proposed Kula Ridge Residential Workforce Housing Subdivision
Soil Association Map

NOT TO SCALE



will disturb the soils and vegetation in the immediate vicinity, but because construction will be limited to a period when the gulch is dry, the gulch will not have continuous flow to impact the environment downstream. Environmental impacts to the gulch are expected to be minimal and will be monitored on a regular basis. After construction, the preconstruction conditions of the area are expected to recover fully.

4. Agricultural Productivity Considerations

a. Existing Conditions

The three classification systems commonly used to rate soils in Hawai'i are: (1) Land Capability Grouping, (2) Agricultural Lands of Importance to the State of Hawai'i, and (3) Overall Productivity Rating.

(1) Land Capability Grouping (NRCS Rating)

The 1972 Land Capability Grouping by the U. S. Department of Agriculture NRCS rates soils according to eight levels, ranging from the highest classification level "I" to the lowest "VIII".

The project site soils are rated IVe. Class IV soils have very severe limitations that reduce the choice of plants, or require very careful management, or both. The subclassification "e" indicates that the soils are subject to severe erosion if they are cultivated and not protected.

(2) Agricultural Lands of Importance in the State of Hawai'i (ALISH)

In 1977, the State Department of Agriculture developed a classification system to identify Agricultural Lands of Importance to the State of Hawai'i (ALISH), based primarily, though not exclusively, on their soil characteristics. The three (3) classes of ALISH lands are "Prime", "Unique", and "Other", with the remaining non-classified lands termed "Unclassified". When utilized with modern farming methods, "Prime" agricultural lands have a soil quality, growing season, and moisture supply needed to produce sustained crop yields economically; while "Unique" agricultural lands poses a combination of soil quality, growing season, and moisture supply to produce sustained high yields of a specific crop. "Other" agricultural lands include those that have not been

rated as “Prime” or “Unique”.

As reflected by the ALISH map for the Kula region, the proposed project is comprised of lands that have been defined as “Other” agricultural lands. See **Figure 19**.

(3) Overall Productivity Rating

The University of Hawai`i, Land Study Bureau (LSB) developed the Overall Productivity Rating, which classifies soils according to five (5) levels, with “A” representing the class of highest productivity and “E” representing the lowest. The letters are followed by numbers which further classify the soil types by conveying such information as texture, drainage, and stoniness.

The subdivision area is located on lands designated as “C41i” “D41” and “E96”. The western part of the subdivision lies on lands designated “E96” which designates irrigated, well-drained land with non-stony to rocky and moderately fine to medium textured soil. The area in the eastern part of the subdivision lies on lands designated as “C41i” and “D41” which designate irrigated, well-drained land with stony and medium textured soil. See **Appendix "C"**.

b. Impact and Mitigation

Assessment of the agricultural land use impacts was carried out for the Ridge Project. Refer to **Appendix "C"**.

The project will commit approximately 32 acres of low-quality agricultural land to a non-agricultural use, leaving about 16 acres of the better land available for rural/agriculture uses as part of four 4-acre lots.

The development on this agricultural land, combined with other developments in Hawai`i and the island of Maui, involves a small loss of agricultural land which will not significantly affect (1) the availability of land to farmers in Hawai`i, (2) agricultural land rents, (3) the growth of diversified crops, or (4) potential agricultural employment.

The loss of agricultural land will not limit the Statewide growth of diversified agriculture. While the market for agricultural land is much tighter in Kula than it is in most other areas of the state, the impact to the loss of agricultural

land is minimal since a majority of the land has poor soil.

5. Flood and Tsunami Hazards

a. Existing Conditions

According to the Federal Emergency Management Agency's Flood Insurance Rate Maps for the area, the proposed subdivision is situated in Zone C, an area of minimal flooding. See **Figure 20**. The property is located upland, away from tsunami inundation areas.

b. Impact and Mitigation

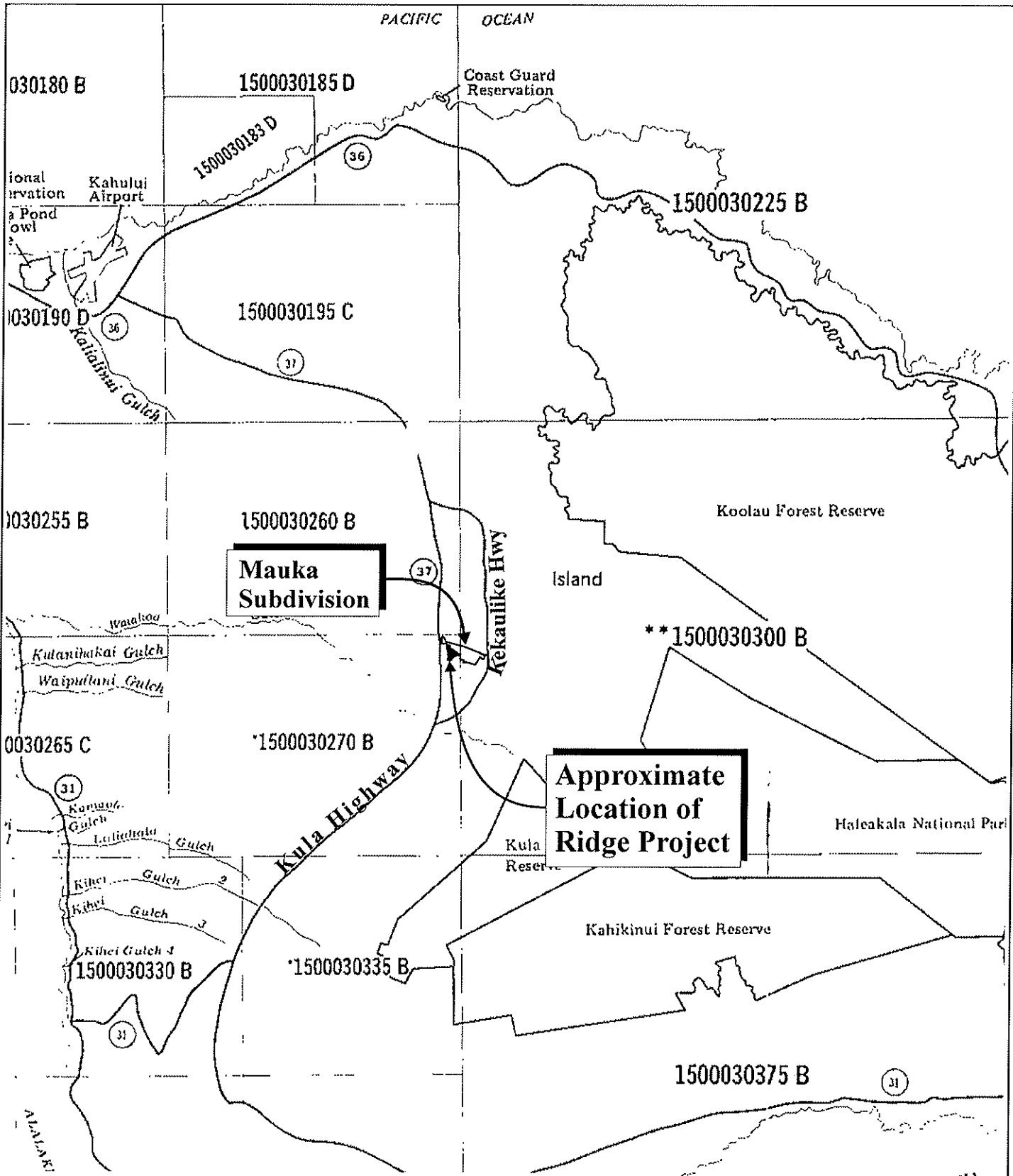
The use of the subject property for a residential workforce housing subdivision is not anticipated to pose a flood or tsunami hazard. As will be discussed in Section "D" of this chapter, post-development drainage mitigation measures will be implemented to ensure that adjacent and downstream properties will not be adversely affected by the proposed action. Because the project site is located upland, there are no threats to the surrounding area from coastal wave action.

6. Flora and Fauna

a. Existing Conditions

A Biological Resources Survey of the Ridge Project site was conducted by Robert W. Hobdy. See **Appendix "D"**. The inventory survey summarized the findings of flora and fauna in the project site. The property is grassed and has been overrun by scrub vegetation, consisting of pasture grasses and weeds. There are no rare, threatened or endangered species of plants on the property.

Typical of the Upcountry region, animal life in the area include cats, dogs, rats and mongoose. Avifauna include the mynah bird, francolins and the short-eared owl, known as pueo. The Fauna Survey Report indicated that a special effort was made to look for the native Hawaiian hoary bat. Evening surveys of the property were conducted to observe any presence of the



Source: Federal Emergency Management Agency, Flood Insurance Rate Map

Figure 20 Proposed Kula Ridge Residential Workforce Housing Subdivision Flood Zone Designation Map

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species. No evidence of activity by the bat was observed.

In addition, no endangered nene or Hawaiian goose were seen on the property or in the vicinity of the property. The project area provides a habitat not suitable for these birds. They prefer lush green grass found in irrigated lawns and golf courses.

b. Impact and Mitigation

There are no rare, Federally threatened or endangered species of plants on the property. Further, there are no known rare or Federally endangered or threatened species of fauna or avifauna in the vicinity of the project site. Accordingly, the proposed development is anticipated to have no significant negative impact on those elements of the natural environment.

7. Archaeological Resources

a. Existing Conditions

An Archaeological Inventory Survey of the Ridge Project site was carried out by Scientific Consultant Services (SCS). See **Appendix "E"**. The inventory survey included historic background research and settlement pattern analysis prior to fieldwork, a complete pedestrian survey of the project area, subsurface testing, and reporting.

The project site has been heavily altered by habitation since the 1800s, followed by ranching for the past 100 years. A cottage stands on the property, typical of plantation-style homes of the 1930s. Cattle grazing, erosion, and bulldozer grading activities, including construction of a dirt road and presence of horses, have altered much of the project area's original integrity.

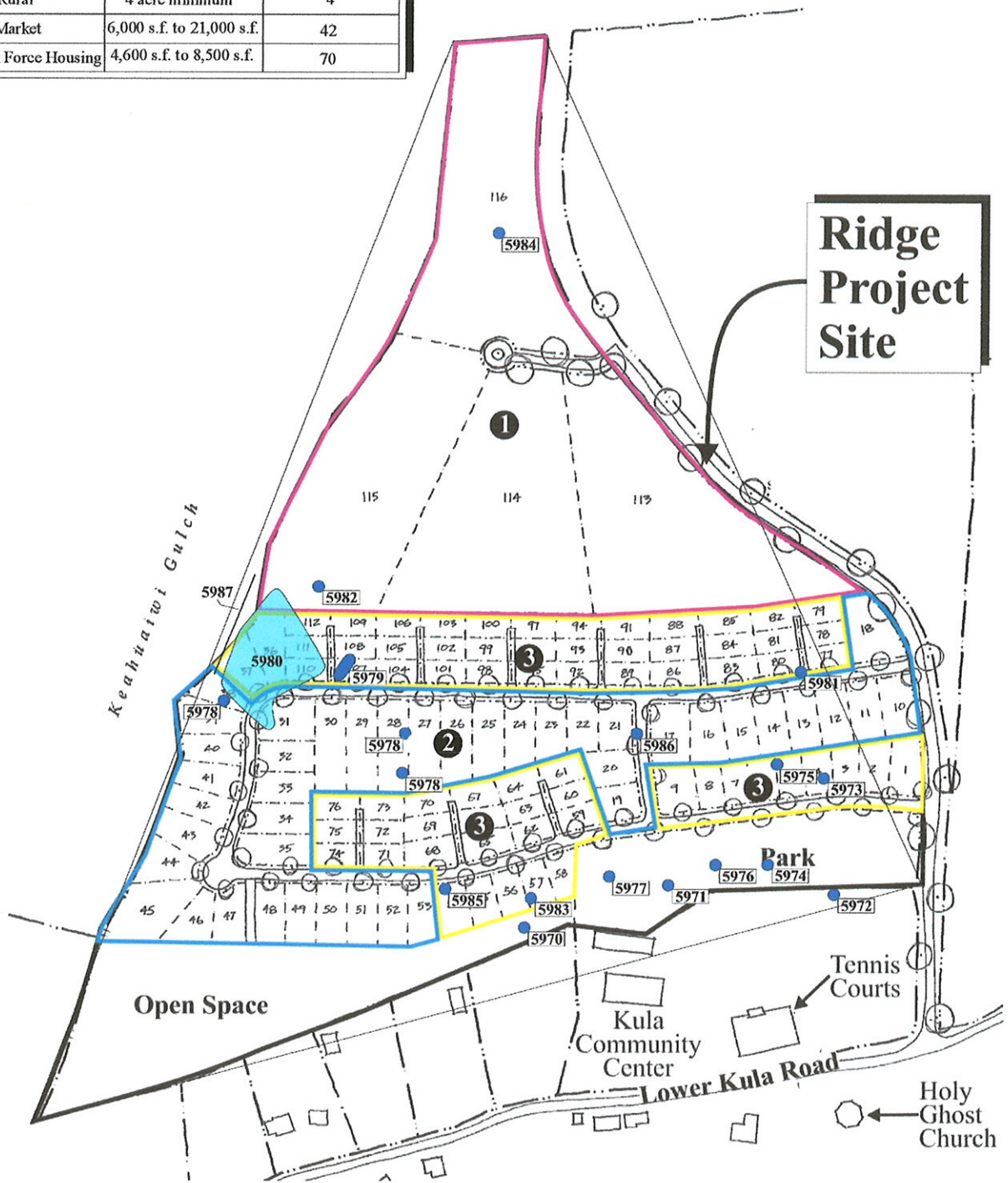
Eighteen (18) historic sites were documented during the survey. See **Figure 21**. Nine (9) sites were considered pre-Contact, based on the architecture and type. Six (6) sites were interpreted as historic and three (3) were undetermined.

Pre-Contact sites include settlement patterns of a modified outcrop and small enclosure that may represent temporary habitation (Site 50-50-11-5980), rock

KEY

LAND USE SUMMARY

	Lot Type	Lot Size	Number of Units
①	Rural	4 acre minimum	4
②	Market	6,000 s.f. to 21,000 s.f.	42
③	Work Force Housing	4,600 s.f. to 8,500 s.f.	70



Ridge Project Site

Source: Architectural Design & Construction, Inc. and Scientific Consultant Services

Figure 21 Proposed Kula Ridge Residential Workforce Housing Subdivision Archaeological Site Locations

NOT TO SCALE



Prepared for: Kula Ridge, LLC

MUNEKIYO & HIRAGA, INC.

Nishikawa\KulaAH\ArchConceptSite

mounds (Site 5983), low walls (Site 5972), a habitation platform (Site 5977), and agricultural terraces (Sites 5973, 5975, 5978, 5979, and 5982). All sites fit the model of upcountry occupation reflected in early historic documents, Land Commission Awards (LCAs) and archaeological studies.

Parts of the project area were interpreted as historic and used for habitation (Site 50-50-11-5984), or for pastureland (Sites 5970, 5971, 5981, 5985, and 5987). The sites used for pastureland consisted of walls and an enclosure, and were interpreted as the results of historical ranching activities. It is also noted that a house is featured on Site 5984.

The sites listed as undetermined (Sites 50-50-11-5974, 5976, and 5986) were difficult to define.

Sub-surface testing carried out in areas likely to have been least affected by historic activities resulted in no identified cultural material. The only find of any significance were a sharpening stone (hoana) and a surface lithic scatter on Site 50-40-11-5980.

b. Impact and Mitigation

The following significance evaluations are broad criteria established for the State and National register of Historic Places. These criteria are as follows:

Criterion A: Site is associated with events that have made a significant contribution to the broad patterns of our history.

Criterion B: Site is associated with the lives of persons significant to our past.

Criterion C: Site is an excellent site type: embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual construction.

Criterion D: Site has yielded or has the potential to yield information important in prehistory or history.

Criterion E: Site has cultural significance; probable religious structures or burials present. (State of Hawai'i criterion only).

The eighteen (18) sites identified in the Archaeological Inventory Survey of the proposed subdivision site were considered significant under Criterion D because of their ability to yield information about history or prehistory. Refer to **Appendix "E"**. Excavation at the most important sites yielded information that was recorded by Scientific Consultant Services. As indicated by the State Historic Preservation Division (SHPD), further archaeological monitoring during construction work is recommended due to the historic properties representing pre-contact agricultural use of the area, and post-contact use for ranching, agriculture, and historic habitation. See **Appendix "F"**. The applicant's archaeology consultant has prepared an archaeological monitoring plan and has submitted the plan to the SHPD for review and approval. Should any archaeological remains or cultural materials be encountered during construction and excavation activities, work in the vicinity of the find will be stopped and the SHPD will be contacted to establish appropriate mitigation measures in accordance with Chapter 6E, Hawai'i Revised Statutes. The Office of Hawaiian Affairs (OHA) shall also be contacted in the event that archaeological remains or cultural material are discovered during ground altering activities.

8. **Cultural Impact Assessment**

a. **Historic Context**

During the pre-contact and early contact periods, Kula was primarily an area for farming. Dryland taro patches grew in elevations up to 3,000 feet. Farmers were reliant on growth of sweet potatoes and when crops failed due to caterpillars, blight, frost or sun, people in Makawao and Kula suffered from famine.

The arrival of whalers in the 1840s stimulated great demand for Irish and sweet potatoes. Potatoes were taken to Lahaina and sold aboard ships. The California gold rush also resulted in great demand from prospectors for potatoes, other vegetables, sugar, molasses and coffee. Farmers were doing so well that many Hawaiians were going into business for themselves, shipping their goods to San Francisco. Maui fields were referred to as "Nu

Caliponi” or “New California.” When prices dropped, Hawaiians lost interest in growing potatoes.

In the 1840s, many Chinese from Honolulu, Kohala and China moved to the region and acquired land by lease or deed from Caucasian ranchers or Hawaiian homesteaders for farming. The Territorial government leased the land to ranchers who then subleased to the Chinese. In addition to Irish potatoes, they planted corn, beans, onions, Chinese cabbage, round cabbage, sweet potatoes, wheat and other grains, and cotton. Farmers often bartered their farm produce for payment on leases, in lieu of monetary transactions. Bartering was a common practice. In the Kula area, there were three (3) stores that often bartered for goods on other islands.

During the mid-19th century, the Chinese population grew. Kula consisted of Chinese and English schools, Christian churches, a Chinese society, gambling houses, opium dens, general stores, farms and cattle ranches. Keokea was often referred to as “Chinatown” and many would travel to the area on Sundays and holidays from the outlying areas of Kanaio, Ulupalakua and Waiakoa.

In the 1880s, large sections of crown land in lower Kula were leased for grazing for the booming cattle industry. Around the end of World War I, the Territorial government released a large amount of land to the public for purchase. Homestead lands were available to all American citizens at least 21 years old. As a result of the policy, the Chinese population began to decline. In addition to loss of land to parceling, the Chinese population left the area due to severe drought that devastated crops and livestock, soil depletion due to years of harvesting and tilling and a lack of educational opportunities.

Since the late twentieth century, most of the land in the Waiakoa, Kula area served as farm land (Rosendahl, 1989).

b. Cultural Perspectives

To assess the cultural impact associated with the proposed project, two (2) interviews were conducted with individuals familiar with the area and long-

time residents. A summary of their interviews follow.

(1) **Rogers Ishizu**

The interview with Rogers Ishizu was carried out on September 14, 2006 in Kahului, Maui.

Mr. Ishizu was born in Waiakoa, Kula on January 27, 1944. His mother and father are originally from Wailuku, but were asked to relocate to Kula where Mr. Ishizu was born. Mr. Ishizu is a retired teacher and currently lives in Wailuku with his wife Karen.

Mr. Ishizu's parents operated the Maui Dry Goods store in Wailuku and were subsequently asked by the store owner, Mr. John Dolim, to relocate and manage the Maui Dry Goods store in Kula. At that time, the owner of Maui Dry Goods was opening stores in different places on Maui. The Ishizus relocated and operated Maui Dry Goods for nearly 40 years. The first house that they lived in was owned by Maui Dry Goods.

After living there for some time, Mr. Ishizu's father had the opportunity to purchase a lot from a private owner. At the time, there were a few lots to choose from. The lots were 2.5 acres in size. In order to select a lot, people drew straws. Mr. Ishizu's father had a good draw and chose the property with the best view. The Ishizu family continues to own the same home located off of Copp Road near the Calasa Service Station.

In later years, Mr. Ishizu's father was given an offer to buy the store but decided against it, thinking that it would be too much work. The Ishizus eventually retired, prompting the closing of the store. The store currently houses the Café 808 restaurant. In addition to Maui Dry Goods, there was also the Ching Store and the Tavares Store.

Mr. Ishizu attended Kealahou School, now occupied by the Haleakala Waldorf School on Lower Kula Road. He stated that there was one classroom for every grade level. Kealahou School taught children from Kindergarten to the 8th grade. Mr. Ishizu remembers his Kindergarten teacher, Mrs. Furukawa, because she was his first teacher. He remembers

her as being very strict, but fair. He also noted that a Japanese School was in the area across from Kealahou School and that a Japanese minister taught language there. According to Mr. Ishizu, the Japanese school was owned and operated by the Honpa Hongwanji. Mr. Ishizu was enrolled as a student at the Japanese school, and laughed when he stated that he lasted there for just one day.

In recalling the history of the area, Mr. Ishizu remembers the first Morihara store located on the western edge of the subject property near the Holy Ghost Church. Mr. Ishizu said that the Moriharas operated the store for some time and eventually relocated further south across from Maui Dry Goods.

Mr. Ishizu recalls many happy memories of living in Kula. He was very active in sports activities, and played with friends in the neighborhood. He and his friends played in the area south of the subject property, on land owned by Louis Fernandez. Mr. Ishizu had a couple of friends who lived in the area and they would ride horses on the land surrounding the subject property. He stated that most of the land in the area was used for ranching. During Mr. Ishizu's childhood, transportation was limited, so residents in the area didn't travel much to other parts of Maui. He and his childhood friends would often travel to Ulupalakua and other parts of the countryside for football challenges and other activities.

Mr. Ishizu's family lived close to the store, near Copp Road and Mauna Place. As young boys, the Ishizu brothers worked for the Vincent family in upper Kula. They worked as yard boys and worked for as little as 60 cents an hour to 1.40 cents an hour.

Mr. Ishizu recalls other families in the area who were farmers. There were the Kobayashi, the Nishimoto, and the Umeno Families. He recalls the Koga family owning a farm next to the subject area.

There was a mix of people from different ethnic backgrounds who lived in the Waiakoa area. Residents were of mainly Japanese, Portuguese, and Hawaiian ancestry. Mr. Ishizu added that many Caucasian people owned land. There were a few Chinese or Filipino people who lived in the area, and many of the Chinese people lived in Keokea.

Mr. Ishizu recalls the subject property only being used for pasture land and open space. He is not aware of any cultural practices or gatherings on the subject property. Should the proposed project proceed, Mr. Ishizu said that he was open to seeing development for family homes and thought that there should be more services for people in the area. Mr. Ishizu's mother continues to live in the same home that his family built over 50 years ago in Kula.

(2) **Dorothy Nakata**

The interview with Dorothy Nakata was carried out on May 24, 2007 in Kahului.

Mrs. Nakata was born in Ulupalakua in 1928 and was given the name Dorothy Toyoko Terada by her parents Mitsuji and Hatsume Nishiyama Terada. Her father was originally from Haleiwa, O`ahu. He relocated to Maui when he was 2 years old and was a bookkeeper for Ulupalakua Ranch. Mrs. Nakata's mother is originally from the Waiakoa area and was a homemaker and dressmaker. Mrs. Nakata has one (1) brother and three (3) sisters. She currently lives in the Waiakoa area with her husband, Ronald and her daughter, Suzanne.

Although Mrs. Nakata grew up in Ulupalakua, she spent all of her childhood summers in Waiakoa helping her grandparents at their farm situated near Copp Road and King Kekaulike Highway. Mrs. Nakata noted that during her childhood, the ethnic mix in Waiakoa mainly included Portuguese and Japanese families, and some Caucasian families. These families operated ranches and farms in the Waiakoa area. There were a few Chinese families in the area and she added that many of them lived in Keokea. Mrs. Nakata stated that a majority of the Hawaiian families in the upcountry area lived in Ulupalakua.

Mrs. Nakata stated that there were two (2) stores that catered to the residents in the area. A third store, Morihara Store was located in close proximity to the project area near the Holy Ghost Catholic Church. The Morihara Store eventually relocated further south near Copp Road during the 1940's. The Morihara Store continues to service the residents of the Waiakoa area today. Mrs. Nakata also noted that residents either went to the Calasa Garage or the Migita Garage for

gasoline or to get their cars fixed.

Back then, very few people went to the stores for their goods. Mrs. Nakata stated that many residents prepared their own foods. Women and children stayed home to make jellies, ketchup, and mayonnaise. They churned their own butter and sewed their own clothes. There was no need for a bakery, because the women would also bake their own baked goods. Mrs. Nakata added that many Portuguese parishioners from the Holy Ghost Parish were actively involved in baking Portuguese bread. She remembered the Gregulio and the Moniz families as having an active role in the church. Mrs. Nakata said that residents who knew parishioners from the church were very lucky if they were given Portuguese bread.

Mrs. Nakata added that situated near the Holy Ghost Church was the Kealahou School where Haleakala Waldorf School stands today. She added that Japanese movies would be shown at the school. Mrs. Nakata developed friendships with many of the other children who lived in the area. Some of her childhood friends included Ann Takahashi Masuda, Flora Umeno and Bernice Takahashi Nagato who lived near the Holy Ghost Church.

Most of Mrs. Nakata's time was spent helping her grandparents on the farm, pulling weeds and harvesting vegetables. They worked from 6:00 in the morning to 7:00 in the evening. She added that back then, children didn't work for money, but worked for love. Farmers with no children depended on relatives with children to help them on the farms. She stated that farmers in those days did not rely on a sophisticated irrigation system to water the crops, so they depended on rain. Mrs. Nakata said that her grandparents grew cabbage, onions, carrots, tomatoes, potatoes, gobo, strawberries, and dried beans on their family farm. She assisted her grandparents with the harvesting of vegetables. Her uncle would travel into town on Mondays to sell their groceries at the market farmer's exchange. She would stay home on these days and do chores such as laundering, housework, etc.

Mrs. Nakata remembers that during her childhood, this part of Kula (Waiakoa) was bustling with agricultural activities. Farmers grew their own food and sold their produce at the markets during the weekdays. Families often picked their

own fruit, and made jams and jellies out of peaches and poha berries.

There were many flower farmers in the area following WWII, including Mrs. Nakata's relatives. Her uncle had a large lot that he divided into sections which he used to grow upcountry flowers such as, proteas, carnations, babies breath and lilies. Her Uncle Shigeo Maeda and Aunt Fudeko Maeda, also grew proteas that they marketed in Honolulu.

During World War II, her uncle and aunt, Susumu and Hatsuyo Nishiyama established Wailuku Florist where they sold fresh cut flowers from their farm in Kula. Her cousin Ray Nishiyama eventually took over the family flower farm and continued growing flowers as well.

Mrs. Nakata said that she was aware of cultural practices by Japanese and Portuguese families in the area. Many Japanese families gathered together during the months of June, July, and August to celebrate the O-Bon Festival. Japanese residents from all parts of Maui would travel to Kula to support their relatives and friends in celebrating the O-Bon festival. Japanese farmers gave O-Bon participants bags of vegetables to show appreciation for coming to Kula to celebrate the occasion. Portuguese families were heavily involved with the Holy Ghost Church and shared their culture with the families of various ethnic backgrounds.

Another cultural activity was the New Year celebration where the Japanese Community Association celebrated with big feasts at the Japanese church.

Mrs. Nakata would like to see more agricultural activity in the Waiakoa region. Throughout the years, she has seen a decline in agricultural activity and felt that many young farmers wanting to continue their family farms need support from the community and county. She also felt that farmers need assistance in obtaining water and providing farmers with opportunities to sell their produce. She felt that local farmers face a tough competition with mainland companies also selling their produce in the stores.

Mrs. Nakata also stated her concern about the reduction of forest land and its effect on the environment. She added that once trees are removed or cut down, they need to be replaced

with other trees. She felt that trees were needed to mitigate drainage issues. Mrs. Nakata also stated that stealing, robberies, and fights have become major concerns in the community during recent years. She added that Kula was once a very close-knit community. Residents were cordial and got along well with one another. She hopes that the community will come together and have a sense of closeness that existed many years ago.

Mrs. Nakata stated that she enjoys the open country that Kula has to offer. She thought that the rural characteristic, the friendliness of the residents and the local “*aloha spirit*” were benefits to the community. She stated that she would like to see these benefits continue in the community for the benefit of our children and future generation. She likes the way people help one another. In closing, she stated, “*We need to keep our local aloha spirit in our community.*”

c. Impact and Mitigation

Based on the findings and recommendations of the archaeological report and accounts presented by the interviewees, the proposed action is not anticipated to have an adverse effect on cultural practices.

9. Air and Noise Quality

a. Existing Conditions

There are no point sources of airborne emission in the immediate vicinity of the project site. The air in the Kula region is of good quality, with existing airborne pollutants attributable to automobile exhaust from the region's roadways. Other sources of airborne pollutants typically include dust and equipment emissions resulting from agricultural activities and smoke generated from sugar cane harvesting operations occurring in the Central Maui plain. These sources are intermittent and the generated particulates are quickly dispersed by the prevailing tradewinds.

Noise generated in the vicinity of the subject property may be attributed to natural (e.g. wind) conditions, traffic along Lower Kula Road, agricultural-related activity involving the intermittent operation of equipment, such as tractors, and trucks, and activity from the Kula Community Center.

b. Impact and Mitigation

Airborne particulates, including dust, may be generated during site preparation and construction. To minimize dust generation, dust fences, sprinklers and/or water wagons will be utilized during site preparation and construction. As soon as grading is complete, exposed areas will also be paved, grassed or permanently landscaped.

Ambient noise conditions will be temporarily affected by construction activities. Material-transport vehicles and power tools are anticipated to be the dominant noise-generating source during construction. As with air emissions, construction noise will be minimized through use of applicable BMPs. Construction work will be limited to daylight work hours.

Once operational, the proposed workforce housing project should not have an adverse impact on air or noise quality in the vicinity.

10. Scenic and Open Space Resources

a. Existing Conditions

Situated on the slopes of Haleakala, Kula provides expansive scenic views of the Central Maui isthmus, the off-shore islands of Lanai and Kaho`olawe, and the West Maui Mountains. From clearings throughout the project site, Maui's central isthmus and the northern and southern shorelines of Maui can be seen makai (northwest and southwest, respectively) of the project area. Mauka of the site Haleakala is visible.

b. Impact and Mitigation

The proposed subdivision involves site-related grading and associated improvements. The subdivision configuration maintains density and spatial layout concept which, with the use of existing topographic character of the site will minimize adverse impacts to the visual character of the surrounding area.

Architectural and landscape designs, as well as grade differentials, will help to mitigate views of the sight from Kula Highway and along Kekaulike Highway. The proposed development is anticipated to not have an impact on

scenic view, open space resources or adversely affect the visual character of the surrounding area.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Community Character

a. Existing Conditions

From a regional standpoint, the project site is part of the Makawao-Pukalani-Kula Community Plan region. The region includes a diverse range of physical and socio-economic environments. The region's rural qualities are characterized by vast open space and natural resources, a clean environment, and abundant outdoor recreational opportunities. With its temperate climate, fertile soil, and sweeping views, Kula has grown steadily over the past few years. The area has attracted more residents and there has been a decrease in small farm activity.

b. Potential Impacts and Benefits

As noted earlier, the subdivision property is in proximity to other residential areas of similar character with structures, streets, and services of both rural and urban type. The proposed project will include single-family homes and agricultural lots that are reflective of the region's rural character. Included in the proposed project plans are four (4) large lots that will encourage the continuation of farming activities to occur near other farming communities in the area.

2. Population

a. Existing Conditions

The population of Maui County has exhibited relatively strong growth over the past decade with the 2000 population of 128,241, reflecting a 27.6 percent increase over the 1990 population of 100,504. Growth in the County is expected to continue, with resident population projections for the years 2010 and 2030, estimated to be 151,300 and 199,550, respectively (County of Maui Planning Department, June 2006).

Just as the County's population continues to grow, the resident population of the Kula region has also increased. The 2000 population of the Makawao-Pukalani-Kula region was 21,571. The population is projected to increase to 26,644 by the year 2010 and 30,880 by the year 2030 (County of Maui Planning Department, June 2006).

b. Potential Impacts and Benefits

Given the size and scope of the proposed action, impact on population is expected to be minimal. The proposed project is not considered a direct population generator from a long-term perspective. Instead, the project is anticipated to accommodate demands for housing by existing island residents.

While many purchasers are anticipated to be Upcountry residents, some of the prospective homeowners may relocate from other regions of the island, with the potential to incrementally increase population in the Makawao-Pukalani-Kula Community Plan region. Given the size of the project (116 lots), the increase in population is not expected to extend beyond the projected growth parameters of the region defined by migration and birth/death rates.

3. Economy

a. Existing Conditions

Maui's economy is heavily dependent upon the visitor industry. The Kula region, with its fertile soil and cool climate conditions, has resulted in successful produce and flower generation for export to domestic and international markets. The vast lands of pasture grass has also enabled cattle ranching and alternative ranching activities, such as sheep and llama herding, which contribute to the economy.

b. Potential Impacts and Benefits

On a short-term basis, the proposed action will support construction and construction-related employment. In the long term, residential homeowners will require services related to home maintenance and improvement which is expected to further support local business owners. Real property taxes generated by the project will contribute to the County's revenue base to

support any increase in regional public service demands over time.

4. **Housing**

a. **Existing Conditions**

In 2000, Maui County's housing supply totaled 56,377 housing units, representing a 31 percent increase from 1990. The Makawao-Pukalani-Kula area's housing supply in 2000 totaled 4,761 units, representing a 57% increase from 1990.

Countywide, owners lived in 44 percent of the occupied homes. Owner occupancy tended to be slightly higher in the Makawao-Pukalani-Kula region with 59 percent of the units being owner-occupied.

Housing values in Kula-Ulupalakua-Kanaio are noticeably higher than most of the Countywide housing supply. Whereas recent median home valuation for Maui County was \$630,000.00, the price median in the Kula-Ulupalakua-Kanaio area was \$764,000.00 (Realtor Association of Maui, December 2007).

b. **Potential Impacts and Mitigation Measures**

As noted previously, there is a need for residential workforce housing in Maui County. The proposed action will address this need through the provision of housing intended for families earning up to 160 percent of the median annual income for the island of Maui. A residential workforce housing agreement setting forth the terms and conditions of provision of the workforce units will be executed by Kula Ridge, LLC and the County of Maui.

The proposed action is anticipated to have a positive economic effect during the construction phase of development as expenditures for construction and related support services are made. In the long term, the project is anticipated to accommodate demands for workforce housing by existing island residents.

C. PUBLIC SERVICES

1. Police

a. Existing Conditions

The County of Maui's Police Department is headquartered in Wailuku. The Maui Police Department (MPD) consists of several patrol, investigative and administrative divisions. The Wailuku or Central station, which serves the Haiku, Paia, Makawao, Pukalani and Kula regions is situated approximately 18.0 miles northwest of the project site. A police substation is located in Pukalani, about 5.3 miles northwest of the project site. A new police community service center will be located in the Kulamalu Town Center, approximately 1.0 mile northwest of the project site.

b. Impact and Mitigation Measures

The project will not extend the existing service area limits for emergency limits. As previously noted, real property taxes generated by the project will contribute to the County's revenue base to support police manpower requirements in the region.

2. Fire

a. Existing Conditions

Fire prevention, suppression and protection services are provided by the County Department of Fire Control. The Kula Station, which serves the region, is located off Kula Highway, approximately one-half mile southwest of the subject property. The Makawao and Paia fire stations lend additional firefighting support to the Kula region and are situated approximately 7.0 miles and 7.5 miles away from the project site, respectively.

b. Impact and Mitigation Measures

The proposed action is not anticipated to affect the service capabilities of fire operations. The project will not extend the existing service area limits for emergency services.

3. **Medical Services**

a. **Existing Conditions**

Maui Memorial Medical Center, the only major medical facility on the island, is approximately 19.0 miles to the northeast of the project site. Licensed for 231 beds, this facility provides acute, emergency, general, and obstetric care services. Several medical and dental care facilities are located in Makawao and Pukalani to serve Upcountry residents.

Kula Hospital is situated about 3.0 miles southwest of the project site. The hospital serves as a long-term care facility, that provides Alzheimers and dementia care services. An out-patient clinic for the area's residents operates from 8:00 a.m. to 4:30 p.m. on weekdays.

b. **Impact and Mitigation Measure**

The proposed action is not anticipated to affect the service capabilities of emergency medical operations. The project will not extend the existing service area limits for emergency services.

4. **Solid Waste Disposal**

a. **Existing Conditions**

Residential solid waste collection and disposal is provided once weekly by the County's Department of Environmental Management's Solid Waste Division. Solid waste generated in the Upcountry region is transported to the Central Maui Landfill off Pulehu Road, approximately 8.0 miles northwest of the project sites. Other than the Hana Landfill, the Central Maui Landfill is the only disposal site on the island of Maui which accepts County-hauled residential waste, commercially-hauled commercial waste, and self-hauled waste.

Privately owned facilities, such as the Maui Demolition and Construction Landfill and the Pohakulepo Concrete Recycling Facility, accept solid waste and concrete from demolition and construction activities. These facilities are located at Maalaea, northwest of the subject property, near Honoapiilani Highway's junction with North Kihei Road and Kuihelani Highway. A green

waste recycling facility is present at the Central Maui Landfill.

b. Impact and Mitigation Measure

A solid waste management plan will be developed for the disposal or recycle of materials resulting from the site and construction activities, as appropriate. The plan will incorporate strategies for effective construction waste management to reduce, reuse, and recycle solid waste materials. Such strategies involve the use of efficient design to promote waste reduction, salvaging of material to be used by other businesses or local organizations, and separating recyclable and non-recyclable materials for proper recycling and disposal. All materials deemed unfit for reuse/recycling will be dispose at an approved construction waste disposal site.

Once completed, it is anticipated that the project would be served by the County of Maui's solid waste collection operations, and is not expected to affect County services or infrastructure capacities for solid waste. The County of Maui's Solid Waste Division is working on a new landfill expansion increment, estimated to provide the island with sufficient capacity for several years, which takes into account future growth of residential and non-residential uses. In addition, lands adjacent to the existing landfill are currently utilized for rock quarrying and will likely be available for County expansion of the landfill, further increasing available capacity.

5. Education

a. Existing Conditions

The State Department of Education (DOE) operates three (3) public schools in the Upcountry region. They are: King Kekaulike High School for grades 9 to 12, Kalama Intermediate School for grades 6 to 8, and Kula Elementary School for grades K to 5. The State Department of Education capacity, enrollment and projected enrollment for the schools are as follows in **Table 4**.

Table 4

School	Actual Enrollment	Capacity	Projected Enrollment				
			2007 - 2008	2006 - 2007	2008 - 2009	2009 - 2010	2010 - 2011
Kula Elementary	455	588	421	414	408	405	401
Kalama Intermediate	894	1,118	881	877	873	871	868
Kekaulike High School	1,354	1,288	1,262	1,197	1,158	1,143	1,117
Source: State of Hawai'i, Department of Education							

There is an elementary, middle and high school primarily for persons of native Hawaiian ancestry, operated by Kamehameha Schools, located approximately eight (8) miles north of the subject property at Kulamalu . The Kamehameha Schools has an enrollment capacity of 1,100 students.

The region is also served by privately operated facilities, such as St. Joseph School (Grades K to 6), Haleakala Waldorf School (Grades K to 8), and Seabury Hall (Grades 6 to 12).

b. Impact and Mitigation Measure

The project involves the development of 116 improved residential lots and construction of single-family residences. The DOE general guidelines for student enrollment projections indicate that the proposed subdivision is anticipated to generate the new student enrollment as follows:

Elementary School	33 students
Middle School	14 students
High School	16 students
Total	63 students

Educational assessments are required for the Ridge Project as it meets the criteria of 50 units or more. Coordination between the applicant and the DOE has begun to ensure that the assessment policy provisions are appropriately addressed. Should impact fees be assessed and collected, they are assured to

be earmarked for area schools, such as Kula Elementary, Kalama Intermediate, and King Kekaulike High School. Therefore, it is anticipated that these funds will assist in the upgrade and improvement to schools in the Kula-Upcountry area.

Coordination with the DOE and the State Land Use Commission will continue to ensure that assessment policy provisions are appropriately addressed.

6. Recreational Facilities

a. Existing Conditions

Kula Park is located southwest of the Ridge Project site, across Kula Highway and adjacent to Kula Elementary School. The park consists of the 10.3-acre Kula Ball Field, two (2) soccer fields, playground equipment, two (2) picnic tables, a restroom and two (2) parking areas.

Other neighborhood parks and facilities in close proximity include the Kula Community Center located to the immediate west of the project area. The Kula Community Center is an approximate 2,800 square foot building on seven (7) acres of land. The center has a stage, barbecue grill and restrooms. There is a community police office onsite. Macrame and folk dance classes are offered there. The center hosts weekly bingo games, Alcoholic Anonymous meetings and senior nutrition classes. Behind the community center is the Old Kula Center where Boy Scouts meetings and Dance Society classes are held. The Maui Farm Bureau is also located in this building. Recreational facilities on the property include two (2) tennis courts and a gateball court. The gateball court has a field house and a storage shed.

Harold Rice Park is located approximately 1.3 miles southwest of the project site. The 3.8-acre park contains a paved parking lot with 18 parking stalls, a restroom facility, picnic tables and a barbecue grill. Access to the Rice Park is located off of Lower Kula Road. Located about 4.2 miles southeast of project area is Keokea Park, which encompasses approximately 6.7 acres and includes a picnic pavilion with tables and barbecue grills, a playground area, a softball backstop, a portable backstop, two (2) storage sheds, a restroom facility and two (2) parking areas with a total of twelve (12) spaces.

Situated along the higher elevations of Haleakala, Polipoli State Park, and Haleakala National Park offers camping, hiking, and sight-seeing opportunities.

b. Impact and Mitigation

The applicant for the project is working with the Department of Parks and Recreation to ensure compliance with applicable park assessment requirements. In particular, it is the intent of the applicant to utilize the 3-acre park in the subdivision to address parks and playground assessment requirements. The applicant is also working with the Department of Parks and Recreation on roadway access improvements traversing the existing Kula Community Center property.

D. INFRASTRUCTURE

1. Roadways

a. Existing Conditions

Access to the Ridge Project site will be provided via a new access road off Lower Kula Road south of Alanui Place. Lower Kula Road lies southeast of the Kula Highway. Kula Highway is a predominately two-way, two-lane State of Hawai'i roadway, generally oriented in the north-south direction that serves as the primary access road through Upcountry Maui between Pukalani and Ulupalakua.

Also located in the project vicinity are Alanui Place and Copp Road. Alanui Place is a two-way, two-lane roadway that provides access to the residential properties along its alignment. South of the intersection with Alanui Place, Lower Kula Road intersects Copp Road. Copp Road is a two-way, two-lane roadway oriented in an east-west direction providing access to the residential neighborhoods along its alignment.

A Traffic Impact Assessment Report (TIAR) was prepared by Wilson Okamoto Corporation, dated July 2006. See **Appendix "G"**.

A field investigation was conducted on May 31, 2005, June 1, 2005, and

April 25 to 26, 2006 and consisted of manual turning movement count surveys during the morning peak period between 6:00 a.m. and 8:00 a.m., and the afternoon peak period between 3:00 p.m. and 6:00 p.m. at the following intersections:

- Lower Kula Road, Alanui Place, the Kula Community Center driveway;
- Lower Kula Road and Kula Highway (North);
- Lower Kula Road and Copp Road; and
- Lower Kula Road and Kula Highway (South).

In addition, 24-hour mechanical traffic count surveys were collected along Lower Kula Road and Kula Highway to verify the peak traffic periods in the project vicinity.

The highway analysis was consistent with procedures established in the "Highway Capacity Manual", (Transportation Research Board, 2000) and the "Highway Capacity Manual", developed by the Federal Highway Administration. The analysis is based on the concept of Level of Service (LOS), a qualitative and quantitative assessment of traffic operation, with LOS "A" representing ideal traffic operating conditions and LOS "F" representing unacceptable or congested traffic conditions. The existing LOS was recorded as follows:

1. Southbound at the intersection of Lower Kula Road and Kula Community Center driveways on Lower Kula Road, traffic operates at LOS "A" in the morning and afternoon peak hours. Eastbound traffic operates at LOS "A" in the morning and afternoon peak hours.
2. Westbound at the northern intersection of Kula Highway and Lower Kula Road, traffic operates at LOS "C" during the morning and LOS "B" during the afternoon peak hour. Northbound traffic operates at LOS "A" during the morning and afternoon peak periods.
3. Northbound traffic at the intersection of Copp Road and Lower Kula Road, traffic operates at LOS "A" during the morning and afternoon peak hours. Eastbound traffic operates at LOS "A" during both morning and afternoon peak hours.

4. Westbound traffic at the southern intersection of Kula Highway and Lower Kula Road operates at LOS "B" in the morning peak hour and LOS "A" in the afternoon peak hour. Southbound traffic operates at LOS "A" during the morning and afternoon peak periods.

b. Impact and Mitigation

Access to the proposed project site will be available off of Lower Kula Road, via an existing 56-foot wide utility and access easement road. The easement road traverses along the southern boundary of the Kula Community Center to the southwest corner of the proposed project site. The driveway pavement section will be 24 feet wide for ingress and egress.

In accordance with County requirements, roadway improvements consisting of concrete curbs, gutters, and sidewalks will be constructed along the frontage of the property to Lower Kula Road.

Access off of Lower Kula Road on the northern boundary of the project has been considered, however, it has been determined to be infeasible, given that the topographic conditions to the north of the Kula Community Center does not provide for a viable second access point.

Traffic was also assessed using an alternate trip distribution scenario which all site-generated trips were assumed to travel from origins to destinations to the north of the project site. See **Appendix "G-1"**. This trip distribution methodology assumes that all site-generated trips are work related and do not have any linked or pass-by destinations.

Under this alternate trip distribution scenario, the critical movements at the intersections of Lower Kula Highway (north) are expected to operate at LOS "C" or better during both peak periods while those at the intersection with Kula Highway (south) are expected to operate at LOS "B" or better during both peak periods. Similarly, all approaches of the intersection with Copp Road are expected to operate at LOS "A". At the intersection of Lower Kula Road with Alanui Place and the Kula Community Center Driveway, the eastbound approach of the intersection is expected to operate at a slightly lower LOS "B" during both peak periods while the other approaches of the intersection are expected to operate at levels-of-service similar to those

included in the TIAR.

An analysis of the changes in traffic volumes at the study intersections concluded that during the weekday morning peak hour, traffic volumes at all intersections are expected to remain the same.

The following recommendations have been advanced by the TIAR:

1. Maintain sufficient sight distance to motorists to safely enter and exit all project roadways.
2. Provide adequate onsite loading and off-loading service areas and prohibit offsite loading operations.
3. Provide adequate turn-around area for service, delivery, and refuse collection vehicles to maneuver on the project site to avoid vehicle-reversing maneuvers onto public roadways.
4. Provide sufficient turning radii at all project roadways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
5. Provide exclusive left-turn and right-turn lanes on the westbound approach of Lower Kula Road at the northern intersection with Kula Highway to minimize the impact of left-turning vehicles on the higher volume of right-turning vehicles on that approach.

The applicant will ensure that all proposed roadway development and improvements are in accordance with the Hawai'i Revised Statutes, Maui County Code, and other applicable rules and regulations. (Figure 1 of the TIAR provides a regional roadway context for the proposed project.) This includes the Hawai'i Standard Specifications for Road and Bridge Construction dated 2005, the Standard Details for Public Works Construction, 1984, as amended, and the Manual on Uniform Traffic Control Devices for Streets and Highways, 2003.

The TIAR recommends mitigation measures and improvements to be implemented for the project. These are outlined above and on page 22 of the TIAR. Agreement on the mitigation measures and improvements to be implemented by the applicant will be determined with the DOT Highways Division. This would occur as part of the applicant's engineering design

process and the preparation of specific onsite and offsite roadway and intersection improvement plans. DOT approval will be required prior to finalizing plans and undertaking these roadway and intersection improvements.

The Department of Public Works and the DOT Highways Division will be given the opportunity to review and approve roadway construction plans to ensure that applicable regulations are satisfied.

The project presents an opportunity to promote non-automobile travel for recreational and household pursuits. Accommodations to support public bus transportation services may be provided in the area to facilitate an alternative travel mode. This effort will be coordinated with the County Department of Transportation.

A network of bicycle paths and walking trails within the neighborhood is anticipated to promote recreational activity and in line with the proposed concepts envisioned in the Upcountry Greenway Master Plan.

In this regard, as the project site is located within the Upcountry Greenway Master Plan Region, opportunities for a walking trail or path may be within an existing right-of-way or may be placed adjacent to the existing roadway on private lands. This type of section has the flexibility to accommodate pedestrians, bicyclists, and horseback riders. The applicant intends to incorporate recommendations from the Upcountry Greenway Master Plan and will work with the County's Department of Public Works to identify opportunities and constraints in implementing a recreational loop trail along the perimeter of the project area.

2. Water

a. Existing Conditions

Water service to the Makawao-Pukalani-Kula Community Plan region is provided by the County Department of Water Supply (DWS). The Kula system consists of an upper and lower system, with the upper system located at the 4,000 foot elevation, and the lower system originating at the 3,000 foot

elevation. The Lower Kula System serves the Omaopio, Olinda, and lower Kula communities, while the Upper Kula System serves the remaining communities. The upper system collects water from Haipuaena, Puohakamoa, and Waiakamoi Streams, while the lower system diverts water from the Haipuaena, Puokakamoa, Waiakamoi, and Honomanu Streams.

The DWS operates a water treatment plant at Olinda with a capacity of 1.7 million gallons per day (MGD). Major storage reservoirs supporting the Upper Kula System include a 10 million gallon (MG) upper Waiakamoi dam/reservoir, a lower Waiakamoi concrete dam, two (2) 15 MG Waiakamoi concrete tanks, and a 3 MG Olinda steel tank. The recently constructed Kahakapao Reservoirs, consisting of two (2) 50 MG reservoirs in the vicinity of the Waiakamoi Reservoirs, also provide additional storage capacity for the upper system. During dry periods, the Kula system is supplemented by water pumped from the Makawao system.

Water storage for the area is currently provided by the Omaopio tank located approximately 1,200 feet to the northeast of the project site. It has a capacity of 2.1 million gallons at an elevation of 3,890 feet. An existing 8-inch waterline along Lower Kula Road in the vicinity of the project site conveys water from the Omaopio tank. There is an existing fire hydrant located near the Kula Community Center.

b. Impact and Mitigation

The proposed Ridge Project is estimated to require approximately 83,200 gallons of domestic water per day. See **Appendix "H"**. For this calculation, it is assumed that each 4-acre large lot will develop both a main residence and an accessory dwelling unit. The affordable and smaller market-priced lots will be limited to one (1) dwelling. The subdivision will meet DWS standards for fire flow demand of 1,000 gallons per minute for a two (2) hour duration and 500 gallons per minute for a two (2) hour duration for agriculture. Fire hydrants will be installed with a maximum spacing of 350 feet for residential areas and 500 feet in the agricultural areas.

Kula Ridge, LLC is pursuing the development of an offsite well at an elevation of 2,900 feet on the adjacent Mauka Subdivision parcel identified

as TMK (2) 2-3-001:023. The ground water well is anticipated to yield approximately 1,000,000 gallons of water per day. The owner of the Mauka Subdivision, Kula Ridge Mauka LLC, will enter into a partnership with Kula Ridge LLC for the development of this water source, to service both parcels. Water will be pumped from the well site to a new 500,000 gallon storage tank to be located near the mauka boundary of the Mauka Project at an elevation of approximately 3,600 feet. Refer to **Figure 14**.

The 500,000 gallon storage tank will have two (2) distribution lines to service the Ridge Project and the Mauka Subdivision. Distribution lines will be located along the north side of Keahuaiwi Gulch and along the south side of the gulch. Water from the tank will be transported across Keahuaiwi Gulch to the proposed Ridge Project by a new 8-inch transmission line. See **Figure 22**. The north side distribution line will have pressure break tanks to control the water service pressures, servicing the Mauka Project.

The applicant will undertake coordination with the DWS regarding standard requirements pertaining to this water source, and is planning to develop the well, the storage tanks, and the transmission lines according to County standards. In the event that the well produces a sufficient yield with good water quality, the applicant will discuss with the DWS, opportunities for dedicating this well to the County of Maui. The proposed water system is anticipated to improve storage and source in the service area.

In accordance with the rules of the DWS, calculations for domestic and fire protection use will be submitted to DWS in connection with the processing of the project's subdivision approval.

The applicant will also utilize the private water source for non-potable water needs. Water conservation plans will be pursued further during the design phase of project development.

Plumbing fixtures will be installed in accordance with Maui County Code 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.



Photo No. 1: View of Gulch Facing East (Mauka)



Photo No. 3: View of Gulch Facing South



Photo No. 2: View of Gulch Facing West (Makai)



Photo No. 4: View of Gulch Facing North

Source: Kula Ridge, LLC

Figure 22



Prepared for: Kula Ridge, LLC

**Proposed Kula Ridge Residential
Workforce Housing Subdivision**
Photographs of the Existing
Conditions at Keahuaiwi Gulch

NOT TO SCALE



The Commission on Water Resources Management (CWRM) requested that the project be included in the County's Water Use and Development Plan. The applicant will coordinate with the DWS as applicable to address the CWRM request.

3. **Wastewater**

a. **Existing Conditions**

There are no public sewer facilities in this part of Maui. Wastewater in the Kula region is treated, processed and filtered through cesspools or septic tanks. The County of Maui does not serve the area.

b. **Impact and Mitigation**

The average wastewater flow rates for the project area were estimated using County of Maui standards. It is estimated that the wastewater contributions from the subdivision will be approximately 40,600 gallons per day. See **Appendix "H"**.

The applicant has been granted a variance from the State Department of Health to utilize Individual Wastewater Systems (IWS) on lots smaller than 10,000 square feet. The applicant is coordinating with Best Industries USA, Inc., to install and maintain IWS for the 112-lot residential and 4-lot rural subdivision. The approved aerobic Individual Wastewater Systems (IWS) as the means of wastewater treatment disposal for each lot meets the requirements of Hawai'i Administrative Rule (HAR), Title 11-62, Section 33.1. (b) (2). A single IWS will be provided per lot and will consist of an aerobic unit, chlorinators, and horizontal soil absorption system or surface disposal system. Refer to **Appendix "I"**.

Each IWS unit will be required have an operation and maintenance (O&M) program to ensure optimal performance. This O&M program will be written into each deed and will require that an annual report of its quality be sent to the Department of Health. The IWS in the Kula Ridge Subdivision will be maintained by Best Industries USA, Inc. The maintenance program will involve provisions for system operation, scheduled service inspections, and a basic maintenance visit completed at least once a year for each IWS. A

maintenance inspection notice will be provided for every homeowner. This notice will list recommendations and comments for maintaining the IWS.

4. Drainage

a. Existing Conditions

Keahuaiwi Gulch is located on the north side of the subdivision site and extends east to west. Based on the United States Geological Survey Map and the Federal Emergency Management Agency, the estimated flow for a 50-year storm from the project site is 55.66 cubic feet per second (cfs) in a northeast to southwest direction toward adjacent properties. There are no existing drainage improvements located on the project site. A portion of the runoff sheetflows directly into Keahuaiwi Gulch. The runoff eventually discharges into the ocean. Refer to **Appendix "H"**.

b. Impact and Mitigation

It is estimated that the 50-year storm runoff will create a net increase of 108.93 cfs of sheetflow from the subdivision site resulting in a post development total of 164.59 cfs. There will be an onsite detention basin located on the northwestern corner of the subdivision. This basin will hold the runoff generated by the development of the proposed project. Runoff from throughout the subdivision will be channeled into the retention basin by grated catch basins located within grassed shoulder areas.

Overflows from the detention basin will be allowed to sheetflow into Keahuaiwi Gulch at a rate less than the existing condition. The detention basin will be sized to accommodate the increase in surface runoff volume from a 50-year, 1-hour storm generated from the proposed project. The detention basin will also be designed to retain up to 10 percent more than the minimum required by the Rules for the Design of Storm Drainage Facilities in the County of Maui.

The proposed drainage improvements will be designed to ensure that the natural pattern of the existing onsite surface runoff will not be adversely impacted by the proposed action. Drainage design criteria to minimize

alterations will be in accordance with the drainage standards for the County of Maui.

The applicant will ensure that runoff from driveways will be directed to nearby landscaped areas and detention basins to minimize drainage-related impacts resulting from project implementation. Also, native plants which require less water will be sought for the landscaped areas within the project.

Further, appropriate mitigation measures will be developed in consultation with the applicable governmental agencies during the design process. During Construction, the contractor will implement the following recommended Best Management Practices (BMPs) for erosion and sedimentation control.

- Construction of detention basins to capture sedimentation to minimize the quantity of sediment leaving the site
- Staging of construction
- Protecting of natural vegetation
- Stockpiling topsoil, and covering or stabilizing of the soil stockpiles
- Using wind erosion control
- Intercepting runoff above disturbed slopes
- Constructing of benches, terraces, or ditches at regular intervals to intercept runoff on long or man-made slopes
- Providing linings or other method to prevent erosion of storm channels
- Using seeding and fertilizing or other soil erosion control
- Providing vehicle wheel wash-down facilities
- Using stabilized construction entrances
- Using vegetated filter strips

In general, the project will have silt fences, dust fences, and stabilized construction entrance(s). No more than 15 acres will be graded and left

unstabilized at any given time. The contractor will be required to stabilize all graded areas as soon as practicable. The permanent detention basins will be constructed and stabilized prior to the commencement of any other grading on the property. Temporary cutoff ditches will be constructed to ensure that runoff from the property will be diverted into the detention basins. The cutoff ditches will be grassed and have a minimum slope to regulate the velocity of the runoff and allow silt and debris to settle. The detention basins will serve as the primary BMP for erosion and runoff. Runoff will be allowed to overtop the detention basins with its capacity is exceeded and sheet flows into Keahuaiwi Gulch. Prior to overflowing into the gulch, the runoff will be filtered through a gravel berm wrapped in a fine filter fabric.

The foregoing BMPs will be implemented at appropriate stages of construction to ensure optimal management of stormwater.

5. **Electrical, Telephone, and Cable Television Services**

a. **Existing Conditions**

Electrical and telephone services for the Kula region are provided by Maui Electric Company, Ltd. and Hawaiian Telcom, respectively. Developed properties within the vicinity of the project site are served by overhead electrical and telephone distribution systems along Lower Kula Road. Refer to **Appendix "H"**.

b. **Impact and Mitigation**

Electrical and telephone distribution systems in the subdivision will be installed underground from Lower Kula Road to reduce visual impacts. Early design coordination will be undertaken with utility companies to ensure that services can be provided in accordance with the project development schedule. Electrical services will be provided by Maui Electric Company, Ltd. (MECO). Coordination with Maui Electric Company will be done to ensure that the project will meet electrical requirements. The proposed project is not anticipated to adversely affect electrical or communication systems. Street lights will be installed along subdivision streets with the design to be determined by the project's electrical engineer, in coordination

with MECO and in conformance with applicable State and County standards. All lighting within the subdivision will be fully shielded.

It is noted that Maui Electric Company will require an electrical line extension, access, and electrical easements in order to provide service to the project.

In addition, energy conservation measures will be considered as part of the project design phase of development and further coordination with Maui Electric Company will occur at that time. As a result, the applicant will consider implementation of the following demand side management measures, where applicable, to conserve natural resources and to promote energy efficiency.

- Site buildings to take advantage of natural features and maximize their beneficial effects by providing for solar access, daylighting, and natural cooling.
- Design south, east, and west shading devices to minimize solar heat gain.
- Consolidate utility and infrastructure in common corridors to minimize site degradation and cost, improve efficiency, and reduce impermeable surfaces.

Telephone service will be provided by Hawaiian Telcom and cable television service by Time Warner Oceanic Cable.

III. CUMULATIVE AND SECONDARY IMPACTS

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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.

In this instance, there are two Ridge Project elements which relate to the proposed development of the 272-acre Mauka Subdivision project. First, 11 of the workforce housing units proposed in the Ridge Project will be used to meet the RWFH requirements for the 21-lot Mauka Subdivision. Second, water service for the Ridge Project is being provided via offsite water system improvements located on the Mauka Subdivision project. These improvements include a new water source well, a 500,000 gallon storage tank and water distribution lines.

This chapter addresses impact considerations associated with the Mauka Subdivision project given its relationship to the Ridge Project.

A. PHYSICAL SETTING

1. Surrounding Land Uses

Offsite water improvements will occur on the Mauka Subdivision project area. The improvements include the construction of a groundwater well at the 2,900 ft elevation, the installation of a water storage tank at the 3,600 ft. elevation and the installation of waterlines to service both the Mauka Subdivision and the Ridge Subdivision project areas. The proposed groundwater well will be located more than 1,000 ft. from the nearest private water septic system. The proposed groundwater well and water storage tank are not anticipated to have an adverse impact on surrounding uses. The development of these facilities is consistent with existing agricultural and rural uses in the area.

Underground water utility line installation will traverse the Keahuaiwi Gulch. No human activities involving recreation or marine activities occur where the waterline is anticipated to cross Keahuaiwi Gulch. The gulch, where the trenching and backfilling will occur, consists of rocks and boulders and is typically dry, except when it rains. Scrub vegetation, grasses and trees border the area. The waterline will

traverse across existing pastureland to service the proposed subdivision. Coordination with the Department of the Army and the State Commission on Water Resource Management will be undertaken to ensure that applicable permits are secured for the work within the gulch.

A portion of the property is County zoned “Interim” and designated “Single-Family” and “Rural” by the Makawao-Pukalani-Kula Community Plan. The Mauka Subdivision also includes the proposed creation of 21 agricultural lots ranging in size from 3 acres to 41 acres. The proposed agricultural subdivision is consistent with the property’s underlying State “Agricultural” district, Makawao-Pukalani-Kula “Agricultural” land use category, and County “Agricultural” zoning designation. The development of the proposed subdivision will be undertaken in accordance with applicable provisions of the County’s subdivision ordinance as well as other applicable State statutes and County ordinances and rules. The development of the proposed subdivision is not anticipated to be in conflict with surrounding land uses.

2. Topography and Soil Characteristics

The lands underlying the site for the proposed Mauka Subdivision project and offsite water improvements contain soil consisting of Kula Cobbly Loam, 12 to 20 percent slopes (KxaD) and Rock Land (rRK). Refer to **Figure 18**. Kula Cobbly Loam is characterized as having moderately rapid permeability, medium runoff and moderate hazard of erosion. Soil type Rock Land is associated with Keahuaiwi Gulch. Rock Land is characterized as having exposed rock covering 25 to 90 percent of the surface, rock outcrops, and very shallow soils (Decision Analysts Hawai’i, Inc., December 2007).

Temporary environmental effects due to the construction of an offsite water system in the project area are anticipated to occur. A 2,900-foot groundwater well will be constructed on the Mauka Subdivision site. A storage tank will be provided at the 3,600 ft. elevation. A single trench will be excavated in the Keahuaiwi Gulch to facilitate the installation of the waterline that will cross the gulch and service the Ridge Project. Additionally, grading activities will be needed to construct roadway improvements for the 21-lot Mauka Subdivision.

In all instances where grading work will be required, whether it be for water system improvements or subdivision improvements, applicable permits and approvals will

be secured. In this connection Best Management Practices will be employed to ensure that impacts of site-related grading are minimized. Grading plans for the subdivision will be designed to minimize cut and fill quantities, and are not expected to result in post-grading topographic conditions which are significantly different than existing conditions.

Collectively, grading work on both the Mauka Subdivision and the Ridge Project is not anticipated to create adverse topographic conditions or involve soil conditions which are limiting to the provision housing development.

3. Agricultural Productivity Considerations

An assessment of the agricultural feasibility and potential impacts on agriculture at Mauka Subdivision was prepared (Decision Analysts Hawai'i, Inc., December 2007).

The three classification systems commonly used to rate soils in Hawaii are: (a) Land Capability Grouping, (b) Agricultural Lands of Importance to the State of Hawaii, and (c) Overall Productivity Rating. The following identifies the ratings for the soils underlying the Mauka Project site:

a. Land Capability Grouping

Approximately 233 acres of the Mauka Subdivision site soils are rated IVe. Class IV soils have very severe limitations that reduce the choice of plants, or require very careful management, or both. The subclassification "E" indicates that the soils are subject to severe erosion if they are cultivated and not protected.

The remaining 40 acres of the site are rated VIIs. Class VII soils have very severe limitations that make them unsuitable for cultivation and restrict their use largely to pasture. The subclassification "S" indicates that the soils are rocky or stony.

b. **Agricultural Lands of Importance in the State of Hawaii (ALISH)**

About 233 acres of the Mauka Subdivision site have soils that are rated “Other”, while the remaining 40 acres are “Unclassified”. Refer to **Figure 19**. The unclassified soils are associated with Keahuaiwi Gulch.

c. **Overall Productivity Rating**

About 233 acres of the Mauka project site have soils that are rated “D”, while the remaining 40 acres are rated “E”. The E soils are associated with Keahuaiwi Gulch.

Historically, the Mauka Subdivision project site has been and continues to be used for grazing cattle and horses. The site is not and was never part of a sugarcane or pineapple plantation. The proposed subdivision of the property into 21 agricultural lots ranging in size from 3.0 acres to 41 acres will allow for continued agricultural use. For example, based on existing agricultural lots in the surrounding area and in other farm communities, it is anticipated that commercial or casual farming and ranching activities may be carried out at the Mauka Subdivision.

In this regard, the Mauka Subdivision and Ridge Project, when taken together, are not anticipated to adversely affect agricultural productivity parameters in the region.

4. **Flood and Tsunami Hazards**

As reflected in **Figure 20**, both the Mauka Subdivision and the Ridge Project are located in flood Zone “C”, an area of minimal flooding. Cumulative impacts resulting from the development these projects are not anticipated to pose a flood hazard. Post development drainage mitigation measures will be implemented to ensure that adjacent and downstream properties will not be adversely affected by the proposed projects. Because the region is located upland, there are no threats to the surrounding area from coastal wave action. The development of both projects is not anticipated to result in drainage or flooding conditions which are adverse from a cumulative standpoint.

5. **Flora and Fauna**

A Biological Resources Survey of the Mauka Subdivision lands was conducted by Robert W. Hobdy (Hobdy, October 2006). Vegetation on the project site and within Keahuaiwi Gulch includes small weeds and ferns. Eleven (11) native plant species were recorded on the property. All of these native species are widespread and common throughout Hawaii. In addition, there were no known rare or endangered species of fauna or avifauna identified in the vicinity of the proposed offsite water improvements. Accordingly, the proposed development is anticipated to have no significant negative impact on those elements of the natural environment. Collectively, the development of both the Mauka Subdivision and the Ridge Project is not anticipated to create an adverse effect on flora or fauna resources.

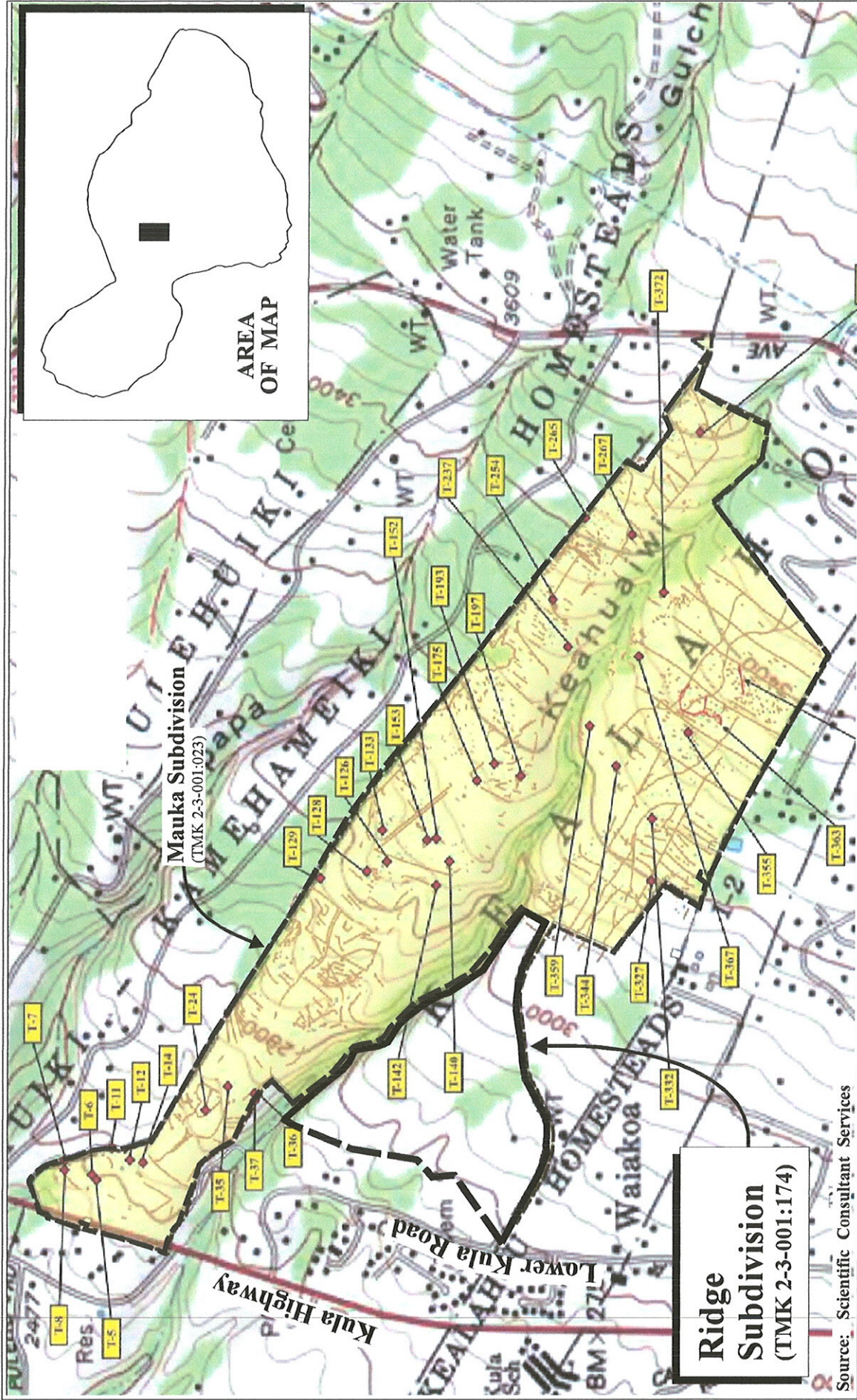
6. **Archaeological Resources**

An Archaeological Inventory Survey was conducted on the Mauka Subdivision project site covering approximately 272 acres (Dega, May 2007). The survey identified 39 sites and agricultural features to be significant for information content under Criterion D. See **Figure 23**. A petroglyph site was identified and is significant under Criterion D and E. The proposed water storage tank and transmission lines will be designed to avoid the identified sites and agricultural features. Data Recovery or Preservation has been recommended for several sites on the Mauka Subdivision project area.

In the event that archaeological resources are encountered during earth altering activities, work will be halted in the area of the find and appropriate protocols will be followed in coordination with the State Historic Preservation Division and the Maui/Lanai Islands Burial Council. Archaeological features will be treated in accordance with current State preservation law and administrative rules for the treatment of inadvertent discoveries, including required coordination with the Maui/Lanai Islands Burial Council.

7. **Cultural Impact Assessment**

Based on the findings and recommendations of the archaeological reports prepared for the Ridge Project and the Mauka Subdivision, and accounts presented by interviewees of the Ridge Project, the proposed developments in the region are not



Source: Scientific Consultant Services

Figure 23



Proposed Kula Ridge Residential
 Workforce Housing Subdivision
 Archaeological Site Locations and
 Agricultural Features at Kula Ridge Mauka

NOT TO SCALE

Prepared for: Kula Ridge, LLC

anticipated to have an adverse effect on cultural practices.

8. Air and Noise Quality

The construction phase of the Mauka Subdivision project will generate noise generated from construction equipment, similar to the Ridge Project. The construction duration for the Mauka Subdivision project is estimated to be 12 to 18 months. Construction activities will be limited to daylight hours and Best Management Practices will be implemented to ensure compliance with applicable noise standards set forth by the Department of Health. After construction, noise generated from the Mauka Subdivision will be limited to local traffic and agricultural-related activities. These sources however, are not anticipated to create adverse noise conditions given the surrounding land use context.

Air quality will also be temporarily affected during subdivision construction activities and water system improvements installation. Best Management Practices will be used during construction to minimize fugitive dust emissions associated with construction. Post-construction air quality is not expected to differ from existing conditions. Farming activities may result in the generation of dust on a temporary basis. However, the effects of small-scale farming on air quality is not anticipated to be adverse.

Collectively, the Mauka Subdivision and the Ridge Project are not anticipated to create adverse noise and air quality conditions.

9. Scenic and Open Space Resources

The Mauka Subdivision will continue the agricultural land use context on the property's 272 acres. The development of the subdivision will enable construction of farm dwelling and related structures. However, such structures will be required to comply with zoning performance standards relating to height, setbacks and lot coverage, as set forth by Chapter 19.30A of the Maui County Code. Open space, park areas and large residential lots at the mauka portion of the Ridge Project will be provided to create a greenbelt and maintain the rural characteristic of the region. The Ridge Project will result in a change in the man-made landscape with the development of 116 house lots. This change however, is not considered out of context when considering the architectural character of the proposed house designs

and the need for workforce housing.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Community Character

The Mauka Subdivision and the Ridge Project are located in the Waiakoa region of Kula. The region's rural qualities are characterized by agricultural pursuits, outdoor recreational opportunities, and open space and natural resources. The areas within Waiakoa contain agricultural uses and low-density rural residential uses.

Overall, the Kula region has grown steadily over the past few years with the development of the Kulamalu Town Center located approximately 1.0 mile northeast of the project site and the Department of Hawaiian Homelands Waiohului Homestead Community located south of the project site. The project area is also located in close proximity to urban and rural uses, such as the Kula Community Center, Holy Ghost Catholic Church, several small business establishments, and schools which include Kula Elementary School and Haleakala Waldorf School. Residential workforce housing would be provided in close proximity to these neighborhood services.

Both projects are proposed to be built with the intention of maintaining the character of the region while meeting the need for additional housing in the community.

2. Population and Housing

Resident population in the Makawao-Pukalani-Kula region is projected to increase to 26,644 by the year 2010 and 30,880 by the year 2030 (County of Maui Planning Department, June 2006). A significant increase in housing supply will be needed to accommodate the region's anticipated growth. The project will provide residential workforce housing opportunities in both the near and long term, which in turn is anticipated to result in a more balanced housing market. The proposed projects respond to the demand of a growing need for homes in the region.

3. Economy

The natural and agricultural settings in the region provide opportunities to maintain and enhance the region's economic base. The Waiakoa region includes opportunities

that can contribute to the economic well-being of the County of Maui. It is anticipated that commercial or casual farming and ranching activities will be carried out at the Mauka Subdivision, thereby providing opportunities for agricultural diversification.

Development of both the Ridge Project and Mauka Subdivision are expected to involve construction over a period of approximately 12 to 18 months and support construction related employment. In the long term, real property taxes generated by the project will contribute to the County's revenue base to support any increase in regional public service demands over time.

C. PUBLIC SERVICES

1. Police, Fire, and Medical Services

The combined developments in the region will not extend the existing service area limits for police services, fire protection operations, or medical services.

2. Education and Recreational Facilities

The combined development of both projects includes 116 improved residential lots, the construction of single-family residences and 21 agricultural lots. Cumulative impacts of both developments are anticipated to result in a slight increase in student population. This impact is anticipated to be mitigated by educational impact fees as determined by the DOE.

The development of both projects will also result in increased land for park areas and improvements to existing recreational facilities in the vicinity. The Mauka Subdivision project will address the County's parks and playground requirements through the payment of fees. It is noted that Kula Ridge Mauka LLC, the owner of the Mauka Subdivision property also owns the lands underlying the Kula Community Center. An alternative means of addressing the parks and playground requirements for the Mauka Subdivision therefore, includes the dedication of lands underlying the Kula Community Center. Kula Ridge Mauka LLC will coordinate with the Department of Parks and Recreation to address the County's parks and playground requirements.

As previously noted, the Ridge Project will meet the parks and playground assessment requirements through the provision of a three (3)-acre park site adjacent to the Kula Community Center.

Collectively, both projects will meet their respective obligations for parks and playgrounds.

3. Solid Waste Disposal

A solid waste management plan will be developed for the disposal or recycle of materials resulting from construction and site activities. Solid waste generated during the construction of both projects are anticipated to be recycled or disposed in an approved construction landfill site.

The Public Facilities Assessment Update County of Maui prepared by R.M. Towill Corporation (R.M. Towill Corporation 2002) indicates that the Central Maui Landfill will have adequate capacity to accommodate residential and commercial waste through the year 2025. The study took into account future growth of residential and non-residential uses on Maui. In addition, lands adjacent to the existing landfill are currently utilized for rock quarrying and will likely be available for County expansion of the landfill, further increasing available capacity.

D. INFRASTRUCTURE

1. Roadways

A traffic study that was prepared for the Makua Project shows traffic patterns within the Waiakoa region along Kula Highway and Lower Kula Road and the potential impacts of the proposed Ridge Project and the Kula Senior Housing project (Wilson Okamoto, December 2006).

Each potential development was analyzed separately and then integrated into the study area to account for trips generated by all proposed developments in the region. Total traffic volumes entering the traffic study's subject intersections along Kula Highway are expected to increase by approximately 2 to 3 percent during both peak periods with the proposed developments. 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.

The TIAR indicated that cumulative traffic volumes and operating conditions with the proposed projects are generally expected to remain similar to existing conditions in the Waiakoa area.

2. Water

Kula Ridge Mauka LLC, in partnership with Kula Ridge LLC is proposing to drill a ground water well at the 2,900 ft. elevation of the Mauka Subdivision site. The groundwater well is anticipated yield approximately 1 million gallons per day (mgd) and serve both the Ridge and Mauka projects. Development of the groundwater well involves the construction of a 500,000 gallon tank at the 3,600 ft. elevation and distribution lines to service both projects.

The project's water system may provide opportunities for water service beyond the project's limits. Should opportunities for joint development of water storage and conveyance systems become available, the project's water system has been formulated with the notion that integration with adjoining properties' water systems can be accomplished.

3. Wastewater

The Ridge Project has secured a wastewater variance for the installation of individual wastewater systems for each of the 116 residential lots. Each agricultural lot in the Mauka Subdivision will also have individual wastewater systems. Collectively, the two projects will not place additional burdens on the County for wastewater resources.

4. Drainage

The development of both the Ridge Project and the Mauka Subdivision are not expected to have significant adverse effects on downstream properties or coastal marine waters. Post development runoff from both the Ridge Project and the Mauka Subdivision is estimated to be 711.4 cfs, an increase of 211.3 cfs over existing conditions. All additional runoff due to the development of the subdivisions will be retained onsite. Overflows from the detention basins at both the Ridge Project and

the Mauka Subdivision will be allowed to sheetflow into Keahuaiwi Gulch at a rate less than the existing conditions. (Otomo Engineering, Inc., February 2008.)

5. Electrical, Telephone and Cable Television Services

Electrical, Telephone, and Cable Television Services for the Mauka Subdivision will be provided by Maui Electric, Hawaiian Telcom, and Oceanic Cable respectively. All utility lines servicing the projects will be installed underground. On a cumulative basis, the projects are not anticipated to adversely affect electrical or communication systems.

E. OTHER PLANNING CONSIDERATIONS

It is noted 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 Kula region. Should lands other than the proposed Ridge Project 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 Makawao-Pukalani-Kula 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.

F. SECONDARY IMPACTS

A secondary impact associated with the Ridge Project and the Mauka Subdivision relates to the development of the new water source on the Mauka Subdivision property. As previously noted, the well yield is estimated to be 1.0 mgd while the daily average consumption demands for the Ridge Project and the Mauka Subdivision are 83,200 mgd and 300,000 mgd, respectively. These estimates indicate an excess availability of water of approximately 616,800 mgd which may be used by others seeking to build homes or use their properties for a higher use. Alternatively, the source may be dedicated to the County of Maui, DWS should they determine that source acquisition holds public value and benefit. In both instances, the availability of water will allow for additional growth, which up to this point in time has been constrained due to the lack of water.

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

IV. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES AND CONTROLS

This section discusses the relationship of the proposed Ridge Project to applicable State and County land use plans, policies and controls.

A. STATE LAND USE DISTRICTS

Pursuant to Chapter 205, Hawai'i Revised Statutes, all lands in the State have been placed into one (1) of four (4) major land use districts by the State Land Use Commission. These land use districts are designated "Urban", "Rural", "Agricultural", and "Conservation". The project site is classified "Agricultural". See **Figure 24**.

A State Land Use District Boundary Amendment from the "Agricultural" District to the "Urban" and "Rural" Districts is being requested as part of the entitlement requirements to bring consistency between the State Land Use District boundaries and the Kula Ridge Project. Refer to **Figure 16**. This 48.12-acre area will contain a workforce housing component integrated with market-priced housing (including four (4) large lots), open space, and a 3-acre park. Of the 48.12 acres, 31.87 acres are proposed to be reclassified from the Agricultural District to the Urban District. The remainder of the project area (16.25 acres) is proposed to be reclassified from Agricultural to Rural District.

Criteria considered in the reclassification of lands are set forth in the State Land Use Commission Rules (Chapters 15-15-58 and 15-15-21, Hawai'i Administrative Rules). The proposed reclassification of the 48.12 acres within the Project Area from "Agricultural" to "Urban" and "Rural" has been analyzed with respect to the criteria, as discussed below.

B. LAND USE COMMISSION RULES, CHAPTER 15-15, HAWAII ADMINISTRATIVE RULES (HAR)

The proposed reclassification of the subject property has been analyzed with respect to standards of the Urban District set forth in Chapter 15-15-18, HAR and standards for the Rural District set forth in Chapter 15-15-21, HAR.

Urban District Standards (Chapter 15-15-18, HAR)

Chapter 15-15-18, HAR pertains to standards for determining Urban District Boundaries.

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

Comment: The subdivision property is in proximity to residential subdivisions of a similar character, with structures, streets, and services of an urban type. In this context, the subject property is in immediate proximity to developed residential areas

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

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

Comment: The area proposed for reclassification is located approximately 8.0 miles to Makawao Town and approximately 6.0 miles to Pukalani Town. The proposed Ridge Project will provide a residential community in proximity to key employment centers in both towns, as well as generate employment opportunities associated with home building and maintenance services.

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

Comment: The area proposed for reclassification will be serviced by infrastructure and public services without creating capacity and operational constraints. Appropriate onsite and offsite infrastructure improvements will be provided by the applicant as reported in the Preliminary Engineering Report. Refer to **Appendix "H"**. The area is located in close proximity to major existing roadways, such as Kula Highway, and includes a planned internal transportation system of collector and local roads.

The project area requiring reclassification will be served by neighboring schools and parks. Fire protection services are available nearby and a new police community service center will be located in the Kulamalu Town Center, approximately 1.0 mile northeast of the project site.

- C. Sufficient reserve areas for foreseeable urban growth.

Comment: Other planned areas of urban growth are anticipated in the Makawao-Pukalani-Kula Community Plan. The Waiohuli Homestead Community Phase 2 and Phase 3 Developments, for example, will accommodate future urban growth. Incremental development at Keokea and Waiohuli is proceeding with build-out anticipated over the next several years.

- (3) 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 gently slopes in a west to east direction, with elevations ranging between 2,708 to 3,085 feet. Having been formerly used for pasture land, the property can be characterized as generally level, with defined drainage patterns. The land proposed for reclassification is located within Zone C, an area of minimal flooding, on the Federal Emergency Management Agency (FEMA) flood insurance rate maps. This land area is not subject to tsunami inundation or unstable soil conditions.

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

Comment: The 31.87-acre parcel proposed to be reclassified is in proximity to existing Urban district lands to the west. Although not contiguous, the intervening Kula Community Center and tennis courts establish a land use spatial configuration which provides a continuity of urban use patterns between the project site and lands falling within the State urban district. In general, this area contains residential lots, a community center, a church, and small business establishments, along with an elementary school and park space.

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

Comment: This 31.87-acre parcel lies adjacent to areas of single-family residential uses designated in the Makawao-Pukalani-Kula Community Plan. The Makawao-Pukalani-Kula Community Plan designates the project site as both single-family and rural. The proposed area for reclassification is surrounded by other urban uses. It is in close proximity to a grocery store, gas station, restaurant, a school, and a community center.

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

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

Comment: The area proposed for reclassification is adjacent to existing urban development and activity. The 31.87 acres proposed for reclassification represent a minor portion of the 244,632 acres of Agricultural classified lands on the island of Maui (Maui County Data Book, 2006).

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

Comment: The area proposed for reclassification will be implemented as a small planned development. The property's location adjacent to developed and undeveloped urban lands does not contribute to spot development or burdensome infrastructure investments.

- (8) It may include lands with a general slope of twenty percent or more if the commission finds that those lands are desirable and suitable for urban purposes and that the design and construction controls, 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: These single-family residential lots will be developed on lands having slopes of less than 20 percent. County grading regulations will be followed to ensure the protection of public health, safety and welfare.

- (9) The extent to which the proposed reclassification conforms to the applicable goals, objectives, and policies of the Hawai'i state plan and relates to the applicable priority guidelines of the Hawai'i state plan and adopted functional plans.

Comment: The proposal to incorporate the land uses as envisioned in the Kula Ridge Subdivision project is in alignment with overall theme, goals, objectives and policies of Chapter 226, Hawai'i Revised Statutes, relating to Hawai'i State Planning Act. The applicable objectives, policies and priority guidelines are set forth in Section C of this Chapter.

- (10) The extent to which the proposed reclassification conforms to the applicable district standards.

Comment: The proposed reclassification conforms to Urban District standards as identified in Chapter 205-2 and in keeping with the Maui County General Plan.

(11) The impact of the proposed reclassification on the following areas of state concern:

A. Preservation or maintenance of important natural systems or habitats.

Comment: There are no important systems or habitats within the reclassification area.

B. Maintenance of valued cultural, historical or natural resources.

Comment: An archaeological inventory survey was carried out on the subject property. An archaeological monitoring plan for the property will be developed to appropriately cover the recommendations of the SHPD. The property is not being used for cultural practices and adverse impacts to cultural resources are not anticipated as a result of reclassification.

C. Maintenance of other natural resources relevant to Hawai'i's economy, including, but not limited to, agricultural resources.

Comment: The use of the subject property for workforce and market housing purposes will not compromise agricultural productivity for the island. The subject property has been used historically for habitation and pasture land. Moreover, other natural resources are not anticipated to be adversely affected by the proposed action. Refer to **Appendix "C"**.

D. Commitment of State funds and resources.

Comment: The proposed reclassification will not require commitment of State funds or resources.

E. Provision for employment opportunities and economic development.

Comment: The Ridge Project as a whole will provide new employment opportunities for Maui residents. The residential projects will provide construction and service-related employment.

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

Comment: The Ridge Project as a whole will provide a variety of housing types, including affordable and single-family “starter” homes. The workforce housing parameters for the project includes the provision of at least 51 percent of the lots to families earning not more than 160 percent of the Maui County median income.

Rural District Standards (Chapter 15-15-21, HAR)

The proposed reclassification of a 16.25-acre portion of the subject property is also in conformance with the following standards of the Rural District set forth in Chapter 15-15-21, HAR.

- (1) Areas consisting of small farms; provided that the areas need not be included in this district if their inclusion will alter the general characteristics of the areas.

Comment: The area proposed for reclassification is surrounded by other rural areas. The four (4) large lots within the project will encourage farming activities to occur near other farming communities.

- (2) Activities or uses are characterized by low-density residential lots of not less than one-half acre and a density of not more than one single-family dwelling per one-half acre in areas where “city-like” concentration of people, structures, streets, and urban level of services are absent, and where small farms are intermixed with the low-density residential lots.

Comment: The area proposed for reclassification is surrounded by single-family homes, small farms, and urban uses that are reflective of the region’s rural character. The four (4) large lots within the proposed project will be sold with restrictions on further subdividing, and development will be restricted to one (1) main and one (1) accessory dwelling unit.

- (3) It may also include parcels of land which are surrounded by, or contiguous to this district, and are not suited to low-density residential uses for small farm or agricultural uses.

Comment: As noted above, the proposed area for reclassification is surrounded by other uses that are reflective of the region’s rural character. The rural transition between

agricultural and urban areas is considered appropriate, given the proximity of the project site to infrastructure and services.

C. CHAPTER 226, HRS, HAWAII STATE PLAN

Chapter 226, HRS, also known as the Hawai'i State Plan, is a long-range comprehensive plan which serves as a guide for the future long-term development of the State by identifying goals, objectives, policies and priorities, as well as implementation mechanisms. The proposed Ridge Project is in concert with the following goals of the Hawai'i State Plan:

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

1. Objectives and Policies of the Hawai'i State Plan

The proposed reclassification is in conformance with the following objectives and policies of the Hawai'i State Plan:

Chapter 226-5, HRS, Objectives and Policies for Population

226-5(b) (1), HRS: Manage population growth statewide in a manner that provides increased opportunities for Hawai'i's people to pursue their physical, social and economic aspirations while recognizing the unique needs of each county.

226-5(b)(3), HRS: Promote increased opportunities for Hawai'i's people to pursue their socio-economic aspirations throughout the islands.

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

226-6 (b)(6), HRS: Strive to achieve a level of construction activity responsive to, and consistent with, State growth objectives.

226-11, HRS, Objectives and Policies for the Physical Environment—Land-based, Shoreline and Marine Resources

226-11 (a)(2), HRS: Effective protection of Hawai'i's unique and fragile environmental resources.

226-11 (b)(3), HRS: Take into account the physical attributes of areas when planning and designing activities and facilities.

226-11(b)(8), HRS: Pursue compatible relationships among activities, facilities and natural resources.

226-12, HRS, Objectives and Policies for the Physical Environment—Scenic, Natural Beauty and Historic Resources

226-13(b)(5), HRS: Encourage the design of developments and activities that complement the natural beauty of the islands.

226-13, HRS, Objectives and Policies for the Physical Environment—Land, Air and Water Quality

226-13(b)(2), HRS: Promote the proper management of Hawai'i's land and water resources.

226-13(b)(6), HRS: Encourage design and construction practices that enhance the physical qualities of Hawai'i's communities.

226-13(b)(7), HRS: Encourage urban developments in close proximity to existing services and facilities.

226-19, HRS, Objectives and Policies for Socio-Cultural Advancement—Housing

226-19(a)(2), HRS: The orderly development of residential areas sensitive to community needs and other land uses.

226-19(b)(1), HRS: Effectively accommodate the housing needs of Hawai'i's people.

226-19(b)(3), HRS: Increase homeownership, rental opportunities and choices in terms of quality, location, cost, densities, style and size of housing.

226-19(b)(5), HRS: Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.

226-19(b)(7), HRS: Foster a variety of lifestyles traditional to Hawai`i through the design and maintenance of neighborhoods that reflect the culture and values of the community.

Chapter 226-23, HRS, Objectives and Policies for Socio-Cultural Advancement—Leisure

226-23(b)(4), HRS: Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.

2. Priority Guidelines of the Hawai`i State Plan

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

Chapter 226-103, HRS, Economic Priority Guidelines:

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

A. Encourage investments which:

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

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

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

226-104(b)(1), HRS: Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.

226-104(b)(2), HRS: Make available marginal or non-essential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.

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

Chapter 226-106, HRS, Affordable Housing Priority Guidelines

226-106(1), HRS: Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income and gap-group households.

226-106(8), HRS: Give higher priority to the provision of quality housing that is affordable for Hawai'i's residents and less priority to development of housing intended primarily for individuals outside of Hawai'i.

D. STATE FUNCTIONAL PLANS

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

1. State Agricultural Functional Plan

The proposed action will reclassify approximately 48.12 acres of land from the State Agricultural district to the State Urban and Rural districts. The four (4) large lots proposed as part of the project encompasses a total of 16.25 acres. Agricultural pursuits relating to pasture land uses can be accommodated on these lands. The proximity of the subject property to existing and planned urban land uses provide 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 indicate a current shortage of single-family housing on Maui. The 70 affordable residential houselots and the 46 market lots within the proposed subdivision will help to address a critical community need.

3. **State Recreational Functional Plan**

Outdoor recreation is recognized by the Hawai`i State Plan as an important part of life for Hawai`i'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 action for the subdivision includes provisions to provide approximately 3.0 acres of park to address this need.

E. MAUI COUNTY GENERAL PLAN

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

The Maui County General Plan developed five (5) major themes that focus on the overall goals of the plan. These themes were devised to reflect the general scope and priorities of the Maui County General Plan. The proposed project responds to the following theme:

Theme Number 5

Provide for needed resident housing:

- Amendments to the General Plan address the development of resident housing as a major social need in our community.

The proposed action is in keeping with the following General Plan objectives relating to population, land use, economic activity, housing and urban design.

POPULATION

Objective

To plan the growth of resident and visitor population through a directed and managed growth plan so as to avoid social, economic and environmental disruptions.

Policies

- a. Manage population growth so that the County's economic growth will be stable and the development of public and private infrastructures will not expand beyond growth limits specified in the appropriate community plans or negatively impact our natural resources.
- b. Balance population growth by achieving concurrency between the resident employee work force, the job inventory created by new industries, affordable resident/employee housing, constraints on the environment and its natural resources, public and private infrastructure, and essential social services such as schools, hospitals, etc.

LAND USE

Objective

1. To preserve for present and future generations existing geographic, cultural and traditional community lifestyles by limiting and managing growth through environmentally sensitive and effective use of land in accordance with the individual character of the various communities and regions of the county.

Policies

- a. Provide and maintain a range of land uses districts sufficient to meet the social, physical, environmental and economic needs of the community.

Objective

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

Policies

- a. Encourage land use patterns that foster a pedestrian oriented environment to include such amenities as bike paths, linear parks, landscaped buffer areas and mini-parks.
- b. Encourage land use methods that will provide a continuous balanced inventory of housing types in all price ranges.
- c. Encourage programs to stabilize affordable land and housing prices.

ECONOMIC ACTIVITY (General)

Objective

Utilize an equitable growth management program which will guide the economic well-being of the community.

Policies

- a. Encourage the adoption of a resource allocation program which gives a high priority to affordable residential projects.

HOUSING

Objective

To provide a choice of attractive, sanitary and affordable homes for all our residents.

Policies

- a. Provide or require adequate physical infrastructure to meet the demands of present and planned future affordable housing needs.
- b. Encourage the construction of housing in a variety of price ranges and

geographic locations.

- c. Encourage the use of innovative performance standards and building methods to reduce housing costs to the consumer.
- d. Streamline or “fast-track” the governmental review process for affordable single-family housing projects.
- e. Make full use of State and Federal programs that provide financial assistance to renters and homebuyers.
- f. Ensure that each community plan region contains its fair share of affordable housing.

URBAN DESIGN

Objective

To encourage development that reflects the character and culture of Maui County’s people.

Policies

- a. Encourage community design that establishes a cohesive identity
- b. Encourage the establishment of continuous green areas, bike-paths, active and passive recreation areas and mini-parks in new subdivision development.

F. MAKAWAO-PUKALANI-KULA COMMUNITY PLAN

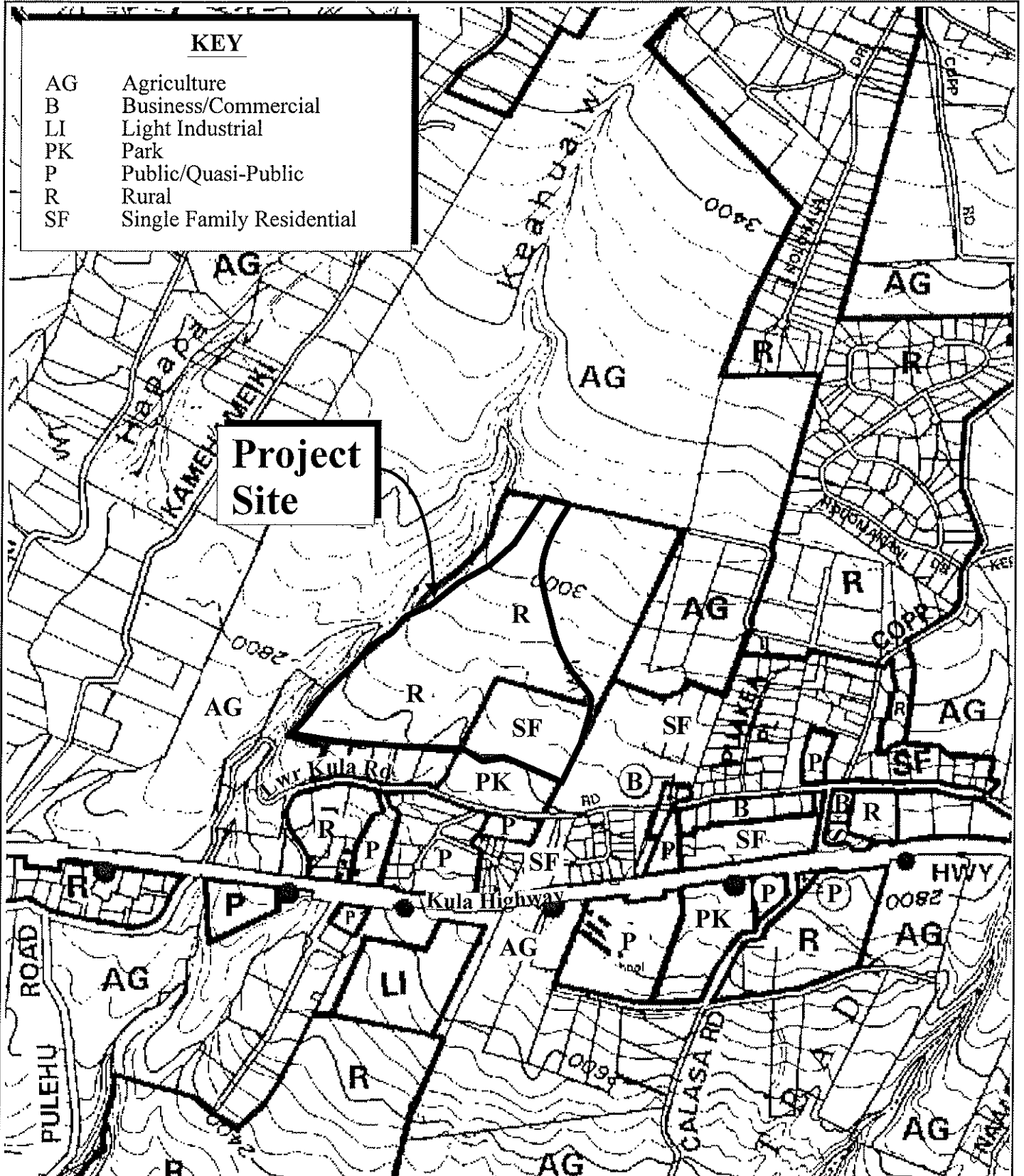
The project site is located within the Makawao-Pukalani-Kula Community Plan region, one (1) of nine (9) community plan regions established in the County of Maui. Planning for each region is guided by the respective community plans, which are designed to implement the Maui County General Plan. Each community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

The Makawao-Pukalani-Kula Community Plan was adopted by the County of Maui through Ordinance No. 2510 which took effect on July 23, 1996.

Land use guidelines are set forth by the Makawao-Pukalani-Kula Community Plan Land Use Map. See **Figure 25**. Fifteen (15) acres of the subject property are designated for “Single-Family” use with a remainder of 33.12 acres set aside for “Rural” use. The proposed project

KEY

- AG Agriculture
- B Business/Commercial
- LI Light Industrial
- PK Park
- P Public/Quasi-Public
- R Rural
- SF Single Family Residential



Source: Pukalani-Makawao-Kula Community Plan Map

Figure 25 Proposed Kula Ridge Residential Workforce Housing Subdivision
Community Plan Land Use Map

NOT TO SCALE



Prepared for: Kula Ridge, LLC

MUNEKIYO & HIRAGA, INC.

Nishikawa\KulaAHC\PLUD

includes 116 single-family homes, a 3-acre park space, and a 5-acre open space area.

Because the proposed project will provide workforce housing opportunities for residents, it will be processed in accordance with Section 201H-38 of the Hawai'i Revised Statutes. The applicant will be seeking exemptions from certain regulatory and statutory requirements relating to land use, construction, subdivision, public services and infrastructure and administrative procedures. An exemption from Chapter 2.80B of the Maui County Code, relating to the General Plan and Community Plans, will be included in the Section 201H-38 exemption list.

The proposed project is consistent with the following goals, objectives and policies set forth in the Makawao-Pukalani-Kula community plan.

ECONOMIC ACTIVITY

Goal: A stable and diverse economic environment which supports a level of community prosperity in order to provide social services and environmental amenities and which respects the region's rural and agricultural lifestyle, open space, and natural resources.

Objectives and Policies:

- Provide for the preservation and enhancement of agricultural lands and operations, emphasizing the importance of promoting diversified agriculture to the region's economic base and lifestyle.
- Preserve agriculture by actively promoting locally grown agricultural products.

LAND USE

Goal: The maintenance and enhancement of Upcountry's unique and diverse rural land use character with sensitivity to existing land use patterns, natural resource values, and economic and social needs of the region's residents.

Objectives and Policies:

- Recognize the value of open space, including agricultural lands and view planes to preserve the region's rural character.
- Encourage new residential developments in area which are contiguous

extensions of, or infills within the established residential pattern, and which do not adversely affect agricultural uses.

- Ensure that adequate lands are set aside for recreational and open space purposes.
- Preserve and enhance the “country” atmosphere in all communities by maintaining the small-scale, unique and independent character of each of the three sub-regions. “Country” atmosphere is defined by building style, a low density mix of residences, ranches, open spaces, greenways, plantings, and cultivated lands.
- Make available agricultural lands for those who wish to farm.
- Ensure an adequate supply of lands designated for residential use to address the affordable and elderly housing needs of the region’s residents.

URBAN DESIGN

Goal: Recognitions and preservation of the unique design characteristics of the Makawao, Pukalani, and Kula communities in order to enhance Upcountry’s man-made environment.

Objectives and Policies:

- Support the revision of subdivision and roadway design criteria and standards to be more compatible with the rural character of the upcountry region.
- Preserve the unique characteristics of all of the Upcountry towns by recognizing and respecting architectural styles as described in the Country Town Design Guidelines.
- Support the development of pedestrian equestrian and bikeway connections which provide safe and convenient linkages within and between Upcountry communities.

HOUSING

Goal: Housing opportunities for the residents of Makawao-Pukalani-Kula, to include all income and age groups, which are affordable, safe, and environmentally and culturally compatible.

Objectives and Policies:

- Provide a mixture of housing types, smaller lot sizes, and coordinated assistance programs aimed at lowering housing costs and expanding housing opportunities.
- In keeping with public health and safety principles, and consistent with the Upcountry character, develop zoning, subdivision and design standards which will facilitate the development of affordable housing.

SOCIAL INFRASTRUCTURE

Goal: An efficient and responsive system of people-oriented public services which enable residents to live in a safe, healthy, and enjoyable lifestyle, and offer the youth and adults of the region opportunities and choices for self and community improvement.

Objectives and Policies:

- Pursue the development of equestrian trails, pathways, greenways, and related facilities which will meet the recreational needs of runners, joggers, walkers, horseback riders, and cyclists.

G. UPCOUNTRY GREENWAY MASTER PLAN

The project site is located within the Upcountry Greenway Master Plan Region. The Makawao-Pukalani-Kula Community Plan calls for the preparation and implementation of an Upcountry Master Plan for Bikeways, equestrian trails and pedestrianways which connect major origin and destination points. Such facilities include:

1. Pedestrian/equestrian/bikeway routes which link the Makawao Town Center, Eddie Tam Memorial Gym, Kalama Intermediate School, and continuing along Makani Road to Haleakala Highway.
2. Pedestrian/equestrian/bikeway routes which link Pukalani residential areas with the Pukalani Community Center, Pukalani Elementary School, and the Pukalani Terrace Center, along Pukalani Street from Haleakala Highway to the Pukalani Country Club, with a future extension to the Kulamalu project.
3. Pedestrian/bikeway route along the Pukalani Bypass and Kula Highway from Makani Road to Ulupalakua.

Greenway Master Plan Goal

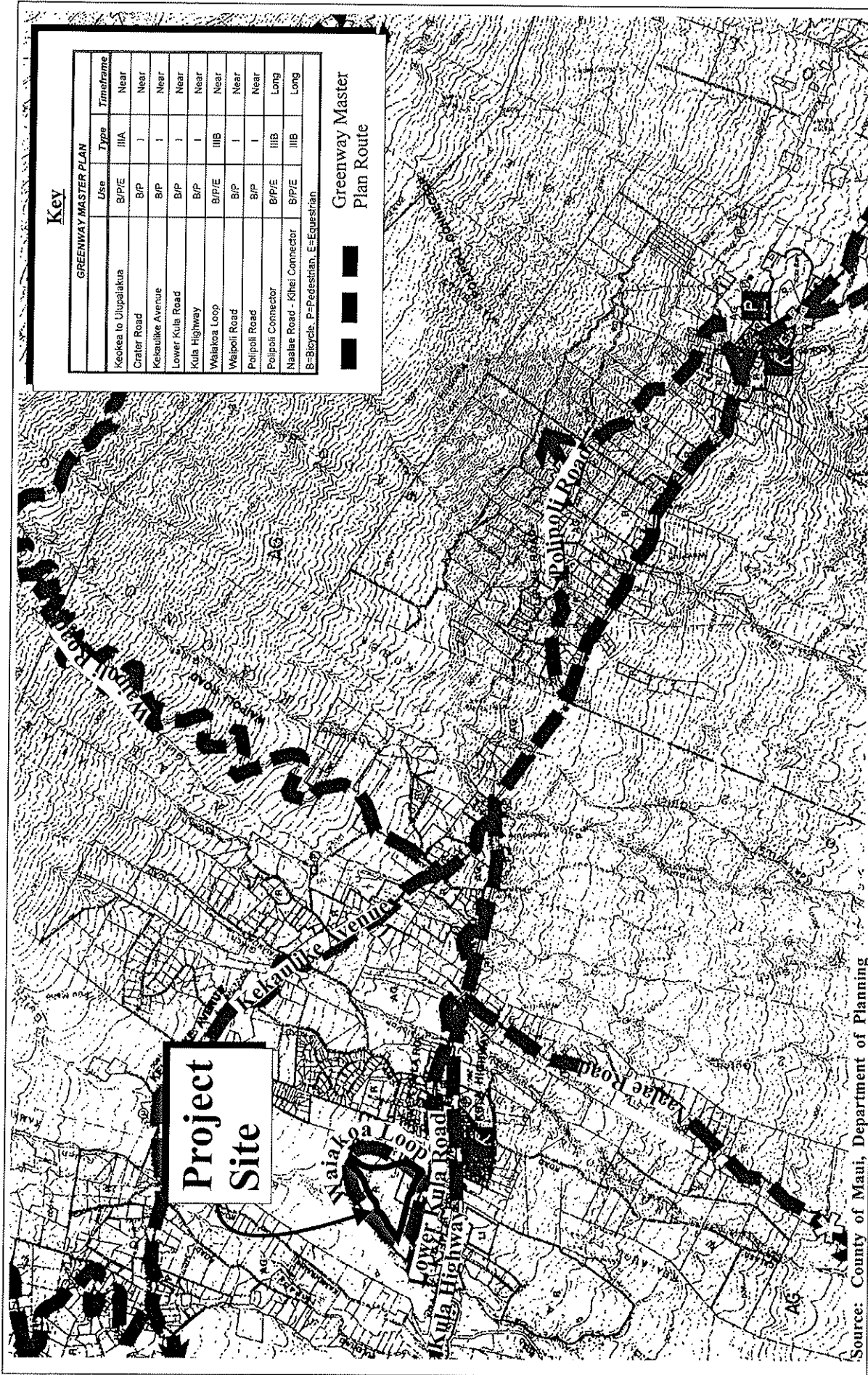
An integrated system of non-motorized transportation and recreation multi-use routes, trails and paths, which respect the rights of private property owners and utility service companies, and which are compatible with existing and future land uses in the region.

Greenway Master Plan Objectives

1. Identify greenway routes which provide linkages between and within communities.
2. Establish greenway design criteria which are suitable to multi-use and multi-function purposes.
3. Develop routing criteria which recognizes physical, operational, and land use needs of private property owners and utility service providers.
4. Establish a regulatory and management framework to ensure the long-term operational success of the Upcountry Greenway.
5. Develop a user education program to promote user safety and welfare and to broaden understanding of private property interests and needs.
6. Develop greenway implementation priorities and timeframes which maximize operational utility within the context of available funding.

Greenway Concepts Envisioned In The Project Vicinity

An opportunity for a recreational loop trail was identified along the perimeter of the project area. Conceptually, a recreational loop trail incorporates a trail or path parallel to, and physically separated from the vehicular travel way. The trail/path may be within an existing right-of-way or may be placed adjacent to the existing roadway on private lands. This type of section would have the flexibility to accommodate pedestrians, bicyclists, and horseback riders. See **Figure 26**. The applicant intends to incorporate recommendations from the Upcountry Greenway Master Plan and will work with the County's Department of Public Works to identify opportunities and constraints in implementing a recreational loop trail along the perimeter of the project area. As project-specific details evolve, physical constraints relating to the topography and land use patterns will be addressed through site planning and a grading plan. Project planning will also involve coordination to determine use regulations and maintenance of the trail.



Source: County of Maui, Department of Planning

Figure 26

Proposed Kula Ridge Residential
Workforce Housing Subdivision
Upcountry Greenway Master Plan

NOT TO SCALE



Prepared for: Kula Ridge, LLC



MUNEKIYO & HIRAGA, INC.
NishikawaKulaA/H/MasterPlan

H. COUNTY ZONING

The Ridge Project site is zoned “Interim” by Maui County zoning. While the current zoning does not allow for the proposed residential subdivision, the Section 201H-38, HRS application, which will be filed with the Maui County Council, will include an exemption from the County’s Title 19 zoning provisions which would allow for the proposed project.

According to Chapter 19.30A.020 of the Maui County Code, 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 Hawai‘i (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 meet Criteria 1 and 3, there are a number of factors which limit the feasibility of the project site for active agricultural use. Although the entire project area is designated as “other” agricultural lands, about 16 acres or 33 percent of the project area have agronomic conditions that are suitable for growing high-elevation crops. Much of this land is located at the mauka portion of the site where the four 4-acre lots are planned. These lands are planned to be available for agricultural uses which include both farming and grazing operations. The remainder of the site contains soils with low productivity ratings. About 25 acres (52 percent) of the project site have soils rated D, and about 7 acres (15 percent) are rated E.

The recent release of land from plantation agriculture has resulted in the supply of agricultural land far exceeding its demand. This current trend indicates that ample land is available in Hawai‘i to accommodate the growth of diversified crops.

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. These actions have greatly increased the supply of non-sugar based agricultural lands. In fact, much of the lands of these former plantations are still fallow. The proposed project will ultimately involve the use of approximately 48 acres of land, which represents less than one (1) percent of the roughly 246,000 acres of State Agricultural district lands on the island of Maui.

When evaluated based on the housing shortage that exists on Maui, coupled with the scarcity of entitled, undeveloped residential lands in Upcountry Maui, the conversion of the project's agriculture lands into residential development presents a beneficial opportunity. The expansion of the urban district boundary in Upcountry Maui will allow residential use and supply additional housing units at a site deemed less than optimal for long-term agricultural use.

I. HAWAII COASTAL ZONE MANAGEMENT PROGRAM

The Hawai'i 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 Hawai'i's coastal zone. The subject property is not within the County of Maui's Special Management Area.

As set forth in Chapter 205A, HRS, 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
 - (i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;
 - (ii) Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be

unavoidably damaged by development; or requiring reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;

- (iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;
- (iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;
- (v) Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;
- (vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;
- (vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and
- (viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of Section 46-6, HRS.

Response: The project site is located upland, away from the coastline. As such, the proposed action is not expected to impact coastal recreational opportunities or affect existing public access to the shoreline.

2. **Historical/Cultural Resources**

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

Policies:

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

Response: The project site had been previously impacted by many years of cattle grazing and erosion. An archaeological inventory survey, prepared by Scientific Consultant Services, reports that 18 identified sites have been assessed as significant under Criterion B. These sites have been photographed and documented for their significance. Refer to **Appendix "E"**.

No further archaeological work is recommended and the proposed project is not anticipated to have an adverse effect on historical or cultural resources. Refer to **Appendix "F"**.

3. Scenic and Open Space Resources

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

Policies:

- a. Identify valued scenic resources in the coastal zone management area;
- b. Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;
- c. Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and
- d. Encourage those developments that are not coastal dependent to locate in inland areas.

Response: The proposed workforce housing project will be designed to ensure visual compatibility with the surrounding land uses. The project will call for the construction of single-story and two-story homes. The project site is located adjacent

to developed areas in the vicinity of Lower Kula Road and does not fall within a coastal scenic or open space view corridor. The project will also involve the construction of a 500,000 gallon tank approximately 1,500 ft. makai of Kekaulike Highway at the 3,600 ft. elevation. The height of the tank is not anticipated to impede on views along Kekaulike Highway. Grade differentials will help to mitigate views of the site long Kekaulike Highway.

4. Coastal Ecosystem

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

Policies:

- a. Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;
- b. Improve the technical basis for natural resource management;
- c. Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;
- d. Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and
- e. Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Response: The proposed action is not expected to adversely impact coastal ecosystems. Runoff will be retained in a retention basin located on the northwestern corner of the subdivision. Drainage system improvements will be designed in accordance with applicable regulatory standards to ensure that there is no adverse effect on downstream properties.

Temporary environmental effects due to construction of offsite water improvements which include the construction of a ground water well, waterlines to service the project area and a water storage tank in the project area will occur. This activity will disturb the soils and vegetation in the immediate vicinity. Waterline

construction will be limited to a period when the gulch is dry. Environmental impacts are expected to be minimal and will be monitored on a regular basis. After construction, the preconstruction conditions of the area are expected to recover fully.

In addition, appropriate erosion control measures and Best Management Practices will be implemented to minimize the effects of stormwater runoff during construction of the project and to ensure that coastal ecosystems are not adversely impacted.

5. Economic Use

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 will be a positive contribution to the local economy through the generation of workforce housing for Maui's residents and the creation of construction-related job opportunities. Surrounding businesses, such as Café 808 and Morihara Store, will benefit from the patronage of the residents. The proposed project is not contradictory to the objective and policies for economic use.

6. Coastal Hazards

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

Policies:

- a. Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;
- b. Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;
- c. Ensure that developments comply with requirements of the Federal Flood Insurance Program; and
- d. Prevent coastal flooding from inland projects.

Response: The proposed subdivision and the offsite water improvements fall within Zone C, an area of minimal flooding. Drainage improvements will be designed in accordance with the Drainage Standards of the County of Maui to ensure that the project will not adversely affect downstream properties from the effects of flooding and erosion.

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: This Environmental Assessment has been prepared for public review in compliance with Chapter 343, HRS, and Chapter 200 of Title 11, Administrative

Rules, Environmental Impact Statement Rules.

The proposed project will be processed as a Section 201H-38, HRS project. Public review will be provided through Council meetings on the proposal.

In February 2006, the applicant presented the project to the members of Kula Community Association (KCA) for their review and comment. Subsequent meetings with the KCA's Planning Committee and Board were also held. The applicant plans on keeping the Board and its general membership informed as the project progresses through the planning 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: In addition to meetings with the KCA, the applicant also met with neighboring residents on July 13, 2006. Minutes of that meeting are contained in **Appendix "K"**. An opportunity for agency and public review will also be provided as part of the notification review and comment process required for the Environmental Assessment, Chapter 343, HRS, and through the Section 201H-38, HRS review process. As noted above, the applicant is undertaking ongoing coordination with the Kula Community Association. The County's objective of public awareness, education and participation is being addressed through these efforts.

9. **Beach Protection**

Objective: Protect beaches for public use and recreation.

Policies:

- a. Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;
- b. Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and
- c. Minimize the construction of public erosion-protection structures seaward of the shoreline.

Response: The project site is located upland, away from the shoreline and is not anticipated to impact shoreline processes.

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: As previously stated, the project is located inland, away from the ocean and is, therefore, not anticipated to have an impact on marine or coastal resources. Appropriate BMPs and erosion control measures will be implemented to ensure that coastal resources 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 subdivision 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. In addition, lighting will be shielded and directed away from the night sky.

J. SECTION 201H-38, HAWAII REVISED STATUTES

Section 201H-38 of the Hawai'i Revised Statutes (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 improvement to land, and the construction of units thereon...", in order to facilitate the timely and cost effective implementation of proposed affordable housing projects. In coordination with the County of Maui's Department of Housing and Human Concerns (DHHC), the Kula Ridge Subdivision has been determined to be an eligible project. Accordingly, a Section 201H-38, HRS application has been prepared and will be submitted to DHHC for review and transmittal to the Maui County Council. Upon receipt of the 201H-38, HRS request, the County Council shall have 45 days to render its decision on the request for exemptions.

The list of exemptions sought for the project is listed in **Appendix "B"** of this document. The proposed exemptions are intended to support the timely implementation of the project without compromising public health, safety, or welfare considerations.

K. OTHER REGULATORY APPROVALS

Activities necessitating requirements for Department of the Army (DA) permitting and Section 401 Water Quality Certification are not anticipated for the subdivision itself. Additionally, there are no other Federal permits or licenses required which would prompt the need for a Coastal Zone Management Consistency review.

As noted in the U.S. Department of Army's letter of June 19, 2008, a DA permit is not required for the subject property within TMK (2) 2-3-001:174. The DA determined that the subject property area does not contain waters of the United States under Corps jurisdiction. The DA further noted that additional information regarding water flow in the Keahuaiwi Gulch (TMK (2) 2-3-001:023) is needed in order to make a determination of the need for a DA permit. The applicant will coordinate with the DA on the issuance of such determination when final plans for the installation of the proposed waterline crossing the gulch are made available.

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

V. SUMMARY OF ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Assessment of construction-related impacts, noise and air quality impacts, and potential impact on physical and socio-economic environment, as well as an archaeological inventory survey and an agricultural impact assessment were carried out as part of the EA. The proposed development will have a limited, unavoidable construction-related impact on the environment, as described in Chapter II.

In the short term, construction associated with the Ridge Project will have a temporary impact on air quality from dust generation and discharge of exhaust from construction equipment during ground altering activities and site grading. Appropriate BMPs will be incorporated to mitigate adverse impacts, including watering of exposed surfaces and regular maintenance of construction equipment to minimize construction-related impacts.

Construction of the Ridge Project will also generate short-term noise impacts which will also be unavoidable. The use of properly maintained construction equipment will mitigate noise impacts caused by equipment. The incorporation of State Department of Health construction noise limits and curfew times is another measure to mitigate noise impacts caused by equipment.

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 Hawai'i" has been reviewed. As a result, the following measures to conserve natural resources and to promote energy efficiency will be undertaken, where appropriate, 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.
- Design south, east, and west shading devices to minimize solar heat gain.
- 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.

The project will commit approximately 32 acres of the 48-acre property of agricultural land formerly used for pastureland. The remaining 16 acres encompassed by the four (4) large lots will be available for agricultural use. The loss of agricultural land will not adversely affect the growth of diversified agriculture in Kula. Based on the limited market size for crops that can be grown profitably in Hawai'i, there is ample land on the island of Maui to accommodate the growth of diversified agriculture.

Development of the project will alter the existing landscape, but it is not anticipated to have an adverse impact on scenic or open space resources. The proposed residential community will be developed with residential structures with a low-profile. The project will incorporate park and open space areas that will contribute to view corridors within and through the project. The 500,000-gallon water tank located on the adjacent Mauka Subdivision site is also not anticipated to have an adverse impact on scenic or open space resources. Grade differentials will help mitigate views of the water tank from Kekaulike Highway.

VI. ALTERNATIVES TO THE PROPOSED ACTION

VI. ALTERNATIVES TO THE PROPOSED ACTION

A. PREFERRED ALTERNATIVE

The proposed single-family subdivision was deemed an appropriate use for the property given the surrounding single-family residential and urban type land uses. Given this land use parameter, the applicant considered alternate subdivision scenarios in terms of lot sizes and overall project density.

The low density approach to development, incorporating both affordable house lots and market priced lots was deemed appropriate in terms of surrounding uses and conditions. Specific spatial configurations of the lots were generated based on topographic and boundary patterns established by the surrounding properties. This alternative will provide much needed workforce housing in a location that is available and underused, in proximity to similar land uses.

B. SITE PLAN ALTERNATIVES

Various site plans were considered for the subdivision during consultation with the Kula Community Association. The size and number of large lots and the location of the park were also considered, as were the house-lot packages offered for the affordable lots. In the end, the preferred alternative was deemed the most viable implementation of the project.

C. DEVELOP PARCEL IN ACCORDANCE WITH MAKAWAO-PUKALANI-KULA COMMUNITY PLAN

Under the existing Community Plan, the area designated for “Single-Family” use allows for a 3-acre park area and 87 single-family homes, assuming a minimum lot size area of 6,000 square feet. The area designated for “Rural” use allows for a 5-acre open space area, 24 single-family homes on smaller rural lots, and up to 8 homes on the larger 4-acre parcels. The allowed density in the Makawao-Pukalani-Kula Community Plan is approximately 119 homes which is compatible with the proposed density in the Kula Ridge Workforce Housing

project.

In terms of providing the affordable housing allocations set forth by the project, the spatial land use delineations of the Makawao-Pukalani-Kula Community Plan was not considered sufficient.

D. COUNTY PARTICIPATION IN THE DEVELOPMENT OF WATER SOURCE

The applicant will continue coordination efforts with the County of Maui Department of Water Supply (DWS) regarding standard requirements pertaining to the development of a private well and related infrastructure. The applicant is planning to develop the well, the storage tanks, and the transmission lines according to County standards.

An opportunity for the DWS to participate in the development of water source and related infrastructure at the project site may be available as well. In this alternative, the DWS will enter into a partnership with the applicant in the development and implementation of a groundwater well and related infrastructure. Should this alternative be considered, an agreement between the DWS and the applicant will be developed to establish terms and joint development efforts.

E. NO ACTION ALTERNATIVE

This alternative would see the land remain fallow and under-utilized, while the housing market grows steadily worse. The median single-family home price in the Kula-Ulupalakua-Kanaio area for the month of December 2007 was approximately \$764,000.00 (Realtor Association of Maui, December 2007). The preferred alternative, as set forth in this document, would contribute towards addressing this situation by providing approximately 70 single-family homes for Maui County's workforce population. The No Action alternative is thus not deemed desirable.

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The proposed action will not call for a substantial commitment of public services or facilities. Development of the proposed project will involve a commitment of energy, labor, fiscal and material resources. The use of these resources, when weighed against the expected benefit to be derived from the project, is not considered an adverse commitment.

VIII. SIGNIFICANCE CRITERIA ASSESSMENT

VIII. 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.**

Temporary environmental effects due to construction of subdivision improvements, including the offsite water improvements area will occur. There are no known, rare, threatened or endangered species of flora, fauna, avifauna or important habitats located within the project sites. Should archaeological features, cultural artifacts or human burials be located during construction activities, work in the area of the find shall be promptly halted and the find protected from further disturbance. The SHPD will be immediately contacted to determine the significance of the find and establish appropriate mitigative measures, if necessary.

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

The proposed action and the commitment of land resources will not curtail the range of beneficial uses of the environment. The proposed use for workforce housing is compatible with surrounding residential, public/quasi-public, and pastureland uses. Fallow agricultural lands would be converted to home sites to help meet affordable housing needs of the community.

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

The State's Environmental Policy and Guidelines are set forth in Chapter 344, Hawai'i Revised Statutes. The proposed action is consistent with the policies and guidelines.

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

The proposed action will have a beneficial effect on the local economy during construction. In the long term, the proposed project will support the local economy through the contribution of salaries, wages, and benefits, as well as through the purchases of goods and services from local merchants and service providers. The project will be a social welfare benefit to the Upcountry area.

5. **Substantially affects public health.**

No adverse impact to public health or welfare is anticipated as a result of the proposed action. The proposed 201H-38 exemptions will not compromise public health or welfare.

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

The creation of 116 house-lots for residential use at the project site will result in new residents in this section of the Makawao-Pukalani-Kula region of Upcountry Maui. The increase in residential population is not expected to be significantly different from that which would be generated under the existing Community Plan land use designations. Demands on infrastructure created by the project will be mitigated through the provision of required improvements by the applicant. The applicant is currently pursuing the development of an offsite water source and is coordinating with the Department of Water Supply to develop a well and a storage tank according to County standards. Public service requirements for this sub-region will be addressed with the provision of applicable fees and dedications.

The proposed subdivision is designed to meet affordable workforce housing requirements for the island's residents.

Best Management Practices (BMP's) and appropriate erosion control measures will be utilized during the construction period. Drainage system improvements will be constructed in accordance with applicable regulatory design standards to ensure that surface runoff will not have an adverse effect on adjacent or downstream properties.

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

During the construction phase of the project, there will be short-term air quality and noise impact as a result of the project. In the long term, effect on air quality and ambient noise levels should be minimal. The proposed action is not anticipated to significantly affect the open space and scenic character of the area.

No substantial degradation of environmental quality resulting from the action is anticipated.

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

The proposed action includes the development of 10 workforce housing units for the proposed 21-lot Mauka Subdivision project. The effects of developing this 21-lot agricultural subdivision, together with the Ridge Project is discussed in Chapter III of this report. There are no significant cumulative impacts associated with the combined development of both projects.

It is also noted 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 Kula region. Should lands other than the proposed Ridge Project 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 Makawao-Pukalani-Kula 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.

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

There are no rare, threatened or endangered species of flora, fauna, avifauna or important habitats that will be adversely affected by the project.

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

Construction activities will have an impact on air quality and noise; however, it will be minimal and temporary. Dust control measures, such as regular watering and sprinkling, will be implemented to minimize wind-blown emissions. Noise impact will be mitigated through limitation on construction to daylight work hours. Utilizing approved BMPs, water quality should not be affected.

In the long term, the proposed action is not anticipated to have a significant impact on air and water quality or ambient noise levels.

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 site is situated upland and is not anticipated to have any adverse impact upon coastal waters or resources. An onsite drainage basin in the northwest corner portion of the project site is expected to retain the runoff generated by the project. Runoff from throughout the subdivision will be channeled into the retention basin by grated catch basins located within grassed shoulder areas. Further appropriate mitigation measures will be developed in consultation with the applicable governmental agencies during the design process. During construction, recommended Best Management Practices (BMPs) will be implemented for erosion and sedimentation control.

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

The proposed development will not block scenic vistas or viewplanes. The project will not affect scenic corridors, coastal scenic or open space resources. The project will incorporate park and open space areas that will provide view corridors within and throughout the project. Grade differentials will help mitigate views of the sight from Kula Highway and along Kekaulike Highway.

13. **Requires substantial energy consumption.**

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

term, the project will create an additional demand for electricity. However, this demand will not be substantially or excessively more than the energy consumed throughout the region.

In summary, the site is situated at an attractive and central location in Kula, in close proximity to community services and commercial areas in the Upcountry region. Necessary infrastructure systems and services are within near proximity, or can be reasonably provided to serve the project. Residential development and the development of an offsite water system to service the project area are not anticipated to have a significant adverse impact on the physical environment. The site is suitable for the development of single-family housing to meet the housing needs of the region.

IX. LIST OF PERMITS AND APPROVALS

IX. LIST OF PERMITS AND APPROVALS

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

State of Hawai'i

1. State Land Use Commission District Boundary Amendment (Agricultural to Rural and Urban)

2. Requirements of the State of Hawai'i Department of Health:
 - a. As applicable, project activities shall comply with the Administrative Rules of the Department of Health:

Chapter 11-39, Air Conditioning and Ventilation;
Chapter 11-45, Radiation Control;
Chapter 11-46, Community Noise Control;
Chapter 11-501, Asbestos Requirements;
Chapter 11-502, Asbestos-Containing Materials in Schools;
Chapter 11-503, Fees for Asbestos Removal and Certification;
Chapter 11-62, Wastewater Systems;
Chapter 11-60.1-33, Fugitive Dust;
Chapter 11-20, Rules Relating to Potable Water Systems;
Chapter 11-21, Cross-Connections and Backflow Control; and
Chapter 11-23, Underground Injection Control.

3. National Pollution Discharge Elimination System (NPDES) Permit. (Coordination with the U.S. Department of the Army has been undertaken.)

4. Department of Land and Natural Resources Commission Water Resource Management
Application for a Well Construction/Pump Installation Permit
5. Work to perform in State Highway Right-of-Way (as applicable)

County of Maui

1. Section 201H-38, HRS approval by the Maui County Council
2. Subdivision approval
3. Construction Permits

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

X. AGENCIES CONSULTED DURING THE PREPARATION OF THE DRAFT ENVIRONMENTAL ASSESSMENT; LETTERS RECEIVED AND RESPONSES TO SUBSTANTIVE COMMENTS

The following agencies were consulted during preparation of the Draft Environmental Assessment. Agency comments and responses to substantive comments are also included in this section.

- | | |
|---|--|
| 1. Ranae Ganske-Cerizo, Soil Conservationist
Natural Resources Conservation Service
U.S. Department of Agriculture
210 Imi Kala Street, Suite 209
Wailuku, Hawai'i 96793-2100 | 6. Denis Lau, Chief
Clean Water Branch
State of Hawai'i
Department of Health
919 Ala Moana Blvd., Room 300
Honolulu, Hawai'i 96814 |
| 2. George Young
Chief, Regulatory Branch
U.S. Department of the Army
U.S. Army Engineer District, Honolulu
Regulatory Branch
Building 230
Fort Shafter, Hawai'i 96858-5440 | 7. Herbert Matsubayashi
District Environmental Health
Program Chief
State of Hawai'i
Department of Health
54 High Street
Wailuku, Hawai'i 96793 |
| 3. Robert P. Smith
Field Supervisor
U. S. Fish and Wildlife Service
300 Ala Moana Blvd., Rm. 3-122, Box 50088
Honolulu, Hawai'i 96813 | 8. Peter Young, Chairperson
State of Hawai'i
Department of Land and Natural
Resources
P. O. Box 621
Honolulu, Hawai'i 96809 |
| 4. Laura Thielen, Director
State of Hawai'i
Office of Planning
P.O. Box 2359
Honolulu, Hawai'i 96804 | 9. Melanie Chinen, Administrator
State of Hawai'i
Department of Land and Natural
Resources
State Historic Preservation Division
601 Kamokila Blvd., Room 555
Kapolei, Hawai'i 96707 |
| 5. Patricia Hamamoto, Superintendent
State of Hawai'i
Department of Education
P.O. Box 2360
Honolulu, Hawai'i 96804 | |

10. Rodney Haraga, Director
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813
- cc: Fred Cajigal
11. Clyde Namu`o, Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawai'i 96813
12. Carl Kaupololo, Chief
County of Maui
**Department of Fire
and Public Safety**
200 Dairy Road
Kahului, Hawai'i 96732
13. Alice Lee, Director
County of Maui
**Department of Housing and
Human Concerns**
200 S. High Street
Wailuku, Hawai'i 96793
14. Michael W. Foley, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawai'i 96793
15. Glenn Correa, Director
County of Maui
Department of Parks and Recreation
700 Halia Nakoia Street, Unit 2
Wailuku, Hawai'i 96793
16. Thomas Phillips, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, Hawai'i 96793
17. Milton Arakawa, Director
County of Maui
**Department of Public Works
and Environmental Management**
200 South High Street
Wailuku, Hawai'i 96793
18. Neal Shinyama, Manager – Engineering
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, Hawai'i 96733
19. Karolyn Mossman, President
Kula Community Association
P.O. Box 417
Kula, Hawai'i 96790
20. Rene Yamafuji, Principal
Kula Elementary School
5000 Kula Highway
Kula, Hawai'i 96790
21. John Schaumburg, Administrator
Kula Hospital and Clinic
204 Kula Highway
Kula, Hawai'i 96790
22. Elmer Cravalho, President
Kula Community Federal Credit Union
137 Kalepa Place
Kahului, Hawai'i 96732
23. Mike Mayberry, Assistant Director
University of Hawai'i
Institute of Astronomy
4761 Lower Kula Road
P. O. Box 209
Kula, Hawai'i 96793

United States Department of Agriculture



Natural Resources Conservation Service
210 Iml Kala St. Ste 209
Wailuku, HI 96793
808-244-3100

July 28, 2006

Ms. Rowena M. Dagdag, Planner
Munekiyo & Hiraga, Inc.
305 High Street Suite 104
Wailuku, Hawaii 96793

Dear Ms Dagdag,

**SUBJECT: Early Consultation Request for Proposed Affordable Housing Project at
TMK (2) 2-3-01:174, Kula, Maui, Hawaii**

We highly recommend this project be constructed in Phases to reduce the impact of erosion and drainage concerns. As soon as the area grading and construction in each single Phase(s) is complete, the area should be stabilized and vegetated.

Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in black ink, appearing to read "Ranae F. Ganske-Cerizo".

Ranae F. Ganske-Cerizo
District Conservationist

Helping People Help the Land

An Equal Opportunity Provider and Employer

October 29, 2007

Ms. Ranae Ganske-Cerizo
District Conservationist
Natural Resources Conservation Service
U. S. Department of Agriculture
210 Imi Kala Street, Suite 209
Wailuku, Hawaii 96793-2100

SUBJECT: Proposed Kula Ridge Affordable Housing Project at
TMK 2-2-3-001:174

Dear Ms. Ganske-Cerizo:

Thank you for your letter dated July 28, 2006, commenting on the proposed affordable housing project in Kula. In response to your comments, we would like to note the following:

1. Grading will be addressed in the Environmental Assessment. I will forward your letter to the project architect and civil engineer to ensure erosion and drainage controls.
2. The civil engineer has prepared a Preliminary Drainage Report that discusses the expected increase in runoff from the proposed project and includes mitigation. The drainage report will be included in the Environmental Assessment, along with Best Management Practices.
3. The suggestion to construct the homes in phases to reduce the impact of erosion and drainage concerns will be considered and forwarded to the applicant for review and possible incorporation into plans.

Ms. Ranae Ganske-Cerizo
October 29, 2007
Page 2

Thank you again for your input. A copy of the Draft Environmental Assessment will be provided to your office for review and comment.

If there are any questions, please do not hesitate to call me at 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Rowena Dagdag', written in a cursive style.

Rowena Dagdag, Planner

RD:yp

cc: Clayton Nishikawa, Kula Ridge, LLC

F:\DATA\Nishikawa\KulaAH 1107\NRCS.ecres.wpd

AUG 09 2006



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

August 2, 2006

REPLY TO
ATTENTION OF

Regulatory Branch

File No. POH-2006-304

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

Dear Ms. Dagdag:

This responds to your request letter dated October 27, 2005 for early consultation comments for preparation of a Draft Environmental Assessment (DEA) to develop affordable housing units and for improvements to the Kula Highway and Lower Kula Road in Kula, Maui Island, Hawaii TMK(2) 2-3-01:174.

Based on the preliminary information you provided on behalf of Kula Ridge, LLC, we are unable to reach a conclusive determination whether a DA permit would be required. In order to issue a jurisdiction determination, please forward copy of the DEA, site photographs and design drawings for our review.

If you have any questions, please contact Ms. Joy Anamizu by phone at 808-468-7023, by fax at 808-438-0460, or by electronic mail at joy.n.anamizu@usace.army.mil and reference the file number above in future correspondence.

Sincerely,

A handwritten signature in black ink, appearing to read "George P. Young".

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



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

MARK ALEXANDER ROY

October 29, 2007

George P. Young, P.E.
Chief, Regulatory Branch
U. S. Department of the Army
U. S. Army Engineer District, Honolulu
Regulatory Branch
Building 230
Fort Shafter, Hawaii 96858-5440

**SUBJECT: Proposed Kula Ridge Affordable Housing Project
at TMK (2) 2-3-01:174**

Dear Mr. Young:

Thank you for your letter dated August 2, 2006, commenting on the proposed affordable housing project in Kula.

A copy of the Draft EA which include site photographs, the preliminary drainage report and the schematic development plans will be provided to your office for review and comment.

If there are any questions, please do not hesitate to call me at (808)244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Rowena M. Dagdag", written in a cursive style.

Rowena M. Dagdag, Planner

RMD:yp

cc: Clayton Nishikawa, Kula Ridge, LLC

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AUG 08 2006



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, Hawai'i 96850

In Reply Refer To:
1-2-2006-TA-638

AUG 07 2006

Ms. Rowena M. Dagdag
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793


Dear Ms. Dagdag:

Thank you for your letter, received on July 14, 2006, requesting a list of threatened and endangered species that may occur in the vicinity of the proposed project along Kula Highway on the island of Maui (TMK: (2) 2-3-01:174). The 48-acre Kula Ridge Affordable Housing Project proposes to develop 116 improved housing lots with 70 lots set aside for affordable housing. The remaining 46 residential lots will be sold at market price. Included in the project are five acres of green space and a three-acre park that will be dedicated to the County of Maui. Access to the project site will be via a new access road off of Lower Kula Road.

We reviewed the information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program. Two federally endangered species, nene (*Branta sandvicensis*) and Hawaiian hoary bat (*Lasiurus cinereus semotus*), occur near the proposed project site. These species may need special consideration before and during the execution of your project.

We appreciate your efforts to conserve endangered species. If you have questions, please contact Fish and Wildlife Biologist Charmian Dang (phone: 808/792-9400; fax: 808/792-9581).

Sincerely,

 Patrick Leonard
Field Supervisor

TAKE PRIDE[®]
IN AMERICA 



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

MARK ALEXANDER ROY

October 29, 2007

Patrick Leonard, Field Supervisor
U. S. Fish and Wildlife Service
300 Ala Moana Boulevard
Room 3-122, Box 50088
Honolulu, Hawaii 96813

**SUBJECT: Proposed Kula Ridge Affordable Housing Project
at TMK (2) 2-3-01:174, Kula, Maui**

Dear Mr. Leonard:

Thank you for your letter dated August 7, 2006, commenting on the proposed affordable housing project in Kula. In response to your comments, we would like to note that a Biological Resources Survey will be included with the Draft Environmental Assessment (EA), which will determine the presence or likely occurrence of any native flora and fauna, particularly any that are federally listed as threatened or endangered. As applicable, the Draft EA will further recommend measures that would mitigate any significant negative impact on the flora and fauna in the proposed subdivision.

Thank you again for your comments. A copy of the Draft EA will be provided to your office for review and comment.

If there are any questions, please do not hesitate to call me at (808)244-2015.

Very truly yours,

Rowena M. Dagdag, Planner

RMD:yp

cc: Clayton Nishikawa, Kula Ridge, LLC

F:\DATA\Nishikawa\KulaAH 1107\usfishandwildlife.ecres.wpd

JUL 21 2006

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

07065PKP.06

July 19, 2006

Ms. Rowena M. Dagdag
Planner
Munekiyo & Hiraga, Inc.
305 South High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Dagdag:

**Subject: Early Consultation Request for Proposed Affordable Housing Project
Kula, Maui, Hawaii**

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated July 12, 2006, and associated documents. The CWB has reviewed the limited information contained in the subject document and offers the following comments:

1. The Army Corps of Engineers should be contacted at (808) 438-9258 for this project. Pursuant to Federal Water Pollution Control Act (commonly known as the "Clean Water Act" (CWA) Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40, Code of Federal Regulations (CFR), Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.
2. In accordance with HAR, Sections 11-55-04 and 11-55-34.05, the Director of Health may require the submittal of an individual permit application or a Notice of Intent (NOI) for general permit coverage authorized under the National Pollutant Discharge Elimination System (NPDES).
 - a. An application for an NPDES individual permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at <http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html>.

- b. An NOI to be covered by an NPDES general permit is to be submitted at least 30 days before the commencement of the respective activity. A separate NOI is needed for coverage under each NPDES general permit. 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>.
- i. Storm water associated with industrial activities, as defined in Title 40, CFR, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi). [HAR, Chapter 11-55, Appendix B]
 - ii. 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 commencement of the construction activities.** [HAR, Chapter 11-55, Appendix C]
 - iii. Discharges of treated effluent from leaking underground storage tank remedial activities. [HAR, Chapter 11-55, Appendix D]
 - iv. Discharges of once through cooling water less than one (1) million gallons per day. [HAR, Chapter 11-55, Appendix E]
 - v. Discharges of hydrotesting water. [HAR, Chapter 11-55, Appendix F]
 - vi. Discharges of construction dewatering effluent. [HAR, Chapter 11-55, Appendix G]
 - vii. Discharges of treated effluent from petroleum bulk stations and terminals. [HAR, Chapter 11-55, Appendix H]
 - viii. Discharges of treated effluent from well drilling activities. [HAR, Chapter 11-55, Appendix I]
 - ix. Discharges of treated effluent from recycled water distribution systems. [HAR, Chapter 11-55, Appendix J]
 - x. Discharges of storm water from a small municipal separate storm sewer system. [HAR, Chapter 11-55, Appendix K]
 - xi. Discharges of circulation water from decorative ponds or tanks. [HAR, Chapter 11-55, Appendix L]

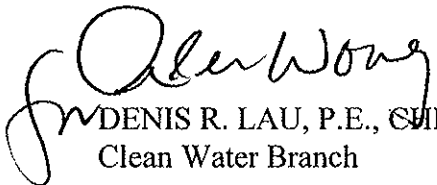
Ms. Rowena M. Dagdag
July 19, 2006
Page 3

3. In accordance with HAR, Section 11-55-38, the applicant for an NPDES permit is required to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD. If applicable, please submit a copy of the request for review by SHPD or SHPD's determination letter for the project.
4. Any discharges related to project construction or operation activities, with or without a Section 401 WQC or NPDES permit coverage, shall comply with the applicable State Water Quality Standards as specified in HAR, Chapter 11-54.

The Hawaii Revised Statutes, Subsection 342D-50(a), requires that "[n]o person, including any public body, shall discharge any water pollutants into state waters, or cause or allow any water pollutant to enter state waters except in compliance with this chapter, rules adopted pursuant to this Chapter, or a permit or variance issued by the director."

If you have any questions, please contact Mr. Alec Wong, Supervisor of the Engineering Section, CWB, at (808) 586-4309.

Sincerely,


DENIS R. LAU, P.E., CHIEF
Clean Water Branch

KP:np



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

MARK ALEXANDER ROY

October 29, 2007

Dennis R. Lau, P.E., Chief
Clean Water Branch
State of Hawai'i
Department of Health
P. O. Box 3378
Honolulu, Hawai'i 96801-3378

**SUBJECT: Proposed Kula Ridge Affordable Housing Project at
TMK (2) 2-3-01:174**

Dear Mr. Lau:

Thank you for your letter dated July 19, 2006, commenting on the proposed affordable housing subdivision in Kula. In response to your comments, we would like to note the following:

1. The Army Corps of Engineers will be contacted to identify whether a Federal permit will be required for the proposed project. A copy of the Draft Environmental Assessment (EA) will be forwarded to the Department of the Army for review and comment.
2. The applicant will comply with the requirements of Hawai'i Administrative Rules (HAR), Sections 11-55-04 and 11-55-34.05, relating to the National Pollutant Discharge Elimination System, as applicable.
3. An archaeological inventory survey has been prepared and submitted to the State Historic Preservation Division (SHPD) for review. As required by HAR, Section 11-55-38, appropriate coordination and documentation will be secured from SHPD. A copy of the archaeological report will be included in the Draft EA.
4. Project construction and operations will comply with HAR, Chapter 11.54, as applicable.
5. Kula Ridge, LLC acknowledges and understands the requirements of Hawai'i Revised Statutes, Subsection 342D-50(a).

Dennis R. Lau, P.E., Chief
October 29, 2007
Page 2

Thank you again for your input. A copy of the Draft EA will be provided to your office for review and comment.

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

Very truly yours,

A handwritten signature in black ink, appearing to read "Rowena Dagdag", written in a cursive style.

Rowena Dagdag, Planner

RDL:yp

cc: Clayton Nishikawa, Kula Ridge, LLC

F:\DATA\Nishikawa\KulaAH 1107\dohowb.ecres.wpd

JUL 25 2006

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

July 24, 2006

Ms. Rowena M. Dagdag
Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai'i 96793

Dear Ms. Dagdag:

Subject: **Early Consultation Request for Proposed Affordable Housing Project
TMK: (2) 2-3-01: 174**

Thank you for the opportunity to participate in the early consultation process for the proposed affordable housing project for Kula Ridge, LLC. The following comments are offered:

One hundred sixteen residential lots will be developed for this project. Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems" will require that a treatment plant in lieu of individual wastewater disposal systems be installed. Questions regarding this matter should be directed to the Department of Health, Wastewater Branch at 808 586-4294.

Should you have any questions, please call me at 808 984-8230.

Sincerely,

A handwritten signature in black ink, appearing to read "H. Matsubayashi", enclosed in a hand-drawn oval.

Herbert S. Matsubayashi
District Environmental Health Program Chief

c: WWB
Roland Tejano



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

MARK ALEXANDER ROY

October 29, 2007

Herbert S. Matsubayashi, Chief
District Environmental Health Program
State of Hawaii
Department of Health
54 High Street
Wailuku, Hawaii 96793

SUBJECT: Proposed Kula Ridge Affordable Housing Project at
TMK 2-2-3-001:174

Dear Mr. Matsubayashi:

Thank you for your letter dated July 24, 2006, commenting on the proposed affordable housing project in Kula. In response to your comments, we would like to note that the wastewater issues are being carefully considered for the proposed project.

The applicant has been granted a variance from the State Department of Health to utilize individual wastewater systems (IWS) and is coordinating with a private company to install and maintain individual aerobic wastewater systems for the 116-lot subdivision. Proposed wastewater improvements will be addressed in the Draft Environmental Assessment (EA).

Thank you again for your input. A copy of the Draft EA will be provided to your office for review and comment.

Should you have any questions, please do not hesitate to call me at 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Rowena M. Dagdag", written in a cursive style.

Rowena M. Dagdag, Planner

RMD:yp

cc: Clayton Nishikawa, Kula Ridge, LLC

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OCT 11 2006

PHONE (808) 594-1888

FAX (808) 594-1865



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

HRD06/2580

October 4, 2006

Rowena M. Dagdag
Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

RE: Early Consultation Request for Proposed Affordable Housing Project, Kula, Maui, TMK: 2-3-001:174.

Dear Rowena M. Dagdag,

The Office of Hawaiian Affairs (OHA) is in receipt of your request for consultation on the above-referenced project. We apologize for the delayed response and offer the following comments.

OHA staff recommends that the environmental assessment (EA) you are preparing include a professional "due diligence" study of the potential impact of these projects on archaeological, historic, and cultural resources. We also recommend contacting Ed Lindsey to improve the consultation component of your EA.

OHA further requests your assurances that, should iwi or Native Hawaiian cultural or traditional deposits be found during any ground disturbance associated with this project, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Kai Markell, Lead Advocate – Culture, at (808) 594-1945 or kaim@oha.org.

Aloha,

A handwritten signature in black ink, appearing to read "Clyde W. Nāmu'o".

Clyde W. Nāmu'o
Administrator

Rowena M. Dagdag
Planner
October 4, 2006
Page 2

C: Thelma Shimaoka
Community Resource Coordinator
OHA – Maui Office
140 Hoohana Street, Suite 206
Kahului, HI 96732



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

MARK ALEXANDER ROY

October 29, 2007

Haanani Apoliona
Board of Trustee Chair
Office of Hawaiian Affairs
State of Hawai'i
711 Kapiolani Blvd., Suite 500
Honolulu, Hawai'i 96813

SUBJECT: Proposed Kula Ridge Affordable Housing Project at
TMK 2-2-3-001:174

Dear Mr. Apoliona:

Thank you for the Office of Hawaiian Affairs letter dated October 4, 2006, commenting on the proposed affordable housing project in Kula. In response to these comments, we would like to note the following:

1. Coordination will be undertaken with individuals familiar with the project area, as we prepare the cultural component of the Draft Environmental Assessment (EA). Mr. Ed Lindsey has been contacted in this regard and is willing to offer assistance.
2. An archaeological inventory survey has been prepared by the archaeologist and will be included in the Draft EA.

Thank you again for providing input to the proposed action. A copy of the Draft EA will be provided to your office for review and comment.

If there are any questions, please do not hesitate to call me at (808) 244-2015.

Very truly yours,

Rowena M. Dagdag, Planner

RMD:yp

cc: Clayton Nishikawa, Kula Ridge, LLC
Mike Dega, Scientific Consulting Services

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JUL 28 2006



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

OFFICE OF THE SUPERINTENDENT

July 27, 2006

Ms. Rowena M. Dagdag, Planner
Munekiyo & Hiraga Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Dagdag:

Subject: Early Consultation for Kula Ridge, TMK: 2-3-01: 174

The Department of Education (DOE) has reviewed your request for an early consultation on the proposed Kula Ridge project in Kula, Maui.

The DOE will need to know if accessory residential units will be permitted within the project, either on the affordable or the market price lots. We would also like to know the size of the lots. The DOE would like to get an estimate of the actual cost of the affordable house and lot packages and the cost of the market priced lots. The costs of the homes and property have a bearing on the number of public school students we estimate will eventually reside in the project. Finally, the DOE would appreciate receiving an estimated schedule of construction completions of the affordable homes.

Thank you for an opportunity to comment on your plans. 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, reading "Patricia Hamamoto".

Patricia Hamamoto
Superintendent

PH:jmb

cc: Randolph Moore, Acting Assistant Superintendent, OBS
Duane Kashiwai, Public Works Manager, FDB
Ken Nomura, CAS, Baldwin/King Kekaulike/Maui Complex Areas



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

KARLYNN KAWAHARA

August 22, 2006

Patricia Hamamoto, Supervisor
State of Hawaii
Department of Education
P. O. Box 2360
Honolulu, Hawaii 96804

**SUBJECT: Proposed Kula Ridge Affordable Housing Project
at TMK (2)2-3-01:174**

Dear Ms. Hamamoto:

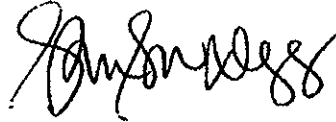
Thank you for your letter dated July 27, 2006, commenting on the proposed affordable housing project in Kula. In response to your comments, we would like to note the following:

1. Accessory residential units will not be permitted on the smaller affordable or market priced lots. Accessory units will be permitted on the four (4) large lots located in the proposed subdivision (Lot Nos. 113, 114, 115 and 116). See Figure 1.
2. The affordable lots are proposed to be a minimum of 5,600 to 8,500 square feet (s.f) with a zero-lot line concept. Market priced lots will be on the order of 6,000 to 21,000 square feet.
3. Sale prices are projected to range from approximately \$210,000.00 to \$325,000.00 for the affordable house-lot packages. The market prices for the residential lots have an estimated sales price range of \$400,000.00 to \$500,000.00, based on current market conditions for "lots only".
4. An estimated schedule of construction completion for the affordable homes will be included in the Draft Environmental Assessment (DEA).

Patricia Hamamoto, Supervisor
August 22, 2006
Page 2

Thank you again for your input. A copy of the DEA will be provided to your office for review and comment. If there are any questions, please do not hesitate to call me at (808) 244-2015.

Very truly yours,

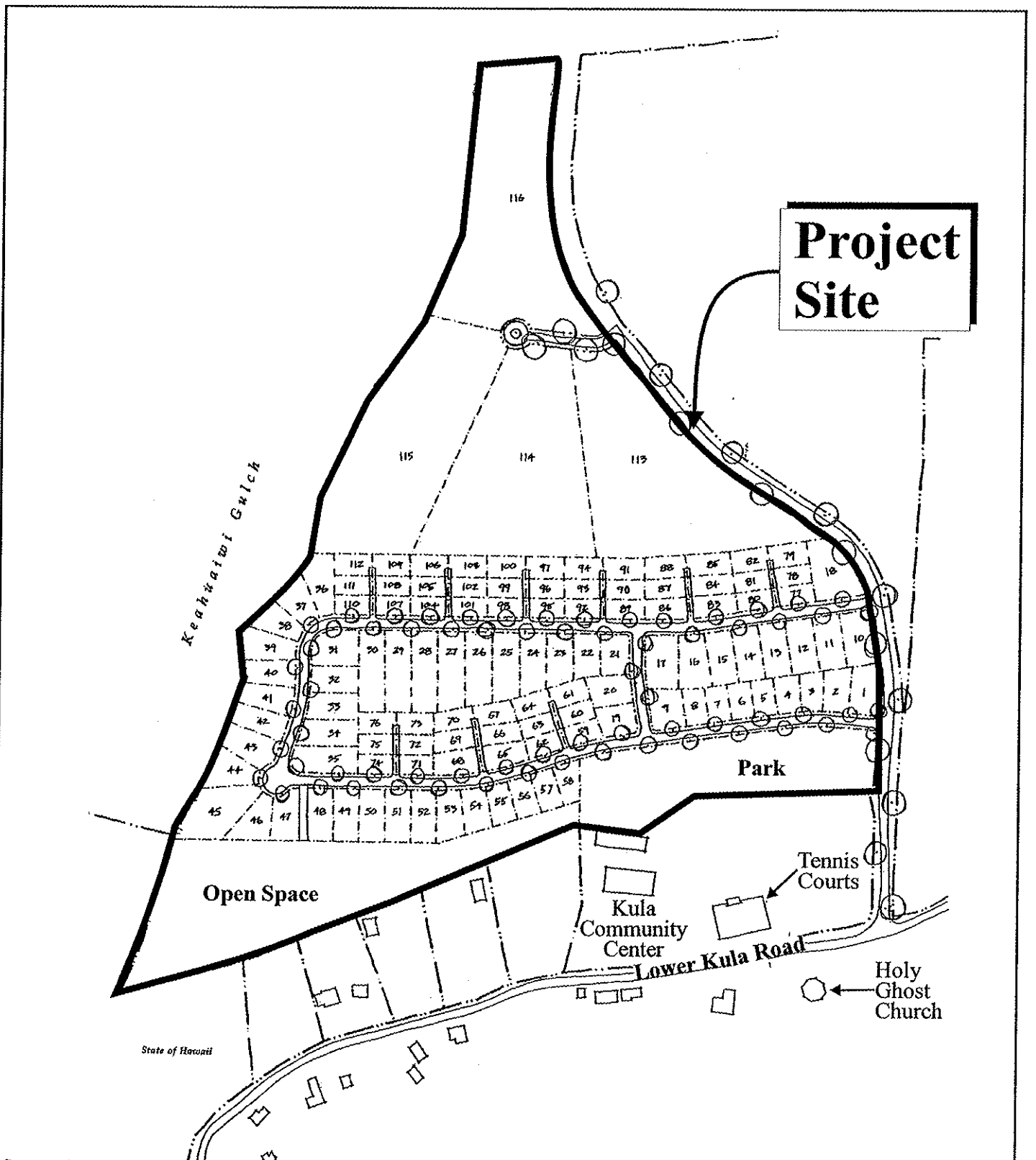


Rowena Dagdag, Planner

RD:yp
Enclosure

cc: Clayton Nishikawa, Kula Ridge, LLC (w/out enclosure)

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Source: Architectural Design & Construction, Inc.

Figure 1 Proposed Kula Ridge Affordable Housing Subdivision Conceptual Site Plan NOT TO SCALE



Prepared for: Kula Ridge, LLC



MUNEKIYO HIRAGA, INC.



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

MARK ALEXANDER ROY

October 29, 2007

Patricia Hamamoto, Supervisor
State of Hawaii
Department of Education
P. O. Box 2360
Honolulu, Hawaii 96804

SUBJECT: Proposed Kula Ridge Affordable Housing Project
at TMK (2)2-3-01:174

Dear Ms. Hamamoto:

Thank you for your letter dated July 27, 2006, responding to our request for early consultation comments for the proposed affordable housing project in Kula. We responded to your comments in a letter dated August 22, 2006, and met with Heidi Meeker of the Department of Education Planning Section on October 13, 2006 to discuss the education assessment requirements for the project. We wish to provide you with an update to the information that we presented to you in our last letter.

Based on the 2007 income guidelines, the proposed sale prices for the affordable house-lot packages are projected to range from approximately \$234,685.00 to \$490,900.00. The market prices for the residential lots continue to have an estimated sales price range of \$350,000.00 to \$450,000.00 based on current market conditions. The larger four (4) acre lots have an estimated sale price of \$1.2 million. The market lots will be sold as lots only.

A copy of the Draft Environmental Assessment will be provided to your office for review and comment. If there are any questions, please do not hesitate to call me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Rowena Dagdag", is written over a dotted line.

Rowena Dagdag, Planner

RD:lh

cc: Clayton Nishikawa, Kula Ridge, LLC
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LINDA LINGLE
GOVERNOR



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

AUG 04 2006

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

STP 8.2226

August 2, 2006

Ms. Rowena M. Dagdag
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Dagdag:

Subject: Kula Ridge LLC, Affordable Housing Project
Early Consultation
TMK: (2) 2-3-01: 174

Thank you for your notification on the proposed subject project.

The project is anticipated to have an impact on our State highway. We understand that an environmental assessment on the project will be done. A traffic impact analysis report (TIAR) should be conducted and provided as a part of the environmental assessment. We request that four (4) copies of the environmental assessment be provided to us for our review.

We will defer further comments on the project until we have reviewed the environmental assessment.

We appreciate the opportunity to provide our comments.

Very truly yours,

A handwritten signature in black ink that reads "Rodney Haraga".

RODNEY K. HARAGA
Director of Transportation



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

MARK ALEXANDER ROY

October 29, 2007

Barry Fukunaga, Director
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813-5097

SUBJECT: Proposed Affordable Housing Project at TMK (2) 2-3-01:174

Dear Mr. Fukunaga:

Thank you for the Department of Transportation letter of August 2, 2006, responding to our request for early consultation comments for the proposed affordable housing project in Kula. In response to these comments, we would like to note that a traffic impact analysis has been prepared by the traffic engineer and will be included in the Draft Environmental Assessment (EA).

Four (4) copies of the Draft Environmental Assessment will be provided to your office for review and comment.

If there are any questions, please do not hesitate to call me at (808)244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Rowena Dagdag", written in a cursive style.

Rowena Dagdag, Planner

RD:yp

cc: Clayton Nishikawa, Kula Ridge, LLC

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DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

JUL 31 2006
ALAN M. ARAKAWA
Mayor

ALICE L. LEE
Director

HERMAN T. ANDAYA
Deputy Director

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE (808) 270-7805 • FAX (808) 270-7165

July 25, 2006

Ms. Rowena M. Dagdag, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Dagdag:

**SUBJECT: AFFORDABLE HOUSING PROJECT IN KULA,
TMK (2)2-3-01:174,
KULA, MAUI, HAWAII**


We have reviewed your July 12, 2006 letter and enclosures for the proposed affordable housing project in Kula, Maui, and would like to offer the following comments:

1. Since the project is proposed for development under Section 201G-118, HRS, attached for your use is a copy of our department's Section 201G-118, HRS, application process (Revised 3/04/04).
2. It is our understanding that under the provisions of Act 217, SLH 2006, commenting agencies are to be given 45 days to comment on preliminary Section 201G-118, HRS, applications. Therefore, the provision in Section III of our department's Section 201G-118, HRS, application process will be changed to 45 days. In addition, Act 217, SLH 2006, stipulates that if agencies do not comment within the 45 day comment period, that the preliminary application as proposed are deemed acceptable to the agency.
3. Act 180, SLH 2006, has repealed Chapter 201G, HRS, and placed the provisions of Chapter 201G, HRS, into Chapter 201H, HRS. However, at this time, we do not know the new section number for what was Section 201G-118, HRS.

Ms. Rowena M. Dagdag
Page 2
July 25, 2006

4. Please note that under our department's Section 201G-118, HRS, application process, single family units must be affordable to persons/families whose income is 120% or less of Maui County's median annual income.
5. Please advise our department as soon as possible, as to whether the project's EA and preliminary Section 201G-118, HRS, application will be prepared and processed separately or jointly.

Thank you for the opportunity to comment.

Very truly yours,


ALICE L. LEE
Director

ETO:hs

Attachment

c: Housing Administrator

SECTION 201G-118, HRS, APPLICATION PROCESS
DEPARTMENT OF HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

To qualify as a Section 201G-118, HRS, project, a minimum of fifty-one percent (51%) of the proposed units must qualify as affordable housing units.

To qualify as an affordable housing unit, a housing unit must be affordable to persons/families in one or more of the applicable income group(s) shown below, as determined by the Director of Housing and Human Concerns, County of Maui.

Ownership Units

Single-Family Detached (Includes duplexes)	-	120% or less of the County's median income.
Multi-Family Attached	-	110% or less of the County's median income.

Rental Units

Detached/Attached	-	100% or less of the County's median income.
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In addition, the final selling price(s) and/or the final rental rate(s) must be approved by the Director of Housing and Human Concerns.

- I. Applicant prepares preliminary Section 201G-118, HRS, application.
- II. Preliminary Section 201G-118, HRS, application shall include but not be limited to the following:
 - A. INTRODUCTION
 1. PROJECT LOCATION, EXISTING USE, AND LAND OWNERSHIP
 2. BACKGROUND
 3. PROJECT NEED
 4. PROPOSED IMPROVEMENTS
 5. REQUESTED WAIVERS AND EXEMPTIONS

B. DESCRIPTION OF THE EXISTING ENVIRONMENT

1. PHYSICAL ENVIRONMENT

- a. Surrounding Land Use
- b. Climate
- c. Flood and Tsunami Zone
- d. Topography and Soils
- e. Flora and Fauna
- f. Archaeological Resources
- g. Air Quality
- h. Noise Characteristics
- i. Visual Resources

2. COMMUNITY SETTING

- a. Regional Setting
- b. Population
- c. Economy
- d. Police and Fire Protection
- e. Medical Facilities
- f. Recreational Facilities
- g. Schools
- h. Solid Waste Disposal

3. INFRASTRUCTURE

- a. Roadway Systems
- b. Water system
- c. Wastewater System
- d. Drainage

e. Electrical and Telephone Service

C. POTENTIAL IMPACTS AND MITIGATION MEASURES

1. IMPACTS TO PHYSICAL ENVIRONMENT

a. Surrounding Uses

b. Flora and Fauna

c. Archaeological Resources

d. Air Quality

e. Noise

f. Visual Impact

2. IMPACTS TO COMMUNITY SETTING

a. Population and Local Economy

b. Housing

c. Police, Fire and Medical Services

d. Recreational and Social Service

e. Solid Waste

3. IMPACTS TO INFRASTRUCTURE

a. Roadways

b. Water

c. Drainage

d. Wastewater

e. Electrical and Telephone Services

D. RELATIONSHIP TO LAND USE PLANS, POLICIES AND CONTROLS

1. STATE LAND USE DISTRICTS

2. GENERAL PLAN OF THE COUNTY OF MAUI

3. COMMUNITY PLAN

4. ZONING

E. FINDINGS AND CONCLUSIONS

F. AGENCIES CONTACTED IN THE PREPARATION OF THE PRELIMINARY SECTION 201G-118, HRS, APPLICATION AND COMMENTS RECEIVED

G. COMMENTS RECEIVED DURING PUBLIC REVIEW PERIOD AND APPLICABLE RESPONSES

H. COMMENTS RECEIVED AFTER PUBLIC REVIEW PERIOD

I. APPENDICES - Preliminary Grading and Drainage Report
- Preliminary Building Specifications

J. LIST OF FIGURES

- 1 Regional Location Map
- 2 Site Location Map
- 3 Site Plan
- 4 Exterior Building Elevations
- 5 Unit Floor Plans
- 6 Flood Insurance Rate Map
- 7 Soil Association Map
- 8 Soil Classifications
- 9 State Land Use District Classifications
- 10 Community Plan Land Use Designations

III. Fifteen (15) copies of the preliminary Section 201G-118, HRS, application is submitted to the Director of Housing and Human Concerns, County of Maui.

IV. Director of Housing and Human Concerns transmits preliminary Section 201G-118, HRS, application to the following agencies for review and comment, and requests that comments be submitted within (30) days.

Highways Division (Maui), State Department of
Transportation
Environmental Health Division (Maui), State Department
Of Health
Historic Preservation Division, State Department of
Land and Natural Resources
Department of Public Works and Environmental
Management, County of Maui (3 copies)
Department of Planning, County of Maui
Department of Water Supply, County of Maui (2 copies)
Department of Fire and Public Safety, County of Maui
Department of Parks & Recreation, County of Maui
Department of Police, County of Maui

Department of Transportation, County of Maui
Department of Housing and Human Concerns, County of
Maui (2 copies)

- V. Agency comments are forwarded to the applicant by the Director of Housing and Human Concerns with a request that all issues of concern be addressed or resolved prior to the Section 201G-118, HRS, application being finalized.
- VI. Section 201G-118, HRS, application is finalized and twenty-one (21) copies are submitted to the Director of Housing and Human Concerns.
- VII. Director of Housing and Human Concerns transmits nineteen (19) copies of the final Section 201G-118, HRS, application to the County Council via the Mayor with a recommendation for approval. Also transmitted are two resolutions. One resolution is for approval of the project and the second resolution is for disapproval of the project. The County Council has forty-five (45) days to approve or disapprove the project. If the project is not disapproved by the forty-sixth day, the project is deemed approved.
- VIII. If a district boundary amendment by the State Land Use Commission (LUC) is required, a petition shall be submitted to the LUC by the applicant. The LUC has forty-five (45) days to approve or disapprove the petition. If the petition is not disapproved by the forty-sixth day, the petition is deemed approved.

Note: If the proposed project is subject to Chapter 343, Hawaii Revised Statutes (HRS), the preliminary and final Section 201G-118, HRS, applications shall contain all of the information that is specified for an Environmental Assessment.



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

MARK ALEXANDER ROY

October 29, 2007

Vanessa Medeiros, Director
County of Maui
**Department of Housing
and Human Concerns**
200 South High Street
Wailuku, Hawaii 96793

**SUBJECT: Proposed Kula Ridge Affordable Housing Project
at TMK (2) 2-3-01:174**

Dear Ms. Medeiros:

A letter from the Department of Housing and Human Concerns (DHHC) was transmitted to our office on July 25, 2006 responding to our request for early consultation comments for the proposed affordable housing project in Kula. Comments were made based on the information provided in the early consultation request. To better organize the presentation of our response, we have labeled each item to correspond with the number and letter designation for each comment provided in the letter.

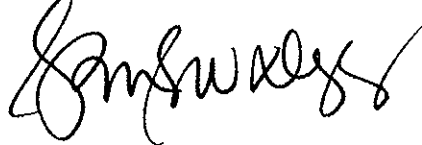
1. The applicant will abide by the Department of Housing and Human Concerns' Section 201H-38, Hawaii Revised Statutes (HRS) guidelines.
2. The applicant has reviewed and understands the provisions of Act 217, SLH 2006.
3. The new replacement section number Section 201H-38, HRS, will be used to refer to Section 201G, HRS.
4. The estimated selling prices for the affordable-priced lots, as well as the estimated selling prices for the market-priced lots will be included in the Draft Environmental Assessment (EA). In accordance with the affordable housing conditions adopted by the County Council Workforce Housing Ordinance No. 3418, the applicant understands that affordable units must be affordable to those earning 160 percent or less of Maui County's median annual income. The applicant is also prepared to set prices using HUD guidelines.
5. The project's Environmental Assessment and preliminary Section 201H-38, HRS, application will be prepared and processed concurrently.

Vanessa Medeiros, Director
October 29, 2007
Page 2

A copy of the Draft EA will be provided to your office for review and comment.

If there are any questions, please do not hesitate to call me at 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Rowena M. Dagdag". The signature is fluid and cursive, with a long horizontal stroke at the end.

Rowena M. Dagdag, Planner

RMD:yp

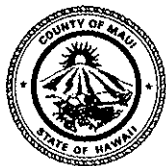
cc: JoAnn Ridao, County of Maui Housing Commissioner
Clayton Nishikawa, Kula Ridge, LLC

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JUL 28 2006



POLICE DEPARTMENT
COUNTY OF MAUI



ALAN M. ARAKAWA
MAYOR

OUR REFERENCE
tj
YOUR REFERENCE

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

THOMAS M. PHILLIPS
CHIEF OF POLICE

GARY YABUTA
DEPUTY CHIEF OF POLICE

July 26, 2006

Ms. Rowena M. Dagdag, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793


Dear Ms. Dagdag:

SUBJECT: Early Consultation Request for Proposed Affordable Housing Project
at TMK (2) 2-3-01:174, Kula, Maui, Hawaii

Thank you for your letter of July 12, 2006, requesting comments on the above
subject.

We have reviewed the information submitted for this project and have enclosed our
comments and recommendations. Thank you for giving us the opportunity to comment on
this project.

Very truly yours,


Acting Assistant Chief Milton Matsuoka
for: Thomas M. Phillips
Chief of Police

c: Michael Foley, Planning Department

Enclosure

COPY

TO : THOMAS M. PHILLIPS, CHIEF OF POLICE, MAUI POLICE DEPARTMENT

VIA : CHANNELS

FROM : SCOTT Y. MIGITA, ADMINISTRATIVE SERGEANT, WAILUKU PATROL

SUBJECT : EARLY CONSULTATION REQUEST FOR PROPOSED AFFORDABLE HOUSING PROJECT, TMK (2) 2-3-01:174, KULA, MAUI, HAWAII

Sir, this To/From is being submitted by Munekiyo & Hiraga, Inc., on behalf of Kula Ridge, LLC seeking early consultation comments to prior to an Environmental Assessment (EA) regarding the construction of an affordable housing project in Kula. The proposed project is on an approximately 48-acre parcel at TMK (2) 2-3-01:174, located along Lower Kula Road, east of the Kula Community Center. This proposal involves the development of 116 improved lots, 70 of which will be affordable house-lot packages. The remaining 46 residential lots will be sold at market price. There will also be 5 acres of green space and a 3 acre park dedicated to the County of Maui. The access to the project site will be via a new access road off of Lower Kula Road and there are also plans to improve Kula Highway.

The issue of traffic and safety is paramount from a police perspective. This roadway off of Lower Kula Road is located in a rural area and is not ordinarily heavily used throughout all hours of the day and evening. However, with any new development, an increase in traffic and parking is anticipated, therefore, comments regarding the impact on traffic is being withheld at this time pending a traffic impact study by planners. Another area which would need to be addressed is adequate security and lighting. This proposed development is located mauka (east) of the Kula Community Center and tennis courts, therefore, the issue of sound resulting from the use of the community center for gatherings which may affect this residential area must also be considered and addressed in the draft EA.

Submitted for your information and perusal.

Noted -
Road Traffic Impact
Study.
A/Capt. [Signature]
[Signature]
07/26/06

Respectfully submitted,
[Signature]
Scott Y. MIGITA, E-1122
Administrative Sergeant, Wailuku Patrol
07/26/06 at 2107 hours

October 29, 2007

Thomas M. Phillips
Chief of Police
County of Maui
Police Department
55 Mahalani Street
Wailuku, Hawaii 96793

**SUBJECT: Proposed Kula Ridge Affordable Housing Project at
TMK 2-2-3-001:174**

Dear Chief Phillips:

Thank you for your letter dated July 26, 2006, commenting on the proposed affordable housing project in Kula. In response to your comments, we would like to note the following:

1. A traffic impact analysis has been prepared for the project and will be included in the Environmental Assessment. This report addresses the increase in traffic from the additional homes. The project will be governed by design guidelines and covenants to ensure that neighborhood quality is maintained over time. Smaller homes will be able to accommodate two (2) cars off-street, with the larger homes accommodating up to four (4) cars off-street. Parking on the access driveway will not be allowed for the affordable homes with a private access driveway.
2. Safety issues will be considered and issues of adequate security and lighting will be addressed during the project's design phase. The issue of sound resulting from the use of the community center for gatherings was also considered. The distance between the community center building and the nearest home sites is about 80 feet. It is anticipated that this separation distance will help to minimize noise generated from events held at the community center. A copy of your comment letter is being forwarded to the project architect for further review.

Thomas M. Phillips
October 29, 2007
Page 2

Thank you again for your input. A copy of the Draft Environmental Assessment will be provided to your office for review and comment.

If there are any questions, please do not hesitate to call me at 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Rowena Dagdag", with a long, sweeping flourish extending to the right.

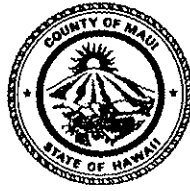
Rowena Dagdag, Planner

RD:yp

cc: Clayton Nishikawa, Kula Ridge, LLC

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ALAN M. ARAKAWA
Mayor



AUG 11 2006
GLENN T. CORREA
Director

JOHN L. BUCK III
Deputy Director

(808) 270-7230
Fax (808) 270-7934

DEPARTMENT OF PARKS & RECREATION

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

August 4, 2006

Ms. Rowena M. Dagdag
Munekiyo & Hiraga, Inc.
305 High Street
Wailuku, HI 96793

Dear Ms. Dagdag.

**SUBJECT: EARLY CONSULTATION REQUEST FOR PROPOSED
AFFORDABLE HOUSING PROJECT AT TMK (2) 2-3-04:174,
KULA, MAUI, HAWAII**

We will work with the developer in coordinating park improvements for the adjoining Kula tennis court facility.

We reserve further comment at this time.

Thank you for the opportunity to comment. Please contact me or Mr. Patrick Matsui, Chief of Planning and Development, at 270-7387 if there are any questions.

Sincerely

A handwritten signature in black ink, appearing to read "Glenn T. Correa".

Glenn T. Correa
Director

GTC:PM:do

c: Patrick Matsui, Chief-Planning and Development



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

MARK ALEXANDER ROY

October 29, 2007

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

SUBJECT: Proposed Kula Ridge Affordable Housing Project at
TMK (2) 2-3-01:174

Dear Ms. Horcajo:

A letter from the Department of Parks and Recreation was transmitted to our office on August 11, 2006, responding to our request for early consultation comments for the proposed subdivision at TMK 2-3-001:174, Kula, Maui. We will continue to work with the Department of Parks and Recreation regarding roadway access improvements involving the construction of the adjoining Kula tennis court facility.

A copy of the Draft Environmental Assessment will be provided to your office for review and comment.

Please feel free to contact me with any questions at 244-2015.

Very truly yours,

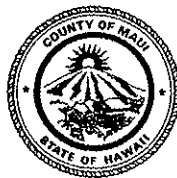
Rowena Dagdag, Planner

RDL:yp

cc: Clayton Nishikawa, Kula Ridge, LLC

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ALAN M. ARAKAWA
Mayor
MICHAEL W. FOLEY
Director
DONALD G. COUCH
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

August 9, 2006

Ms. Rowena M. Dagdag
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Dagdag:

RE: Early Consultation Request for Proposed Kula Ridge Affordable Housing Project at TMK: 2-3-001:174, Kula, Island of Maui, Hawai'i (EAC 2006/0025)

The Maui Planning Department (Department) has reviewed the above-referenced document for the proposed action involving the development of:

A residential subdivision including approximately:

- 116 lots, including 70 affordable lots;
- 5 acre green space; and a
- 3 acre park.

Based on the foregoing, the Department recommends that the Draft Environmental Assessment address the following:

1. Provide a regional map depicting where the site is in relation to other nearby features such as roads, streams, existing developments, prominent buildings, points of interest, etc.
2. Explain details on how the affordable housing will be provided:
 - a. What income levels will be targeted (AMI) and how many units will be provided at those levels;
 - b. How the selection of owners will occur;
 - c. How the affordability will be maintained over time;
 - d. Whether the market units will subsidize the affordable units completely;
 - e. Whether the project will entail the construction of affordable homes or merely the sale of lots; and

- f. If there will be a release rate for the market units based on the construction of the affordable units.
3. Clarify whether ohana units will be allowed throughout the development. If ohana units are allowed, then the analysis should reflect the increase.
4. It appears that mass-grading will be necessary. Provide a grading and drainage plan, including potential Best Management Practices to address erosion from wind and rain, especially in regard to the adjacent Keahuaiwi Gulch.
5. Explain how water service will be provided. We understand that the issuance of new water meters in the Kula area may be difficult to obtain.
6. Discuss how wastewater will be handled. Will each lot have an individual septic system?
7. Even though the 210G process may exempt the community plan amendment and change in zoning, a justification should be made as to why this density of development is appropriate in a rural/agricultural area, considering anticipated impacts to the neighborhood character, adjacent properties and infrastructure.
8. Discuss the cumulative loss of all agricultural lands from projects proposed or approved to date. A list of projects and regional project maps may be obtained from the Department's Long Range Division.
9. The discussion should address Section 19.30.020, Maui County Code, which states that:

"Agricultural lands that meet at least two (2) of the following criteria should be given the highest priority for retention in the agricultural district:

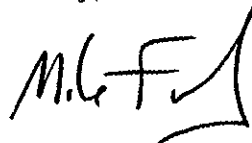
- A. *Agricultural Lands of Importance to the State of Hawaii (ALISH);*
- B. *Lands not classified by the ALISH system whose agricultural land suitability, based on soil, topographic and climatic conditions, supports the production of agricultural commodities, including*

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 animal husbandry, and lands in agricultural cultivation in five of the ten years immediately preceding the date of approval of this chapter; and

- C. *Lands which have seventy-five percent or more of the their boundaries contiguous to lands within the agricultural district."*
10. It is suggested that the County Department of Parks & Recreation be consulted regarding the 3 acre park.
11. Please retain the Planning Department on your mailing list regarding this project.

Should you require further clarification, please contact Mr. Jeff Hunt, AICP, Staff Planner at jeff.hunt@co.maui.hi.us or 270-6271.

Sincerely,



MICHAEL W. FOLEY
Planning Director

MWF:JH:bv

c: Donald G. Couch, Deputy Planning Director
Jeff Hunt, AICP, Staff Planner
EAC Project File
General File
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October 29, 2007

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

SUBJECT: Proposed Kula Ridge Affordable Housing Project at
TMK 2-2-3-001:174

Dear Mr. Hunt:

A copy of the Department of Planning's August 9, 2006 letter, commenting on the proposed Kula Ridge affordable housing project at TMK (2)2-3-001:174. Comments were made based on the information provided in the early consultation letter has been received by our office. To better organize the presentation of our response, we have labeled each response to correspond with the number and letter designation for each comment provided in the letter.

1. A regional map for the subdivision depicting its location in relations to nearby features will be included in the Draft Environmental Assessment (EA).
2. Affordable housing parameters for the project will be included in the Draft EA. The applicant will enter into an affordable housing agreement with the County of Maui to establish the specific terms and conditions for affordable sales price distribution, applicant selection process, and marketing requirements.
3. Accessory residential units will not be permitted on the smaller affordable or market priced lots. Accessory units will be permitted on the four (4) large lots located in the proposed subdivision (Lot Nos. 113, 114, 115, and 116).
4. A preliminary drainage report and a preliminary grading plan will be included in the Draft EA. Best Management Practices shall be utilized to ensure erosion and runoff control. A copy of this letter is being sent to the project engineer to ensure compliance.
5. The applicant is currently pursuing the development of an on-site water source and is coordinating with the Department of Water Supply to develop a well according to

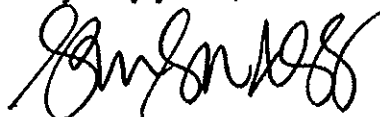
county standards. Water service and mitigation measures will be addressed in the Draft EA.

6. The applicant has been granted a variance from the State Department of Health to utilize individual wastewater systems (IWS) and is coordinating with a private company to install and maintain individual aerobic wastewater systems for the 116-lot subdivision. Proposed wastewater improvements will be addressed in the Draft EA.
7. A discussion on the appropriateness of the density within the Kula Ridge Affordable Housing project will be included in the Draft EA. The proposed project will provide include single-family homes and the opportunity for small farms that will be reflective of the region's rural character.
8. The subject property has not been used for agricultural production and there are no plans by the current owners to resume such activities. The 48 acres comprising the project site represent a small fraction of the approximately 244,726 acres of land classified as agricultural on the island of Maui. An Agricultural Impact Assessment Report has been prepared and will be included in the Draft EA.
9. Criteria cited in Section 19.30.020 of the Maui County Code will be addressed and discussed in the Draft EA.
10. The applicant has begun coordination with the County of Maui, Department of Parks and Recreation with regards to the 3-acre park in the proposed subdivision.

Thank you again for your input. A copy of the Draft EA will be provided to your office for review and comment.

Should you have any questions, please do not to call me at 244-2015.

Very truly yours,



Rowena M. Dagdag, Planner

RMD:yp

cc: Clayton Nishikawa, Kula Ridge, LLC

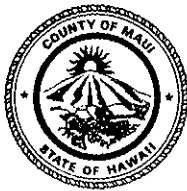
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AUG 30 2006

ALAN M. ARAKAWA
Mayor

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

MICHAEL M. MIYAMOTO
Deputy Director



RALPH M. NAGAMINE, L.S., P.E.
Development Services Administration

DAVID TAYLOR, P.E.
Wastewater Reclamation Division

CARY YAMASHITA, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

TRACY TAKAMINE, P.E.
Solid Waste Division

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND ENVIRONMENTAL MANAGEMENT
DEVELOPMENT SERVICES ADMINISTRATION
250 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

August 25, 2006

Mr. Michael Munekiyo, A.I.C.P.
MUNEKIYO & HIRAGA, INC.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Mr. Munekiyo:

Subject: EARLY CONSULTATION REQUEST FOR PROPOSED
AFFORDABLE HOUSING PROJECT - KULA RIDGE
TMK (2) 2-3-001:174


We reviewed the subject application and have the following comments:

1. The proposed subdivision will have major impacts to surrounding roadway infrastructure. A detailed traffic impact assessment report for the entire subdivision shall be developed.
2. A detailed final drainage report shall be developed and should 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 Best Management Practices plan shall show the location and details of structural and non-structural measures to control erosion and sedimentation to the maximum extent practicable.
3. Address solid waste/recycling.

Mr. Michael Munekiyo, A.I.C.P.
August 25, 2006
Page 2

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

Sincerely,



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

MMA:MMM:da

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

MARK ALEXANDER ROY

October 29, 2007

Milton Arakawa, Director
County of Maui
Department of Public Works
200 South High Street, Room 322
Wailuku, Hawai'i 96793

SUBJECT: Proposed Kula Ridge Affordable Housing Project at
TMK (2) 2-3-01:174

Dear Mr. Arakawa:

Thank you for your letter dated August 25, 2005, responding to our request for early consultation comments of the proposed subdivision located in Kula, Maui. In response to your comments, we note the following:

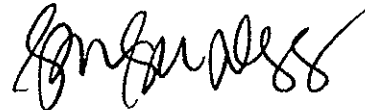
1. A detailed Traffic Impact Assessment Report (TIAR) for the subdivision will be incorporated in the Draft Environmental Assessment (EA).
2. A drainage and preliminary engineering report will be included in the Draft EA. Best Management Practices shall be utilized to ensure erosion and runoff control. A copy of this letter is being sent to the project engineer to ensure compliance.
3. Solid waste and recycling issues will be addressed in the Draft EA.

Thank you again for your input on the proposed action. A copy of the Draft EA will be provided to your office for review and comment.

Milton Arakawa, Director
October 29, 2007
Page 2

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

Very truly yours,

A handwritten signature in black ink, appearing to read 'Rowena Dagdag', written in a cursive style.

Rowena Dagdag, Planner

RDL:yp

cc: Clayton Nishikawa, Kula Ridge, LLC
Stacy Otomo, Otomo Engineering, Inc.

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ALAN M. ARAKAWA
Mayor



GEORGE Y. TENGAN
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.mauewater.org

September 5, 2006

Ms. Rowena M. Dagdag, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

RE: Subject: Early Consultation Request for Proposed Affordable Housing Project
TMK: 2-3-001:174 (Kula, Maui, Hawaii)

Dear Ms. Dagdag:

Thank you for the opportunity to comment on this Early Consultation Request.

Source Availability and Consumption

The project site is served by the Upcountry/Makawao system. Water for the system comes from the Makawao aquifer and streams of the Koolau system.

A project of this sort would have an anticipated consumption of about 83,200 gpd (gallons per day) by system standards.

The project is located in an area affected by the finding of inadequate water supply, issued on March 16, 1993. The area has insufficient water supply developed for fire protection, domestic and irrigation purposes to take on new or additional services without the detriment to those already in the regulated area.

If you submit a subdivision application with our Engineering Division, you will be placed on the Upcountry Water Service Priority List. You may also proceed and develop your own private system.

System Infrastructure

The project area is serviced by a 8-inch waterline off Lower Kula Road and a hydrant on Lower Kula Road. Storage is inadequate for new or additional services in the area. Extensive infrastructure improvements would have to be made for a project of this sort.

Should you have any questions, please contact our Water Resources & Planning Division at

"By Water All Things Find Life"



Ms. Rowena M. Dagdag
Page 2
September 5, 2006

244-8550, or our Engineering Division at 270-7835.

Sincerely,



George Y. Tengan, Director
ayi

c: Engineering Division
WRPD Reading File



MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICK" HIRANO
KARLON KAWAHARA

MARK ALEXANDER ROY

October 29, 2007

Jeffery Eng, Director
County of Maui
Department of Water Supply
200 South High street
Wailuku, Hawai'i 96793

**SUBJECT: Proposed Kula Ridge Affordable Housing Project at
TMK 2-2-3-001:174**

Dear Mr. Eng:

A letter from the Department of Water Supply was transmitted to our office on September 5, 2006, responding to our request for early consultation comments for the proposed subdivision at TMK (2) 2-3-01:174. Comments were made based on the information provided in the early consultation letter. In response to these comments provided by the Department of Water Supply, we would like to note the following:

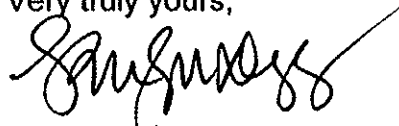
1. The applicant, Kula Ridge, LLC, is pursuing the development of on-site water source. The applicant will continue to coordinate with the Department of Water Supply to ensure that water source is adequately and appropriately addressed for the project.
2. The applicant will also continue to coordinate with your Department regarding infrastructure improvements and storage capacity in the project site area.
3. A copy of your letter has been forwarded to the applicant and the project engineer for further review.

Thank you again for providing input to the proposed action. A copy of the Draft Environmental Assessment will be provided to your office for review and comment.

Jeffery Eng, Director
October 29, 2007
Page 2

If there are any questions, please do not hesitate to call me at 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Rowena M. Dagdag", with a long, sweeping flourish extending to the right.

Rowena M. Dagdag, Planner

RMD:yp

cc: Clayton Nishikawa, Kula Ridge, LLC

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AUG 10 2008



August 8, 2006

Munekiyo & Hiraga, Inc.
Attn: Rowena M. Dagdag, Planner
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Dagdag,

Subject: Proposed Kula Ridge Affordable Housing Project --
Lower Kula Road
Kula, Maui, Hawaii
Tax Map Key: (2) 2-3-001:174

Thank you for allowing us to comment on the Early Consultation Request for Proposed Kula Ridge Affordable Housing Project as described in your letter of July 12, 2006.

In reviewing our records and the information received, Maui Electric Company (MECO) will be requiring access and electrical easements for our facilities to serve the subject project site. We highly encourage the customer's electrical consultant to submit electrical drawings and a project time schedule as soon as practical so that service can be provided on a timely basis.

The existing area is currently served from our Kula Substation. Since this substation is nearly filled to capacity, the addition of this project's anticipated electrical load demand will have a substantial impact to our system. Therefore, in addition to a electrical line extension, other upgrades may be necessary to accommodate a project of this magnitude.

We also suggest that the developer and/or their consultant make contact with Walter Enomoto 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 questions or concerns, please call Ray Okazaki at 871-2340.

Sincerely,

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

Neal Shinyama
Manager, Engineering

NS:ro

Cc: Walter Enomoto -- MECO DSM



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

MARK ALEXANDER ROY

October 29, 2007

Neal Shinyama
Engineering Manager
Maui Electric Company, Ltd.
P. O. Box 398
Kahului, Hawai'i 96733

**SUBJECT: Proposed Kula Ridge Affordable Housing Project at
TMK (2) 2-3-01:174**

Dear Mr. Shinyama:

Thank you for your letter dated August 8, 2006, commenting on the proposed affordable housing project in Kula. In response to your comments, we would like to note the following:

1. Your letter will be forwarded to the project architect, who will coordinate with your office to verify electrical demand and indicate the desired service location for timely service. Coordination with the Demand Side Management Group will also be undertaken, as recommended.
2. Proposed electrical line improvements and other upgrades will be addressed in the Draft Environmental Assessment (EA).

Thank you again for your input. A copy of the Draft EA will be provided to your office for review and comment.

Should you have any questions, please do not hesitate to call me at 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Rowena Dagdag", written in a cursive style.

Rowena Dagdag, Planner

RDL:yp

cc: Clayton Nishikawa, Kula Ridge, LLC

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David J. Darling, EA, FNTPI

Tax Preparation & Consulting

Enrolled to Practice Before the Internal Revenue Service
Fellow: National Tax Practice Institute

GOOD EVENING,

My name is David Darling and I have lived continuously on the corner below the proposed project for 35 ½ years. I was drawn to the area for its climate, the sun rises, bird life, sunsets, soil quality and convenience and central location. I raised a family here and hope to retire in the general Kula area someday. My child and grandchild are on the mainland furthering his studies at Seattle Children's hospital. I would hope he would be able to return to Hawaii to raise his family.

I harbor no "not in my back yard" feelings and would completely understand why these proposed lots will be a popular and desirable item on the future real estate market. I am willing to share the climate, sun rises and sunsets and overall quality of life the area offers.

Two concerns come to mind however and I hope they can be addressed in the planning process rather than after the fact.

One is double edged so I will address it last.

FIRST is traffic on a very narrow and outdated Lower Kula Road between the community center and the Waldorf School property. It is a 20 mph speed zone and is way too narrow by current county standards to support another 120 to 200 cars per day. It passes by a school that is expanding every year and serves (presently) pre-school to grade eight. The project to widen it would be ambitious but necessary to support increased traffic. SECOND is water. My property has a waterfall that runs during heavy rain. The layout of the lots does not seem to accommodate the natural flow of heavy rain, the increased runoff from rooftops and paving will only increase these flows. What drainage solutions are offered?? The double edge to the water question is where will the domestic water be coming from?? 118 water meters in this day and age on the Upper Kula system seems a stretch.

Once these concerns are addressed this project has my support

Thank you,

David Darling
David Darling



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

KARLYNN KAWAHARA

August 3, 2006

David Darling
4074 Lower Kula Road
Kula, Hawaii 96790

SUBJECT: Kula Ridge Housing Project

Dear Mr. Darling:

Thank you for your letter of July 13, 2006, commenting on the proposed Kula Ridge Affordable Housing Subdivision (TMK 2-3-01-174) in Kula, Maui. We would also like to thank you for participating in the community meeting on July 13, 2006 at the Kula Elementary School Cafeteria. We note that the project is in its preliminary stages in terms of the environmental assessment and the Land Use Commission processes. These processes help us identify areas that would be impacted and suggest improvements for the project, as well as offsite improvements for the surrounding areas.

Clayton Nishikawa of Kula Ridge, LLC understands your concerns regarding the proposed subdivision and is working toward identifying ways to mitigate or minimize the project's impact on the community. In response to your comments, we note the following:

1. A traffic impact analysis report is being done to identify improvements and mitigation measures that need to be made before approval of the subdivision. We are awaiting completion of the traffic impact analysis report, as well as comments from the State of Hawaii, Department of Transportation regarding mitigation considerations for Lower Kula Road, Kula Highway, and other roadways in the project vicinity.
2. Any increase in runoff generated from the development of the property will be mitigated onsite by a detention basin. The design of the basin will be based on a 50 year-1hour storm, in accordance with the County drainage standards. There will be no increase in runoff flowing to the adjoining properties. Furthermore, the existing drainage pattern will be maintained through the makai properties. The civil engineer has prepared a Preliminary Drainage Report that discusses the expected increase in runoff from the proposed project and includes mitigation. The drainage report will be included in the Environmental Assessment, along with Best Management Practices.

David Darling
August 3, 2006
Page 2

- Residents expressed their concerns over water requirements and asked if the project would receive water before others who have been waiting for a water meter. We would like to note that although the Section 201G, Hawaii Revised Statutes process allows for certain exemptions, it would not permit exemptions relating to the provision of water source and water infrastructure. Kula Ridge, LLC is currently negotiating with Maui Land and Pineapple Company and A&B who are drilling wells in the Upcountry area. The objective of this discussion is to identify opportunities for provision of water to meet project needs.

Thank you once again for your comments. The Draft Environmental Assessment will be made available for residents interested in receiving a copy once it has been completed. Should you have any further questions or require additional information, please call me at 244-2015.

Very truly yours,



Rowena Dagdag, Planner

RD:yp

cc: Clayton Nishikawa, Kula Ridge, LLC

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James R. Davis
 6708 Austin Way
 Sacramento, CA 95823
 7/8/06

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

Re: Informational Meeting for Proposed Affordable Housing Project at Kula, Hawaii,
 TMK 2-3-01:174

Dear Sirs:

I got your letter about a housing subdivision on 48 Acres by Kula Ridge, LLC, including an 8 acre park.

Unfortunately I live in Sacramento and cannot come to your meeting on 7/13.

Based on the plat map I think this is in an area that is one lot mauka of a stretch of the old lower Kula road between Haleakala School and the Holy Ghost Church. Is this correct?

You say there will be 116 improved lots with 59 affordable and 53 regular residential lots on 40 acres. This raises some questions?

- 1) What is the current zoning on this land? Urban, rural, agricultural?
- 2) Are there any unimproved lots?
- 3) What is the proposed minimum lot size?
- 4) Does "affordable" housing mean it is subsidized and so commercial?
- 5) I don't understand the percentages? $59/116=50.9\%$ (not 60%) and $53/116=45.7\%$ (not 40%) Is there a goal you are trying to meet? Why? Oh... maybe you mean percentage of land area. So $(48-8)*.60/59=.407A/lot$ and $(48-8)*.40/53=.302A/lot$. If so, why do the subsidized lots get more acreage?
- 6) Where is the road access? Somewhere to the Lower Kula Road? Is there a road on the southern boundary? Is it a public road already? What is the name of that road?
- 7) Where is the 8 acres for the park located? Is it next to the Kula Community Club shown on plat 2-3-37 lot 27? Was this community center ever developed?

Other questions I have are:


- 8) Eight acres for a park is to be dedicated to the County. Is it to be developed before dedicating it to the county? When will the people of the area get to use it as a park? Will you be putting in the trees?
- 9) With 112 more families in the area what roads are to be upgraded? Lower Kula Road and some other feeder road? And who pays for that? What traffic controls will be enhanced?
- 10) With 112 more families in the area what impact on the water system does this have? Lower water pressure at times of peak use? Harder to get subdivision permission for existing Kula lots? Harder to get permits for water hookups?
- 11) What will the impact be on the people already living in the area that purchased in an agricultural or rural area and hoped to maintain a slower pace with lower traffic and noise? Where will the traffic flow be?

12) What does "affordable" mean? Low income? What does that mean in general terms of life style and upkeep of properties and junk and old cars accumulation? In terms of air pollution from old cars? In terms of more noise due to more cars?

13) Who are the principles in Kula Ridge, Inc.? Robert G. Von Tempsky or someone else?

I look forward to your response.

Yours truly,

A handwritten signature in cursive script that reads "James R. Davis". The signature is written in black ink and is positioned to the right of the typed name "James R. Davis".



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

KARLYNN KAWAHARA

August 1, 2006

James R. Davis
6708 Austin Way
Sacramento, California 95823

SUBJECT: Proposed Kula Ridge Subdivision at TMK (2)2-3-01:174, Kula, Maui

Dear Mr. Davis:

Thank you for your letter of June 8, 2006, commenting on the proposed Kula Ridge Affordable Housing Subdivision (TMK 2-3-01:174) in Kula, Maui. We note that the project is in its preliminary stages in terms of the environmental assessment and the Land Use Commission processes. These processes help us identify areas that would be impacted and suggest improvements for the project, as well as offsite improvements for the surrounding areas.

Kula Ridge, LLC understands your concerns regarding the construction of a 116-lot subdivision, and has recently met with residents and land owners living near the proposed subdivision to answer any questions or address any concerns they had regarding the project. See Attachment. In response to your questions, we note the following:

1. The subject property falls within the State "Agricultural" District and will require reclassification to the "Rural" and "Urban" Districts by the State Land Use Commission (LUC).

The property is designated "Rural" and "Single-Family" by the Makawao-Pukalani-Kula Community Plan. It is currently County-Zoned "Interim".

2. The affordable and market units will be sold as house-lot packages. Architectural Design & Construction (ADC) will design and construct the homes.
3. The affordable lot sizes are proposed to be a minimum of 5,600 to 8,500 square feet (s.f.) with a zero-lot line concept proposed for the affordable homes. Market priced lots will be on the order of 6,000 to 21,000 s.f.
4. The term "affordable" as used for this project refers to households whose annual income fall within income thresholds established by the County of Maui. For example, a portion of the affordable units may be set aside for those households

environment
planning
government

- earning not more than 100 percent of the County's annual median income (\$65,700.00 for 2006).
5. There have been changes to the percentage of affordable units to be provided. The proposed project will involve the development of 116 improved lots with approximately 70 lots (60 percent) set aside for affordable house-lot packages. The remaining lots, consisting of approximately 46 residential lots (40 percent), will be sold at market price. The percentages cited above are rounded.
 6. Access to the proposed subdivision would be provided via a new access road off of Lower Kula Road. See Figure 1.
 7. Eight (8) acres have been designated as park and open space located above Kula Community Center. (Three (3) acres will be set aside for Park use, with the remaining five (5) acres set aside for Open Space use.) The center is located to the immediate west of the proposed subdivision. The Kula Community Center is an approximate 2,800 square foot building on seven (7) acres of land. The center has a stage, outside barbecue grill area and restrooms. There is a community police office onsite. Recreational facilities on the property include two (2) lighted tennis courts and a gateball court. The gateball court has a field house and storage shed.
 8. The proposed three (3) acre park will be dedicated to the County of Maui. Five (5) acres will be used as green/open space and a drainage detention basin. Specific improvements to be implemented on the 3-acre park site will be discussed with the County's Department of Parks and Recreation. Residents will be able to use this park after it has been developed and dedicated to the county.
 9. A traffic impact analysis report is being done to identify improvements and mitigation measures that need to be made before approval of the subdivision. We are awaiting a final study of the traffic impact analysis, as well as comments from the State of Hawaii, Department of Transportation and County Department of Public Works and Environmental Management regarding potential traffic impacts and mitigative measures.
 10. Water supply and infrastructure improvements will need to be addressed as part of the project's ongoing planning efforts. See item no. 8 in the attached meeting minutes.
 11. The impacts associated with the proposed action will be addressed as part of the environmental assessment process. Engineering, traffic and architectural design

James R. Davis
August 1, 2006
Page 3

issues for example, are being studied to ensure that impacts to the surrounding areas are appropriated addressed.

12. As noted, the above traffic impacts are being studied by a licensed traffic engineer. The project will be governed by design guidelines and covenants to ensure that neighborhood quality is maintained over time.
13. The Kula Ridge Affordable Housing Subdivision is managed under the direction of Mr. Clayton Nishikawa of Kula Ridge, LLC. He is the owner/architect of Nishikawa Architects and a design builder for ADC.

Thank you once again for your comments. Should you have any further questions or require additional information, please call me at (808) 244-2015.

Very truly yours,



Rowena Dagdag, Planner

RD:yp

Enclosures

cc: Clayton Nishikawa, Kula Ridge, LLC (w/out enclosures)

F:\DATA\Nishikawa\KulaAH\jdavis.restlr.wpd

July 21, 2006

MEETING MEMORANDUM

Date of Meeting: July 13, 2006

From: Rowena Dagdag, Planner

Subject: Kula Ridge Affordable Housing Subdivision

Participants: Clayton Nishikawa, (*Architectural Design & Construction, Inc.*)
Stacy Otomo, (*Otomo Engineering, Inc.*)
Michael Munekiyo, (*Munekiyo & Hiraga, Inc.*)
Rowena Dagdag, (*Munekiyo & Hiraga, Inc.*)
Community Participants, (*See Attached*)

The purpose of the meeting was to introduce the proposed Kula Ridge Subdivision project to residents and community members living in proximity to the proposed project site. The project would require a district boundary amendment and seek exemptions from the community plan amendment and change in zoning process through the Section 201G-118, Hawaii Revised Statutes (HRS) application process.

1. C. Nishikawa provided a brief summary of the project's description and displayed the proposed house plan designs. He noted that the project will involve the development of 116 improved lots, with 70 (60 percent) affordable house/lot packages and 46 (40 percent) market lots.
2. A rendering of what the affordable units would look like using a private access easement for 6 of the lots was displayed. C. Nishikawa stated that one of his reasons for developing affordable housing was to provide well designed affordable homes for Maui residents and their children.
3. The project is moving ahead to obtain the proper sequence of approvals. C. Nishikawa has already met with the Kula Community Association, the Maui County Council members, and with the Mayor. All had recommended that he meet with the residents living near the proposed project to answer any questions or address any concerns that they have regarding the project.

4. M. Munekiyo explained that the project was in its preliminary stages in terms of the environmental assessment and Land Use Commission process. He further explained that the environmental assessment process would help identify areas that would be impacted and suggest improvements that need to be made to mitigate or minimize project impacts.
5. M. Munekiyo stated that the project will need to go through the State Land Use Commission for a district boundary amendment to reclassify the land use from Agricultural to Rural and Urban. Exemptions from the community plan amendment and change in zoning process will be requested as part of the Section 201G-118, HRS application process.
6. The project is to be processed as a Section 201G, HRS application, which allows an affordable housing project to be expedited through exemptions. The regular process would take approximately 3 to 4 years. During the application process, there will be formal opportunities for the public to comment and provide feedback.
7. A resident expressed her concern over water rights and asked if the project would receive water before others who have been waiting for a water meter. M. Munekiyo replied that although the Section 201G, HRS process allows for certain exemptions, it would not permit exemptions relating to the provision of water source and water infrastructure.
8. C. Nishikawa stated that he recently met with the Water Director, who suggested that he find his own water. C. Nishikawa is currently negotiating with Maui Land and Pineapple Company and A&B who are drilling wells in the Upcountry area. The water from these wells could service the project site. He further indicated that he would pay for a percentage of the well being drilled by the companies.
9. The well would eventually be connected to the County water system.
10. D. Mayer stated that the Kula Community Association board members met with C. Nishikawa about two (2) months ago and reviewed the project with him. The association has provided C. Nishikawa with comments and concerns regarding the project. D. Mayer indicated that he was not satisfied with the update regarding the water situation, but was willing to be of help to resolve the issues.
11. A septic tank system will be installed in the homes. C. Nishikawa stated the benefits of a septic system and pointed out the disadvantages of a larger single wastewater system. C. Nishikawa is coordinating with the Department of Health to obtain permission to utilize individual wastewater systems as being proposed.
12. A resident asked if the homes could be expanded to accommodate growing families. C. Nishikawa stated that there would be enough room on the individual lots for expansion. He noted that there would be no need for a larger water meter,

but that the homes may need a larger septic system. Homes would have a 5/8-inch meter.

13. A question was raised regarding the community plan designation, and if there was any mention of density to the area. Residents were concerned that the 116 improved lots would result in increased traffic. They were concerned about the safety of the roads and a large number of cars in the subdivision.
14. C. Nishikawa indicated that the smaller homes would be able to accommodate two (2) cars off-street, with the larger homes accommodating up to four (4) cars off-street. Parking on the access driveway would not be allowed for the affordable homes with a private access driveway.
15. The larger density (116 improved lots) is required to keep the affordable housing cost lower.
16. Ohana units will not be allowed on the individual lots.
17. A resident raised concern about the four (4) large lots on the eastern boundary of the property. Residents are concerned about it becoming a "gentlemen" ranch. M. Munekiyo stated that the current state land use designation will be kept as agricultural or rural.
18. A resident raised concern over the sidewalk along Lower Kula Road and suggested improvements to it. Residents also felt that Lower Kula Road was too narrow to accommodate traffic leading up to the 116 lot subdivision. M. Munekiyo stated that a traffic impact analysis was being done to identify improvements and mitigation measures that need to be made before approval of the subdivision.
19. A resident raised a concern over outdoor lights and its negative impact on the Haleakala Observatory. He suggested that we contact the University of Hawaii Institute For Astronomy for their comments.
20. C. Nishikawa noted that the Maui Police Department would like to see adequate lighting in the new neighborhood to address safety concerns. Residents felt that the police officers would be able to continue their work safely with low lighting.
21. A resident commented that some years ago, the Carden Academy proposed to build a school on Lower Kula Road but was denied approval by the Maui Planning Commission due to traffic impact reasons.
22. A resident felt that the project should be located somewhere else where there is less impact to the surrounding neighborhood. An affordable housing project could be done somewhere else.

23. M. Munekiyo stated that there will be several meetings where residents will be able to testify and provide comments over the project. The public will be able to give testimony before the State Land Use Commission during meetings regarding the environmental assessment. After a draft of the environmental assessment has been published, a 30-day comment period will be held for residents to provide feedback. The applicant will review and address the comments received during the draft environmental assessment comment period.
24. M. Munekiyo noted that residents living within 500 feet of the proposed project site were invited to the meeting, but welcomed others in the Kula area to attend. He added that more meetings could be held to update residents on the status of the project and to gather more comments.
25. A resident noted that 6:00 p.m. may be too early in the evening to hold a meeting. A better time would be at 7:00 p.m.
26. Residents asked D. Mayer if the Kula Community Association could act as the spearhead for upcoming meetings. They want to be informed of any meetings or hearings regarding the projects that impact the entire Kula Community. D. Mayer responded that a website is available at www.kulamaui.org. The website includes information that residents would find useful.
27. C. Nishikawa stated that water and roadway infrastructure are very important issues that need to be addressed and resolved. He is willing to work with residents and the Kula Community Association on these issues.

In closing the meeting, M. Munekiyo stated that the applicant would like to come back to the community to provide updates and receive comments as the project progresses.

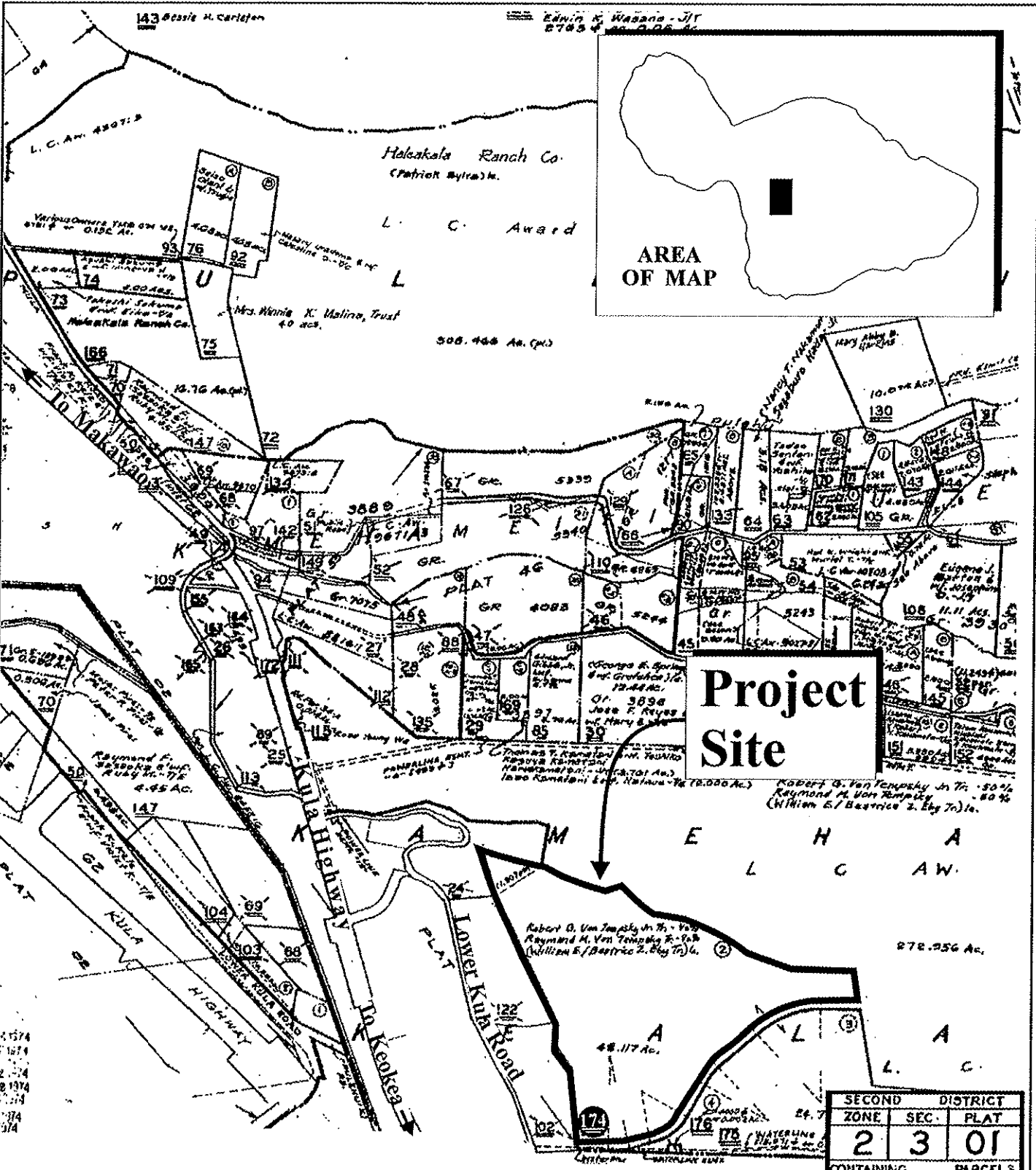


Rowena M. Dagdag, Planner

RMD:yp
Attachment

cc: Clayton Nishikawa, Architectural Design & Construction, Inc. (w/attachment)
Stacy Otomo, Otomo Engineering, Inc. (w/out attachment)
Dick Mayer, Kula Community Association (w/attachment)

F:\DATA\Nishikawa\Kula\AF\071306.meetingmemo.wpd



Source: County of Maui Real Property Tax

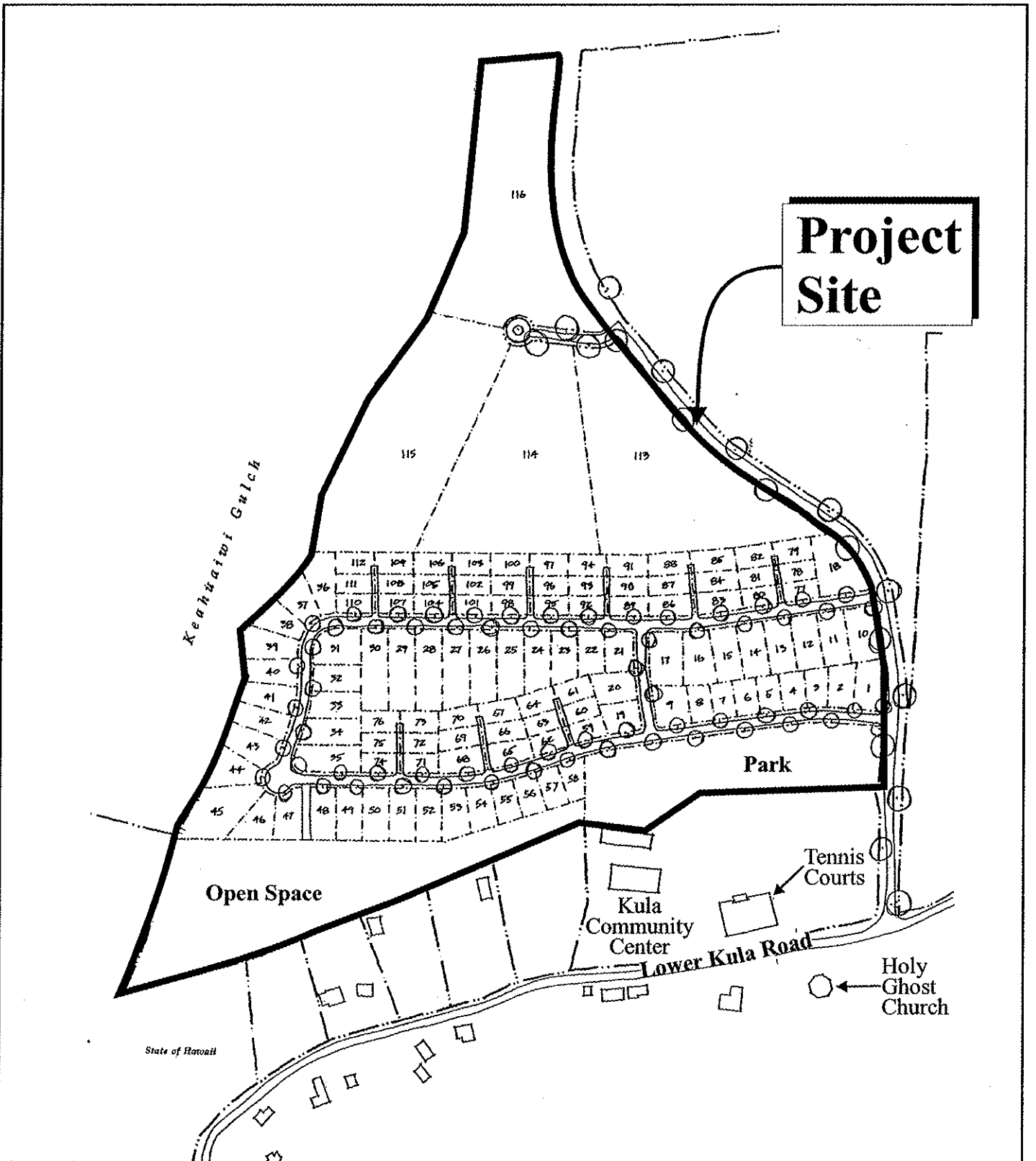
Figure 1 Proposed Kula Ridge Affordable Housing Subdivision Project Site Map

NOT TO SCALE



Prepared for: Kula Ridge, LLC

MUNEKIYO HIRAGA, INC.



Source: Architectural Design & Construction, Inc.

Figure 2

Proposed Kula Ridge
Affordable Housing Subdivision
Conceptual Site Plan

NOT TO SCALE



Prepared for: Kula Ridge, LLC

MUNEKIYO HIRAGA, INC.

**XI. LETTER RECEIVED
DURING THE DRAFT
ENVIRONMENTAL
ASSESSMENT REVIEW
PERIOD AND RESPONSES
TO SUBSTANTIVE
COMMENTS**

XI. LETTERS RECEIVED DURING THE DRAFT ENVIRONMENTAL ASSESSMENT REVIEW PERIOD AND RESPONSES TO SUBSTANTIVE COMMENTS

A Draft Environmental Assessment for the subject project was filed and published in the Office of the Environmental Quality Control's The Environmental Notice on March 23, 2008.

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.



REPLY TO
ATTENTION OF:

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

June 19, 2008

Regulatory Branch

File Number POH-2006-304

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

Dear Ms. Dagdag:

This letter responds to your March 17, 2008 request for comments regarding the Draft Environment Assessment (EA) to the proposed Kula Ridge Residential Workforce Housing Subdivision. The project site is located within TMK (2)2-3-001:174, at Latitude 20.763° N. and Longitude 156.323° W., in Kula, Island of Maui, Hawaii. It has been assigned number POH-2006-304, which should be referred to in all correspondence with us.

Based on our review of the information you provided and available to this office, we have determined the subject property area does not contain waters of the United States (U.S.) under Corps jurisdiction (see enclosure titled, Jurisdictional Determination). Therefore, a Department of the Army (DA) permit is not required. Please contact us if you decide to alter the method, scope, or location of your proposed activity.

However, we cannot determine whether a Department of the Army (DA) authorization is required for the proposed installation of the waterline in Keahuiwi Gulch, at this time. Our review of the information you furnished and available to us indicates that Keahuiwi Gulch may be waters of the United States (U.S.) under our regulatory jurisdiction. We will require additional information regarding water flow in Keahuiwi Gulch in order to make a final determination.

Section 404 of the Clean Water Act requires that a DA permit be obtained for the discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403). Section 10 waters are those waters subject to the ebb and flow of the tide extending shoreward to the mean high water mark.

This approved jurisdictional determination is valid for a period of five (5) years from the date of this letter, unless new information supporting a revision is provided to us before the expiration date.

Also, enclosed is a Notification of Administrative Appeal Options and Process and Request for Appeal form regarding this approved jurisdictional determination (see section labeled "Approved Jurisdictional Determination").

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

You may contact Mr. Benjamin Soiseth of my staff via email at Benjamin.N.Soiseth@usace.army.mil, or by mail to Regulatory Branch (CEPOH-EC-R/B.Soiseth); U.S. Army Engineer District, Honolulu; Building 230; Fort Shafter, Hawaii 96858 or by phone at (808) 438-9258, if you have questions. For additional information about our Regulatory Program, visit our web site at <http://www.poh.usace.army.mil/EC-R/EC-R.htm>.

Sincerely,

A handwritten signature in black ink, appearing to read "George P. Young". The signature is fluid and cursive, with a large initial "G" and "Y".

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

Enclosures

**APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers**

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 19-Jun-2008

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Honolulu District, POH-2006-00304-JD1

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State : HI - Hawaii
 County/parish/borough: Maui
 City: Kula
 Lat: 20.763
 Long: -156.323
 Universal Transverse Mercator: []
 Name of nearest waterbody: Keahuaiwi Gulch
 Name of nearest Traditional Navigable Water (TNW):
 Name of watershed or Hydrologic Unit Code (HUC):



Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.



Check if other sites (e.g., offsite mitigation sites, disposal sites, etc.) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:



Office Determination Date: 18-Jun-2008



Field Determination Date

(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.



Waters subject to the ebb and flow of the tide.



Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area:¹

Water Name	Water Type(s) Present
Kula Ridge Residential Workforce Housing, Uplands	Uplands

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m²)

Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on:

OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:³

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:
The proposed subdivision consists entirely of uplands.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1. TNW

Not Applicable.

2. Wetland Adjacent to TNW

Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size:

Drainage area:

Average annual rainfall: inches

Average annual snowfall: inches

(ii) Physical Characteristics

(a) Relationship with TNW:

Tributary flows directly into TNW.

Tributary flows through tributaries before entering TNW.

:Number of tributaries

Project waters are river miles from TNW.

Project waters are river miles from RPW.

Project Waters are aerial (straight) miles from TNW.

Project waters are aerial(straight) miles from RPW.

Project waters cross or serve as state boundaries.

Explain:

Identify flow route to TNW:⁵

Tributary Stream Order, if known:

Not Applicable.

(b) General Tributary Characteristics:

Tributary is:
Not Applicable.

Tributary properties with respect to top of bank (estimate):
Not Applicable.

Primary tributary substrate composition:
Not Applicable.

Tributary (conditions, stability, presence, geometry, gradient):
Not Applicable.

(c) Flow:
Not Applicable.

Surface Flow is:
Not Applicable.

Subsurface Flow:
Not Applicable.

Tributary has:
Not Applicable.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Not Applicable.

(iv) Biological Characteristics. Channel supports:
Not Applicable.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Not Applicable.

(b) General Flow Relationship with Non-TNW:
Flow is:
Not Applicable.

Surface flow is:
Not Applicable.

Subsurface flow:
Not Applicable.

(c) Wetland Adjacency Determination with Non-TNW:
Not Applicable.

(d) Proximity (Relationship) to TNW:
Not Applicable.

(ii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Not Applicable.

(iii) Biological Characteristics. Wetland supports:

Not Applicable.

3. Characteristics of all wetlands adjacent to the tributary (if any):

All wetlands being considered in the cumulative analysis:

Not Applicable.

Summarize overall biological, chemical and physical functions being performed:

Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Significant Nexus: Not Applicable

**D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/
WETLANDS ARE:**

1. TNWs and Adjacent Wetlands:

Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:

Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:⁸

Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Not Applicable.

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:

Not Applicable.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:

Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:

Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:

Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:

Not Applicable.

7. Impoundments of jurisdictional waters:⁹

Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:¹⁰

Not Applicable.

Identify water body and summarize rationale supporting determination:

Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS



If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:



Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:



Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR):



Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):



Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:

Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.

Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD

(listed items shall be included in case file and, where checked and requested, appropriately reference below):

Date Reviewed	Source Label	Source Description
--Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant	Draft Environmental Assessment	Dated March 2008
--U.S. Geological Survey map(s).	Topo Map	automated USACE eGIS
--USDA Natural Resources Conservation Service Soil Survey.	Island of Maui	-
--National wetlands inventory map(s).	Wetlands Online Mapper	wetlandsfws.er.usgs.gov
--Photographs	-	-
----Other	Satellite Imagery 2002-2004	automated USACE eGIS
----Other	Satellite Imagery 2004-2006	automated eGIS

B. ADDITIONAL COMMENTS TO SUPPORT JD:

Not Applicable.

-
- 1-Boxes checked below shall be supported by completing the appropriate sections in Section III below.
 - 2-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
 - 3-Supporting documentation is presented in Section III.F.
 - 4-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
 - 5-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
 - 6-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
 - 7-Ibid.
 - 8-See Footnote #3.
 - 9 -To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
 - 10-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Munekiyo & Hiraga, Inc., Ms. Rowena Dagdag	File Number: POH 2006 304	Date: 19 June 2008
--	---------------------------	--------------------

Attached is:	See Section below
INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)	A
PROFFERED PERMIT (Standard Permit or Letter of Permission)	B
PERMIT DENIAL	C
XX APPROVED JURISDICTIONAL DETERMINATION	D
PRELIMINARY JURISDICTIONAL DETERMINATION	E

THIS REQUEST FOR APPEAL FORM MUST BE RECEIVED BY: 18 August 2008

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at: <http://usace.army.mil/inet/functions/cw/cecwo/reg> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the District Engineer. Your objections must be received by the District Engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the District Engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or, (c) not modify the permit, having determined that the permit should be issued as previously written. After evaluating your objections, the District Engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the Division Engineer. This form must be received by the Division Engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the Division Engineer. This form must be received by the Division Engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION (JD): You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the Division Engineer. This form must be received by the Division Engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the Preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

In order for a Request For Appeal to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the Notice of Appeal Process. It is not necessary to submit a Request For Appeal form to the Division office if you do not object to the decision.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Benjamin Soiseth, Regulatory Specialist
Honolulu District Corps of Engineers
Regulatory Branch
CEPOH-EC-R
Building 230
Fort Shafter, HI 96858-5440
(808) 438-2039

If you only have questions regarding the appeal process you may also contact:

Commander
USAED, Pacific Ocean Division
ATTN: CEPOD-PDC/Linda Hihara-Endo, P.E.
Building 525
Fort Shafter, HI 96858-5440

To submit this form, mail to the address above

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.

Date:

Telephone number:



MICHAEL T. MUNEKIYO
EWEN CHABBI HIRAGA
MITSURU "MIKE" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER ROY
KYLE CHINZA

July 24, 2008

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

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at6
TMK (2)2-3-001:174

Dear Mr. Young:

Thank you for your letter dated June 19, 2008, regarding the Draft EA for the Kula Ridge Residential Workforce Housing Subdivision project located in Kula, Maui, Hawai'i. On behalf of the applicant, Kula Ridge, LLC, we offer the following in response to your letter.

The applicant acknowledges your office's determination that the subject property does not contain waters of the United States (U.S.) under the Corps jurisdiction and that a Department of the Army (DA) will not be required.

The applicant also understands that a determination for a DA authorization cannot be made at this time for the proposed installation of a waterline in Keahuaiwi Gulch. Efforts to coordinate detailed engineering studies for the proposed waterline are underway, and additional information regarding the proposed installation will be provided to your office. The applicant ensures that continued coordination with your office will be undertaken to secure the required regulatory permits for work within or affecting navigable waters of the U.S.

George Young, P.E., Chief
July 24, 2008
Page 2

We appreciate the input that we received from your office. Should you have any questions, please do not hesitate to contact me at 244-2015.

Very truly yours,



Rowena Dagdag, Planner

RD:lfm

cc: Clayton Nishikawa, Kula Ridge, LLC
Vanessa Medeiros, Department of Housing and Human Concerns
Stacy Otomo, Otomo Engineering, Inc.

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MAR 31 2008

United States
Department of
Agriculture

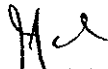
Our People...Our Islands...In Harmony

Natural
Resources
Conservation
Service
210 Imi Kala
Suite 209
Wailuku, HI 96793

TO: Ms. Rowena Dagdag
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 
County Resource Planner/Acting District Conservationist

SUBJECT: Draft Environmental Assessment for Proposed Kula Ridge Residential
Workforce Housing Subdivision, Kula, HI
TMK: (2) 2-3-001:174

Due to the current domestic and agricultural water limitations for Upcountry Maui, the proposed project will have an impact on current water demands.

The topography and various soil series on the proposed project site will create drainage and erosion issues.

Thank you for the opportunity to comment.



MICHAEL T. MUNEKIYO
GUYA. UHABEN. HIRAGA
MITSURU. HIRAGA
KUNIKIDA. HIRAGA

MARK ALEXANDER REED
J. C. BROWN

July 24, 2008

Ranae Ganske Cerizo, Soil Conservationist
Natural Resources Conservation Service
U. S. Department of Agriculture
210 Imi Kala Street, Suite 209
Wailuku, Hawai'i 96793

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i

Dear Ms. Cerizo:

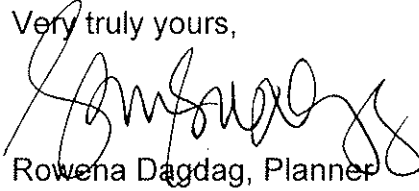
Thank you for your letter dated March 28, 2008, commenting on the subject project. On behalf of the applicant, Kula Ridge, LLC, we wish to provide the following information in response to your comments in the order presented in the memorandum.

1. The applicant recognizes the current domestic and agricultural water limitations for the Makawao-Pukalani-Kula region. With this in mind, Kula Ridge, LLC will be developing a ground water well at an elevation of approximately 2,900 feet on an adjacent parcel identified by TMK (2) 2-3-001:023. Drilling and testing of the new well will be undertaken in compliance with the State Commission on Water Resource Management's requirements for well drilling and pump installation, including the preparation and submittal of required well completion reports. The new well will not impact agricultural water interests, which are currently served by surface water sources.
2. Appropriate drainage and erosion control measures will be identified during the engineering design phase of work. In this regard, Best Management Practices (BMPs) will be implemented, to provide the requisite assurances that adverse impacts to downstream and adjacent properties will not occur.

Ranae Ganske Cerizo, Soil Conservationist
July 24, 2008
Page 2

We appreciate the input received from your office. Should you have any further questions, please do not hesitate to contact me at 244-2015.

Very truly yours,

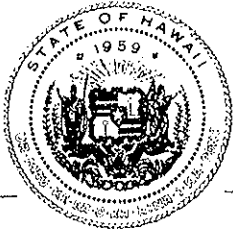
A handwritten signature in black ink, appearing to read 'Rowena Dagdag', written over the typed name below.

Rowena Dagdag, Planner

RD:mge

cc: Clayton Nishikawa, Kula Ridge LLC
Vanessa Medeiros, Department of Housing and Human Concerns
Stacy Otomo, Otomo Engineering, Inc.

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

APR 22 2008
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-12094

April 21, 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: Proposed Kula Ridge Residential Workforce Housing Subdivision
Draft Environmental Assessment (EA)
TMK: (2) 2-3-001:174 (48.12 acres)
Kula, Maui, Hawaii

Thank you for the opportunity to submit comments on the draft EA for the above referenced proposal to reclassify approximately 31.87 acres of land from the State Agricultural District to the State Urban District and 16.25 acres of land from the State Agricultural District to State Rural District in Kula, Maui, Hawaii. The subject project proposes the development of approximately one hundred-sixteen (116) improved residential lots with approximately 70 lots set aside for workforce housing or affordable house-lot packages. The subject property is 48.12 acres with 9.25 acres for affordable housing units, 27.37 acres for market-priced residential lots, and the remaining 11.5 acres for road networks, park, and open space.

We offer the following comments and general observations related to topic areas of interest to the State:

1. **Transportation.** The final EA should include a map showing the project with respect to roadway improvements so the reader can understand the relationship of this project to the larger regional transportation network. This section should include information on alternative modes of transportation that could serve the project and project residents, including the public bus system, bike paths incorporated in regional transportation plans, and any identified trail networks.
2. **Drainage.** The final EA should include a discussion of the phases of construction in order to reduce the impact of erosion and drainage concerns. The final EA

should also 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.

3. **Other comments.**

- a. Page 34, Flora and Fauna: The final EA should provide mitigation measures in response to the U.S. Fish and Wildlife Service comment letter of August 2006, stating that two federally endangered species, nene (*Branta sandvicensis*) and Hawaiian hoary bat (*Lasiurus cinereus semotus*), occur near the proposed project site.
- b. Page 37, Archaeological Resources: The final EA should include a discussion of the archaeological monitoring plan requiring review and acceptance by the State Department of Land and Natural Resources, Historic Preservation Division.
- c. Page 51, Solid Waste Disposal: The final EA should include a discussion of the project's mitigation measures to reduce, reuse, or recycle solid waste transported to the County landfill facilities.
- d. Page 57, Water: The final EA should further discuss non-potable water sources for the project, and plans to promote water conservation, including, if applicable, the use of recycled or irrigation water for landscaping and other non-domestic uses. The final EA should also include a discussion on utilization of low-flow plumbing fixtures and devices in an effort to conserve water and reduce the generation of wastewater.
- e. Page 60, Wastewater: Since the potential to pollute and contaminate ground waters is increased with the proposed one hundred-sixteen (116) individual wastewater systems, the final EA should include a discussion of maintenance and mitigation measures.
- f. Page 62, *Electrical, Telephone, and Cable Television Services*: The final EA should incorporate the statements made in the Maui Electric Company (MECO) comment letter of August 2006, which identify the requirement of an electrical line extension and the potential of other upgrades necessary to accommodate the project. This section should also include MECO's

Ms. Vanessa Medeiros
Page 3
April 21, 2008

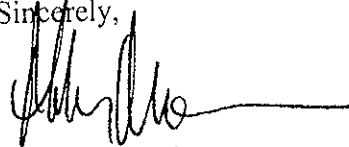
request to explore demand side management measures to reduce energy demand generated by the project, and should identify some of the measures for energy conservation and efficiency opportunities for this project.

- g. The final EA should incorporate a determination from the U.S. Department of the Army (DA) on the requirement of a DA permit. As stated in the DA comment letter of August 2006, a conclusive determination of a DA permit requirement was not made. Additional information was requested to issue a jurisdiction determination by the DA.

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 State Office of Environmental Quality Control's, *Guidelines for Sustainable Building Design in Hawai'i*, and the US 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.

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,



Abbey Seth Mayer
Director

c: ✓ Ms. Rowena Dagdag, Munekiyo & Hiraga, Inc.
Mr. Rodney Maile, State Land Use Commission
Ms. Katherine Kealoha, OEQC



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

MARK ALEXANDER RILEY
KYLE GENIYA

July 24, 2008

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

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i

Dear Mr. Seth Mayer:

We are writing to you on behalf of the applicant, Kula Ridge LLC, to thank you for your letter dated April 21, 2008, regarding the Draft EA for the Kula Ridge Residential Workforce Housing Subdivision project located in Kula, Maui, Hawai'i.

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

1. Section II.D.1. Roadways of the Final EA will be revised as follows to address other modes of transportation which may be appropriate in the context of the proposed action.

The applicant will ensure that all proposed roadway development and improvements are in accordance with the Hawai'i Revised Statutes, Maui County Code, and other applicable rules and regulations. (Figure 1 of the TIAR provides a regional roadway context for the proposed project.) This includes the Hawai'i Standard Specifications for Road and Bridge Construction dated 2005, the Standard Details for Public Works Construction, 1984, as amended, and the Manual on Uniform Traffic Control Devices for Streets and Highways, 2003.

The TIAR recommends mitigation measures and improvements to be implemented for the project. These are outlined above and on page 22 of the TIAR. Agreement on the mitigation measures and improvements to be implemented by the applicant will be determined with the DOT Highways Division. This would occur as part of the applicant's engineering design process and the preparation of specific onsite and offsite roadway and

intersection improvement plans. DOT approval will be required prior to finalizing plans and undertaking these roadway and intersection improvements.

The Department of Public Works and the DOT Highways Division will be given the opportunity to review and approve roadway construction plans to ensure that applicable regulations are satisfied.

The project presents an opportunity to promote non-automobile travel for recreational and household pursuits. Accommodations to support public bus transportation services may be provided in the area to facilitate an alternative travel mode. This effort will be coordinated with the County Department of Transportation.

A network of bicycle paths and walking trails within the neighborhood is anticipated to promote recreational activity and in line with the proposed concepts envisioned in the Upcountry Greenway Master Plan.

In this regard, as the project site is located within the Upcountry Greenway Master Plan Region, opportunities for a walking trail or path may be within an existing right-of-way or may be placed adjacent to the existing roadway on private lands. This type of section has the flexibility to accommodate pedestrians, bicyclists, and horseback riders. The applicant intends to incorporate recommendations from the Upcountry Greenway Master Plan and will work with the County's Department of Public Works to identify opportunities and constraints in implementing a recreational loop trail along the perimeter of the project area.

2. Greater detail of the phases of construction will be developed as the project progresses through engineering design. The following will be added to Section II.D.4 Drainage System of the Final EA

The applicant will ensure that runoff from driveways will be directed to nearby landscaped areas and detention basins to minimize drainage-related impacts resulting from project implementation. Also, native plants which require less water will be sought for the landscaped areas within the project.

Further, appropriate mitigation measures will be developed in consultation with the applicable governmental agencies during the design process. During Construction, the contractor will implement applicable Best Management Practices (BMPs) for erosion and sedimentation control.

- **Construction of detention basins to capture sedimentation to minimize the quantity of sediment leaving the site**
- **Staging of construction**
- **Protecting of natural vegetation**
- **Stockpiling topsoil, and covering or stabilizing of the soil stockpiles**
- **Using wind erosion control**
- **Intercepting runoff above disturbed slopes**
- **Constructing of benches, terraces, or ditches at regular intervals to intercept runoff on long or man-made slopes**
- **Providing linings or other method to prevent erosion of storm channels**
- **Using seeding and fertilizing or other soil erosion control**
- **Providing vehicle wheel wash-down facilities**
- **Using stabilized construction entrances**
- **Using vegetated filter strips**

The foregoing BMP's will be implemented at appropriate stages of construction to ensure optimal management of stormwater.

3. Regarding the other comments, see below.
- a. The following information will be included in Section II.A.6. Flora and Fauna of the Final EA.

The Fauna Survey Report indicated that a special effort was made to look for the native Hawaiian hoary bat. Evening surveys of the property were conducted to observe any presence of the species. No evidence of activity by the bat was observed.

In addition, no endangered nene or Hawaiian goose were seen on the property or in the vicinity of the property. The project area provides a habitat not suitable for these birds. They prefer lush green grass such as is found in irrigated lawns and golf courses.

- b. The Final EA will include a discussion of the archaeological monitoring plan requiring review and acceptance by the State Historic Preservation Division. Specifically, the following language will be included in Section II.A.7. Archaeological and Historical Resources of the Final EA.

The applicant's archaeology consultant has prepared an archaeological monitoring plan and has submitted the plan to the State Historic Preservation Division (SHPD) for review and approval. Should any archaeological remains or cultural materials be encountered during

construction and excavation activities, work in the vicinity of the find will be stopped and the SHPD will be contacted to establish appropriate mitigation measures in accordance with Chapter 6E, Hawaii Revised Statutes.

- c. The following information will be included in Section II.C.4 Solid Waste Disposal of the Final EA

A solid waste management plan will be developed for the disposal or recycle of materials resulting from the site and construction activities, as appropriate. The plan will incorporate strategies for effective construction waste management to reduce, reuse, and recycle solid waste materials. Such strategies involve the use of efficient design to promote waste reduction, salvaging of material to be used by other businesses or local organizations, and separating recyclable and non-recyclable materials for proper recycling and disposal. All materials deemed unfit for reuse/recycling will be dispose at an approved construction waste disposal site.

- d. The following information will be included in Section III.D.2 Water of the Final EA.

The applicant will also utilize the private water source proposed to be developed for non-potable and potable water needs. Water conservation plans will be pursued further during the design phase of the project.

Plumbing fixtures will be installed in accordance with Maui County Code 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.

The Commission on Water Resources Management (CWRM) requested that the project be included in the County's Water Use and Development Plan. The applicant has been coordinating with the DWS to address water use and development parameters.

- e. The following information will be included in Section II.D.3Wastewater of the Final EA.

Each (IWS) unit will be required to have an operation and maintenance (O&M) program to ensure optimal performance. This O&M program will

be written into each deed and will require that an annual report of its quality be sent to the Department of Health. The IWS in the Kula Ridge Subdivision will be maintained by Best Industries USA, Inc. The maintenance program will involve scheduled service inspections and a basic maintenance visit completed at least once a year for each IWS. A maintenance inspection notice will be provided for every homeowner. This notice will list recommendations and comments for maintaining the IWS.

- f. Comments provided by Maui Electric Company will be included in Section II.D.5. Electrical, Telephone, and Cable Television Services of the Final EA as follows:

It is noted that Maui Electric Company will require an electrical line extension, access, and electrical easements in order to provide service to the project.

In addition, energy conservation measures will be considered as part of the project design phase of development and further coordination with Maui Electric Company will occur at that time. As a result, the applicant will consider implementation of the following demand side management measures, where applicable, to conserve natural resources and to promote energy efficiency.

- Site buildings to take advantage of natural features and maximize their beneficial effects by providing for solar access, daylighting, and natural cooling.
- Design south, east, and west shading devices to minimize solar heat gain.
- Consolidate utility and infrastructure in common corridors to minimize site degradation and cost, improve efficiency, and reduce impermeable surfaces.

- g. Comments provided by the United States Department of the Army will be included in Section IV. K. Department of the Army Permit and Other Regulatory Approvals of the Final EA as follows.

As noted in the U.S. Department of Army's letter of June 19, 2008, a DA permit is not required for the subject property within TMK (2) 2-3-001:174. The DA determined that the subject property area does not contain waters of the United States under Corps jurisdiction. The DA further noted that additional information regarding water flow in the

Keahuaiwi Gulch (TMK (2) 2-3-001:023) is needed in order to make a determination of the need for a DA permit. The applicant will coordinate with the DA on the issuance of such determination when final plans for the installation of the waterline crossing the gulch is made available.

4. The applicant intends to utilize OEQC's 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 neighborhood development to incorporate and implement sustainable design and development practices. The following will be added in Section V. Summary of Unavoidable Impacts and Commitment of Resources of the Final EA.

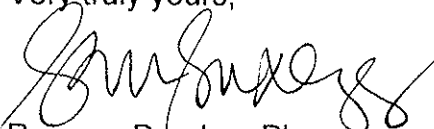
To minimize potential adverse impacts to natural resources in building design, the Office of Environmental Quality Control's publication entitled "Guidelines for Sustainable Building Design in Hawai'i" has been reviewed. As a result, the following measures to conserve natural resources and to promote energy efficiency will be undertaken, where appropriate, 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.**
- **Design south, east, and west shading devices to minimize solar heat gain.**
- **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.**

Mr. Abbey Seth Mayer
July 24, 2008
Page 7

We appreciate the input we received from your office. Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,



Rowena Dagdag, Planner

RD:mge

cc: Clayton Nishikawa, Kula Ridge LLC
Stacy Otomo, Otomo Engineering, Inc.
Harold Nagato, Best Industries USA, 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 Kula Ridge Residential Workforce Housing Subdivision, Kula, Maui. TMK: (2) 2-3-001:174

The Department of Education (DOE) has reviewed the DEA for the proposed Kula Ridge Residential Workforce Housing Subdivision. We have the following comments:

Please update your figures to reflect the following 2007 update of capacity and projected enrollments at DOE schools. Our capacity and future projection numbers have changed since the data last provided to you.

	ACTUAL ENROLLMENT	CAPACITY	PROJECTED ENROLLMENT				
	2007-2008		2006 -2007	2008-09	2009-10	2010-11	2011-12
Kula Elementary	455	588	421	414	408	405	401
Kalama Intermediate	894	1118	881	877	873	871	868
Kekaulike High	1354	1288	1262	1197	1158	1143	1117

The 2007 Legislature passed a bill establishing school impact fees. The bill became Act 245 and is in the process of being implemented. We currently do not know whether this area will be in an impact district or the amount of the fee per residential unit. If the project falls within an impact district, the DOE will meet 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
- Bruce Anderson, CAS, Baldwin/King Kekaulike/Maui High Complex Areas
- Rowena Dagdag, Munekiyo & Hiraga, Inc.



MICHAEL Y. MUNEKIYO
EVEN ORLANDO HIRAGA
MITSUNO HIRAGA
KAZUHIKO HIRAGA

MARK ALFONSO DE ROSA
KYLE HIRAGA

July 24, 2008

Patricia Hamamoto, Superintendent
Department of Education
P. O. Box 2360
Honolulu, Hawaii 96804

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i

Dear Ms. Hamamoto:

Thank you for your letter dated March 28, 2008, commenting on the subject project. On behalf of the applicant, Kula Ridge, LLC, we wish to provide the following information in response to your comments.

1. Thank you for providing the updated future projections for enrollments at Department of Education schools in the project's region. We will include the revised data in the applicable table and discussion in the Final EA.
2. The applicant acknowledges that the 2007 Legislature passed a bill establishing school impact fees. The applicant will work with the Department of Education in formulating an appropriate fair-share agreement for the subject project.

We appreciate the input received from your office. Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,


Rowena Dagdag, Planner

RD:yp

cc: Clayton Nishikawa, Kula Ridge LLC

Vanessa Medeiros, Department of Housing and Human Concerns

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environment
planning

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 Kula
Ridge Residential Workforce Housing Subdivision,
TMK: (2) 2-3-001:174**

Thank you for the opportunity to comment on the Draft Environmental Assessment and Preliminary Section 201H for the proposed Kula Ridge Residential Workforce Housing 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 "H. Matsubayashi", written over a horizontal line.

Herbert S. Matsubayashi
District Environmental Health Program Chief

c: Rowena Dagdag



MICHAEL T. MUNEKIYO
GWEN DEXASHI HIRABA
MITSURU "MICH" HIRANO
KARLYNN FUJIDA

MARK ALEXANDER ROY
KYLE BENJETA

July 24, 2008

Herbert Matsubayashi
District Environmental Health
Program Chief
State of Hawai'i
Department of Health
54 High Street
Wailuku, Hawai'i 96793

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i

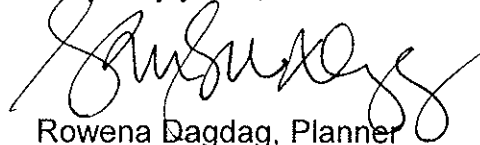
Dear Mr. Matsubayashi:

We are writing to you on behalf of the applicant, Kula Ridge LLC, to thank you for your letter dated April 7, 2008, regarding the Draft EA for the Kula Ridge Residential Project located in Kula, Maui, Hawai'i.

We appreciate the input we received from your office.

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

Very truly yours,

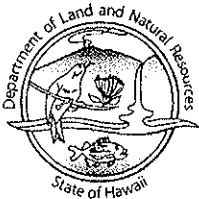


Rowena Dagdag, Planner

RD:lh

cc: Clayton Nishikawa, Kula Ridge LLC
Vanessa Medeiros, Department of Housing and Human Concerns

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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 Kula Ridge Residential Workforce Housing Subdivision, Kula, Maui, Tax Map Key: (2) 2-3-1:174

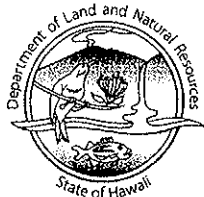
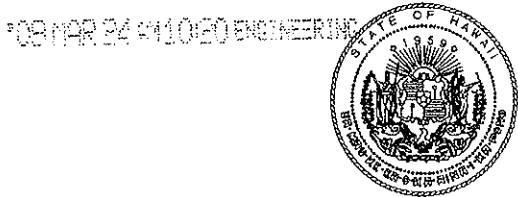
Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Engineering Division, Commission on Water Resource Management, Division of Forestry & Wildlife, 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,


Morris M. Atta
Administrator

Cc: Munekiyo & Hiraga, Inc.



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 *Chairman*
SUBJECT: Draft Environmental Assessment for Proposed Kula Ridge Residential Workforce Housing Subdivision
LOCATION: Kula, Maui, TMK: (2) 2-3-1:174
APPLICANT: Munekiyo & Hiraga, Inc. on behalf Kula Ridge, LLC

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by April 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: *C. J. Thielens*
Date: 4/1/08

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Morris Atta

Ref.: DEA for Proposed Kula Ridge Residential Workforce Housing Subdivision
Maui.002

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



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

RECEIVED
MAR 21 2008
MAR 21 2008

FROM: *for* Morris M. Atta *Chailers*
SUBJECT: Draft Environmental Assessment for Proposed Kula Ridge Residential Workforce Housing Subdivision
LOCATION: Kula, Maui, TMK: (2) 2-3-1:174
APPLICANT: Munekiyo & Hiraga, Inc. on behalf Kula Ridge, LLC

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

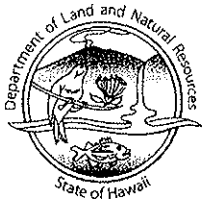
Attachments

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

Signed: *[Signature]*
Date: _____

for **PAUL J. CONRY, ADMINISTRATOR**
DIVISION OF FORESTRY AND WILDLIFE

MAR 27 2008



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 *Chairman*
SUBJECT: Draft Environmental Assessment for Proposed Kula Ridge Residential Workforce Housing Subdivision
LOCATION: Kula, Maui, TMK: (2) 2-3-1:174
APPLICANT: Munekiyo & Hiraga, Inc. on behalf Kula Ridge, LLC

RECEIVED
08 MAR 24 4 52
COMMISSION ON WATER RESOURCE MANAGEMENT

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: _____

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. THIELEN
CHAIRPERSON
MEREDITH J. CHING
JAMES A. FRAZIER
NEAL S. FUJIWARA
CHIYOME L. FUKINO, M.D.
DONNA FAY K. KIYOSAKI, 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

April 8, 2008

REF: Kula Ridge Workforce Housing dr

TO: Morris Atta, Acting Administrator
Land Division
FROM: Ken C. Kawahara, P.E., Deputy Director
Commission on Water Resource Management
SUBJECT: Kula Ridge Workforce Housing
FILE NO.: TMK: (2) 2-3-1:174

RECEIVED
LAND DIVISION
2008 APR 10 A 11:11

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.

April 8, 2008

- 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 projected demand of 83,200 gpd appears to meet County standards for water supply of 137 lots. As the document notes, the area is currently served by limited supplies drawn from surface sources and treated to potable standards. Use of surface sources is subject to a petition to amend instream flow standards, part of the East Maui complex of stream diversions from State lands. Also noted is the proposed Kula Ridge Well (Well No. 4519-01), which has been tentatively approved and ready to be issued permits upon selection of a licensed contractor in good standing. It is one of the highest elevation wells proposed in the State (3000 ft, msl), the highest elevation on Maui, and thus relatively expensive for regular pumping.

If there are any questions, please contact Charley Ice at 587-0251.

CI:ss



MICHAEL T. MUNEKIYO
GLENN CHRISTOPHER HIRAGA
MITSURU "MELVIN" HIRANO
KARLYNN FUKUDA

MARK ALEXANDER REY
KYLE GREENE

July 24, 2008

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

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i

Dear Ms. Thielen:

We are writing to you on behalf of the applicant, Kula Ridge LLC, to thank you for your letter dated April 18, 2008, regarding the Draft EA for the Kula Ridge Residential Workforce Housing Subdivision project located in Kula, Maui, Hawai'i.

In response to comments relating to water resources, we would like to note that the applicant has been in consultation with the Department of Water Supply concerning the development of a reliable water source. The applicant will continue to pursue the development of an off-site water source to service the proposed subdivision. Continued coordination with the Department of Water Supply will be carried out to ensure that water source is adequately and appropriately addressed for the project.

As described in the Draft Environmental Assessment (EA), the applicant will be developing a ground water well at an elevation of approximately 2,900 feet on an adjacent parcel identified by TMK (2) 2-3-001:023. Drilling and testing of the new well will be undertaken in compliance with the State Commission on Water Resource Management's requirements for well drilling and pump installation, including the preparation and submittal of required well completion reports.

Laura Theilen
July 24, 2008
Page 2

We appreciate the input that we received from your office. Should you have any questions, please do not hesitate to contact me at 244-2015.

Very truly yours,



Rowena Dagdag, Planner

RD:mge

cc: Clayton Nishikawa, Kula Ridge LLC
Vanessa Medeiros, Department of Housing and Human Concerns

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MAY 0 8 2008

PHONE (808) 594-1888

FAX (808) 594-1865



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

HRD08/2580B

May 2, 2008

Vanessa Medeiros
County of Maui
200 South High Street, Suite 400
Wailuku, HI 96793-2155

RE: Request for comments on the Draft Environmental Assessment for the Kula Ridge Residential Workforce Housing Subdivision, Kula, Maui, TMK: (2) 2-3-001: 174.

Aloha e Vanessa Medeiros,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-mentioned request for comments dated March 17, 2008. Kula Ridge LLC is proposing to develop a 116-lot subdivision on 48.12 acres on the southwestern flank of Haleakalā. Seventy units will be set aside as workforce or affordable housing. OHA has reviewed the project and offers the following comments.

The applicant plans on requesting the reclassification of 31.87 acres of the project site from the Agricultural District to the Urban District. The remaining 16.25 acres of the project is proposed to be reclassified from the Agricultural District to the Rural District. As a general rule, OHA disapproves of any land reclassification that would result in the reduction of urban development protections afforded to a property. OHA would only approve of such land reclassifications in special cases in which the increased development is merited. We believe that agricultural lands and their status as such should be preserved, as their purpose fulfills a crucial need of the Native Hawaiian community and the state as a whole, as well as being constitutionally protected. (Hawai'i State Constitution, Article XI, section 3.)

We have questions about the affordable and workforce housing elements of this project. According to the EA, it appears that the adjacent and separate Kula Ridge Mauka Subdivision has no workforce housing, thereby not satisfying Maui County's Residential Workforce Housing Policy requirements. Instead, an agreement has been struck between the Kula Mauka subdivision and this Kula Ridge subdivision, which allows the Kula Mauka subdivision's

Vanessa Medeiros
May 2, 2008
Page 2

workforce housing to be located in the Kula Ridge subdivision. We question whether this is appropriate and if this arrangement actually fulfills the County's workforce housing requirements.

We will rely on the applicant's assurances that should iwi kūpuna or Native Hawaiian cultural or traditional deposits be found during the construction of the project, work will cease, and the appropriate agencies will be contacted pursuant to applicable law. Moreover, we request the applicant to develop and submit an archaeological monitoring plan to the State Historic Preservation Division, as requested by the agency in its February 27, 2007, letter to the applicant. We also request to review this monitoring plan when it is available. In addition, we ask that the scope of the Cultural Impact Assessment be broadened to include the examination of the project's impact on Native Hawaiian, constitutionally-protected traditional and customary rights and practices that occur within or near the project site. To this end, we recommend the applicant interview Native Hawaiians with cultural knowledge about the Kula area. We suggest the applicant contact Thelma Shimaoka from OHA's Maui office for a list of such culturally knowledgeable Native Hawaiians. She can be reached at 808-873-3364.

In addition, OHA recommends that the applicant use native vegetation, particularly the 11 native species found on the project site, in its landscaping plan for the subdivision. Landscaping with native plants furthers the traditional Hawaiian concept of mālama 'āina and creates a more Hawaiian sense of place.

Thank you for the opportunity to comment. If you have further questions, please contact Sterling Wong (808) 594-0248 or e-mail him at sterlingw@oha.org.

'O wau iho nō me ka 'oia 'i'o,



Clyde W. Nāmu'o
Administrator

C: Rowena Dagdag ✓
Munekiyo & Hiraga Inc.
305 High Street, Suite 104
Wailuku, HI 96793

OHA Maui CRC Office



MICHAEL F. MUNEKIYO
EWEN DHAEBI HIRAGA
MITSURU "MICH" HIRANO
KAREYUKI FURUDA

MARK ALEXANDER REY
KYLE SINUIZA

July 24, 2008

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

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai`i

Dear Mr. Namu`o:

We are writing to you on behalf of the applicant, Kula Ridge LLC, to thank you for your letter dated May 2, 2008, regarding the Draft EA for the Kula Ridge Residential Workforce Housing Subdivision project located in Kula, Maui, Hawai`i.

We offer the following comments in response to your remarks:

1. We note your office's concern regarding the preservation of agricultural lands. The project area, as reflected by the Agricultural Lands of Importance in the State of Hawaii (ALISH) map, is comprised of lands that have been defined as "Other" agricultural lands. Portions of the project site are contiguous to lands within the agricultural district, however, there are a number of factors which limit the feasibility of the project site for active agricultural use. Approximately 16 acres or 33 percent of the project area are suitable for growing high-elevation crops. These lands comprise of a portion of the project site planned to be available for agricultural uses that include farming and grazing operations. The remainder of the site contains soils with low productivity ratings.

When evaluated based on the housing shortage that exists on Maui, coupled with the scarcity of entitled, undeveloped residential lands in Upcountry Maui, the conversion of the project's agricultural lands into residential development presents a beneficial opportunity. The expansion of the urban district boundary in Upcountry Maui will allow for residential use and supply additional housing units at a site deemed less optimal for long-term agricultural use.

2. We acknowledge your office's comments regarding the Maui Residential Workforce Housing Policy (MRWHP), Maui County Code Section 2.96. The MRWHP sets

forth requirements for the provision of housing units for a defined set of income brackets, including individuals and families earning between 80 percent and 160 percent of median household income. As required under the MRWHP, a minimum of 50 percent of the project's units must be provided for households within this income range.

In total, the project involves the development of approximately 116 improved lots with approximately 70 lots set aside for workforce housing. The Kula Ridge Residential Workforce Housing Project will provide 59 (51%) workforce housing units for the project's proposed 116 lots, meeting the affordability criteria for Section 201H-38 projects.

With regard to requirements to the MRWHP, MCC Section 2.96b.1 States that

"The requirement may be satisfied by one of a combination of the following, which shall be determined by the director and stated in the residential workforce housing agreement:

1. *Offer for sale, single-family dwelling units, two-family dwelling units, or multi-family dwelling units as residential workforce housing within the community plan area."*

The Kula Ridge Mauka Subdivision's eleven (11) workforce housing units will meet the county's RWHP requirements for that project's proposed 21 agricultural lots because they will be provided within the same community plan area.

3. Kula Ridge, LLC confirms that should iwi kupuna or Native Hawaiian cultural or traditional deposits be found during construction, work will cease, and the appropriate agencies will be contacted pursuant to applicable law. In this regard, an archaeological monitoring plan will be prepared and implemented in coordination with the State Historic Preservation Division and the Office of Hawaiian Affairs. As such, the following language will be included in Section II.A.7., "Archaeological and Historical Resources" of the Final EA. **The applicant's archaeology consultant has prepared an archaeological monitoring plan and has submitted the plan to the State Historic Preservation Division (SHPD) for review and approval. Should any archaeological remains or cultural materials be encountered during construction and excavation activities, work in the vicinity of the find will be stopped and the SHPD will be contacted to establish appropriate mitigation measures in accordance with Chapter 6E, Hawai'i Revised Statutes. The Office of Hawaiian Affairs (OHA) shall be contacted in the event that**

archaeological remains or cultural material are discovered during ground altering activities.

4. We note your office's request that the scope of the Cultural Impact Assessment be broadened to include the examination of the practices that occur within or near the project site. As recommended, Thelma Shimaoka from OHA's Maui office and Native Hawaiian Practitioner Ed Lindsey were contacted for a list of culturally knowledgeable persons of Native Hawaiian ancestry. Although additional individuals having specific knowledge of the project site, were not identified, we believe that the knowledge and experiences of those individuals previously interviewed, combined with the information provided by the project archaeologist, establish a sound basis for drawing conclusions regarding cultural impacts in and around the project area.
5. We acknowledge your recommendation to incorporate native plant into the landscaping design of the completed project. Efforts to preserve the species found on the project site will be undertaken to sustain traditional Hawaiian landscaping and to create a Hawaiian sense of place.

We appreciate the input we received from your office. Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,



Rowena Dagdag, Planner

RD:mge

cc: Clayton Nishikawa, Kula Ridge LLC

Vanessa Medeiros, Department of Housing and Human Concerns

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

APR 25 2008

APR 25 2008
BRENNON T. MORIHA
DIRECTOR

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

IN REPLY REFER TO:

STP 8.2850

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: Kula Ridge, LLC
Kula Ridge Residential Workforce Housing Subdivision
Draft Environmental Assessment (DEA)
TMK: 2-3-001: 174

Thank you for your transmittal requesting The Department of Transportation's (DOT) review of the subject project. DOT's comments are as follows:

1. The project will impact State highways by its contribution of traffic to roads that connect to the highways. The determination of this impact, as discussed in the traffic impact analysis report (TIAR), Appendix G of the DEA, requires clarifications to and revision of the TIAR.
2. The items below represent the evaluation of the TIAR by the DOT Highways Division:
 - a. Table 2 on Page 11 of the traffic assessment report show, "Dwelling Units = 210". A clarification is needed explaining if there will be 210 units in the project area and how trip generation rates were applied for the various types of housing units (workforce/affordable, market, agricultural, rural) contained in subject project.
 - b. Table 2 on Page 12 of the traffic assessment report shows zero projected trips generated for a park. An explanation is needed to address why zero trips is assumed to be generated by the proposed three-acre park.
 - c. The assumed distribution of project-generated traffic presented in the TIAR that traffic from an affordable/workforce housing project would flow onto Copp Road and travel to/from another residential area is questionable. As an affordable housing project, this development could be viewed as an aid in 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. This matter should be further evaluated and addressed in the TIAR.

- d. The TIAR should include identification of the geometrics for the recommended westbound right-turn lane on Lower Kula Road at Kula Highway.
- e. The Lower Kula Road/Copp Road intersection is identified as an all-way stop in the calculations contained in the TIAR. This intersection should be noted in the text of the report.
- f. Based on our review, we anticipate that a dedicated southbound left-turn lane on Kula Highway at Lower Kula Road will be needed to mitigate project generated traffic.
- g. We are concerned with the cumulative impact of project generated traffic from the Ridge Project and the Mauka Subdivision will have on Kula Highway. Connection to Kula Highway from the two developments should be addressed in the TIAR.
- h. 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.
- i. Discussion and resolution of the concerns over the TIAR 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 defers further comments until the Highways Division reviews the revised/updated TIAR.

Very truly yours,



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

c: Rowena Dagdag, Munekiyo & Hiraga, Inc.



MICHAEL E. MUNEKIYO
GWEN ORACHE HIRAGA
MITSURU "MICH" HIRANO
KARLYNN FURUDA

MARK ALEXANDER ROY
KYLE GONZA

July 24, 2008

Brennon Morioka, Ph.D., P.E., Director
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813-5087

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at6
TMK (2)2-3-001:174


Dear Mr. Morioka:

Thank you for your letter dated April 22, 2007 to Vanessa Medeiros, commenting on the subject project. On behalf of the applicant, Kula Ridge, LLC, we wish to provide for your information and review, responses to the Department's comments prepared by the project traffic engineer, enclosed hereto as Exhibit "A".

1. The project's traffic engineer has provided a supplemental report that assesses an alternate trip distribution scenario for the Kula Ridge project.
2. The comment items in Part 2 of your letter have been addressed by the project's traffic engineer. Please refer to Exhibit "A".

We appreciate the input that we received from your office. Should you have any questions, please do not hesitate to contact me at 244-2015.

Very truly yours,



Rowena Dagdag, Planner

RD:lfm

Enclosure

cc: Clayton Nishikawa, Kula Ridge, LLC (w/ enclosure)

Vanessa Medeiros, Department of Housing and Human Concerns (w/ enclosure)

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7551-02
June 16, 2008

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808.946.2277
Fax: 808.946.2253
www.wilsonokamoto.com

Mr. Clayton Nishikawa
Kula Ridge, LLC
1849 Wili Pa Loop
Wailuku, HI 96793

Subject: Kula Ridge

Dear Mr. Nishikawa:

As requested, the following are the responses to the comments provided by DOT Highways Division related to the Traffic Impact Report prepared for the subject project:

1. Comment: *Table 2 on Page 11 of the traffic assessment report show, "Dwelling Units=210". A clarification is needed explaining if there will be 210 units in the project area and how trip generation rates were applied for the various types of housing units (workforce/affordable, market, agricultural, rural) contained in subject project.*

Response: The number "210" is a typo. There are a total of 116 dwelling units, 42 residential lots, 70 affordable housing lots, and 4 agricultural lots. 210 refers to the trip generation land use code (single-family detached housing) utilized for the project. As stated on page 3 of the report, each residential and agricultural lot is expected to house a residential dwelling.

2. Comment: *Table 2 on Page 12 of the traffic assessment report shows zero projected trips generated for a park. An explanation is needed to address why zero trips is assumed to be generated by the three-acre park.*

Response: The trip generation rate utilized for the TIAR is Land Use 412 or County Park. Based upon the proposed park size (3-acres), zero site-generated trips are expected during the AM and PM peak periods. It should be noted that due to the small size of the park, the park will most likely function as a neighborhood park that services the residences that surround it. As such, vehicular trips to and from the park are expected to be minimal.

Comment: *The assumed distribution of project-generated traffic presented in the TIAR that traffic from an affordable/workforce housing project would flow onto Copp Road and travel to/from another residential area is*



7551-02

Letter to Mr. Clayton Nishikawa

Page 2

June 16, 2008

questionable. As an affordable housing project, this development could be viewed as an aid in 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. This matter should be further evaluated and addressed in the TIAR.

Response: 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 along Kula Highway to assess the worst-case scenario. However, to address these and other comments by DOT, a supplemental letter was prepared for the project (see attached).

3. Comment: *The TIAR should include identification of the geometrics for the recommended westbound right-turn lane on Lower Kula Road at Kula Highway.*

Response: The TIAR provides recommendations for lane use based upon traffic operations. The actual dimensions of the recommended lanes will be determined during the design phase of the project when topographical information is available. The design geometrics will be submitted to DOT for review and approval.

4. Comment: *The Lower Kula Road/Copp Road intersection is identified as an all-way stop in the calculations in the TIAR. This intersection should be noted in the text of the report.*

Response: Although the text does not specifically identify the intersection of Lower Kula Road and Copp Road as an all-way stop, it does indicate that this is an unsignalized intersection. In addition, all analyses performed for that intersection were based on all-way stop control.



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Letter to Mr. Clayton Nishikawa
Page 3
June 16, 2008

5. Comment: *Based on our review, we anticipate that a dedicated southbound left-turn lane on Kula Highway at Lower Kula Road will be needed to mitigate project generated traffic.*

Response: As previously stated, a supplemental letter was prepared to address this and other comments by DOT.

6. Comment: *We are concerned with the cumulative impact of project generated traffic from the Ridge Project and the Mauka Subdivision will have on Kula Highway. Connection to Kula Highway from the two developments should be addressed in the TIAR.*

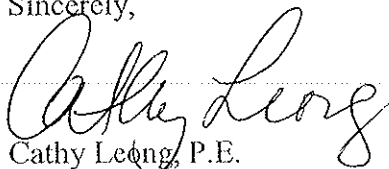
Response: The Kula Ridge TIAR was prepared and finalized prior to that for the Kula Ridge Mauka TIAR and, as such, the plans for Kula Ridge Mauka were not included in this report. However, the Kula Ridge Mauka TIAR, which is currently being revised due to changes in the project plan, will include both projects in its analyses.

7. Comment: *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.*

Response: 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.

Should you have any questions or require additional information, please contact me at 946-2277.

Sincerely,



Cathy Leong, P.E.



7551-02
June 16, 2008

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808.946.2277
Fax: 808.946.2253
www.wilsonokamoto.com

Mr. Clayton Nishikawa
Kula Ridge, LLC
1849 Wili Pa Loop
Wailuku, HI 96793

Subject: Kula Ridge

Dear Mr. Nishikawa:

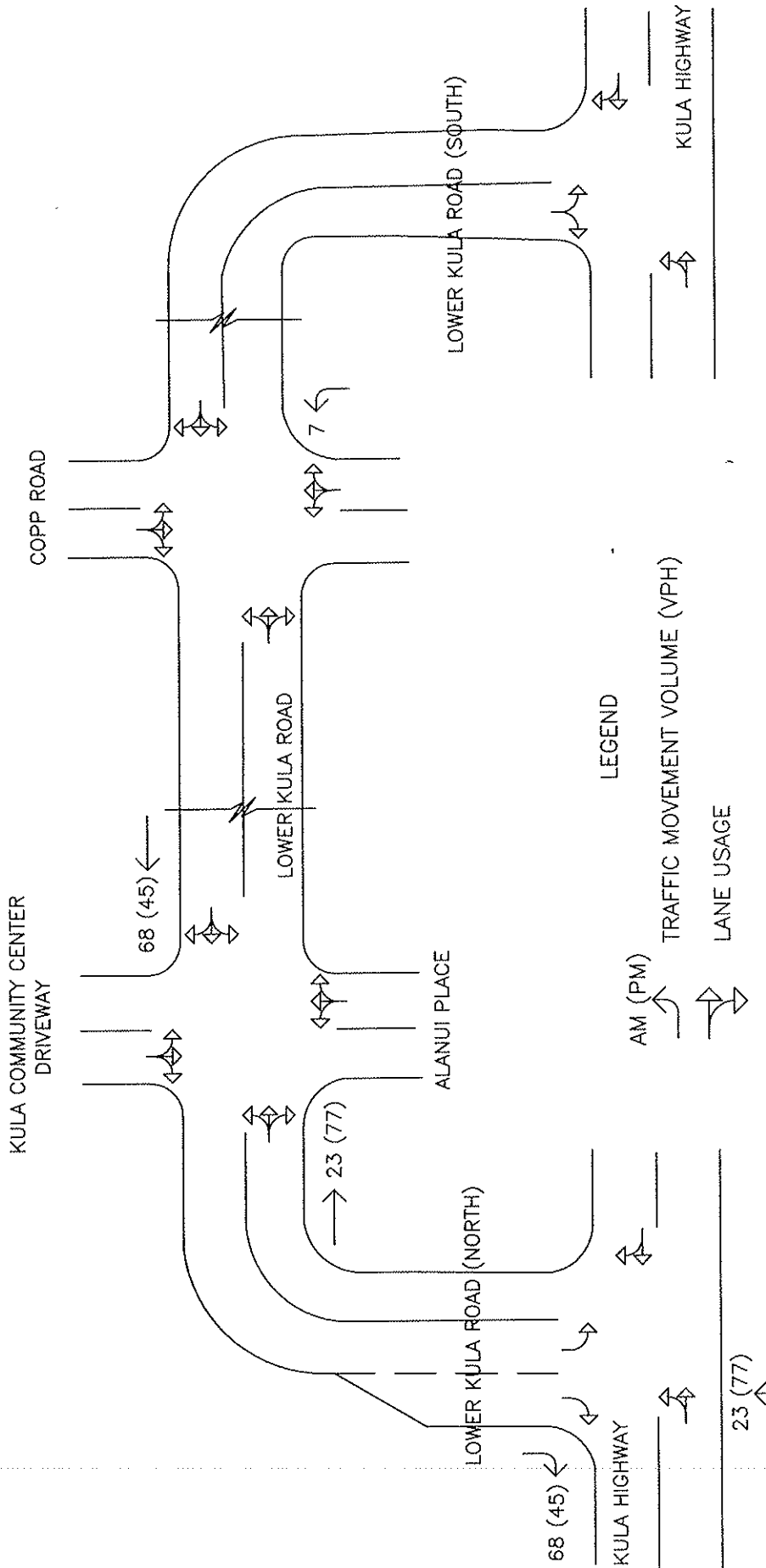
As requested, we assessed an alternate trip distribution scenario for the Kula Ridge project to address comments provided by DOT. The following is a summary of our findings.

Trip Distribution

In comments provided on April 22, 2008, DOT indicated that they did not agree with the trip distribution detailed in the Traffic Impact Report prepared for the Kula Ridge project dated July 2006. To address these comments, an alternate scenario was assessed in which all site-generated trips were assumed to travel from origins and to destinations to the north of the project site. It should be noted, however, that this trip distribution methodology assumes that all site-generated trips are work related and do not have any linked or pass-by destinations. As such, all entering vehicles were assumed to turn left from Kula Highway onto Lower Kula Road via the northern intersection of that roadway with the highway, and then utilized Lower Kula Road to access the project site. Similarly, all exiting vehicles were assumed to turn right onto Lower Kula Road and then right onto Kula Highway. Figure 1 shows the distribution of site-generated vehicles during the AM and PM peak periods for this alternate scenario.

Year 2009 With Project Conditions

The projected Year 2009 AM and PM peak period traffic volumes and operating conditions under the alternate scenario are shown in Figures 2 and 3, and summarized in Table 1. The projected Year 2009 operating conditions based upon the trip distribution included in the original TIAR are provided for comparison purposes. LOS calculations are included in the appendix.



KULA RIDGE

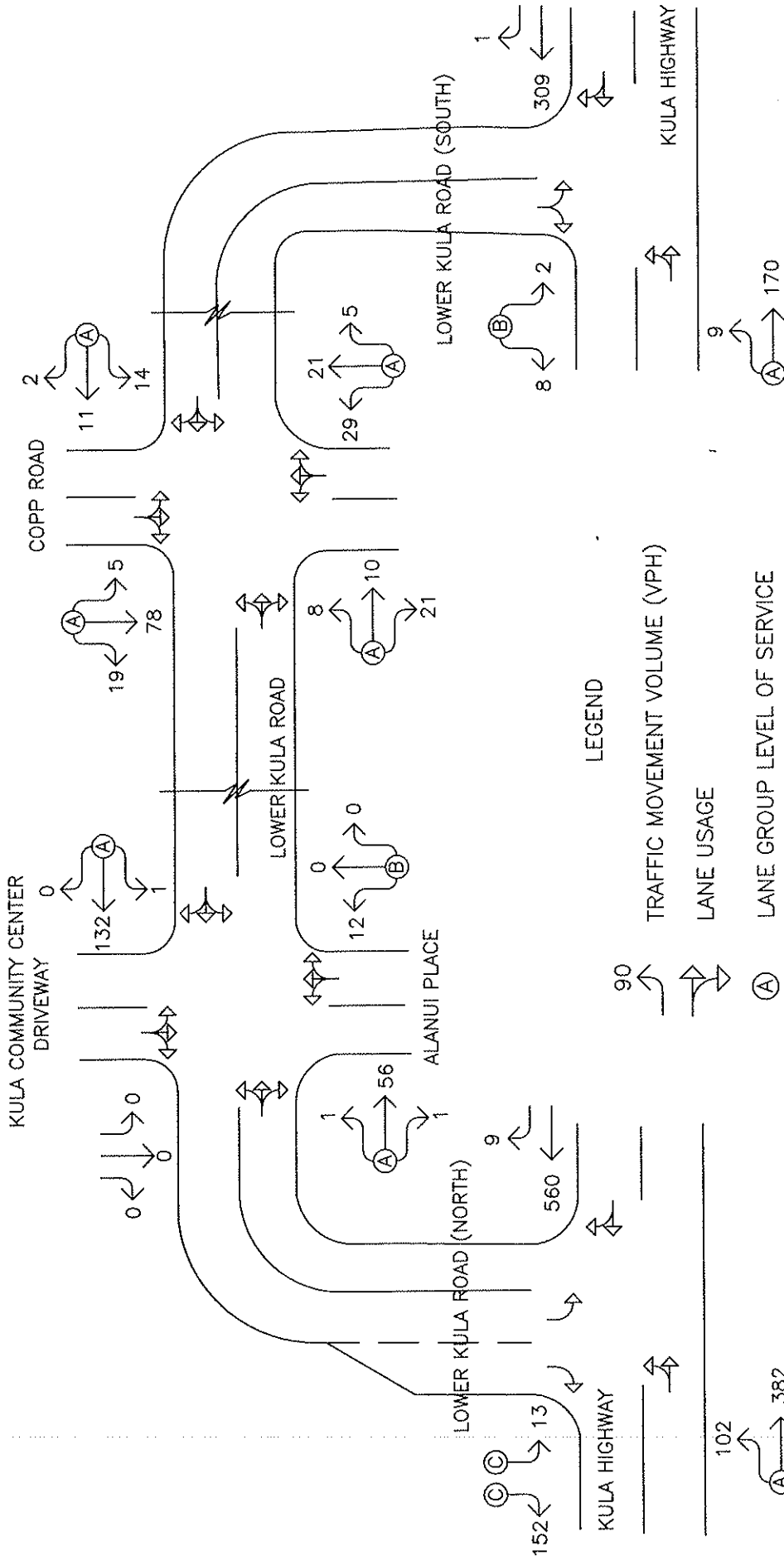
DISTRIBUTION OF SITE-GENERATED TRAFFIC ALTERNATE SCENARIO

FIGURE

1



WILSON OKAMOTO
CORPORATION
ENGINEERS • PLANNERS



KULA RIDGE

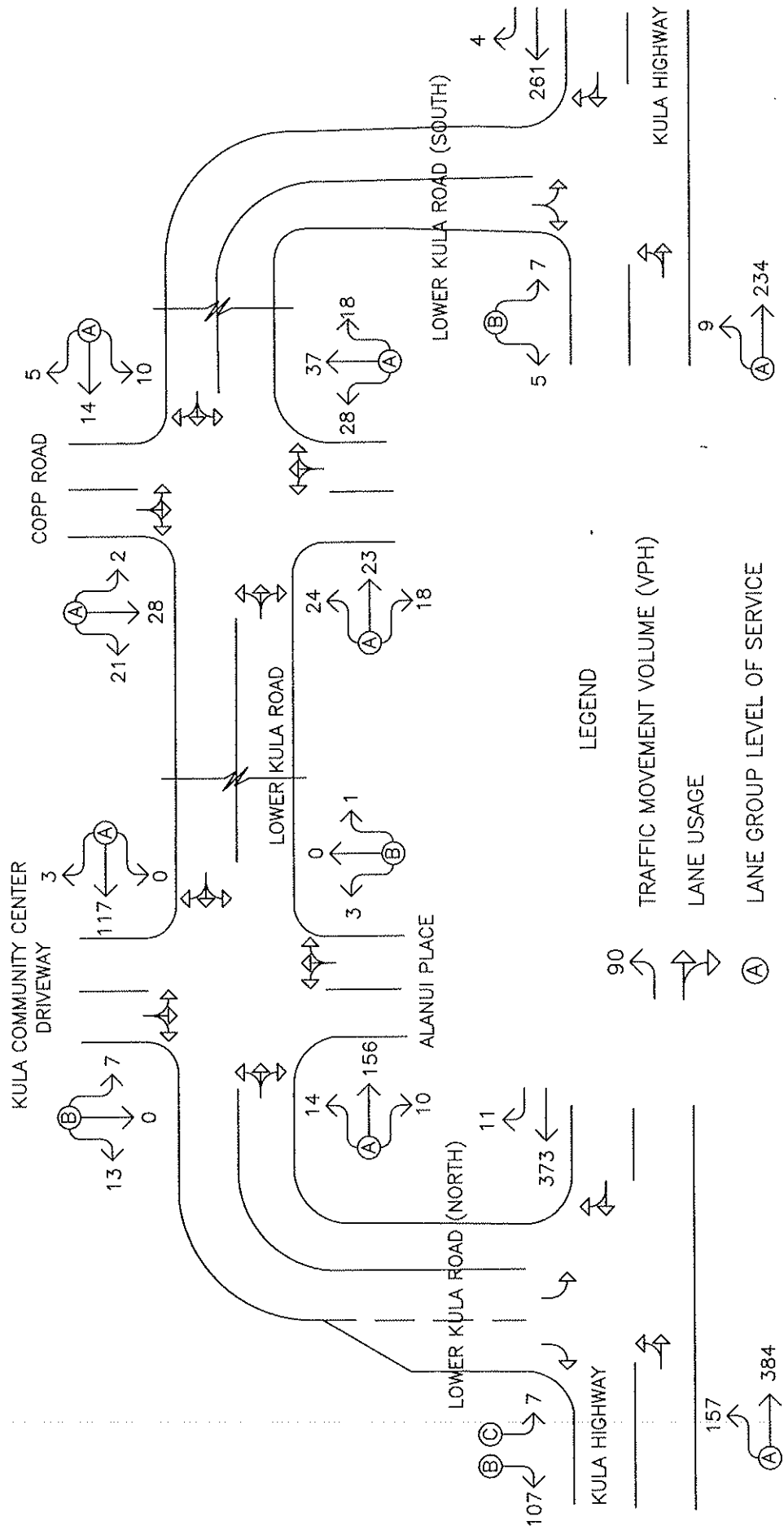
YEAR 2009 AM PEAK HOUR OF TRAFFIC WITH PROJECT
ALTERNATE SCENARIO

FIGURE

2



WILSON OKAMOTO
CORPORATION
ENGINEERS • PLANNERS



WILSON OKAMOTO CORPORATION
ENGINEERS • PLANNERS

KULA RIDGE

YEAR 2009 PM PEAK HOUR OF TRAFFIC WITH PROJECT
ALTERNATE SCENARIO

FIGURE 3



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 Letter to Mr. Clayton Nishikawa
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**Table 1: Year 2008 (TIAR and Alternate Scenario)
 Traffic Operating Conditions**

Intersection	Critical Approach/ Movement		AM		PM	
			TIAR	Alt Scenario	TIAR	Alt Scenario
Lower Kula Road/ Alanui Place/ Kula Community Center Driveway*	Eastbound		A	B	A	B
	Westbound		-	-	B	B
	Northbound		A	A	A	A
	Southbound		A	A	A	A
Lower Kula Road/ Kula Highway (North)	Westbound	LT	C	C	C	C
		RT	C	C	B	B
	Southbound		A	A	A	A
Lower Kula Road/ Copp Road	Eastbound		A	A	A	A
	Westbound		A	A	A	A
	Northbound		A	A	A	A
	Southbound		A	A	A	A
Lower Kula Road/ Kula Highway (South)	Westbound		B	B	B	B
	Southbound		A	A	A	A

*Note: The LOS shown from the TIAR has been modified to correct a typo in the original report. The LOS shown in Table 1 is based on the capacity analysis worksheets included in Appendix E of the TIAR.

Under the alternate scenario, the levels of service at the study intersections are expected to be similar to those included in the original TIAR. The critical movements at the intersections of Lower Kula Road with Kula Highway (north) are expected to operate at LOS "C" or better during both peak periods while those at the intersection with Kula Highway (south) are expected to operate at LOS "B" or better during both peak periods. Similarly, all approaches of the intersection with Copp Road are expected to operate at LOS "A." At the intersection of Lower Kula Road with Alanui Place and the Kula Community Center Driveway, the eastbound approach of the intersection is expected to operate at a slightly lower LOS "B" during both peak periods while the other approaches of the intersection are expected to operate at levels-of-service similar to those included in the TIAR.

Based upon the operational analyses performed for the alternate scenario, a southbound left-turn lane along Kula Highway at the northern intersection with

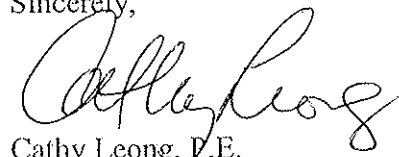


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Letter to Mr. Clayton Nishikawa
Page 6
June 16, 2008

Lower Kula Road as suggested by the DOT is not required. However, the provision of an exclusive turning lane on this approach would minimize the impact of turning vehicles on through traffic along the highway.

Should you have any questions or require additional information, please contact Mr. Pete Pascua or myself at 946-2277.

Sincerely,



Cathy Leong, P.E.

**APPENDIX
CAPACITY ANALYSES CALCULATIONS
ALTERNATE SCENARIO**

TWO-WAY STOP CONTROL SUMMARY

Analyst: cl
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: AM Peak Period
 Intersection: Alanui Dr/Lower Kula Rd
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Alanui Dr
 North/South Street: Lower Kula Rd
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		1	132	0	1	56	1
Peak-Hour Factor, PHF		0.74	0.74	0.74	0.50	0.50	0.50
Hourly Flow Rate, HFR		1	178	0	2	112	2
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		0	0	0	12	0	0
Peak Hour Factor, PHF		1.00	1.00	1.00	0.60	0.60	0.60
Hourly Flow Rate, HFR		0	0	0	19	0	0
Percent Heavy Vehicles		2	2	2	2	2	2
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage		No			/		
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		

Delay, Queue Length, and Level of Service

Approach Movement	NB 1	SB 4	Westbound			Eastbound			
			7	8	9	10	11	12	
Lane Config	LTR	LTR	LTR			LTR			
v (vph)	1	2	0			19			
C(m) (vph)	1475	1398				654			
v/c	0.00	0.00				0.03			
95% queue length	0.00	0.00				0.09			
Control Delay	7.4	7.6				10.7			
LOS	A	A				B			
Approach Delay							10.7		
Approach LOS							B		

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: PM Peak Period
 Intersection: Alanui Dr/Lower Kula Rd
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Alanui Dr
 North/South Street: Lower Kula Rd
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		0	117	3	14	156	10
Peak-Hour Factor, PHF		0.69	0.69	0.69	0.84	0.84	0.84
Hourly Flow Rate, HFR		0	169	4	16	185	11
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		7	0	13	3	0	1
Peak Hour Factor, PHF		0.71	0.71	0.71	0.33	0.33	0.33
Hourly Flow Rate, HFR		9	0	18	9	0	3
Percent Heavy Vehicles		2	2	2	2	2	2
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage		No			/		
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		

Delay, Queue Length, and Level of Service

Approach Movement	NB	SB	Westbound			Eastbound			
	1	4	7	8	9	10	11	12	
Lane Config	LTR	LTR	LTR			LTR			
v (vph)	0	16	27			12			
C(m) (vph)	1377	1404	734			596			
v/c	0.00	0.01	0.04			0.02			
95% queue length	0.00	0.03	0.11			0.06			
Control Delay	7.6	7.6	10.1			11.2			
LOS	A	A	B			B			
Approach Delay				10.1			11.2		
Approach LOS				B			B		

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: AM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (North)
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Lower Kula Rd (North)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		560	9		102	382	
Peak-Hour Factor, PHF		0.90	0.90		0.77	0.77	
Hourly Flow Rate, HFR		622	10		132	496	
Percent Heavy Vehicles		--	--		2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR		LT		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		13		152			
Peak Hour Factor, PHF		0.84		0.84			
Hourly Flow Rate, HFR		15		180			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes		1		1			
Configuration		L		R			

Delay, Queue Length, and Level of Service

Approach Movement	NB	SB	Westbound			Eastbound		
			7 L	8 L	9 R	10 L	11 T	12 R
Lane Config		LT		L	R			
v (vph)		132	15		180			
C(m) (vph)		951	200		484			
v/c		0.14	0.08		0.37			
95% queue length		0.48	0.24		1.76			
Control Delay		9.4	24.5		16.8			
LOS		A	C		C			
Approach Delay					17.4			
Approach LOS					C			

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: PM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (North)
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Lower Kula Rd (North)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		373	11		157	384	
Peak-Hour Factor, PHF		0.86	0.86		0.90	0.90	
Hourly Flow Rate, HFR		433	12		174	426	
Percent Heavy Vehicles		--	--		2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR		LT		
Upstream Signal?		No				No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		7		107			
Peak Hour Factor, PHF		0.82		0.82			
Hourly Flow Rate, HFR		8		130			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		/
Lanes		1		1			
Configuration		L		R			

Delay, Queue Length, and Level of Service

Approach Movement	NB 1	SB 4	Westbound			Eastbound		
			7 L	8 R	9 R	10 L	11 T	12 R
Lane Config		LT	L		R			
v (vph)		174	8		130			
C(m) (vph)		1115	237		618			
v/c		0.16	0.03		0.21			
95% queue length		0.55	0.10		0.80			
Control Delay		8.8	20.7		12.4			
LOS		A	C		B			
Approach Delay				12.9				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.21

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

Phone: (808) 946-2277
 E-Mail:

Fax: (808) 946-2253

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: AM Peak Period
 Intersection: Copp Rd/Lower Kula Rd
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year:
 Project ID: Alternate Scenario
 East/West Street: Copp Rd
 North/South Street: Lower Kula Rd

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	29	21	5	5	78	19	14	11	2	8	10	21
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.69		0.80		0.61		0.79	
Flow Rate	79		126		43		48	
% Heavy Veh	2		2		2		2	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	1.00 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	79		126		43		48	
Left-Turn	42		6		22		10	
Right-Turn	7		23		3		26	
Prop. Left-Turns	0.5		0.0		0.5		0.2	
Prop. Right-Turns	0.1		0.2		0.1		0.5	

Prop. Heavy Vehicle	0.0	0.0	0.0	0.0
Geometry Group	1	1	1	1
Adjustments Exhibit 17-33:				
hLT-adj	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7
hadj, computed	0.1	-0.1	0.1	-0.2

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	79		126		43		48	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.07		0.11		0.04		0.04	
hd, final value	4.32		4.13		4.50		4.15	
x, final value	0.09		0.14		0.05		0.06	
Move-up time, m		2.0		2.0		2.0		2.0
Service Time	2.3		2.1		2.5		2.2	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	79		126		43		48	
Service Time	2.3		2.1		2.5		2.2	
Utilization, x	0.09		0.14		0.05		0.06	
Dep. headway, hd	4.32		4.13		4.50		4.15	
Capacity	329		376		293		298	
Delay	7.78		7.82		7.76		7.40	
LOS	A		A		A		A	
Approach:								
Delay		7.78		7.82		7.76		7.40
LOS		A		A		A		A
Intersection Delay	7.73				Intersection LOS	A		

HCS+: Unsignalized Intersections Release 5.21

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

Phone: (808) 946-2277
 E-Mail:

Fax: (808) 946-2253

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: PM Peak Period
 Intersection: Copp Rd/Lower Kula Rd
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Copp Rd
 North/South Street: Lower Kula Rd

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	28	37	18	2	28	21	10	14	5	24	23	18
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.94		0.85		0.91		0.75	
Flow Rate	87		58		30		86	
% Heavy Veh	2		2		2		2	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	1.00 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	87		58		30		86	
Left-Turn	29		2		10		32	
Right-Turn	19		24		5		24	
Prop. Left-Turns	0.3		0.0		0.3		0.4	
Prop. Right-Turns	0.2		0.4		0.2		0.3	

Prop. Heavy Vehicle	0.0	0.0	0.0	0.0
Geometry Group	1	1	1	1
Adjustments Exhibit 17-33:				
hLT-adj	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7
hadj, computed	-0.0	-0.2	0.0	-0.1

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	87		58		30		86	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.08		0.05		0.03		0.08	
hd, final value	4.19		4.04		4.31		4.19	
x, final value	0.10		0.07		0.04		0.10	
Move-up time, m		2.0		2.0		2.0		2.0
Service Time	2.2		2.0		2.3		2.2	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	87		58		30		86	
Service Time	2.2		2.0		2.3		2.2	
Utilization, x	0.10		0.07		0.04		0.10	
Dep. headway, hd	4.19		4.04		4.31		4.19	
Capacity	337		308		280		336	
Delay	7.66		7.32		7.47		7.66	
LOS	A		A		A		A	
Approach:								
Delay		7.66		7.32		7.47		7.66
LOS		A		A		A		A
Intersection Delay	7.56							
Intersection LOS					A			

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: AM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (South)
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Lower Kula Rd (South)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		309	1		9	170	
Peak-Hour Factor, PHF		0.83	0.83		0.66	0.66	
Hourly Flow Rate, HFR		372	1		13	257	
Percent Heavy Vehicles		--	--		2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR		LT		
Upstream Signal?		No				No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		2		8			
Peak Hour Factor, PHF		0.75		0.75			
Hourly Flow Rate, HFR		2		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	NB 1	SB 4	Westbound			Eastbound		
			7 LT	8 LR	9	10	11	12
Lane Config								
v (vph)		13		12				
C(m) (vph)		1185		614				
v/c		0.01		0.02				
95% queue length		0.03		0.06				
Control Delay		8.1		11.0				
LOS		A		B				
Approach Delay				11.0				
Approach LOS				B				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: PM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (South)
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year:
 Project ID: Alternate Scenario
 East/West Street: Lower Kula Rd (South)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		261	4	9	234		
Peak-Hour Factor, PHF		0.92	0.92	0.93	0.93		
Hourly Flow Rate, HFR		283	4	9	251		
Percent Heavy Vehicles		--	--	2	--	--	
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR		LT		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		7		5			
Peak Hour Factor, PHF		0.61		0.61			
Hourly Flow Rate, HFR		11		8			
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	NB	SB	Westbound			Eastbound		
			7	8	9	10	11	12
Lane Config	1	4 LT		LR				
v (vph)		9		19				
C(m) (vph)		1275		575				
v/c		0.01		0.03				
95% queue length		0.02		0.10				
Control Delay		7.8		11.5				
LOS		A		B				
Approach Delay				11.5				
Approach LOS				B				

LINDA LINGLE
Governor of Hawai'i



KATHERINE PUANA KEALOHA
Interim Director

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

Telephone (808) 586-4185
Facsimile (808) 586-4186
Electronic Mail: oeqc@doh.hawaii.gov

Department of Health
235 South Beretania Street
Leiopapa A Kamehameha, Suite 702
Honolulu, Hawai'i 96813

April 18, 2008

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

Subject: Draft Environmental Assessment (DEA) for Kula Ridge Residential Workforce Housing Subdivision, TMK: (2) 2-3-01:174, Kula, Maui, Hawai'i

Dear Ms. Medeiros:

Thank you for the opportunity to review and comment on the subject DEA for Kula Ridge. The Office of Environmental Quality Control offers the following comments:

1. The passage on the top of page 31 states that "construction will be limited to a period when the gulch is dry." Although this is the preferred condition, how can one be certain that the gulch will be dry and that it will not rain at any time during construction? A 14.8% slope is somewhat steep, making drainage and erosion management more difficult. There is no information on the regular monitoring of environmental impact to the gulch, and how monitoring information will be used to assess impacts. What is the gulch baseline? What is the scope of impacts under pre-project conditions versus post-project conditions?
2. Water quality is a major concern. There is not enough detail in the drainage report (Appendix H) to assess hydrologic and water quality effects on the gulch. Land cover and human activity will change, thus pollutant loading will change. It may be that runoff to the gulch actually decreases most of the time, depending upon how the new drainage system operates. The design and statements address a single stand-alone event; however things change when single events occur in rapid succession. Meeting County drainage standards for retention does not guarantee that water quality impacts will be avoided. Please address these concerns.

3. The drainage report (Appendix H) needs to provide sufficient detail about the location and identity of the receiving waters to determine if impaired waters might be affected. The drainage report notes that the "runoff eventually discharges into the ocean" but it does not identify the entry point and possible impacts on impaired waters of the State.
4. There is also no discussion on the sustainable yield and current extractions for the aquifer system in which the new wells are proposed. The project will also create 116 individual waste systems (IWS); some of these are at elevations higher than the proposed new well at 2900' elevation. Although the Department of Health has granted a variance for IWS, we still wish to ask if there is a natural barrier between the leach fields and the aquifer. What are the Water Commission comments on this issue?

Should you have any questions, please call Herman Tuiolosega at 586-4185.

Sincerely,



KATHERINE PUANA KEALOHA
Interim Director

c: Ms. Rowena Dagdag



MICHAEL E. MUNPRIYO
DAVID J. HIRAGA
MICHAEL J. HIRAGA
KAMAHA, FLORIDA

MARK A. SAGULIN, PE
1111 S. BERRY

July 24, 2008

Katherine Kealoha, Director
Office of Environmental Quality Control
Department of Health
235 South Beretania Street
Leiopapa A Kamehameha, Suite 702
Honolulu, Hawai'i 96813

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i

Dear Ms. Kealoha:

We are writing to you on behalf of the applicant, Kula Ridge LLC, to thank you for your letter dated April 21, 2008, regarding the Draft EA for the Kula Ridge Residential Workforce Housing Subdivision project located in Kula, Maui, Hawaii.

We offer the following comments in response to your remarks:

1. Construction during the generally dry months of the year is viewed as beneficial from a operations standpoint. However, we understand that construction scheduling will not guarantee that storm events will not occur. The means to address impact mitigation to Keahuaiwi Gulch is through the implementation of Best Management Practices (BMPs) which are designed to prevent stormwater runoff from construction areas from entering into waterways. Such BMPs are implemented in accordance with the National Pollutant Discharge Elimination System (NPDES) which will be secured by the applicant's contractor. A preliminary grading and BMP plan has been prepared by the project's civil engineer and is attached hereto as **Exhibit "A"**.

The NPDES permit will contain BMP measures which will require approvals from the County and Department of Health.

In general, the project will have silt fences, dust fences, and stabilized construction entrance(s). No more than 15 acres will be graded and left unstabilized at any given time. The contractor will be required to stabilize all graded areas, as soon as practicable. The permanent detention basins will be constructed and stabilized prior to the commencement of any other grading on the property. Temporary cutoff ditches will be constructed to ensure that runoff from the property will be diverted

into the detention basins. The cutoff ditches will be grassed and have a minimum slope to regulate the velocity of the runoff and allow silt and debris to settle. The detention basins will serve as the primary BMP for erosion and runoff. Runoff will be allowed to overtop the detention basins when its capacity is exceeded and sheet flow into Keahuaiwi Gulch. Prior to overflowing into the gulch, the runoff will be filtered through a gravel berm wrapped in a fine filter fabric.

Post-development drainage conditions are described in the preliminary drainage report. To summarize, drainage calculations show that the post-development runoff volume is 164.59 cubic feet per second or cfs. This compares to a pre-development runoff volume of 55.66 cfs. The runoff calculations have taken into account the slopes of the project site, as well as the pre- and post-development land cover characteristics.

According to the civil engineer, the proposed drainage improvements for the project will accommodate the entire incremental increase in drainage flows via the construction of new onsite retention systems. Moreover, the design of these onsite systems is estimate to provide drainage retention capacities in excess of that required by the County of Maui by approximately 10 percent.

The foregoing measures are expected to mitigate the drainage impacts of the project on adjacent and downstream properties, including the Keahuaiwi Gulch.

2. The drainage system proposed for the project considers the 50-year, 1-hour event, as required by County rules. This means that the probability of occurrence for a storm of this size is once every 50 years or a 2 percent probability in any year. In promulgating drainage design standards, the County of Maui seeks to recognize the importance of engineering probabilities and factors of safety, while applying best engineering judgement to ensure design feasibility. The Kula Ridge Mauka project's drainage system has been conceptualized and preliminarily engineered in this context.
3. The drainage report will be updated to reflect the outlet location for the Keahuaiwi Gulch.
4. Preliminary reports indicate that the groundwater well is anticipated to yield approximately 1,000,000 gallons of water per day. The completion of the well development will, in large part, determine the sustainable yield for the new system.

The individual wastewater systems (IWS), which consist of an aerobic treatment unit (ATU) for each of the 116 lots will be designed to comply with HAR, Chapter 11-62.

Katherine Kealoha, Director
July 24, 2008
Page 3

As stated in the Draft EA, each IWS will be required to have a continuous comprehensive operation and maintenance (O&M) program to ensure optimal performance. The groundwater well site is located approximately, 200 feet north of the project site. In this regard, the project's hydrogeologist confirms that there will be no adverse mixing of aerobically-treated, chlorine disinfected effluent, which meets the requirements of NSF standard No. 40, Class 1 effluent, and source water from the new well. A copy of the response prepared by the project's hydrogeologist is provided as **Exhibit "B"**. The Commission on Water Resources Management (CWRM) has not commented on the proposed IWS.

We appreciate the input that we received from your office. Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,



Rowena Dagdag, Planner

RD:yp

Enclosures

cc: Clayton Nishikawa, Kula Ridge LLC (w/enclosures)
Vanessa Medeiros, Department of Housing and Human Concerns (w/enclosures)
Stacy Otomo, Otomo Engineering, Inc. (w/enclosures)
Harold Nagato, Best Industries USA, Inc. (w/enclosures)

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OTOMO ENGINEERING
 1001 KALANANĪHUI DRIVE, SUITE 200
 HONOLULU, HAWAII 96813
 TEL: (808) 551-1111
 FAX: (808) 551-1112
 WWW.OTOMOENR.COM



REGISTERED PROFESSIONAL ENGINEER
 STATE OF HAWAII
 LICENSE NO. 10000
 EXPIRES 12/31/2024

KULA RIDGE AFFORDABLE HOUSING
 T.M.K.: (2) 2-3-01: 23
 KULA, MAKAWAO, MAUI, HAWAII
 PRELIMINARY GRADING & BMP PLAN

DESIGNED BY: EAB	DATE: 08/2023
DRAWN BY: LCD	SCALE: AS SHOWN
PROJECT NO.: 2023-11	
DATE: 08/2023	
PROJECT: KULA RIDGE AFFORDABLE HOUSING	
SHEET NO.	
TOTAL SHEETS	

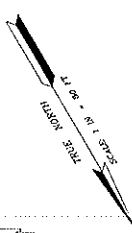
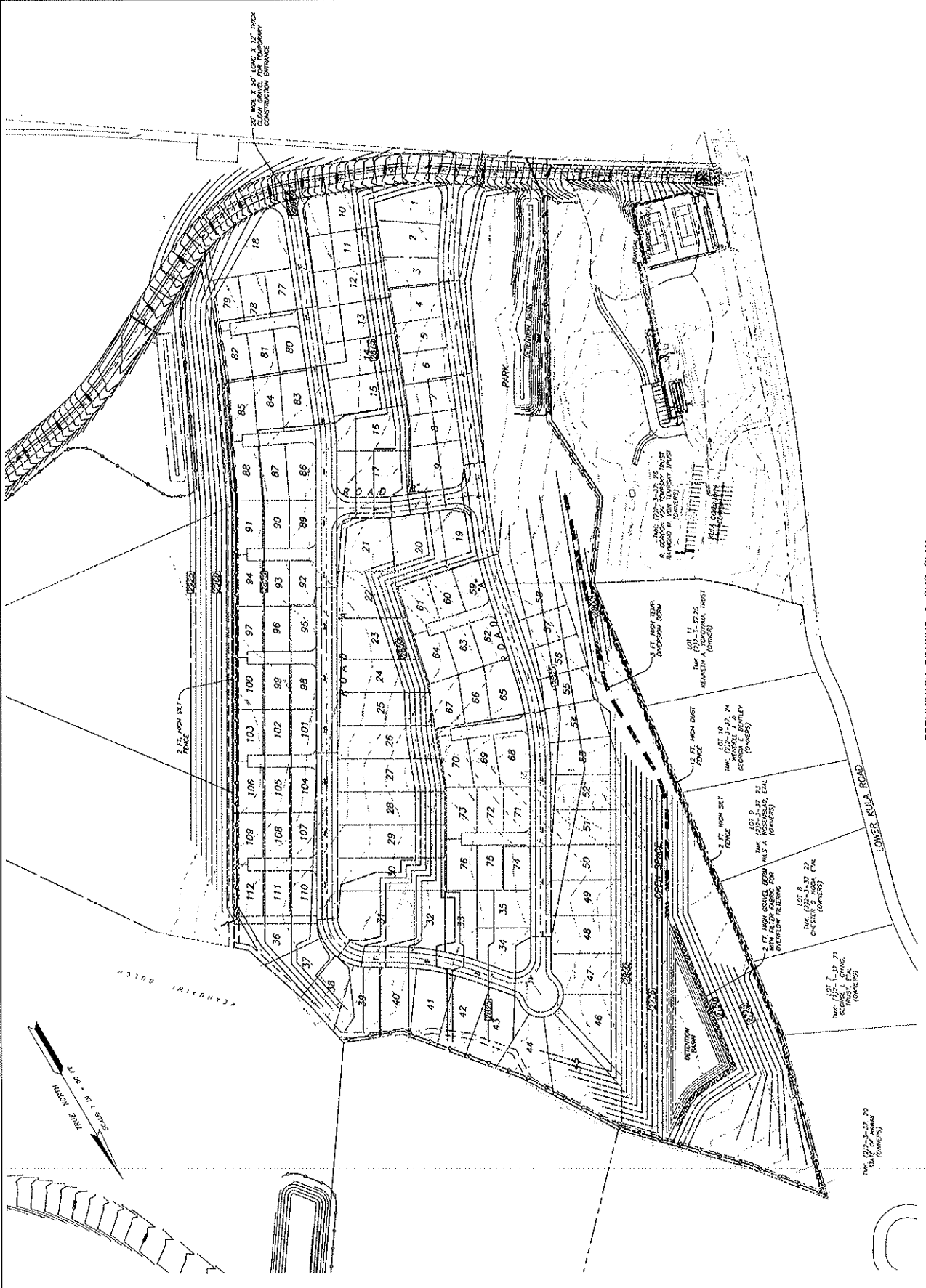


EXHIBIT "A"

PRELIMINARY GRADING & BMP PLAN
 SCALE: 1" = 80 FT.

Mink & Yuen, Inc.

1670 Kalakaua Avenue • Suite 605 • Honolulu, Hawaii 96826 • Telephone: (808) 943-1822 • Fax: (808) 943-1821

July 7, 2008

Mr. Clayton Nishikawa
Kula Ridge Mauka LLC
1849 Wili Pa Loop
Wailuku, HI 96793

Re: Response to Comment No. 4 in the April 18, 2008 Letter From the
Office of Environmental Quality Control

Dear Mr. Nishikawa:

The proposed well site at 2,900± feet above sea level (ft., msl) for the Kula Ridge and Kula Ridge Mauka subdivision is underlain by very dense lava and impermeable lava flows and weathered pyroclastic deposits known as the Kula Volcanics. These eruptive products are associated with Haleakala's post-caldera volcanic activity. A detailed and careful geologic log of the U. S. Geological Survey's observation well at Waiohuli (4421-01), which is about 3 miles south of proposed well site, showed the Kula Volcanics capping to be 925 ft. thick. It is expected that similar geologic conditions will be found when the subdivision's well is drilled.

Below this dense veneer are thin-bedded basaltic lavas flows associated with the shield-building stage of Haleakala's development. These lavas are known collectively as the Honomanu Basalt. The saturated portion of the Honomanu Basalt lavas will form the permeable aquifer from which the proposed well will develop groundwater. The groundwater aquifer should be basal. Basal aquifers form the most extensive aquifers in the Hawaiian Islands.

Groundwater data collected from recently drilled wells at the 1,800± ft., msl and 2,100± ft., msl elevation, show that the static water level rises about 0.75 ft./mile. The Kula Ridge well site is about one mile up gradient from the Pulehu Farms well, which had a basal water level of 5.64 ft., msl and a ground elevation of 2,125 ft., msl. Therefore if basal conditions remain, the water level should be almost 6.5 ft., msl. Water quality in terms of chloride concentration should also be excellent, as the Pulehu Farms' well had a chloride concentration of 40 mg/L.

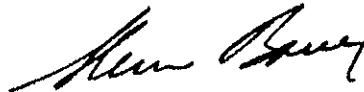
The Department of Health's June 29, 2007 variance allows for individual aerobic and chlorine disinfection of wastewater within 1,000 ft. of a drinking water source. In addition to the nature of the Kula Volcanics, the proposed well site is located above and hydrologically up gradient from most of the

subdivision. Therefore, the likelihood of wastewater from the individual systems to percolate through hundreds of feet of impermeable lavas and weathered pyroclastic beds is improbable. Furthermore, the expected depth to the top of the basal aquifer's water table within the Honomanu Basalt is almost 2,900 ft. below the ground surface.

The new well is situated in the southern end of the Makawao Aquifer System. The sustainable yield of the Makawao Aquifer System is 7 million gallons per day (mgd). Reported water use to the Commission on Water Resource Management show that since 2004 the 12-month moving average is about 0.3 mgd, which is 4 percent of the sustainable yield. At the present time pumpage in this aquifer system is concentrated near the towns of Makawao and Pukalani.

If you have any questions, please call me at 943-1822.

Sincerely,

A handwritten signature in black ink, appearing to read "Glenn Bauer". The signature is fluid and cursive, with a long horizontal stroke at the beginning.

Glenn Bauer, CPG-10855
Sr. Geologist-Hydrologist



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

Ms. Rowena Dagdag
Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Dagdag:

**SUBJECT: KULA RIDGE RESIDENTIAL WORKFORCE HOUSING
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 inform you that we have no comment to offer.

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
EWEN HIRAGA
MIDDLEBURY COLLEGE
KAMAHOU, HAWAII

MADE WITH EASYPRINT BY
July 24, 2008

Vanessa Medeiros, Director
County of Maui
**Department of Housing and
Human Concerns**
One Main Plaza
2200 Main Street, Suite 546
Wailuku, Hawai'i 96793

**SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i**

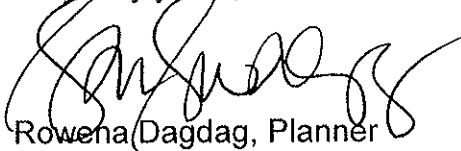
Dear Ms. Medeiros:

We are writing to you on behalf of the applicant, Kula Ridge LLC, to thank you for your letter dated April 22, 2008, regarding the Draft EA for the Kula Ridge Residential Workforce Housing Subdivision project located in Kula, Maui, Hawaii.

We appreciate the input we received from your office, and will continue to work with your department during the processing of the Final Environmental Assessment and the Section 201H-38, HRS application.

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

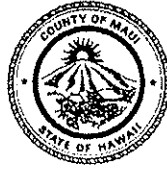
Very truly yours,



Rowena Dagdag, Planner

RD:mge
cc: Clayton Nishikawa, Kula Ridge LLC
F:\DATA\Nishikawa\KulaAH 1107\DHHC.deares.wpd

CHARMAINE TAVARES
Mayor
JEFFREY S. HUNT
Director
COLLEEN M. SUYAMA
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

April 22, 2008

Ms. Vanessa Medeiros, Director
Department of Housing and Human Concerns
200 South High Street, Suite 400
Wailuku, Hawaii 96793

Dear Ms. Medeiros;

SUBJECT: Draft Environmental Assessment Prepared for the Proposed Kula Ridge Residential Workforce Housing Subdivision at TMK 2-3-001:174, Kula, Maui, Hawaii (EAC 2008/0014)

The Department of Planning (Department) has received a Draft Environmental Assessment (DEA) prepared in support of the Kula Ridge Residential Workforce Housing Subdivision. The cover letter transmitting the DEA states that "the applicant will submit a 201H-38 application with the Maui County Council" and then also states that "it would be appreciated if you would provide your written comments regarding the 201H-38, HRS application, if any, concurrently with any Draft EA comments you may have." The Department has not received a copy of the actual 201H-38, HRS application. However, in response to the referenced request the Department is separately providing comments on what we anticipate from our review of the DEA will be the principal features of the actual 201H-38, HRS application. Please refer to that separate letter during your review of the comments submitted on the DEA below.

1. The project proposes a 3 acre park site, but with no apparent improvements proposed. It can be expected that the demographics of the project will include substantial numbers of children. Without some park site improvements, there will remain unmitigated impacts upon recreational services. Please discuss how the project will mitigate such recreational services impacts through park improvements and/or support for programmatic recreational services.

2. Please provide mapping of all of the identified archaeological sites overlain on top of the Conceptual Site Plan Figure 4 of the DEA (or similar). The mapping of archeological sites within the Archeological Inventory Survey Report is very difficult to register with and relate to the proposed improvements and general lot locations for the proposed project.
3. To assist the DEA's use as a critical information document to assist the decisions of policy makers, please provide within the DEA text a summary of key features of, and proposed mitigations for impacts to, each of the identified archeological sites within the boundaries of the proposed Kula Ridge Residential Workforce Housing Subdivision.
4. In its discussion of "Community Character" the DEA states on page 47 that "the subdivision property is in proximity to other residential areas of similar character with structures, streets, and services of both rural and urban type. The proposed project will include single-family homes and agricultural lots that are reflective of the region's rural character." On page 5 the DEA states that "The workforce house lot sizes are proposed to be a minimum of approximately 4,600 square feet (s.f.) with a zero-lot line concept proposed for the homes."

A visual review of the project's "Conceptual Site Plan" finds most of the "Work Force Housing" lots to be of a similar size, with the great majority being on the lower end of the reported lot size spectrum of "4,600 s.f. to 8,500 s.f.". Also, the "Market" lot sizes appear to cluster at the lower end of their reported lot size spectrum of "6,000 s.f. to 21,000 s.f.". Although there appear to be a few existing residential lots in the general vicinity of the project which may range as low as the minimum 6,000 square feet for a single home lot under the area's Interim zoning designation, the smaller minimum lots sizes and the comparatively large volume of smaller lots in the proposed project, in part, lead the project to represent a substantial departure from the general character of development in the area. Beyond the departure in lot sizes and their volume, the layout also represents a significant departure in its proposed usage of narrow lot driveways as opposed to the apparently wider internal project access roadway as the end point means of common area access to the approximately two-thirds of the Work Force Housing lots. The zero-lot line concept for the Work Force Housing lots is a further feature of the project's overall departure from the general character of development in the area.

5. Please provide an estimate of the proportion of future project residents which are expected to work in the near vicinity of the project so that they might walk or bicycle to work, the proportion anticipated to work in the larger area of Kula, the proportion anticipated to work in the area of Pukalani and Makawao, and the proportion anticipated to work outside the Makawao-Pukalani-Kula region.
6. Please identify why the 2009-2010 projected enrollment for the three upcountry schools listed is as much as 32% below the 2007-2008 enrollment.
7. To help mitigate possible safety impacts upon pedestrians within and exiting the subdivision, please provide sidewalks along the primary roadway providing internal access and project access to Lower Kula Road.
8. The possible impact of the proposed well upon the sustainable yield of the underground water source for the project should be analyzed and addressed. Should there be such a water impact, the secondary impact upon the proper allocation of water resources to preserve agriculture as the region's principal economic activity should also then be addressed.
9. To further reduce potential impacts from stormwater runoff please provide a discussion on the alternative of designing the drainage system to retain more than the net increase of stormwater on the property.
10. The DEA addresses an adjoining "21-lot Mauka Subdivision" under a chapter on "Cumulative and Secondary Impacts" of the subject Kula Ridge Residential Workforce Housing Subdivision. The Department understands that a separate EA is being prepared for that subdivision. Therefore, comments relative to that project will be reserved for that separate, subsequent EA. However, for the purposes of the Kula Ridge Residential Workforce Housing Subdivision project and DEA, none of the comments made elsewhere in this letter need to be modified as a result of the information on the 21-lot Mauka Subdivision found in the current DEA's Cumulative and Secondary Impacts chapter.

11. All projects shown on the Department's Makawao-Pukalina-Kula Development Projects Kula Region map are planned and/or proposed and should be included within the analysis in the chapter on "Cumulative and Secondary Impacts". This map may be found at: http://www.co.maui.hi.us/departments/Planning/pdf/0707MPK_South.pdf Then please revisit the Significance Criteria Assessment in Chapter VIII, Section 8. as to cumulative impacts upon the environment.
12. The DEA includes a series of "Comments" with analysis of how the proposed project and site relates to standards for the State Urban Land Use District. Some of the information within the comments is of a factual nature, but much is more qualitative. Please review and reconfirm and/or correct the factual comments and related mapping found in Figure 23. For example, a review of the State Land Use Commission's district mapping on their website will lead to a correction of the mapping on Figure 23. Then please review for accuracy comments about the stated proximity of other actual land uses and various plan land use designations, and then also the extent to which these should be characterized as "urban".

The Department prefers to advance positions regarding the proposed State Land Use District Boundary Amendment which are consistent with determinations made by the Maui County Council relative to the project. Therefore, the Department hopes to be able to reserve further comments upon the District Boundary Amendment and the more qualitative aspects of the DEAs "Comments" on the project's relationship to standards for the State Urban Land Use District to such time after the County Council has made their key determinations regarding the overall proposed project. However, if a District Boundary Amendment petition is filed and requires comment before action by the County Council, the Department will at that time provide its independent comments upon such a petition and the basic subject matter of the DEA's section IV. A. & B.

13. For reasons similar to those in the comment immediately above, the Department prefers to reserve comment upon the consistency of the proposed project with the Hawaii State Plan and state functional plans cited in the DEA until after local determinations have first been made regarding the project by the Maui County Council.

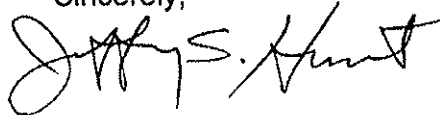
14. For comments upon the proposed project's relationship to the Maui County General and Community Plans please see the accompanying letter commenting upon the intent of the project to pursue a Section 201H-38 application and various exemptions from the provisions of these plans and otherwise applicable local regulations.
15. The Department's letter commenting upon the intent of the project to pursue a Section 201H-38 application concludes that "the scale and density of the project does not appear consistent with the rural character of the region" and "The project appears in varying degrees to be in conflict with... goals, objectives and policies listed within the Makawao-Pukalani-Kula Community Plan". In this light, project Alternative C. "Develop Parcel in Accordance with Makawao-Pukalani-Kula Community Plan" should become the preferred alternative.
16. The goal of the project to achieve affordable housing is one which the Department supports. However, such workforce housing can be better and more effectively provided in much closer proximity to work centers wherein the residents will be employed. The Kula area in which the project is proposed appears relatively isolated and located at a significant distance from the major work centers on Maui. It is thus expected to lead to relatively long commutes for the workforce residing in it. Such longer commutes generally lead to more vehicle miles traveled, traffic congestion, air and greenhouse gas emissions, stress upon families, diminished time for involvement in community affairs, and possibly other effects. In this light, for the reasons in the comment immediately above, and from comments in Department's letter on the anticipated 201H application, the project can be characterized as something like "the right project in the wrong place." In lieu of, or in addition to, the choice of Alternative C. as the preferred alternative, another alternative to develop a similar project much closer to the major work centers on Maui would be preferable to the proposed project.

Ms. Vanessa Medeiros, Director
April 22, 2008
Page 6

17. Some of the comments and requests contained in the Department's preconsultation comment letter dated August 9, 2006, do not appear to have been addressed. As relisted below, please still respond to those which are not already otherwise incorporated into the Department's other DEA comments above:
- a. "2. Explain details on how the affordable housing will be provided:
 - b. How the selection of owners will occur;
 - c. How the affordability will be maintained over time;
 - d. Whether the market units will subsidize the affordable units completely...; and
 - f. If there will be a release rate for the market units based on the construction of the affordable units."
 - b. Please verify "whether the project will entail the construction of affordable homes or merely the sale of lots."
 - c. "4. Provide a grading and drainage plan, including potential Best Management Practices to address erosion from wind and rain, especially in regard to the adjacent Keahuaiwi Gulch."
 - d. "10. It is suggested that the County Department of Parks & Recreation be consulted regarding the 3 acre park."

Thank you for the opportunity to comment. Should you need additional clarification on these comments or the DEA process, contact Mr. Jeffrey Dack, AICP, Staff Planner, of my office at jeffrey.dack@mauicounty.gov or at 270-6275.

Sincerely,



JEFFREY S. HUNT, AICP
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator
Jeffrey P. Dack, AICP, Staff Planner
State Land Use Commission
Rowena Dagdag, Munekiyo & Hiraga, Inc.
General File

JSH:JPD:bg

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MICHAEL T. MUNEKIYO
EWEN DHAASE HIRAGA
MITSURU "MIKE" HIRANO
KARLYN FUKUDA

MARK ALEXANDER ROY
ET AL. DESIGN

July 24, 2008

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

SUBJECT: Draft Environmental Assessment for Proposed Kula Ridge Residential Housing Workforce Housing Subdivision(EAC 2008/0014)

Dear Mr. Hunt:

The Department of Housing and Human Concerns has forwarded to us, your letter of April 22, 2008, providing comments on the Draft Environmental Assessment for the proposed Kula Ridge Residential Housing Workforce Housing Subdivision. On behalf of Kula Ridge, LLC, we are providing responses for your consideration. For reference purposes, the response provided below are numbered to correspond to the numbered comments in your letter.

1. The 3.0-acre park site will meet the minimum requirements for improvements set forth by Chapter 18.16.320 of the Maui County Code, which provides that:

The subdivider shall improve the site with lot grading, grass planting, automatic irrigation, parking areas, adequate drainage, and comfort stations; provided, that the council may waive any of these requirements if the director of parks and recreation determines that such improvements are available nearby, impractical, or unnecessary.

As part of the Section 201H process, Kula Ridge, LLC may seek a waiver of certain requirements set forth by Chapter 18.16.320, due to the park parcel's adjacency to the Kula Community Center.

2. The project archaeologist has prepared a map showing the location of the archaeological sites overlain on the conceptual site plan. A copy of this map will be included in the Final EA in Section 11.A.7 Archaeological Resources.

3. It should be noted that each of the eighteen archaeological sites have been evaluated for significance according to the criteria established for the Hawai'i State Register of Historic Places, and has been assessed as significant under Criterion "D": *"site has yielded or has the potential to yield information important in prehistory or history"*. As such, the eighteen sites have been documented and recorded as part of the inventory survey. No further mitigation has been recommended for these sites. The State Historic Preservation Division in their letter dated February 27, 2007 concurred that all of the sites are significant under Criterion "D" for information content. In addition, the SHPD further recommended that an archaeological monitoring plan is warranted. The project archaeologist will prepare an archaeological monitoring plan for submittal to SHPD.
4. As a workforce housing project, the site plan represents a higher density layout than surrounding single-family lots in the area. Site plan characteristics alone, however, do not define the character of the project in relation to surrounding uses. Site plan configurations are mitigated through architectural and landscape architectural designs via use of higher quality exterior materials and design elements. In turn, the design aspect of the project is intended to advance a higher quality residential living environment while still meeting family needs for workforce housing.
5. The employment characteristics (in terms of place of employment) of future residents have not been determined. However, it is anticipated that many of the project's residents will be those already living in the Makawao-Pukalani-Kula region, and those who formerly resided in the region, but for reasons of affordability and availability, have moved to other regions of the island.
6. The information provided in Table 3 of the Draft EA is data from the State Department of Education (DOE). Projected enrollment for the three (3) upcountry public schools servicing the project area have been updated and was provided in a letter dated April 12, 2008. The update will be provided in the Final EA.
7. Sidewalks will be provided within the subdivision. The project's main access road will also be widened to provide shoulder lanes to accommodate pedestrian, bike, and equestrian access. These shoulder lanes are compatible with the existing rural characteristic of the Waiakea area. The roadway sections are provided as **Exhibit "A"** and **Exhibit "B"**.
8. A key issue for the Island of Maui and the Makawao-Pukalani-Kula region in particular, is water source availability. This limitation is a recognized constraint to the development of affordable housing in Upcountry Maui. As described in the Draft Environmental Assessment, to address this issue, Kula Ridge, LLC will be

developing a new well at an elevation of approximately 2,900 feet on TMK (2) 2-3-001:023. Drilling and testing will be undertaken in compliance with the State Commission on Water Resource Management's requirements for well drilling and pump installation, including the preparation and submission of required well completion reports. The new well will not impact agricultural water interests, which are currently served by surface water sources.

9. The drainage retention system, as reported in the Preliminary Drainage Report, will be sized to accommodate the 50-year, 1-hour storm generated from the proposed project. The reported retention capacity is the minimum required under the Rules for the Design of Storm Drainage Facilities in the County of Maui. During the design phase of the project, Kula Ridge, LLC will seek to retain up to 10 percent more than the minimum required by the drainage rules. The detention basin will be oversized to retain more than the net increase of stormwater on the property.
10. As noted, Kula Ridge Mauka, LLC will prepare a separate EA for the Kula Ridge Mauka 21-lot project. The Draft EA will be provided to the Planning Department for review and comment.
11. In light of the ongoing General Plan Update process, it appears premature to assume that all projects advanced at this point in time will be reflected in either the Urban Growth Boundary or Rural Growth Boundary. As a point of reference, we note that the Land Use Policy Map contained in the Planning Department's Draft Maui Island Plan, Volume II, shows no new growth areas in the Makawao-Pukalani-Kula Community Plan Region. Given the ongoing work of the General Plan Advisory Committee and outcome uncertainties of the General Plan Update process, Chapter VIII, Section 8 will be revised to reflect the discussion presented in the Cumulative and Secondary Impacts chapter of the EA document.
12. The comment responding to the criteria relating to district contiguity will be corrected in the Final EA. In particular, the comment will be amended to read as follows:

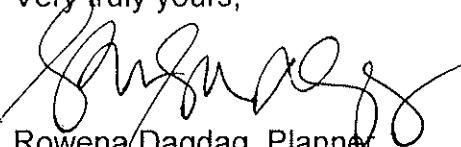
The 31.87-acre parcel proposed to be reclassified is in proximity to existing Urban district lands to the west. Although no contiguous, the intervening Kula Community Center and tennis courts establish a land use spatial configuration which provides a continuity of urban use patterns between the project site and lands falling within the State Urban district.

We confirm that the County Council will act on the Section 201H application prior to any action being taken by the State Land Use Commission on the petition for land use reclassification.

13. See response to item no. 12, above.
14. The Departments' comments on the General Plan, as presented in the Department's April 22, 2008 comments on the Section 201H-38 application are noted. A copy of the Departments Section 201H-38 comment letter and our accompanying response are attached hereto as **Attachment "A"**.
15. The Department's comments regarding consistency with the rural character of the area and consistency with the goals, objectives and policies of the Makawao-Pukalani-Kula Community Plan, as presented in the Department's April 22, 2008 comment letter on the Section 201H application, were reviewed. Responses to these comments are included in our accompanying response letter. See response nos. 2, 3, 4 and 5 in **Attachment "A"**. Given the project's objective to meet the critical need for affordable housing for island residents, the plan as proposed is judged to be preferred.
16. Opportunities for affordable housing development are considered limited based on a number of factors, including land availability, infrastructure costs, and land use entitlements. In the marketplace environment, development of affordable housing requires capital investment where opportunity exists for such development. Risk capital will not be made available if there is difficulty in securing alternative sites which require higher standards and criteria for acquisition and development. The resulting challenge for providing affordable housing then becomes significantly more complex. It is in this context that the proposed alternative is being advanced.
17. The following responds to the Department's comments listed.
 - a. The affordable housing program will be detailed in an affordable housing agreement executed by Kula Ridge, LLC and approved by the County.
 - i. The purchaser selection process has yet to be defined, but will be clarified as part of the affordable housing agreement.
 - ii. As currently envisioned, affordability will be maintained through buy back and equity sharing provisions developed with the County of Maui.
 - iii. Market units will serve to subsidize all affordable units.
 - iv. The market units will be released concurrently with affordable units.

- b. All affordable units will be developed as house-lot packages.
- c. A preliminary grading plan and Best Management Practices measures will be included as addenda to the Preliminary Drainage Report.
- d. Kula Ridge, LLC has been engaged in ongoing discussions with the Department of Parks and Recreation regarding the satisfaction of parks and playground assessment requirements.

We hope the responses provided herein are useful in clarifying the objectives of the project. We appreciate your input and look forward to your continuing input during the Section 201H-38 process.

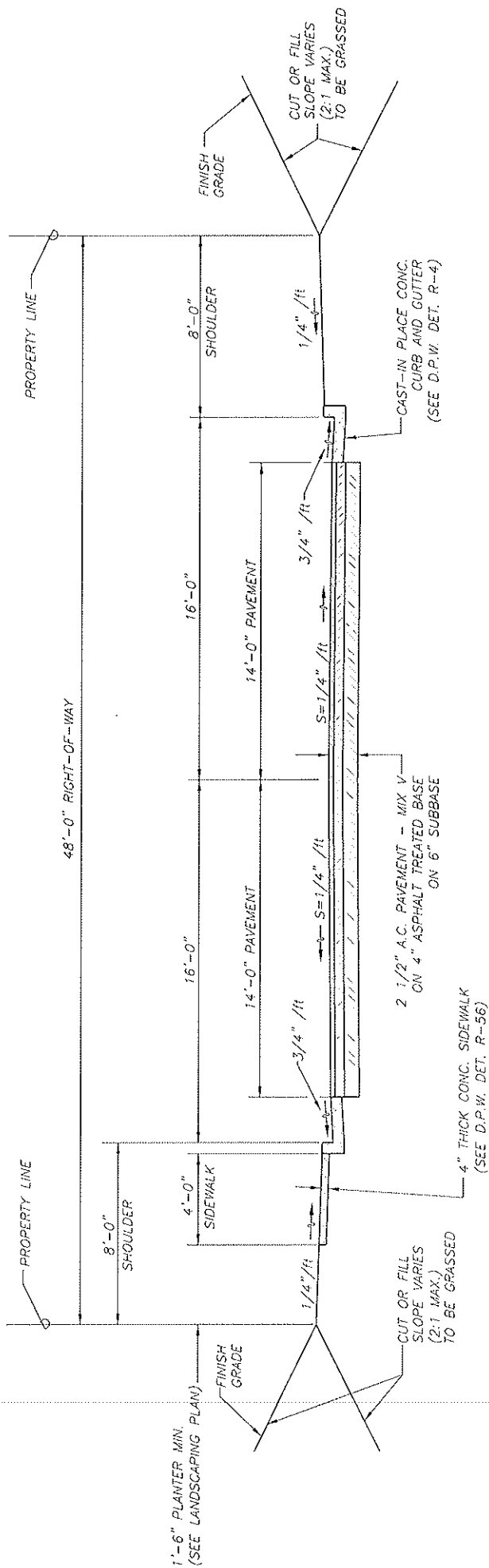
Very truly yours,

Rowena Dagdag, Planner

RD:mge

Enclosures

cc: Clayton Nishikawa, Kula Ridge LLC (w/enclosures)
Vanessa Medeiros, Department of Housing and Human Concerns (w/enclosures)
Blaine Kobayashi, Carlsmith Ball (w/enclosures)
Stacy Otomo, Otomo Engineering, Inc. (w/enclosures)

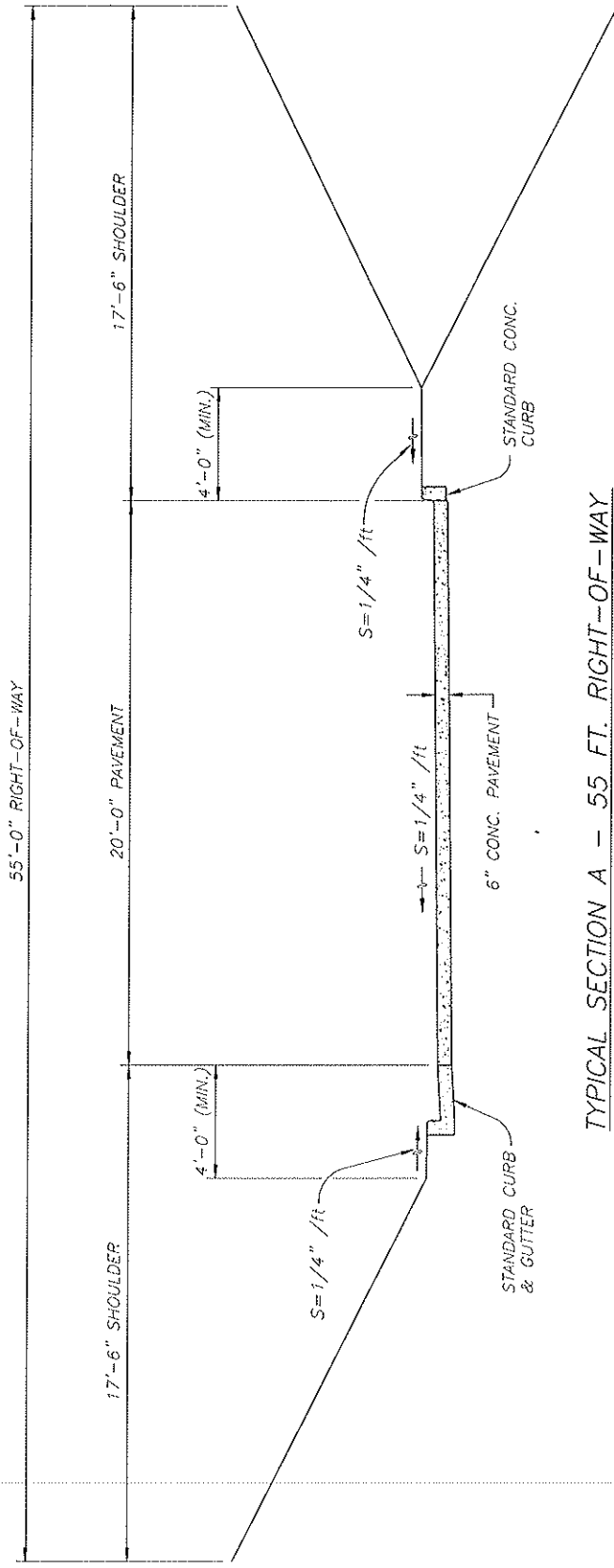
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TYPICAL SECTION - 48 FT. RIGHT-OF-WAY

SCALE: 1/4" INCH = 1 FEET

EXHIBIT "A"



TYPICAL SECTION A - 55 FT. RIGHT-OF-WAY

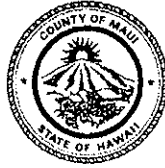
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EXHIBIT "B"

CHARMAINE TAVARES
Mayor

JEFFREY S. HUNT
Director

COLLEEN M. SUYAMA
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

April 22, 2008

Ms. Vanessa Medeiros, Director
Department of Housing and Human Concerns
200 South High Street, Suite 400
Wailuku, Hawaii 96793

Dear Ms. Medeiros:

SUBJECT: 201H-38, HRS Application for Kula Ridge Residential Workforce Housing Subdivision at TMK: (2) 2-3-001:174, Kula, Island of Maui, Hawaii (EAC 2008/0014)

The Department of Planning (Department) has received a Draft Environmental Assessment (DEA) prepared in support of the Kula Ridge Residential Workforce Housing Subdivision. The cover letter transmitting the DEA states that "the applicant will submit a 201H-38 application with the Maui County Council" and then also states that "It would be appreciated if you would provide your written comments regarding the 201H-38, HRS application, if any, concurrently with any Draft EA comments you may have." The Department appreciates the efficiencies potentially involved with this approach and the comments below are submitted in response that request. However, we also request to be forwarded a copy of the actual 201H-38, HRS application and the opportunity to review that document to see if any additional or modified comments from this Department are warranted.

1. The project appears to propose very little affordable housing in addition to that which is now required of all comparable projects under the County's Residential Workforce Housing Policy. With the recent adoption of the Workforce Housing Policy, this appears to now possibly be an overly low and broad threshold for the availability of the various exemptions which may be requested under Section 201H-38. Was the project DEA's reported determination by the Department of Housing and Human Concerns (DHHC) that the project qualified under Section 201H-38 made prior to the adoption of the County's Residential Workforce Housing Policy? If so, is such a determination still applicable and effective? If so, would it still qualify now given the adoption of the Residential Workforce Housing Policy? If so, it

appears that applications for projects to qualify under Section 201H-38 may become much more frequent and the Department may wish to initiate discussions with the DHC about the impacts and other implications of an increased volume of Section 201H-38 applications and how these might be addressed for the future.

2. The area proposed for development is identified on the Makawao-Pukalani-Kula Community Plan map as primarily Rural, with a small portion Residential. The project appears to be at least somewhat in conflict with the following objective and policy listed within the 1990 update of the Maui County General Plan. Prior to granting an exemption from processing any amendments or permits normally required relative to the Community Plan and Zoning or Subdivision requirements, measures to eliminate conflict of the project with these objectives and policies should be applied to the project.

“B. LAND USE Objective 1. To preserve for present and future generations existing geographic, cultural and traditional community lifestyles by limiting and managing growth through environmentally sensitive and effective use of land in accordance with the individual character of the various communities and regions of the County.

Policies d. Formulate a directed land use growth strategy which will encourage the redevelopment and infill of existing communities allowing for mixed land uses, where appropriate.”

3. As stated above, the area proposed for development is identified on the Makawao-Pukalani-Kula Community Plan map as primarily Rural, with a small portion Residential. The project has the potential to exacerbate the following “Major Problems... of the Region” from Part II, Section B.1. of the Community Plan which “provides the underlying basis for the planning goals, objective and polices” of the Community Plan. Prior to granting an exemption from the Community Plan and Zoning the impact of the project on these major problems and potential mitigations to these impacts should be addressed:

“a. WATER. A primary concern is the limited development of water resources and distribution system to meet the needs of the region. The proper allocation of water

resources is considered essential to, in order of priority: (1) preserve agriculture as the region's principal economic activity, promote diversified agricultural activities, and effectively encourage the development of Department of Hawaiian Home Lands (DHHL) parcels; and (2) ensure the long-term viability of the region's residential and economic base.

- b. LOSS OF RURAL CHARACTER. One of the primary attributes which make the Makawao-Pukalani-Kula region unique to the island is the rural and serene environment which defines Upcountry Maui's character. The loss of this rural ambiance is of significant concern to the region's residents. Consequently the preservation of this rural setting and open space, through comprehensive planning, public participation, and orderly plan implementation is viewed as an important goal for the region."

With regards to water, the possible impact of the proposed well upon the sustainable yield of the underground water source for the project should be analyzed and addressed. Should there be such a water impact, the secondary impact upon "The proper allocation of water resources... to... preserve agriculture as the region's principal economic activity" should also then be addressed.

With regards to "loss of rural character", the scale and density of the project does not appear consistent with the rural character of the region and would seem to exacerbate this second identified underlying problem within the region.

The urbanization of this area would impact what the community valued during the Community Plan review. The long term impacts on these community values need to be addressed. Although the developer will be requesting to be relived from the Community Plan Amendment and Change in Zoning processes the urbanization of the property cannot be reviewed in a vacuum. Although housing is an issue in the County of Maui it should not necessarily override other needs and values of the community.

4. The project appears in varying degrees to be in conflict with the following goals, objectives and policies listed within the Makawao-Pukalani-Kula Community Plan. Prior to granting an exemption from processing any amendments or permits normally required relative to the Community Plan and Zoning or Subdivision requirements, measures to eliminate conflict of the project with these goals, objectives and policies should be applied to the project.
 - a. "Economic Activity Objectives and Policies:
 1. Provide for the preservation and enhancement of agricultural lands and operations, emphasizing the importance of promoting diversified agriculture to the region's economic base and lifestyle.
 2. Support programs and plans to develop adequate water systems for agricultural use.
 3. Protect existing agricultural operations from urban encroachment.
 5. Recognize the rural, open space character of the Upcountry region as an economic asset of the island."
 - b. Economic Activity Implementing Actions:
 2. As a condition of subdivision approval for non-agricultural lots, require that lot owners execute agreements which preclude legal action being brought against nearby farmers on issues relating to agricultural operations/nuisances."
 - c. Land Use Goal: The maintenance and enhancement of Upcountry's unique and diverse rural land use character with sensitivity to existing land use patterns, natural resource values, and economic and social needs of the region's residents."
 - d. Land Use Objectives and Policies:
 4. Encourage land use patterns which will:
Discourage 'urban sprawl'.

18. Where appropriate, support the reclassification of State Land Use districts to ensure consistency between State Land Use designations and land use designations defined by the Makawao-Pukalani-Kula Community Plan land use map.
 26. Support land use spatial patterns which enhance the functional viability of pedestrian-oriented town and village centers.
 30. Utilize the Rural classification to provide a transition and buffer between the Urban and Rural districts.”
- e. “Urban Design Objectives and Policies:
1. Encourage urban design concepts which promote and produce pedestrian orientation, town centers, mixed land uses and energy conservation principles to enhance the identity and livability of new and existing communities.”
5. Although not yet adopted, the Department has forwarded recommendations to the Maui County Council regarding the 2030 General Plan Update Countywide Policy Plan, following extensive consideration by the public and the County’s three General Plan Advisory Committees and Planning Commissions. The Department recommends that prior to granting an exemption from processing any amendments or permits normally required relative to the Community Plan and Zoning or Subdivision requirements, measures to eliminate conflicts of the project with the following goal, objective and policy of this draft plan should be applied to the project.
- “G. Promote Sustainable Land Use Planning and Development
Objective 1. Implement a directed land use growth strategy which will improve the management of our County’s land, water and natural resources for the benefit of current and future Maui County Residents.
- Polices a. Define and enforce urban and rural growth limits in the island and community plans.”

6. The Department has recently released a Draft Maui Island Plan dated March, 2008. Although the Maui General Plan Advisory Committee has not yet begun to review and comment upon the Draft Island Plan, the Department can use the document where appropriate as another tool for analyzing any significant land use proposals. In this light, the Department notes that the proposed Kula Ridge Residential Workforce Housing Subdivision falls outside of the draft Urban Growth Boundary (UGB) for applicable Makawao-Pukalani-Kula area. Text of the Directed Growth Strategy section of the Draft Island Plan, Urban Growth Areas subsection, includes the following relevant discussion of the usage of the UGB approach within the draft plan.

"The UGB denotes the areas within which urban-density development requiring a full range of services, such as new multi-user sewer and water, is supported. The UGB is one of Maui's long-range planning tools and will be used to evaluate proposals involving community plan amendments, change in zoning, development proposals or utility extensions. The urban growth boundaries are used to protect farms and natural areas from urban sprawl and to promote the efficient use of land, public facilities and services inside the boundary. The UGBs take into account future growth projections through 2030, the availability of infrastructure and services, and an approximate density of land development to determine the placement of the boundary. Land outside of the UGB is intended to remain rural in character with a strong agricultural and natural resource presence."

The proposed project would provide for residential development at urban densities. Thus, it would not be consistent with the above Urban Growth Areas subsection nor the following policy c. within the Urban Growth Area Goal & Policies subsection of the Directed Growth Strategy.

"c. Community plans shall provide for urban density land use designations only within UGBs."

7. On January 10, 2008, the Department promulgated a policy memorandum in order "to establish a Department of Planning (Department) policy regarding the support of proposed development projects during the General Plan update process." The most relevant features of this policy follow:

- "1. The Department believes that due to the pending General Plan update, we should respect the existing community plan boundaries until there is further progress in the General Plan update process. We ask developers to participate in the process rather than submit independent requests.
3. It could be counter to public policy for a development to be approved now in an area where the updated plan may not provide for that type of development.
4. Based on the above, the Department will not support any proposed development that involves a community plan amendment at this time.
5. The following exceptions may be considered:
 - a. The project offers a substantial public benefit and if it is a private project, the public benefits are far above what would be required based on existing ordinances, policies or other regulations.
6. This policy will continue on an island specific basis until the County Council has adopted that respective island's plan update (i.e. Maui Island Plan, Molokai Community Plan or Lanai Community Plan)."

Although the anticipated 201H-38 application would not change any community plan land use boundaries and instead would request a waiver from the limitations of the community plan, the proposed development is not consistent with current community plan designations for the site. Given that the proposed development lies outside the applicable Urban Growth Boundary within the recently released Draft Maui Island Plan but would involve residential development at urban densities and a request for the State Land Use District for part of the site to be changed from Agriculture to Urban, there appears to be a very strong chance that the "updated plan may not provide for that type of development."

Under the terms of the policy memorandum, the Department of Planning would not support the proposed development. Even though it involves affordable housing which can provide a substantial public benefit, it would also not seem to meet the listed criteria for an

exception from the general position because the affordable housing "public benefits are" not "far above what would be required based on existing ordinances, policies or other regulations", and instead only barely meet those current requirements.

8. The inclusion of the four large lots in the affordable housing project should be analyzed. To include lands that do not meet the intent of the law to provide affordable housing into the 201H-38 process may be inappropriate. The market priced units (49%) and the subsidies requested by the developer through the exemptions requested should be sufficient to off-set the costs to provide the affordable housing.

Exemptions from the zoning provisions for the affordable housing units should follow the R-0 Zero Lot Line Residential District standards. The R-0 Zero Lot Line Residential District was established by the County of Maui to encourage the development of affordable housing and would, if the project is approved, be an appropriate zoning category for this project which proposes zero line lots.

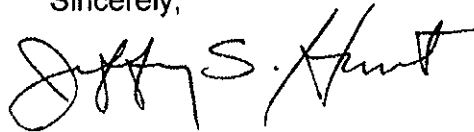
9. For the market units, the zoning provisions of the R-1 Residential District should apply if the project is approved. The Department concurs that no accessory or second dwelling units should be permitted on these lots.
10. Should the four large lots be included in the 201H-38 process then the County Agricultural District standards of Chapter 19.30A should apply since representations in the DEA are that these lots would remain in available for agriculture use.
11. At the densities proposed, curbs, gutters, and sidewalks should not be deleted from the roadway improvements within the subdivision. Within a residential subdivision sidewalks are important for people within the community to walk and curbs and gutters are necessary for the transport of runoff. However, alternatives to provide pedestrian access and drainage may be appropriate for the affordable units to reduce costs. The deletion of such improvements might also mean that they would be deferred to a later date and County resources might eventually be called upon to complete such improvements for both the affordable and market units.
12. There is not an objection to the exemption of the affordable units from assessment and other fees. However, the market units should be

Ms. Vanessa Medeiros, Director
April 22, 2008
Page 9

required to pay such assessments and fees since the sale of the market units normally would include such costs. The sales prices for the market units should offset the cost of the assessment and fees especially since no restrictions are being placed on the market units as to sales.

Thank you for the opportunity to comment on this project. If additional clarification is required, please contact me at any time or contact Mr. Jeffrey Dack, AICP, Staff Planner, of my office at jeffrey.dack@mauicounty.gov or at 270-6275

Sincerely,



JEFFREY S. HUNT, AICP
Planning Director

xc: Mayor Charmaine Tavares, County of Maui
Clayton I. Yoshida, AICP, Planning Program Administrator
John F. Summers, Planning Program Administrator
Jeffrey Dack, AICP, Staff Planner
Milton Arakawa, Director, Department of Public Works
Brian Moto, Corporation Counsel
Jane Lovell, Deputy Corporation Counsel
Office of State Planning
State Land Use Commission
Rowena Dagdag, Munekiyo & Hiraga, Inc.
Project File
General File

JSH:JPD:bg
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MICHAEL T. MONSEYED
GIVEN ENASTO HIRAGA
MUSUND "MICK" HIRANI
KARLYNN LINDEN

MARK ALEXANDER P.D.
KYLE LINDEN

July 24, 2008

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

SUBJECT: Section 201H-38 Application for Proposed Kula Ridge Residential Housing Workforce Housing Subdivision (EAC 2008/0014)

Dear Mr. Hunt:

The Department of Housing and Human Concerns has forwarded to us, your letter of April 22, 2008, providing comments on the Section 201H-38 Application for the proposed Kula Ridge Residential Housing Workforce Housing Subdivision. On behalf of Kula Ridge, LLC, we are providing responses for your consideration. For reference purposes, the response provided below are numbered to correspond to the numbered comments in your letter.

1. As described in the Draft Environmental Assessment for the project, 59 of the 116 lots (51%) will be offered as workforce housing. The Department of Housing and Human Concern's determination that the project qualifies as a Section 201H-38 project was made with the County's Residential Workforce Housing Policy in mind. The number of workforce housing units being provided by the project is, therefore, considered appropriate in the context of the policy. As you are aware, the Maui County Council is the decision-making authority for the subject application. In this regard, Council will consider various factors relating to the provision of affordable housing on the island, including the affordable housing program being offered by Kula Ridge, LLC.

With respect to the subject application leading to an increased volume of Section 201H requests, we understand that each project is evaluated by the Department of Housing and Human Concerns on a case-by-case basis to determine eligibility. We further understand that a key criteria for eligibility decision-making is the extent to which a proposal will help to meet the growing demand for affordable housing within the context of potential community impacts and concerns. The protocols established by the Department of Housing and Human Concerns, therefore, takes

into account analysis of impacts associated with a proposed affordable housing project.

2. The General Plan's Land Use Objective and Policy "d" are a part of a holistic document which identifies appropriate strategies for addressing a multiplicity of needs for Maui residents. In the context of providing affordable housing for local residents, the objectives and policies of the General Plan must, therefore, be viewed collectively and judgement rendered so as to establish policy priorities to meet this specific need. While the proposed action is not an "infill" project as described in Policy "d", the availability of land and development objectives of the project warrants fair review towards meeting an important County need. It is noteworthy that the proposed Kula Ridge Residential Workforce Housing Subdivision addresses the General Plan's objectives and policies for "Housing and Urban Design."
3. A key issue for the Island of Maui and the Makawao-Pukalani-Kula region in particular, is water source availability. This limitation is a recognized constraint to the development of affordable housing in Upcountry Maui. As described in the Draft Environmental Assessment, to address this issue, Kula Ridge, LLC will be developing a new well at an elevation of approximately 2,900 feet on TMK (2) 2-3-001:023. Drilling and testing will be undertaken in compliance with the State Commission on Water Resource Management's requirements for well drilling and pump installation, including the preparation and submittal of required well completion reports. The new well will not impact agricultural water interests, which are currently served by surface water sources.

With respect to issues concerning loss of rural character, the proposed project is located in proximity to urban uses including the Kula Community Center, Morihara Store, Café 808, Kula Gym, Kula Elementary School, Kula Fire Station and single-family residences. As noted, an approximately 15 acre portion of the site is designated for Single-Family use by the Makawao-Pukalani-Kula Community Plan. When average densities are applied to this Single-Family area, then combined with average densities for the Rural-designate areas, approximately 120 lots can be developed on the project site. With these considerations in mind, the location of the project is deemed appropriate, particularly in terms of its immediately surrounding land use context.

4. As with the General Plan, the Makawao-Pukalani-Kula Community Plan is considered a holistic planning document. As stated in the Makawao-Pukalani-Kula Community Plan:

Mutually supporting goals, objectives, policies and implementing actions contained in the Hawaii State Plan, State Functional Plans, Maui County General Plan and the Makawao-Pukalani-Kula Community Plan provide for optimum planning effectiveness and benefits for the residents of the Makawao-Pukalani-Kula Community Plan region.

Identification of objectives and policies which may not necessarily be advanced by the project without recognizing those policies and objectives which do, appears to disregard the fundamental value of the community plan which seeks to provide for "optimum planning effectiveness and benefits for the residents of the Makawao-Pukalani-Kula Community Plan region." The applicant believes that as a process, planning to meet a critical community need, should be analyzed in the context of overall community benefits. Similar to the General Plan objectives and policies, objectives and policies of the Community Plan must, therefore, be viewed collectively and judgement rendered so as to establish policy priorities which are based on expressed community needs.

5. See response to Item No. 4, above.
6. We note that Kula Ridge, LLC has been engaged in the General Plan Advisory Committee's process of reviewing the update to the Maui County General Plan. A presentation to the GPAC on the proposed Kula Ridge Residential Workforce Housing Subdivision was made at the GPAC's October 4, 2007 meeting. In this connection, Kula Ridge, LLC holds high regard for the process and will continue to be an active participant through the GPAC's deliberation of the Maui Island Plan. While the Maui Island Plan is a key component of the General Plan Update, we understand that it is, at this point, a work-in-progress which is designed to be highly process-oriented. The use of the Maui Island Plan as an evaluative planning tool at this time, therefore, appears to be premature.
7. Kula Ridge, LLC is in receipt of the Planning Department's January 10, 2008 policy memorandum and respects the position of the Department. As noted, Kula Ridge, LLC is actively engaged in the GPAC process and will continue to be engaged in the process. While the Department's current position is that the proposed action does not meet the criteria for an exception, Kula Ridge, LLC seeks to continue the Section 201H process to engage full discussion and assessment as to the needs and benefits of the project to the community. We understand that the protocols established for Section 201H review will allow for broad-based discussion by stakeholders, such that an informed decision can be made.

8. The use of the four (4) large lots are a part of the project proposal which was reviewed by the Department of Housing and Human Concerns. These lots are appropriately designated market lots and are not intended to compromise the intent of Section 201H-38.

We note that Section 201H-38 allows the County Council to grant exemptions from County zoning requirements. Exemptions for each Section 201H application are developed to address the unique development circumstances of that project. The intent of the exemption provision is to ensure that affordable housing can be delivered in a manner which does not adversely affect public health, safety and welfare. As such, development performance standards developed for each Section 201H project need not necessarily conform with a specific section of Title 19, as long as, in the judgement of the County Council, said standards do not contravene public health, safety and welfare.

9. See response to Item No. 8, above.
10. In the specific instance of the four (4) large lots, the use of performance standards set forth in Chapter 19.30A, would be appropriate.
11. Sidewalks will be provided within the subdivision to service both affordable and market units. The project's main access road will also be widened to provide shoulder lanes to accommodate pedestrian, bike and equestrian access. These shoulder lanes are compatible with the existing rural characteristic of the Waiakoa area. The roadway sections are provided as **Exhibit "A"** and **Exhibit "B"**. As such a request for the exemptions to sidewalk improvements and improvements to curbs and gutters will be withdrawn.

We note that the roadways within the project will be privately held and maintained. As such, County funds will not be used for future maintenance work.

12. Kula Ridge, LLC intends to apply the exemptions from assessments and fees to the affordable units only. Market units will be subject to said assessments and fees.

Jeffrey S. Hunt, AICP, Director
July 24, 2008
Page 5

We hope the responses provided herein are useful in clarifying the objectives of the project. We appreciate your input and look forward to discussing the project with the Department as it proceeds through the Section 201H-38 process.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Rowena Dagdag', written in a cursive style.

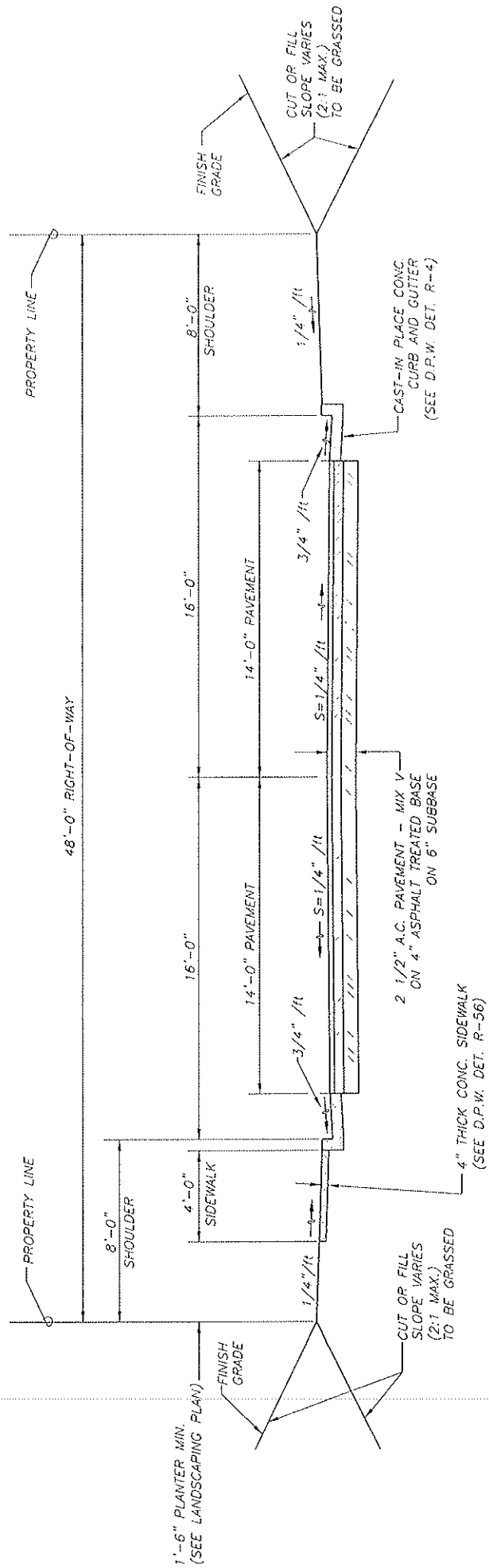
Rowena Dagdag, Planner

RD:yp

Enclosures

cc: Clayton Nishikawa, Kula Ridge LLC (w/enclosures)
Vanessa Medeiros, Department of Housing and Human Concerns (w/enclosures)
Blaine Kobayashi, Carlsmith Ball (w/enclosures)
Stacy Otomo, Otomo Engineering, Inc. (w/enclosures)

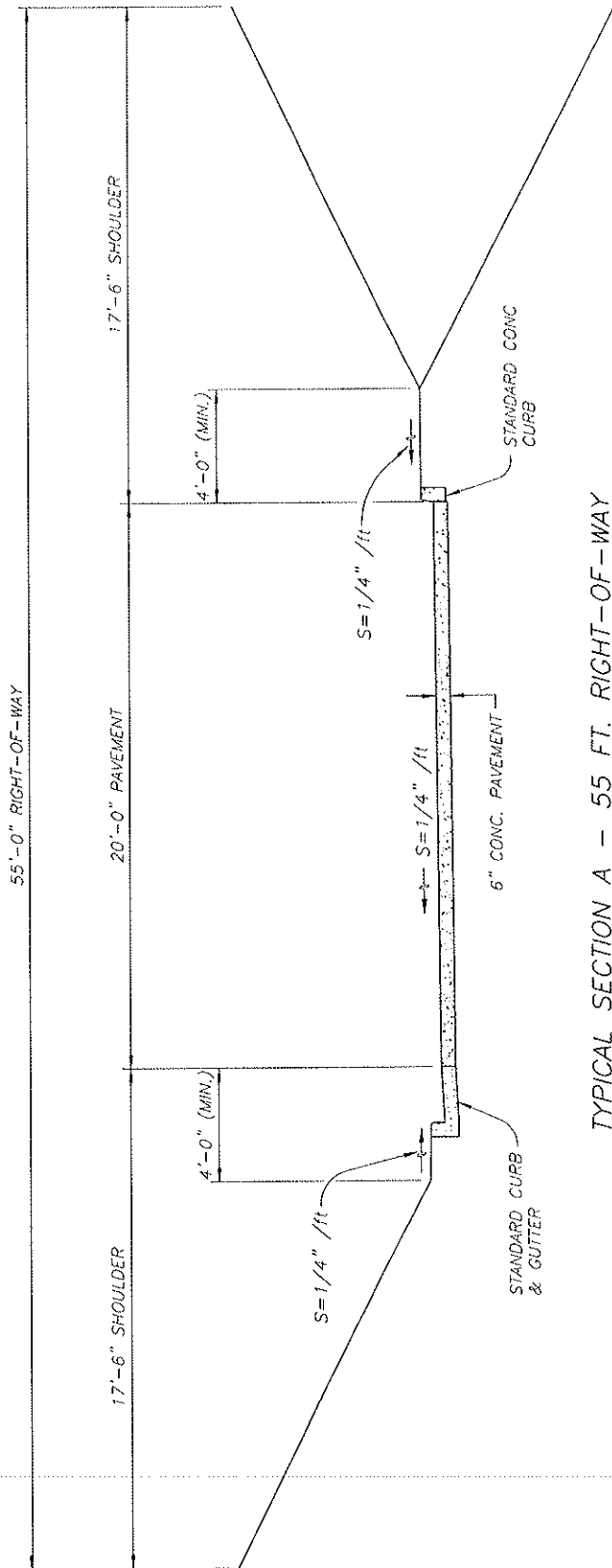
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TYPICAL SECTION - 48 FT. RIGHT-OF-WAY

SCALE: 1/4 INCH = 1 FEET

EXHIBIT "A"



TYPICAL SECTION A - 55 FT. RIGHT-OF-WAY

STA. (-) 3+28.58 - 0+00

SCALE: 1/4 INCH = 1 FOOT

EXHIBIT "B"

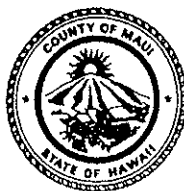
APR 14 2008

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 Nakoa Street, Unit 2, Wailuku, Hawaii 96793

April 9, 2008

Vanessa Medeiros, Director
Department of Housing and Human Concerns
200 South High Street, Suite 400
Wailuku, Hawaii 96793

SUBJECT: Draft Environmental Assessment and Preliminary Section 201H-38, Hawaii Revised Statutes (HRS) Application for Proposed Kula Ridge Residential Workforce Housing Subdivision, Kula, Maui, Hawai'i TMK (2)2-3-001:174

Dear Ms. Medeiros:

The Department of Parks and Recreation is currently working with the developer to build a portion of the new access road adjacent to the Kula Community Center Tennis Complex. The work will be done in conjunction with the Kula Tennis Complex expansion project. Improvements to the access road will allow for staging and construction activity to occur for the tennis court expansion. The developer has been extremely cooperative with Parks efforts to improve the tennis facility. We will continue to work with the developer to ensure that there are no impacts to the Tennis Complex and Community Center.

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

Sincerely,

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

TAMARA HORCAJO
Director

xc: Rowena Dagdag, Munekiyo & Hiraga, Inc.
Patrick Matsui, Chief of Parks Planning & Development



MICHAEL T. MONTANO
DAVID DEAN HIRAGA
MICHAEL MONTANO HIRAGA
PLANNERS, INC.

MARK ALAN BROWN
PLANNERS, INC.

July 24, 2008

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

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i

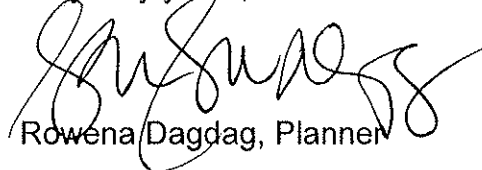
Dear Ms. Horcajo:

We are writing to you on behalf of the applicant, Kula Ridge LLC, to thank you for your letter dated April 9, 2008, regarding the Draft EA for the Kula Ridge Residential Workforce Housing Subdivision project located in Kula, Maui, Hawaii.

We acknowledge the coordination that had been undertaken with the applicant in building a portion of a new access road to serve the expansion of the Kula Community Center Tennis Complex. The applicant will continue to work with the department to ensure that there are no impacts to the Tennis Complex and Community Center.

We appreciate the input we received from your office. Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

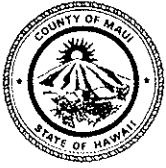


Rowena Dagdag, Planner

RD:yp

cc: Vanessa Medeiros, Department of Housing and Human Concerns
Clayton Nishikawa, Kula Ridge 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

March 28, 2008



THOMAS M. PHILLIPS
CHIEF OF POLICE

GARY A. YABUTA
DEPUTY CHIEF OF POLICE

Ms. Rowena Dagdag
Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Ms. Dagdag:

SUBJECT: Kula Ridge Residential Workforce Housing Subdivision, Kula, Maui
TMK (2) 2-3-001:174

This is in response to your letter of March 17, 2008, requesting comments on the above subject.

We have reviewed the Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes Application for the above mentioned subject. Please refer to a copy of our comments and/ or recommendations.

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, Department of Housing and Human Concerns

COPY

TO : THOMAS PHILLIPS, CHIEF OF POLICE, COUNTY OF MAUI
VIA : CHANNELS
FROM : STEPHEN ORIKASA, ADMINISTRATIVE SERGEANT,
WAILUKU PATROL DIVISION
SUBJECT : RESPONSE TO REQUEST FOR COMMENTS REGARDING
THE PROPOSED KULA RIDGE WORKFORCE HOUSING
SUBDIVISION

CONCUR:
AC [Signature]
03/28/08

This communication is submitted as a response to a request for comments by Munekiyo & Hiraga, Inc., Planner, Rowena Dagdag, regarding the below subject;

SUBJECT : Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes (HRS) Application for Proposed Kula Ridge Residential Workforce Housing Subdivision, Kula, Maui, Hawaii

TMK : (2) 2-3-001:174

RESPONSE:

In review of the documents submitted, under Section I project Overview, Figure 4 Conceptual Site Plan; I was unable to determine if this project includes pedestrian walkways within the development. If not already planned, it is suggested that pedestrian walkways be constructed along the proposed access road off of Lower Kula Road to the Kula Community Center area. Residential properties will likely increase the usage of the community center, in-turn increasing pedestrian traffic due to the close proximity to the proposed development.

There are 116 proposed lots with 112 being residential type lots, which will definitely create an increase in pedestrian and motor vehicle traffic in the area. Four of the lots have rural designations which, if used for agricultural purposes, will increase the number of large vehicles and equipment providing service in the area. This combined with the increases in regular motor vehicle traffic creates a safety factor for all those accessing the area.

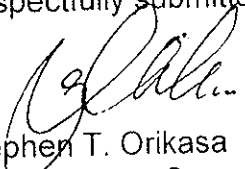
In line with early consultation comments submitted by Sergeant Scott Migita on 07/26/06, the implementation of adequate traffic control devices for traffic increases, parking, lighting and security measures need to take place to maintain the safety and security of the community.

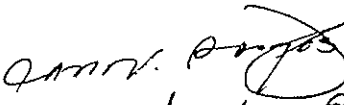
Additionally, during the construction phases of this development, extreme efforts should be made to minimize dust & debris so not to inhibit those whose health and well being may be affected. Adequate traffic control devices and personnel should be utilized to minimize the impact of heavy equipment and vehicles traveling in and out of the area.

CONCLUSION:

No objection to the proposed development at this time. Health and safety considerations need to take place during all phases of this project, including post completion maintenance.

Respectfully submitted for your review and approval.


Stephen T. Orikasa E#716
Administrative Sergeant/Wailuku Patrol Division
02/04/08 @ 1130 Hours


02/28/08 @ 1330



MUNEKIYO & HIRAGA
ENVIRONMENTAL PLANNING
1000 KAHULUANI DRIVE, SUITE 100
WAILUKU, HAWAII 96793

MARK WALKER, P.E.
Principal
July 24, 2008

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

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i

Dear Chief Phillips:

We are writing to you on behalf of the applicant, Kula Ridge LLC, to thank you for your letter dated March 28, 2008, regarding the Draft EA for the Kula Ridge Residential Workforce Housing Subdivision project located in Kula, Maui, Hawaii.

We offer the following comments in response to your remarks:

1. The applicant envisions the project as an opportunity to promote non-automobile travel for recreational purposes in the neighborhood region. Roadway design for the project includes pedestrian and bike friendly paths constructed within the subdivision and along the proposed access road off of Lower Kula Road. A network of bicycle paths and walking trails is anticipated to promote recreational travel to and from the Kula Community Center area and be in line with concepts envisioned for the project area, identified in the Upcountry Greenway Master Plan.
2. To address traffic concerns, roadway improvements and mitigation measures recommended in the Traffic Impact Assessment Report (TIAR) will be undertaken in consultation with applicable State and County agencies.
3. As mentioned in our October 29, 2007 response to early consultation comments provided by the department, safety issues will be considered and issues of adequate security and lighting will be addressed during the project's design phase.
4. The applicant ensures that adequate traffic control devices and personnel will be utilized during construction to minimize the impacts of large equipment traveling in and out of the area. The applicant also confirms that all construction employee parking will be accommodated on the project site and construction employees will not be allowed to park on Lower Kula Road or at the Kula Community Center.

Thomas Phillips, Chief
July 24, 2008
Page 2

To minimize impacts from dust and debris generated during the construction phase of the development, the applicant will implement Best Management Practices, such as the installation of dust control fencing, paving and grassing of exposed areas, and permanently landscaping, as soon as grading is completed.

We appreciate the input received from your office. Should you have any further questions, please do not hesitate to contact me at 244-2015.

Very truly yours,



Rowena Dagdag, Planner

RD:mge

cc: Clayton Nishikawa, Kula Ridge LLC

Vanessa Medeiros, Department of Housing and Human Concerns

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APR 21 2008

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, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793

April 15, 2008

Ms. Rowena Dagdag
MUNEKIYO & HIRAGA, INC.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Ms. Dagdag:

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT AND
PRELIMINARY SECTION 201H-38, HAWAII REVISED
STATUTES (HRS) APPLICATION FOR PROPOSED KULA
RIDGE RESIDENTIAL WORKFORCE HOUSING
SUBDIVISION; TMK: (2) 2-3-001:174**

We reviewed the subject application and have the following comments:

1. The architect and owner are advised that the project is subject to possible tsunami and flood inundation. As such, said project must conform to Ordinance No. 1145, pertaining to flood hazard districts.
2. A 30 foot radius shall be provided at the intersection of proposed subdivision road/driveway and the adjoining subdivision roads and State roads.
3. 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.
4. 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 plan shall show the location and details of structural and non-structural measures to control erosion and sedimentation to the maximum extent practicable.

5. During construction of this project, all construction employee parking shall be accommodated on the project site and not within the County road right of way.
6. All existing features such as structures, driveways, drainage ways, edge of pavement, etc. shall be shown on the project plat plan.
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

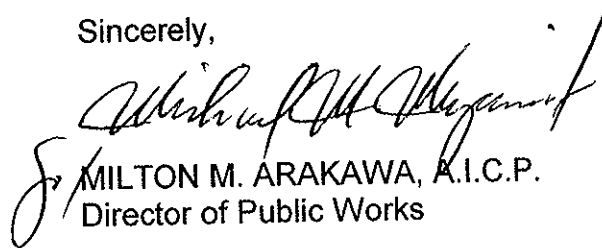
Ms. Rowena Dagdag
April 15, 2008
Page 3

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. Recommend working with the Department of Fire and Public Safety concerning a second access to the subdivision.

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: Development Services Administration
Engineering Division
Highways Division
Department of Planning

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July 24, 2008

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

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i

Dear Mr. Arakawa:

Thank you for your letter dated April 15, 2008, providing comments on the Draft EA for the subject project.

On behalf of the applicant, Kula Ridge LLC, we offer the following responses to your comments in the same order as they appear in your letter.

1. The applicant understands your comment that the project is subject to possible flood inundation and will comply with applicable requirements relating to flood permits.
2. A 30-foot radius will be provided at the intersections of the proposed access point and the adjoining County (Lower Kula Road) roadways.
3. The Preliminary Drainage Report (PDR), prepared by Otomo Engineering, Inc. in September 2006, verifies that the grading and runoff water generated by the project will not have an adverse effect on the adjacent and downstream properties. The PDR will be included in the Final EA.
4. Grading plans will be submitted along with a Final Drainage Report (FDR) and a Best Management Practices (BMP) Plan for review and approval prior to the issuance of grading permits. All necessary hydrologic and hydraulic calculations, as well as schemes for the disposal of runoff waters will be included in the FDR, which will be prepared to be in compliance with the provisions of the "*Rules and Design of Storm Drainage Facilities in the County of Maui*". As with the PDR, the FDR will also provide verification that grading and runoff water generated by the project will not have an adverse effect on adjacent and downstream properties. The

BMP Plan will show the location and details of structural measures to control erosion and sedimentation to the maximum extent practicable.

5. The applicant confirms that all construction employee parking will be accommodated on the project site and will not be allowed on Lower Kula Road or at the Kula Community Center.
6. All existing features will be shown on the project plat map.
7. A site plan and a sight distance report to determine required and available sight distances at the proposed intersections of the subject project will be provided to the Department during the construction plans review process.
8. The applicant has undertaken coordination efforts with the commission on naming streets, parks, and facilities to obtain street name approvals. The final subdivision map will show the approved names.
9. The applicant confirms that the final site plan will indicate the 100-year flood inundation limits of the project area.
10. The existing pavement along Lower Kula Road fronting the project is between 18 to 20 feet wide. The project's civil engineer confirms that the existing pavement will be widened to a width of 20 feet from the subdivision entry roadway to the northern intersection with the Kula Highway.
11. The final Traffic Impact Assessment Report will be included in the Final EA and submitted for your review and approval. Roadway improvements and mitigation measures recommended in the TIAR will be undertaken with applicable county and state agencies.
12. Preliminary construction plan submittal will include a 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 infrastructure elements that may be dedicated to the County. The applicant acknowledges that all technical and structural infeasibility assessments are the responsibility of the developer and that an agreement waiving the County of Maui of any future liability, including redesign and reconstruction of said facility, will be recorded with the State Bureau of Conveyances.

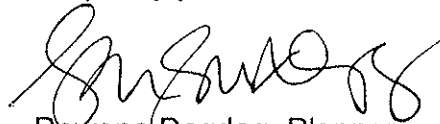
Milton Arakawa, Director
July 24, 2008
Page 3

13., 14., and 15. The applicant and its civil engineer will coordinate with applicable agencies to ensure compliance with Hawai'i Revised Statutes, Maui County Code, and other applicable rules and regulations. This includes the Hawai'i Standard Specifications for Road and Bridge Construction dated 2005, the Standard Details for Public Works Construction, 1984, as amended, and the Manual on Uniform Traffic Control Devices for Streets and Highways, 2003.

We appreciate the input we received from you.

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

Very truly yours,



Rowena Dagdag, Planner

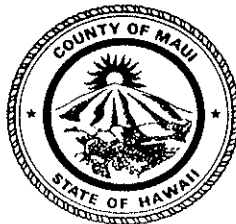
RD:mge

cc: Clayton Nishikawa, Kula Ridge LLC
Vanessa Medeiros, Department of Housing and Human Concerns
Stacy Otomo, Otomo Engineering, 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

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

**SUBJECT: KULA RIDGE RESIDENTIAL WORKFORCE HOUSING SUBDIVISION
DRAFT ENVIRONMENTAL ASSESSMENT &
PRELIMINARY 201H REVIEW
TMK (2) 2-3-001:174, KULA**

Dear Ms. Dagdag,

We reviewed the subject project and have the following comments:

1. Solid Waste Division comments
 - a. Section 4.b addresses construction waste management.
2. Wastewater Reclamation Division comments:
 - a. None. No County sewer in the area.

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

Sincerely,

A handwritten signature in black ink that reads 'Cheryl K. Okuma'.

Cheryl Okuma, Director

xc: Vanessa Medeiros, DHHC



MITSUBISHI TRADING COMPANY
BANK OF AMERICA
MITSUBISHI TRADING COMPANY
CHRYSLER

MADE IN HAWAII
MADE IN HAWAII

July 24, 2008

Cheryl Okuma
Department of Environmental Management
County of Maui
2200 Main Street, Suite 175
Wailuku, Hawai'i 96793

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i

Dear Ms. Okuma:

We are writing to you on behalf of the applicant, Kula Ridge LLC, to thank you for your letter dated April 14, 2008, regarding the Draft EA for the Kula Ridge Residential Workforce Housing Subdivision project located in Kula, Maui, Hawai'i. We appreciate the input received from your office.

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

Very truly yours,

Rowena Dagdag, Planner

RD:lh

cc: Clayton Nishikawa, Kula Ridge LLC
Vanessa Medeiros, Department of Housing and Human Concerns

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

April 10, 2008

Ms. Vanessa Medeiros
County of Maui
Department of Housing and Human Concerns
200 South High Street, Suite 400
Wailuku, Hawaii 96793-2155

RE: Project Name: Proposed Kula Ridge Workforce Housing Subdivision
Applicant: Kula Ridge, LLC
Subject I.D.: Draft Environmental Assessment
TMK: 2-3-001:174

Dear Ms. Medeiros:

Thank you for the opportunity to comment on this application.

Source Availability and Consumption

The project site is in an area served by the Upper Kula system. Water for the system comes from the streams of the Koolau and East Maui streams.

The project site's water source will be a well situated at the 2900 feet elevation on their adjoining property. The intent of the applicant is to dedicate this well to the County of Maui. The Department of Water Supply (DWS) does have concerns about the operational costs of a well at this elevation. It also acknowledges the need for a backup source and improving water quality in the Upper Kula system. However, the applicant should be aware that DWS may not agree to accept dedication of service at this elevation.

System Infrastructure

There is a 8-inch waterline and a fire hydrant in vicinity of the project site on Lower Kula Road. Storage is provided by the 2.1 million gallon Omaopio tank. Because this storage may be inadequate to service this project site, a new 500,000 gallon storage tank will be constructed by the applicant at the mauka end of their site. Required pressure break tanks will also be added to control water pressure.

"By Water All Things Find Life"



Ms. Vanessa Medeiros

Page 2

April 10, 2008

Pollution

The project site overlies the Makawao aquifer. In order to protect the ground water resources, DWS encourages the applicant to adopt Best Management Practices (BMPs) for construction to minimize runoff and infiltration. Please refer to the BMP "Source Water Protection Practices Bulletin - Managing Storm Water Runoff to Prevent Contamination of Drinking Water".

Conservation

DWS recommends that the applicant consider the following conservation measures:

Eliminate Single-Pass Cooling:

Single-pass cooling systems should be eliminated per Maui County Code Subsection 14.21.20. Although prohibited by code, single-pass 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 fixtures and devices in faucets, showerheads, urinals, water closets and hose bibs. Water conserving washing machines, ice-makers and other devices are available.

Maintain Fixtures to Prevent Leaks:

A simple, regular program for repair and maintenance can prevent the loss of hundreds or even thousands of gallons of water per day.

Use Climate-Adapted Plants:

The project site is located in the "Maui County Planting Plan - Plant Zone 2 -Cool Dry Upper Elevations". Native plants adapted to the area conserve water and protect the watershed from degradation due to invasive alien species. Please refer to the enclosed brochure "Saving Water in the Yard - What and how to Plant in Your Area".


Prevent over-Watering by Automated Systems:

Provide rain-sensors on all automated irrigation controllers. Check and reset controllers at least once a month to reflect the monthly changes in evaporation rates at the site. As an alternative, provide more automated, soil-moisture sensors on controllers.

Ms. Vanessa Medeiros
Page 3
April 10, 2008

Should you have any questions, please contact our Water Resources & Planning Division at 244-8550.

Sincerely,

A handwritten signature in black ink that reads "Jeffrey K. Eng". The signature is written in a cursive style with a large initial "J" and a long horizontal stroke at the end.

Jeffrey K. Eng, Director
ayi

Enclosure: Source Water Protection Practices Bulletin - Managing Storm Water Runoff to
Prevent Contamination of Drinking Water
Maui County Planting Plan - Plant Zone 2 - Cool Dry Upper Elevations
c: Engineering Division
Rowena Dagdag, Planner, Munekiyo & Hiraga, Inc.
Kula Ridge, LLC



Source Water Protection Practices Bulletin

Managing Storm Water Runoff to Prevent Contamination of Drinking Water

Storm water runoff is rain or snow melt that flows off the land, from streets, roof tops, and lawns. The runoff carries sediment and contaminants with it to a surface water body or infiltrates through the soil to ground water. This fact sheet focuses on the management of runoff in urban environments; other fact sheets address management measures for other specific sources, such as pesticides, animal feeding operations, and vehicle washing.

SOURCES OF STORM WATER RUNOFF

Urban and suburban areas are predominated by impervious cover including pavements on roads, sidewalks, and parking lots; rooftops of buildings and other structures; and impaired pervious surfaces (compacted soils) such as dirt parking lots, walking paths, baseball fields and suburban lawns.

During storms, rainwater flows across these impervious surfaces, mobilizing contaminants, and transporting them to water bodies. All of the activities that take place in urban and suburban areas contribute to the pollutant load of storm water runoff. Oil, gasoline, and automotive fluids drip from vehicles onto roads and parking lots. Storm water runoff from shopping malls and retail centers also contains hydrocarbons from automobiles. Landscaping by homeowners, around businesses, and on public grounds contributes sediments, pesticides, fertilizers, and nutrients to runoff. Construction of roads and buildings is another large contributor of sediment loads to waterways. In addition, any uncovered materials such as improperly stored hazardous substances (e.g., household cleaners, pool chemicals, or lawn care products), pet and wildlife wastes, and litter can be carried in runoff to streams or ground water. Illicit discharges to storm drains (e.g., used motor oil), can also contaminate water supplies.



Parking lot runoff

Storm water is also directly injected to the subsurface through Class V storm water drainage wells. These wells are used throughout the country to divert storm water runoff from roads, roofs, and paved surfaces. Direct injection is of particular concern in commercial and light industrial settings (e.g., in and around material loading areas, vehicle service areas, or parking lots).

WHY IS IT IMPORTANT TO MANAGE STORM WATER RUNOFF NEAR THE SOURCES OF YOUR DRINKING WATER?

Impervious areas prohibit the natural infiltration of rainfall through the soil, which could filter some contaminants before they reach ground water. Also, impervious surfaces allow the surface runoff to move rapidly. Development reduces the amount of land available for vegetation, which can mitigate the effects of rapid runoff and filter contaminants. When the percentage of impervious cover reaches 10 to 20 percent of a watershed area, degraded water quality becomes apparent.

There are three primary concerns associated with uncontrolled runoff: (1) increased peak discharge and velocity during storm events resulting in flooding and erosion; (2) localized reduction in recharge; and (3) pollutant transport.

When runoff is confined to narrow spaces, such as streets, the velocity at which water flows increases greatly with depth. This contributes to erosion in areas without vegetation cover, increased flooding in low lying areas, and sedimentation in surface water bodies. Sediment deposited in streams can increase turbidity, provide transport media for pathogenic bacteria and viruses, and decrease reservoir capacity. Sediments also smother aquatic species, leading to habitat loss and decreased biodiversity of aquatic species. The fast-running runoff is not afforded an opportunity to infiltrate into the subsurface, and ground waters are not recharged by rain events.



Erosion

EPA considers nonpoint source pollution, including storm water runoff, to be one of the most important sources of contamination of the nation's waters. According to a nationwide study, 77 of 127 priority pollutants tested were detected in urban runoff. Some of the principal contaminants found in storm water runoff include heavy metals, toxic chemicals, organic compounds, pesticides and herbicides, pathogens, nutrients, sediments, and salts and other de-icing compounds. Some of these substances are carcinogenic; others lead to reproductive, developmental, or other health problems that are associated with long-term exposure. Pathogens can cause illness, even from short-term exposure, that can be fatal to some people.



Urban runoff is commonly collected in storm sewers and discharged to waterways untreated, so that any contaminants carried by the storm water are discharged to surface water bodies that are used as the sources of drinking water. In addition, about 20 percent of the population in the U.S. is served by combined sewer systems (for both sanitary waste and storm water) that, during heavy storm events, allow contaminants from sanitary sewage to discharge directly to waterways untreated.

AVAILABLE PREVENTION MEASURES TO ADDRESS STORM WATER RUNOFF

A variety of management practices, including pollution prevention and treatment devices, are available to abate storm water pollution. The most effective storm water pollution prevention plans combine these measures and reflect local soil, precipitation, and land use conditions. Some of the more widely-used management measures are described below.

Please keep in mind that individual prevention measures may or may not be adequate to prevent contamination of source waters. Most likely, individual measures should be combined in an overall prevention approach that considers the nature of the potential source of contamination, the purpose, cost, operational, and maintenance requirements of the measures, the vulnerability of the source waters, the public's acceptance of the measures, and the community's desired degree of risk reduction.

Pollution source control and prevention measures include public education to homeowners and business owners on good housekeeping, proper use and storage of household toxic materials, and responsible lawn care and landscaping; storm drain stenciling; hazardous materials collection; and eliminating illicit discharges. The incorporation of best management practices (BMPs) in building and site-development codes, if feasible, should be encouraged. On roadways, proper maintenance of rights-of-way, control of chemical and nutrient applications, street cleaning or sweeping, storm drain cleaning, use of alternative or reduced de-icing products, and equipment washing can reduce the pollutant content of runoff.

Without appropriate *erosion and sedimentation control (ESC) measures*, construction activities can contribute large amounts of sediment to storm water runoff. Erosion can be controlled by planting temporary fast-growing vegetation, such as grasses and wild flowers. Covering top soil with geotextiles or impervious covers will also protect it from rainfall. Good housekeeping measures for construction sites include construction entrance pads and vehicle washing to keep sediment and soil on-site. Construction should be staged to reduce soil exposure, or timed to coincide with periods of low rainfall and low erosion potential, such as in the fall, rather than during spring rains. Other measures include sediment traps and basins; sediment fences; wind erosion controls; and sediment, chemical, and nutrient control.

If available, ordinances and regulations on construction activities can require plan reviews to ensure that erosion during construction is minimized or require ESC measures during construction. Inspections of ESC measures and repair of controls where needed will maintain the working order of these controls and maximize their benefit.

Local governments can use a variety of *land use controls* to protect source water from potential contamination. For example, subdivision controls help to ensure that expected development will not compromise drinking water quality or ground water recharge. Requiring proper storm water management in new developments and redevelopments will ensure that runoff does not become excessive as areas of paved surfaces increase. *Low impact development* incorporates maintaining pre-development hydrology, considering infiltration technology, and re-routing water to recharge the aquifer.

Minimizing directly connected impervious areas (DCIAs) is important to reducing the flow and volume of runoff. Planners should direct runoff from roofs, sidewalks, and other surfaces over grassed areas to promote infiltration and filtration of pollutants prior to surface water deposition. Porous design of parking lots also provides places for storm water to infiltrate to soils. *Concrete grid pavement* is typically placed on a sand or gravel base with void areas filled with pervious materials such as sand, gravel, or grass. Storm water percolates through the voids into the subsoil. Planting landscaped areas lower than the street level encourages drainage.

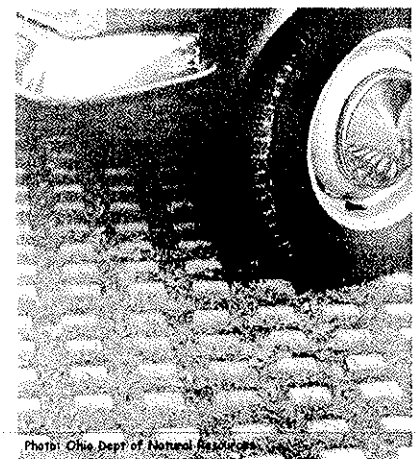


Photo: Ohio Dept. of Natural Resources

Concrete grid pavement

Structural designs are used to control runoff or temporarily store storm water on site. A number of structural devices have been developed to encourage filtration, infiltration, or settling of suspended particles. Some of the more commonly-used practices are described below.

Grassed swales are shallow, vegetated ditches that reduce the speed and volume of runoff. Soils remove contaminants by infiltration and filtration. Vegetation, or turf, prevents soil erosion, filters out sediment, and provides some nutrient uptake. Maintenance of grassed swales involves regular mowing, re-seeding, and weed control, along with inspections to check for erosion and ensure the integrity of the vegetative cover. To function properly, the inflow to the swale must be sheet flow from a filter strip or an impervious surface (i.e., not from the end of a pipe). Swales have demonstrated solids removals exceeding 80 percent. Apart from grassed swales, **grassed waterways** (wide, shallow channels lined with sod) are often used as outlets for runoff from terraces.

Buffer strips are combinations of trees, shrubs, and grasses planted parallel to a stream. Buffer strips should consist of three zones—about four or five rows of trees closest to the stream, one or two rows of shrubs, and a 20 to 24 foot wide grass zone on the outer edge. They decrease the velocity of runoff, thus moderating flooding and preventing stream bank erosion. The vegetation and soils also strain and filter sediments and chemicals. Buffer strips should be maintained by controlling weeds and mowing grasses once or twice annually. In the long term, each zone should be harvested and replanted. About 10 to 20 percent removal of solids has been demonstrated in buffer zones. These buffer strips, however, do not necessarily increase infiltration.

Filter strips are areas of close-growing vegetation on gently sloped land surfaces bordering a surface water body. They work by holding soils in place, allowing some infiltration, and filtering solid particles out of the runoff from small storms. Plants with dense root systems are preferred; the ideal species and mixes of vegetation are specific to the region. The width and length of the filter strip depends on the size and grade of the slope it drains. Maintenance activities include inspections, mowing, and removal of sediment build-up. Filter strips can remove nitrogen and phosphorus, but are less effective in filtering pesticides. They are most effective when water flow is even and shallow and if grass can regrow between rains.



Filter strip



Storm water pond

Storm water ponds (wet ponds) consist of a permanent pond, where solids settle during and between storms, and a zone of emergent wetland vegetation where dissolved contaminants are removed through biochemical processes. Wet ponds are usually developed as water features in a community, increasing the value of adjacent property. Other than landscape maintenance, only annual inspection of the outlets and shoreline is required. Vegetation should be harvested every 3 to 5 years, and sediment removed every 7 to 10 years.

Wet ponds can achieve 40 to 60 percent phosphorus removal and 30 to 40 percent total nitrogen removal.

Constructed wetlands are similar to wet ponds, with more emergent aquatic vegetation and a smaller open water area. Storm water wetlands are different from natural wetlands in that they are designed to treat storm water runoff, and typically have less biodiversity than natural wetlands. A wetland should have a settling pond, or forebay, if significant upstream soil erosion

is anticipated. Coarse particles remain trapped in the forebay, and maintenance is performed on this smaller pool. Wetlands remove the same pollutants as wet ponds through settling of solids and biochemical processes, with about the same efficiency. Maintenance requirements for wetlands are similar to those of wet ponds.

Infiltration practices (basins and trenches) are long, narrow stone-filled excavated trenches, 3 to 12 feet deep. Runoff is stored in the basin or in voids between the stones in a trench and slowly infiltrates into the soil matrix below, where filtering removes pollutants. Infiltration devices alone do not remove contaminants, and should be combined with a pretreatment practice such as a swale or sediment basin to prevent premature clogging. Maintenance consists of inspections annually and after major rain storms and debris removal, especially in inlets and overflow channels. Infiltration devices and associated practices can achieve up to 70 to 98 percent contaminant removal.



Infiltration basin

Swirl-type concentrators are underground vaults designed to create a circular motion to encourage sedimentation and oil and grease removal. The currents rapidly separate out settleable grit and floatable matter, which are concentrated for treatment, while the cleaner, treated flow discharges to receiving waters. Swirl concentrators have demonstrated total suspended solids and BOD removal efficiencies exceeding 60 percent.

BMPs for Class V storm water drainage wells address siting, design, and operation of these wells. Siting BMPs for storm water drainage wells include minimum setbacks from surface waters, drinking water wells, or the water table. Storm water drainage wells may also be prohibited from areas of critical concern, such as source water protection areas, or from areas where the engineering properties of the soil are not ideal for their performance. Available design BMPs for storm water drainage wells include sediment removal devices (such as oil/grit separators or filter strips), oil and grease separators, and pretreatment devices such as infiltration trenches or wetlands (described above). Maintenance of these BMPs is crucial to their proper operation. Management measures related to operation include spill response, monitoring, and maintenance procedures. Source separation, or keeping runoff from industrial areas away from storm water drainage wells, involves using containment devices such as berms or curbs (see the fact sheets on vehicle washing and small quantity chemical use for more information on these devices).

EPA's National Pollutant Discharge Elimination System (NPDES) Permitting Program regulates storm water runoff from municipal separate storm sewer systems (MS4s) and industrial activity (including construction). The current rules establish permit requirements for more than 5,000 MS4s nationwide. NPDES storm water permits issued to MS4s require these MS4s to develop the necessary legal authority to reduce the discharge of pollutants in storm water to the maximum extent practicable and to develop and implement a storm water management program that includes:

- Structural and source control measures to reduce pollutants from runoff from commercial and residential areas, including maintenance, monitoring, and planning activities;
- Detection and removal of illicit discharges and improper disposal into the storm sewer;
- Monitoring and control of storm water discharges from certain industrial activities; and
- Construction site storm water control.

In addition, the storm water rule for certain small MS4s requires post-construction storm water management controls. These local controls are in addition to existing federal regulations that require NPDES permits of all construction activities disturbing greater than one acre.

Recently, EPA developed a menu of BMPs that provides more than 100 fact sheets on measures that small MS4s could use to control urban storm water runoff. The menu is available from EPA's Web site at www.epa.gov/npdes.

FOR ADDITIONAL INFORMATION

These sources contain information on storm water management measures. All of the documents listed are available for free on the Internet. State departments of transportation or agriculture, whose contact information can be found on the Internet or in the phone book, are also good sources of information.

To pass local ordinances or regulations to affect storm water controls, contact city or county public works departments, zoning offices, permitting offices, or transportation departments, who typically have the authority to pass local ordinances. Contact local government authorities in your area to see if there are ordinances in place to manage storm water. Numerous examples of local source water protection-related ordinances for various potential contaminant sources can be found at <http://www.epa.gov/r5water/ordcom/>, <http://www.epa.gov/owow/nps/ordinance/>, and <http://www.epa.gov/owow/nps/ordinance/links.htm>.

The following resources provide information on selection and design of specific management measures:

The Center for Watershed Protection's Stormwater Manager's Resource Center (www.stormwatercenter.net) provides technical assistance storm water management issues.

Northern Arizona University offers a course on wet weather flow management, materials are available at <http://jan.ucc.nau.edu/~dmh3/egr499/>.

Texas Nonpoint SourceBOOK (www.txnpsbook.org) contains four manuals on storm water Best Management Practices, including "Urban Nonpoint Source Management," and an interactive BMP selector.

U.S. EPA, Office of Ground Water and Drinking Water. (September 1999). *The Class V Underground Injection Control Study. Volume 3: Storm Water Drainage Wells*. EPA/816-R-99-014c. Retrieved May 2, 2001, from the World Wide Web: <http://www.epa.gov/safewater/uic/classv/stw-fact.pdf>

U.S. EPA, Office of Science and Technology. (August 1999). *Preliminary Data Summary of Urban Stormwater Best Management Practices*. EPA-821-R-99-012. Retrieved February 7, 2001, from the World Wide Web: <http://www.epa.gov/OST>.

U.S. EPA, Office of Wastewater Management. (September 1992). *Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and BMPs*. Retrieved February 6, 2001, from the World Wide Web: <http://www.epa.gov/owm/sw/indguide/index.htm>

U.S. EPA, Office of Wetlands, Oceans, and Watersheds. (January 1993). *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*. EPA-840-B-93-001c. Retrieved February 15, 2001, from the World Wide Web: <http://www.epa.gov/OWOW>

Washington State Department of Transportation. (February 1995). *Highway Runoff Manual*. M 31-16. Retrieved February 15, 2001, from the World Wide Web: <http://www.wsdot.wa.gov/fasc/engineeringpublications/manuals/highway.pdf>

Wyoming Department of Environmental Quality. (February 1999). *Urban Best Management Practices for Nonpoint Source Pollution*. Draft. Retrieved February 21, 2001, from the World Wide Web: <http://deq.state.wy.us/wqd/urbbmpdoc.htm>

University extension services are excellent sources for information on water quality issues, including storm water management. The Oregon Department of Agriculture offers comprehensive list of links to many of these on its Web site (http://www.oda.state.or.us/Natural_Resources/wq_ces.htm).

Following are examples of extension services that offer fact sheets on a variety of storm water management measures, including best management practices:

Iowa State University Extension (<http://www.extension.iastate.edu/Pages/pubs/>).

North Carolina Cooperative Extension Service (<http://www.ces.ncsu.edu/resources/>).

Oklahoma State University. Division of Agricultural Sciences and Natural Resources (<http://agweb.okstate.edu/pearl/wqs>).

Purdue University Cooperative Extension Service (<http://www.agcom.purdue.edu/AgCom/Pubs/menu.htm>).

Zone 2

Zone-specific Native and Polynesian plants for Maui County

F Fern G Grass Gr Ground Cover Sh Shrub P Palm S Sedge Tr Tree V Vine

TYPE:

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	<i>Psilotum nudum</i>	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
F	<i>Sadleria cyatheoides</i>	'ama'u, ama'uma'u	1'	2'	sea to 3,000'	Dry to Medium
G	<i>Eragrostis monticola</i>	kalamalo	1'	10'	sea to 3,000'	Dry to Medium
Gr	<i>Ipomoea tuboides</i>	Hawaiian moon flower, 'uala	1'	1'	sea to 3,000'	Dry to Medium
Gr	<i>Peperomia leptostachya</i>	'ala'ala-wai-nui	1'			
Gr	<i>Plumbago zeylanica</i>	'ilie'e	1'			
Gr - Sh	<i>Hibiscus calyphyllus</i>	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	<i>Lipochaeta rockii</i>	nehe	2'	2'	sea to 3,000'	Dry to Medium
Sh	<i>Argemone glauca</i> var. <i>decipiens</i>	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	<i>Artemisia mauiensis</i> var. <i>diffusa</i>	Maui wormwood, 'ahinahina	2'	3'	1,000' to higher	Dry to Medium
Sh	<i>Chenopodium oahuense</i>	'aheahea, 'aweoweo	6'		sea to higher	Dry to Medium
Sh	<i>Dianella sandwicensis</i>	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	<i>Lipochaeta lavarum</i>	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	<i>Osteomeles anthyllifolia</i>	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	<i>Senna gaudichaudii</i>	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	<i>Styphelia tameiameia</i>	pukiawe	6'	6'	1,000' to higher	Dry to Medium
Sh	<i>Vifex rotundifolia</i>	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh - Tr	<i>Myoporum sandwicense</i>	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	<i>Nototrichium sandwicense</i>	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh-Tr	<i>Dodonaea viscosa</i>	'a'alli	6'	8'	sea to higher	Dry to Medium
Tr	<i>Acacia koa</i>	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	<i>Charpentiera obovata</i>		15'			
Tr	<i>Erythrina sandwicensis</i>	wilwili	20'	20'	sea to 1,000'	Dry
Tr	<i>Metrosideros polymorpha</i> var. <i>macrophylla</i>	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 2

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	<i>Nestegis sandwicensis</i>	olopua	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	<i>Pleomele auwahiensis</i>	halapepe	20'			
Tr	<i>Rauwolfia sandwicensis</i>	hao	20'	15'	sea to 3,000'	Dry to Medium
Tr	<i>Santalum ellipticum</i>	coastal sandalwood, 'ili-ahi	8'	8'	sea to 3,000'	Dry to Medium
Tr	<i>Sophora chrysophylla</i>	mamane	15'	15'	1,000' to 3,000'	Medium
V	<i>Alyxia oliviformis</i>	malle	Vine		sea to 6,000'	Medium to Wet

Selection

As a general rule, it is best to select the largest and healthiest specimens. However, be sure to note that they are not pot-bound. Smaller, younger plants may result in a low rate of plant survival.¹ When selecting native species, consider the site they are to be planted in, and the space that you have to plant. For example: Mountain species such as koa and maile will not grow well in hot coastal areas exposed to strong ocean breezes. Lowland and coastal species such as wiliwili and Kou require abundant sunshine and porous soil. They will not grow well with frequent cloud cover, high rainfall and heavy soil.

Consider too, the size that the species will grow to be. It is not wise to plant trees that will grow too large.² Overplanting tends to be a big problem in the landscape due to the underestimation of a species' height, width or spread.

A large, dense canopied tree such as the kukui is a good shade tree for a lawn. However, it's canopy size and density of shade will limit what can be planted in the surrounding area. Shade cast by a koa and ohia lehua is relatively light and will not inhibit growth beneath it.

Keep seasons in mind when you are selecting your plants. Not all plants look good year round, some plants such as ilima will look scraggly after they have flowered and formed seeds. Avoid planting large areas with only one native plant. Mixing plants which naturally grow together will ensure the garden will look good all year round.³ Looking at natural habitats helps to show how plants grow naturally in the landscape.

When planting an area with a mixed-ecosystem, keep in mind the size and ecological requirements of each plant. Start with the hardiest and most easily grown species, but allow space for fragile ones in subsequent plantings.

Acquiring natives

Plants in their wild habitat must be protected and maintained. It is best and easiest to get your plants from nurseries (see list), or friend's gardens. Obtain proper permits from landowners and make sure you follow a few common sense rules:

- ▶ collect sparingly from each plant or area.
- ▶ some plants are on the state or Federal Endangered Species list. Make sure you get permits (see app. A,B)

¹ K. Nagata, P.6

² K. Nagata, P.9

³ Nagata, P.9

Soil

Once you have selected your site and the plants you wish to establish there, you must look at the soil conditions on the site. Proper soil is necessary for the successful growth of most native plants, which perform poorly in hard pan, clay or adobe soils. If natives are to be planted in these types of soil, it would be wise to dig planting holes several times the size of the rootball and backfill with 50-75% compost.⁴ A large planting hole ensures the development of a strong root system. The plant will have a headstart before the roots penetrate the surrounding poor soil.⁵

It is recommended that native plants not be planted in ground that is more dense than potting soil. If there is no alternative, dig a hole in a mound of soil mixed with volcanic cinder which encourages maximum root development. Fill the hole with water, if the water tends to puddle or drain too slowly, dig a deeper hole until the water does not puddle longer than 1 or 2 minutes.⁶ Well-drained soil is one of the most important things when planting natives as you will see in the next section.

Irrigation

Most natives do very poorly in waterlogged conditions. Do not water if the soil is damp. Water when the soil is dry and the plants are wilting. Once established, a good soaking twice a week should suffice. Deep soaking encourages the development of stronger, and deeper root systems. This is better than frequent and shallow watering which encourage weaker, more shallow root systems.

The following is a watering schedule from Kenneth Nagata's Booklet, *How To Plant A Native Hawaiian Garden*:

WATER REQUIREMENT

Heavy
Moderate
Light

WATERING FREQUENCY

3x / week
2x / week
1x / week

Red clay soils hold more water for a longer period of time than sandy soils do. If your area is very sunny or near a beach, things will dry out faster. Even in the area of one garden, there are parts that will need more or less water. Soils can vary and amount of shade and wind differ. After plants are established (a month or two for most plants, up to a year for some trees), you can back off watering.

⁴ Nagata, p. 6

⁵ Nagata, p. 8

⁶ Nagata, p. 8

Automatic sprinkler systems are expensive to install and must be checked and adjusted regularly. Above-ground systems allow you to monitor how much water is being put out, but you lose a lot due to malfunctioning of sprinkler heads and wind. The most efficient way to save water and make sure your plants get enough water, is to hand-water. This way you are getting our precious water to the right places in the right amounts.⁷

Fertilizer

An all-purpose fertilizer 10-10-10 is adequate for most species. They should be applied at planting time, 3 months later, and 6 months thereafter. Use half the dosage recommended for ornamentals and pay special attention to native ferns which are sensitive to strong fertilizers. Use of organic composts and aged animal manures is suggested instead of chemical fertilizers. In addition, use of cinders for providing trace minerals is strongly recommended.⁸

Natives are plants which were here hundreds of years before the polynesians inhabited the Hawaiian Islands. They were brought here by birds, or survived the harsh ocean conditions to float here. They are well-adapted to Hawaii's varying soil and environmental conditions. This is why they make prime specimens for a xeriscape garden. However, natives will not thrive on their own, especially under harsh conditions. On the other hand, like any other plant, if you over-water and over-fertilize them, they will die. Follow the instructions given to you by the nursery you buy the plant from, or from this booklet. Better yet, buy a book (suggested readings can be found in the bibliography in the back of this pamphlet), read it, and learn more about native plants. I guarantee that you will be pleased with the results.

⁷ Bornhorst, p. 19-20

⁸ Nagata, p. 6

Propagation

There are many ways to propagate and plant-out native Hawaiian species. One of the most thorough and helpful book is Heidi Bornhorst's book, *Growing Native Hawaiian Plants*. The easiest, and best way to obtain natives for the novice gardener is to get them from a reputable nursery (see appendix c). That way all you will have to do is know how to transplant (if necessary) and plant-out when you are ready. These are the two methods I have listed here.

Transplanting

1. Use pots that are one size bigger than the potted plant is in
2. Get your potting medium ready

Good potting medium is a ½, ½ mixture of peat moss and perlite. If the plant is from a dry or coastal area, add chunks of cinder or extra perlite. If it is a wet forest species, add more peat moss or compost. Be aware that peat moss is very acidic and certain plants react severely to acidity.

If the plant is to eventually be planted into the ground, make a mix of equal parts peat moss, perlite, and soil from the area in which the plant is to be planted. Slow-release fertilizer can be mixed into the potting medium.

3. Once pots, potting medium, fertilizer and water are ready, you can begin re-potting. Keep the plant stem at the same depth it was in the original pot. Avoid putting the plant in too large a pot, as the plant may not be able to soak up all the water in the soil and the roots may drown and rot.

Mix potting medium and add slow-release fertilizer at this time. Pre-wet the medium to keep dust down and lessen shock to the plant. Put medium in bottom of pot. Measure for the correct depth in the new pot. Make sure there is from ½ to 2 inches from the top of the pot so the plant can get adequate water. Try to stand the plant upright and center the stem in the middle of the pot.

Water the plant thoroughly after transplanting. A vitamin B-1 transplanting solution can help to lessen the transplant shock. Keep the plant in the same type of environment as it was before, sun or shade. If roots were broken, trim off some of the leaves to compensate for the loss.⁹

Planting out

1. Plant most native Hawaiian plants in a sunny location in soil that is well-drained.
2. Make the planting hole twice as wide as the root ball or present pot, and just as deep.

If the soil is clay-like, and drains slowly, mix in some coarse red or bland cinder, coarse perlite or

⁹ Bornhorst, p.20-21

coarse compost. Place some slow-release fertilizer at the bottom of the hole.

3. Carefully remove the plant from the container and place it in the hole.

The top of the soil should be at the same level as the top of the hole, if it is too high or too low, adjust the soil level so that the plant is at the right depth.

4. Water thoroughly after you transplant.

Mulch

Most natives cannot compete with weeds, and therefore must be weeded around constantly in order to thrive. Mulch is a practical alternative, which discourages and prevents weeds from growing.

Hawaii's hot, humid climate leads to the breaking down of organic mulches. Thick organic mulches such as wood chips and leaves, may also be hiding places for pests.

Stone mulches are attractive, permanent and can help to improve soil quality. Red or black cinder, blue rock chips, smooth river rocks and coral chips are some natural choices.¹⁰ Macadamia nut hulls are also easy to find and can make a nice mulch.¹¹

Never pile up mulch right next to the stem or trunk of a plant, keep it a few inches away.

¹⁰ Bornhorst, p. 24

¹¹ Nagata, p. 7

ZONES

The Maui County Planting Plan has compiled a system of 5 zones of plant growth for Maui County. The descriptions of zones and maps for these zones are as follows:

Zone 1:

Wet areas on the windward side of the island. More than 40 inches of rain per year. Higher than 3,000 feet.

Zone 2:

Cool, dry areas in higher elevations (above 1,000 feet). 20 to 40 inches of rain per year.

Zone 3:

Low, drier areas, warm to hot. Less than 20 inches of rain per year. Sea level to 1,000 feet.

Zone 4:

Lower elevations which are wetter due to proximity of mountains. 1,000 to 3,000 feet.

Zone 5:

Salt spray zones in coastal areas on the windward side.

These zones are to be used as a general guide to planting for Maui County. In addition to looking at the maps, read the descriptions of the zones and decide which zone best fits your area. Plants can be listed in more than one zone and can be planted in a variety of conditions. For best results, take notes on the rainfall, wind, sun and salt conditions of your site. Use the zones as a general guide for selection and read about the plants to decide which best fits your needs as far as care and or function.

PLACES TO SEE NATIVES ON:

The following places propagate native Hawaiian plants from seeds and/or cuttings. Their purpose is to protect and preserve these native plants. Please contact them before going to view the sites, they can provide valuable information and referral to other sources.

Maui:

1. Hoolawa Farms, P.O. Box 731, Haiku, Hawaii, 96708 572-4835
2. The Hawaiian Collection, 1127 Manu St., Kula, Hawaii, 96790 878-1701
3. Kula Botanical Gardens, RR 4, Box 228, Kula, Hawaii, 96790 878-1715
4. Maui Botanical Gardens, Kanaloa Avenue across from stadium 243-7337
5. Kula Forest Reserve, access road at the end of Waipouli Rd.
Call the Maui District Forester 984-8100
6. Wailea Point, Private Condominium residence, 4000 Wailea Alanui,
public access points at Four Seasons Resort or Polo Beach 875-9557
7. Kahanu Gardens, National Tropical Botanical Garden,
Alau Pl, Hana, Hawaii, 96713 248-8912
9. Kahului Library Courtyard, 20 School Street, Kahului, Hawaii 873-3097

PLACES TO BUY NATIVES ON:

Maui:

1. **Hoolawa Farms** 575-5099
P O Box 731
Haiku HI 96708
The largest and best collection of natives
in the state. They will deliver, but it's
worth the drive to go and see!
Will propagate upon request

2. **Kula True Value Nursery** 878-2551
Many natives in stock
Get most of their plants from Hoolawa Farms
They take special requests

3. **Kihei Garden and Landscape** 244-3804

4. **Kihana Nursery, Kihei** 879-1165

5. **The Hawaiian Collection** 878-1701
Specialize in Sandalwood propagation
Will propagate special requests



MUNICIPALITY OF MAUI
COUNTY ENGINEER
MUNICIPALITY OF MAUI
COUNTY

STATE OF HAWAII
JULY 24, 2008

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

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i

Dear Mr. Eng:

We are writing to you on behalf of the applicant, Kula Ridge LLC, to thank you for your letter dated April 10, 2008, regarding the Draft EA for the Kula Ridge Residential Workforce Housing Subdivision project located in Kula, Maui, Hawaii.

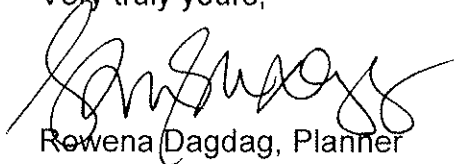
We offer the following comments in response to your remarks:

1. Your comment regarding operational costs of a well at the 2,900 feet elevation, as well as the need for backup source and improved water quality in the Upper Kula system is understood by the applicant. The applicant will continue to pursue the development of this water source to service the proposed subdivision, and is planning to develop the well and related improvements in accordance to County standards. Continued coordination with your department will be carried to ensure that water source is adequately and appropriately addressed for the project.
2. The development of an offsite water source will involve construction of a new 500,000 gallon tank, a distribution line, and pressure break tanks to control water service pressure, servicing the proposed project. As mentioned previously, these improvements will be developed according to County standards.
3. The applicant intends to utilize Best Management Practices (BMPs) to minimize infiltration and runoff from construction and vehicle operations during project construction and operation.
4. The applicant acknowledges your comments regarding water conservation measures and will review your recommendations for possible incorporation into project design and construction plans.

Jeffrey Eng, Director
July 24, 2008
Page 2

We appreciate the input we received from your office. 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 'Rowena Dagdag', written in a cursive style.

Rowena Dagdag, Planner

RD:mge

cc: Clayton Nishikawa, Kula Ridge LLC

Vanessa Medeiros, Department of Housing and Human Concerns

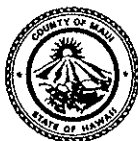
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APR 23 2008

Council Chair
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Danny A. Mateo

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Gladys C. Baisa
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Director of Council Services
Ken Fukuoka

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 Kula Ridge Residential Workforce Housing Subdivision Kula, Maui, Hawai'i
TMK (2)2-3-001:174

Dear Ms. Medeiros:

Thank you for the opportunity to provide comments on the Draft Environmental Assessment for the proposed Kula Ridge Residential Workforce Housing 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,

A handwritten signature in cursive script, appearing to read "Joseph Pontanilla".

JOSEPH PONTANILLA,
COUNCIL MEMBER

Cc: Rowena Dagdag, Munekiyo & Hiraga, Inc.



MICHAEL T. JIN
GWEN DEAR
MITSURU HIRAGA
KAWAII

MARK ALLEN
KAWAII
July 24, 2008

Honorable Joseph Pontanilla
County of Maui
Maui County Council
200 South High Street
Wailuku, Hawai'i 96793

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision,
TMK (2) 2-3-001:174, Kula, Hawai'i

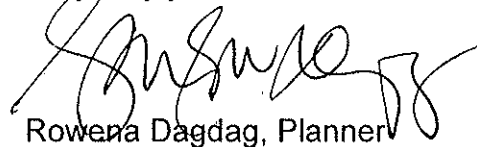
Dear Councilmember Pontanilla:

We are writing to you on behalf of the applicant, Kula Ridge LLC, to thank you for your letter dated April 21, 2008, regarding the Draft EA for the Kula Ridge Residential Workforce Housing Subdivision project located in Kula, Maui, Hawaii.

The applicant has been in consultation with the Department of Water Supply concerning the development of adequate water source and availability. The applicant will continue to pursue the development of an off-site water source to service the proposed subdivision. Continued coordination with the Department of Water Supply will be carried out to ensure that water source is adequately and appropriately addressed for the project.

We appreciate the input received from your office. Should you have any questions, please do not hesitate to contact me at 244-2015.

Very truly yours,



Rowena Dagdag, Planner

RD:mge

cc: Clayton Nishikawa, Kula Ridge LLC
Vanessa Medeiros, Department of Housing and Human Concerns

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APR 11 2008



April 10, 2008

Ms. Rowena M. Dagdag, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Dagdag,

Subject: Draft Environmental Assessment for Proposed Kula Ridge Residential Workforce
Housing Subdivision
Lower Kula Road
Kula, Maui, Hawaii
Tax Map Key: (2) 2-3-001:174

Thank you for allowing us to comment on Draft Environmental Assessment for the subject project.

We have no additional comments to our earlier response letter of August 8, 2006 at this time. However, we would like to update you of our new contact personnel for our Demand Side Management (DSM) group as Ray Cibulskis at 872-3226 and myself as Customer Operations Manager replacing Neal Shinyama.

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

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/ro:lh

Cc: Ray Cibulskis – MECO DSM
Vanessa Medeiros – COM-Department of Housing and Human Concerns



MUNEKIYO HIRAGA, INC.
1111 KALANANĪ'ŪNI
HONOLULU, HAWAII 96813
TEL: (808) 521-1111

MARK A. HIRAGA
July 24, 2008

Gregorysenn Kauhi
Customer Operations Manager
Maui Electric Company
210 West Kamehameha Avenue
P.O. Box 398
Kahului, Hawai'i 96732

**SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i**

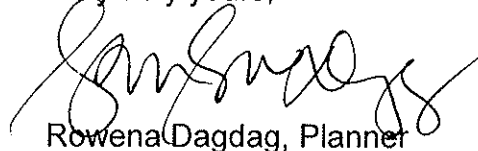
Dear Mr. Kauhi:

We are writing to you on behalf of the applicant, Kula Ridge LLC, to thank you for your letter dated April 10, 2008, regarding the Draft EA for the Kula Ridge Residential Project located in Kula, Maui, Hawai'i.

We appreciate the input we received from your office.

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

Very truly yours,



Rowena Dagdag, Planner

RD:lh

cc: Clayton Nishikawa, Kula Ridge LLC
Vanessa Medeiros, Department of Housing and Human Concerns

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Rowena Dagdag

From: Debra [emerald@hawaii.rr.com]
Sent: Monday, April 14, 2008 9:21 PM
To: Rowena Dagdag
Subject: TRAFFIC KULA

Dear Ms. Dagdag,

I am extremely concerned with the traffic on Lower Kula Road, specifically in Waiakoa Town. Each day I watch, with trepidation, children giggling and crossing the road. The cars WHIP by, I truly fear a fatality!

The town continues to become filled with more and younger pedestrians. Whether it's the kids from Waldorf School, the ballet students at the old Kula gym, Martial Art students at the community center, Tennis players or the various athletes at the Kula gym. Commuting on foot to school, to Morihara Store or Cafe 808; kids are not as careful as we might hope. Cars kill! and most drive on Lower Kula Road far over the speed limit.

I propose a speed-bumped sidewalk (or two) across from the community center/tennis courts and also at Morihara store. Also, before the proposed sub-division adjacent to the tennis courts is approved I suggest budgeting for more pedestrian safety. It is reasonable build an under/overpass to cross the main highway if there is a significant increase in students walking to elementary school. Will the developer consider it his cost and responsibility? or is it a taxpayer cost? Or should we wait and see if anyone gets killed first? The cars traveling on the main highway travel 60+ miles/hour.

What's the point in building a community without proper precautions for our children? Speed-bumps combined with cross-walks in Waiakoa town is a start.

Thank-you for your consideration.

..... Respectfully, Debra Preseault

P.S. Please let me know if you can suggest anyone else that I might pursue my immediate concerns with. Thank-you.



MUNEO, T. M. S. S. S. S.
MUNEKIYO HIRAGA
MUNEKIYO HIRAGA
MUNEKIYO HIRAGA

July 24, 2008

Debra Preseault
4230 Lower Kula Road
Kula, Hawai'i 96790

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at
TMK (2) 2-3-001:174, Kula, Hawai'i

Dear Ms. Preseault:

Thank you for your e-mail correspondence dated April 14, 2008, providing comments on the subject project. Kula Ridge, LLC understands your concerns regarding the proposed 116-lot subdivision, and has been meeting with landowners and Kula residents living near the proposed subdivision to identify ways to mitigate or minimize the project's impact on the community.

With regard to your concerns regarding traffic safety issues, we note the following.

A detailed traffic impact analysis report (TIAR) has been included as part of the documentation supplied to the State and County agencies for project review. The TIAR evaluates both present and future traffic conditions and recommends various traffic mitigation measures to accommodate the increase in area traffic. The TIAR provides the following recommendations for the proposed project:

1. Maintain sufficient sight distance to motorists to safely enter and exit all project roadways.
2. Provide adequate onsite loading and off-loading service areas and prohibit offsite loading operations.
3. Provide adequate turn-around area for service delivery, and refuse collection vehicles to maneuver on the project site to avoid vehicle-reversing maneuvers onto public roadways.
4. Provide sufficient turning radii at all project roadways to avoid or minimize vehicle encroachments to oncoming traffic lanes.

5. Provide exclusive left-turn and right-turn lanes on the westbound approach of Lower Kula Road at the northern intersection with Kula Highway to minimize the impact of left-turning vehicles on the higher volume of right-turning vehicles on that approach.

In addition to the recommendations advanced in the TIAR, the applicant will also provide a pedestrian-way along the project's access road to the project's entry at Lower Kula Highway.

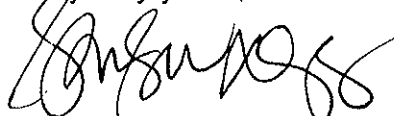
While speed bumps or speed tables exist as potential mitigation measures for reducing the speed of vehicles traveling on Lower Kula Road, the provision of such mechanisms have not been identified as improvements directly related to the construction of the proposed subdivision. In particular, in accordance with Chapter 12.48 of the Maui County Code relating to Speed Humps, the Director of Public Works may grant a request for speed humps, where there is a consent of at least 80 percent of the property owners, whose respective properties abut the County roadway within a distance determined by the Director.

The provision of an under/overpass exists, as a potential alternative for the safe crossing of Kula Highway to the Kula Elementary School. Such an alternative, however, should be considered a community-wide initiative. The applicant's is willing to be a part of this effort. Unfortunately, given the affordable nature of the project, Kula Ridge, LLC is not able to fund a project of this scale and scope.

The applicant understands that continued dialogue with community members and leaders is needed to ensure that the project can be implemented with sound community support.

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

Very truly yours,



Rowena Dagdag, Planner

RD:mge

cc: Clayton Nishikawa, Kula Ridge LLC
Stacy Otomo, Otomo Engineering, Inc.
Harold Nagato, Best Industries USA, Inc.

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From: Michael Mancini [mailto:michael@waldorfmaui.com]
Sent: Thursday, April 17, 2008 10:06 AM
To: Flammerfamily@aol.com
Cc: Rowena Dagdag
Subject: RE: Need for Kula Ridge Subdivision comments

Aloha Rowena,

I am the Chair of School at Haleakala Waldorf School. Please allow me to provide a brief overview of HWS. The Haleakala Waldorf School (HWS) has served the Maui community by providing a Waldorf pre-school through 8th grade education for over 35 years. The HWS is a community of students, teachers, families, alumni and friends who are dedicated to fostering lifelong learning and creativity. Haleakala Waldorf School achieves this goal through the Waldorf philosophy of human development which supports teaching the academic disciplines through the arts, and embraces diversity in an atmosphere of trust and reverence for the individual, the community and the earth. The school is set on the historic Kealahou Public School campus. An additional 2.34 acres and two classroom buildings were added to the campus in the early '90s, and a third ½ acre lot with one building was purchased in 2004. Today the school has 245 students, 45 part and full time employees, and over 300 active volunteers. By improving governance, enrollment and marketing over the past six years, and by building a preschool in 2003, enrollment is at an all time high, now at 245 students. The school is reaching its enrollment capacity as many classes currently have waiting lists. HWS offers the only Waldorf education available on the island of Maui. Most students come from Upcountry Maui, from Ulupalakua to Huelo and everywhere in between, though we have some students from Kihei and Central Maui. The school does not have a bus program so we have a high level of traffic during the beginning and end of the school day as well as during our many festivals and school gatherings. Our families represent great financial, social, religious and economic diversity. The school has expanded its facilities by renovating faculty housing into new classrooms as well as by purchasing an adjacent property to house the administration. The school programs utilize the nearby Kula Community tennis courts, Kula gym, and local outdoor education both during and after the school day. We have experienced increasing enrollment, and the highest level of parent and donor giving ever. Parent involvement in committees, volunteer work and fund-raising programs is also at an all-time high. With a triple accreditation received from the various agencies, HWS enjoys a well established and respected place in the Maui community. These achievements are also a measure of our impact on the needs of our constituency. Enrollment, support for expansion, volunteering and donor giving are the indicators necessary to foster further growth and expansion. HWS has been working with the State Department of Transportation to seek egress from the school onto Kula HWY (see attached letter). The contents of the letter are applicable to the school's need for a traffic study as relates to traffic flow for school access and safety.

If you have further questions feel free to contact me either by email or at 878-2511 ext. 11.
Thank you for taking the needs and concerns of HWS into account during your planning process.

Mahalo,
Michael Mancini

Michael Mancini
Chair of School
Haleakala Waldorf School
4160 Lower Kula Road
Kula, HI 96790
Phone: 808-878-2511 ext. 11
Fax: 808-878-3341
Email: michael@waldorfmaui.com

July 13, 2007

MEMORANDUM

TO: Fred Cajigal, State Department of Transportation

FROM: Michael Mancini on behalf of Haleakala Waldorf School

SUBJECT: Access Request for Haleakala Waldorf School to Kula Highway

I would like to take a moment to introduce myself. I am currently serving as the head of school at Haleakala Waldorf School. As you may know, Haleakala Waldorf School (HWS) has been working to gain access to Kula Highway during peak hours of school service. I would like to meet with you in the near future to discuss the issues and possibilities regarding gaining egress to Kula highway from 7:45-8:45 a.m. and 2:15-3:15 p.m. during the school year. Haleakala Waldorf School is willing to incur the various costs for this project and will install a gate to close access during all other hours.

Proposal:

- Provide an exit from our campus to Kula Highway during heavy traffic hours. The school would staff the exit with a traffic monitor during hours of use. H.W.S. is requesting a right turning lane only in hope to limit hazards. HWS would route traffic one way, from Lower Kula Road into the main entrance of the school, through campus, eventually exiting on to Kula Highway via the turning lane.

Rationale for HWS to Have Access:

- Public/quasi public domain
 - The school has been identified as a public/quasi public use area. Other public and private domains within a quarter mile of the school have been granted similar access:
 - The new Kula Post Office is directly across HWS along Kula Highway, on land that used to be part of Kealahou School property; the Kula Post Office has direct access to Kula Highway. The turning lane would be designed in connection with this current use.
 - Additional accesses have been provided for:
 - County Park
 - Kula Fire Station
 - Kula Elementary School
 - Numerous private residences

- Most specifically, the Kula Botanical gardens, a private business, has a turning lane for both exiting and accessing the property from Kula HWY.
- Children's Safety
 - We currently enroll 250 students each year, a 100% increase over the last five years. The school's enrollment has continued to increase and will continue to grow in the future.
 - Based on a recent traffic study, we have in excess of 85 parent vehicles entering campus daily, and exiting by the same driveway over a one lane bridge, to drop off and pick up children. This number of vehicles in a very confined space, having to turn around, creates serious safety exposure for energetic, running, young children, in spite of three monitors of this traffic.
 - Routing traffic one way through campus immediately reduces traffic in half.
- School Bus Turnaround
 - 20 passenger buses have greater difficulty turning around in the space on campus available to accomplish it
 - Being able to go straight through campus to exit the school onto Kula HWY will assist the bus safety and the safety of the children.
- Fire Safety
 - The Kula Fire Chief at one time found us in violation for not having a second access and egress.
 - We were recently required to install a fire hydrant in the proximity of our proposed access to Kula Highway. Having a driveway adjacent to this hydrant will facilitate the Fire Department's job were we to have a fire on campus
- Protection of Landmark Buildings
 - The campus is a beautifully restored example of Maui School buildings from 75 years ago. The school has won awards for its preservation efforts of these buildings. Protection from destruction by fire is our responsibility
- The Greater Good of the Community will be Served
 - Our community includes those parents transporting their children to this school. They deserve a safe access and egress.
 - The majority of these same parents must enter Kula Highway from Lower Kula Road after exiting our campus. Making this change doesn't change the number of vehicles entering the highway.
 - Many changes have occurred from the original construction of this new highway. Among the changes is the number of students being served by Haleakala Waldorf School.

The benefits to Haleakala Waldorf School are immediate and serious in nature. This proposal would reduce traffic on campus by one half. Since the traffic is moving in one direction only it can be better controlled. The Fire Department will be able to access campus from a second direction which they have requested. There will be no cost to the State of Hawaii or County of Maui.

Previous Approval

According to our schools' records, the County of Maui and Department of Transportation approved access to Kula Highway in 1994. The school prepared engineered drawings (see attachment) for the construction based on this approval but postponed the work due to high costs during a low enrollment time period in the school's history.

I would appreciate meeting with you in the near future to discuss some of the issues at hand. Topics for the meeting would include the possibility of extending the Kula School "school zone" to reach as far as the entrance to lower Kula road; have 20 mph signs installed; define the current area near the Kula post office as a school zone? I will call you next week to set up a meeting to discuss the issues outlined above.

Kindly,

Michael Mancini
Chair of School



MUNEKIYO, T. MUNEKIYO
ESATEI, T. MUNEKIYO
MUNEKIYO & HIRAGA, INC.
2000 KULUWAHINE DRIVE
KULA, HAWAII 96790

REPLY TO: MUNEKIYO, T. MUNEKIYO
ESATEI, T. MUNEKIYO

July 24, 2008

Michael Mancini, Chair of School
Haleakala Waldorf School
4160 Lower Kula Road
Kula, Hawai'i 96790

SUBJECT: Proposed Kula Ridge Residential Workforce Housing Subdivision at6
TMK (2)2-3-001:174

Dear Mr. Mancini:

Thank you for your e-mail dated April 17, 2008, regarding your school's need for a traffic study and the correspondence that you provided to Mr. Ferdinand Cajigal of the State Department of Transportation regarding access request for Haleakala Waldorf School to Kula Highway. On behalf of the applicant, Kula Ridge, LLC, we offer the following in response to your letter.

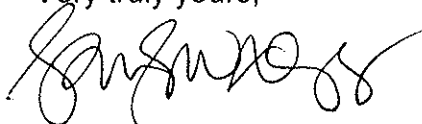
The developer values the need to provide safe routes for students to access schools. While this appears to be a broader community issue, Kula Ridge, LLC is willing to continue coordination efforts with community members and leaders to forge collaborative thinking and identification of community-based solutions.

We would like to note that a traffic study was prepared to assess the impact of the project on the surrounding roadways. The report takes into consideration, the volume of traffic along Lower Kula Road and Kula Highway during peak commuter periods. These periods are between 7:00 a.m. and 8:00 a.m. in the morning and 3:30 p.m. to 4:30 p.m. in the afternoon. The study also identified several recommendations with respect to traffic along Lower Kula Road, Kula Highway, and the surrounding roadways that would mitigate the traffic impacts resulting from the proposed project.

Michael Mancini, Chair of School
July 24, 2008
Page 2

Thank you again for your e-mail. Should you have any questions or would like to schedule a meeting with Mr. Nishikawa, please do not hesitate to contact me at 244-2015.

Very truly yours,



Rowena Dagdag, Planner

RD:lfm

cc: Clayton Nishikawa, Kula Ridge, LLC
Vanessa Medeiros, Department of Housing and Human Concerns

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Kula Community Association

P.O. Box 417 - Kula, HI 96790

<http://kulamaui.com>

The vision of the Kula Community Association is to preserve open space, support agriculture, maintain a rural residential atmosphere, and to work together as a community. The specific purpose of this association is to improve the quality of life for the residents of Kula, to promote civic welfare, and generally to benefit the community of Kula.

April 22, 2008

TO: Ms. Vanessa Medeiros, Director, Maui County Department of Housing & Human Concerns
Rowena Dagdag, Planner, Munikeyo & Hiraga Inc.

FROM: Kula Community Association Board of Directors

SUBJECT: Kula Ridge Draft Environmental Assessment
(Located above the Kula Community Center in Waiakoa)

The Kula Community Association (KCA) Board of Directors has reviewed the Draft EA for the Affordable housing project being proposed in Waiakoa on 48 acres immediately above the Kula Community Center and the adjacent tennis courts.

This proposed "affordable housing" project would be located on 48+ acres just above the Kula Community Center. It will consist of 116 lots with four large four-acre "market-priced" agriculture lots on the upper portion; 46 "market-priced" residential lots; and 70 smaller (4,600-6,000 sq. ft.) "affordable housing priced" lots. The land is now designated in the Upcountry Community Plan as "Single Family residential" and as "rural". The State Land Use Classification is "Agriculture." A request for a State Land Use District Boundary Amendment is being requested to reclassify the project areas to urban and rural.

Although the Upcountry Community Plan makes no special provision for this kind of project and the draft Maui Island Plan does not provide for any urban development in Kula, the Kula Community Association Board appreciates the project's potential affordable housing value. We recognize the need for affordable housing and desire to have a richly diverse community. We are concerned, however, about the density and do not wish for the project to set precedence that would alter the rural character of the area.

The Draft EA indicates that the applicant is applying for a "201 H fast-track" approval, claiming an "exemption" (Appendix B) from most County requirements because this project would qualify as an affordable housing project. We further understand that the Council must vote "yes" or "no" within 45 days, with no conditions attached. It is essential that the EA provide policymakers an accurate assessment of project impacts. The KCA Board is writing in the hope that the concerns which we raise below will be satisfactorily considered before the project reaches the Council and that the true infrastructure costs are known and taken into consideration.

Specifically we are requesting an update to the traffic impact report to include the traffic patterns of the two local schools and for costs and options to be provided for needed sidewalks. We also recommend that the 4 large lots stay in their original state land use classification of agriculture to allow the ability to apply for discounted agricultural water rates.

In the following section, we list the salient features discussed in the Draft EA, and our comments and major concerns related to them.

TRAFFIC AND SCHOOL CONCERNS

1. Need for sidewalks. Since this project is within one mile of Kula Elementary School, the primary-school aged children will not be able to utilize services of the school bus and will have to walk to school along a heavily trafficked Lower Kula Road. Students from Haleakala Waldorf School now must use the same roadway. There is heavy traffic and NO sidewalk. The Draft EA traffic report did NOT investigate this matter.

BOARD CONCERN: A required component of this project should be the construction of a sidewalk and walkway connecting the project to Kula Elementary School and to Haleakala Waldorf School. The sidewalk to Kula School would need to continue down next to the Kula Gym (where an unsafe steep dirt path now exists through waddle) and deliver children safely to a crossing guard for the crossing over busy Kula Highway. Otherwise children will cut through the vacant areas and walk along or cross the busy highway wherever they can. The sidewalk to Haleakala Waldorf School requires a 75-100 foot connection to the existing sidewalk. Included with this letter is a photo of the area just above Haleakala Waldorf School where the sidewalk extension is needed. If the County does not require the applicant to build the sidewalk along Lower Kula Road, then the County will need to construct it prior to the occupancy of the homes. **The EA should provide the County with more information on the options and costs.**

2. Impact on Lower Kula Road. The project's traffic will enter upon the narrow and winding Old Lower Kula Road. This rural road is already crowded early in the morning because of commuters and because of the location of Haleakala Waldorf School. The intersection of the road onto Kula Highway already is often backed up. The road has existing drainage problems that need attention.

KCA BOARD CONCERN: The traffic impact assessment provided in the EA does not show Haleakala Waldorf School on the area map or take into account the school's traffic patterns. The report did show, however, that the traffic impact from vehicles using Lower Kula Road necessitates the installation of turn lanes on the highway. All of these same cars travel past the school entrance and along the route children use to walk. **A revised TIAR, including the School, needs to be completed.**

The Haleakala Waldorf School, just down from the project on Lower Kula Road towards Kula Highway. Currently has 245 students and 45 employees. There is no bus service. Most of the traffic comes from Kula Highway and all traffic uses Lower Kula Road. Traffic for the assessment was studied from 6:00 am until 8:00am and from 3:00pm to 6:00pm, missing both the morning and afternoon school drop off (8:15-8:45) and pick-up times (2:30-2:45).

The report also needs to include an account of pedestrian traffic and road conditions. Many

children from the school use the Kula Community Center tennis courts and Kula Gym for activities. There is a great need for a sidewalk connecting the school to the existing sidewalk in the direction of the gym. Any increase in traffic along Lower Kula Road could severely affect the safety of children using this substandard road.

3. School enrollment. Because this is a large housing project, it can be expected that there will be many children who will be attending local schools.

KCA BOARD CONCERN: Because of this project's addition of many children to the community at a time that over 400 new homes are being built in the Hawaiian Home Lands and more will soon follow, it is necessary to determine the impact on Kula Elementary School, Kalama Intermediate School and King Kekaulike High School. **The EA needs to provide more information on school enrollment impacts, such as a projected number of students.**

WATER AND ELECTRIC CONCERNS

4. A lack of water availability and the acquisition of meters continue to be major concerns for the upcountry community

KCA BOARD CONCERN: The applicant is asking for a land use classification change on the upper portion containing four larger lots. It is the developer's hopes that this land will stay in agriculture. To receive discounted county water rates or access to the dual ag water line being installed upcountry the land needs to be classified as agriculture. If the project's water is provided through a private system with much higher water rates than farming will be much more difficult.

KCA BOARD CONCERN: Upcountry residents have been waiting for many, many years for a water meter. A water meter waiting-list has been established for the past 15 years, and that list now has gone over the 1,000 mark. There are some on the list who will be building "affordable homes" on their own lots in the upcountry district. If this project will be using either the Water Department's water sources or transmission lines, it should not be allowed to jump ahead of other affordable housing homes/projects on the list.

KCA BOARD CONCERN: This "201 H project" might unfairly step ahead of other proposals, including those which have a higher priority in the current Upcountry Community Plan.

Specifically, both "Hawaiian HomeLands" and "agriculture" have a higher priority in the plan to obtain water. Since the HHL own affordable homes project is now in a major expansion phase, it must be given the higher priority.

5. Private water system. With regard to water the applicant stated he will be drilling a 2,900' well, installing a deep-well pump, constructing a large water tank located an additional 700' up-hill at 3,600' elevation, and laying water lines.

KCA BOARD CONCERN: The quantity and long-term dependability of the available water supply is unknown. Will the project tie into the County System? What will happen when the pumps need repair/replacement?

6. Lack of electricity for area and high cost of pumping water. There are significant electricity issues. Maui Electric stated in the appendix that the area is unable at this time to support more electrical delivery, even for the homes. The water pumps will place an additional load.

Furthermore, there will be a very significant electricity expense in pumping the water up 3,600'. We estimate the cost to pump the water up to the 3,600' level to be approximately \$5.40/1,000 gallons. ($\$1.50 / 1,000 \text{ gallons} / 1,000 \text{ feet lift} \times 3.6 \text{ thousand feet}$).

KCA BOARD CONCERN: If it is a private water system, will the low-income residents of the "affordable homes" be required to pay the \$5.40 / 1,000 gallon cost of the water? Will the agricultural lots in both Kula Ridge and Kula Mauka get lower "Ag" rates, subsidized by the "affordables"?

KCA BOARD CONCERN: To reduce the electricity costs for the affordables, will all the "affordable homes" have pre-installed solar water heaters? It would seem wise to require this.

7. Park uses of water. There is a 3 acre park planned. Landscaping and maintenance of the part portion of the project needs to be addressed to preserve water.

KCA BOARD CONCERN: Water from the project should be recycled back into the landscaping within the project's park area or the nearby County Park area.

AFFORDABLE HOUSING PROVISION CONCERNS

8. Buy-back provision. The state 201 H process only requires a 10 year "buy-back" provision for the "affordable housing. At the end of the 10 year period the homes become market-based homes losing their affordability.

KCA BOARD CONCERN: The "buy-back provisions" for the affordable houses should be required for longer than the proposed 10 years. In perpetuity would be best and could be managed through a county program.

KCA BOARD CONCERN: Owners should be required to live in their "affordable" units. If they are considering moving out and renting to others (except immediate family members), then they should be required to sell the property to a new "affordable" resident-owner.

KCA BOARD CONCERN: The County should be responsible for enforcing the buy-back provisions for this and other affordable housing projects.

LIGHTING AND IMPACTS ON EXISTING COMMUNITY CENTER AND PARK CONCERNS

9. Outdoor lighting. There is a potential for negative impact of outdoor lights on the Haleakala Observatories and neighboring properties.

KCA BOARD CONCERN: There should be minimal outdoor lighting. Street lights should be restricted to road intersections. We are pleased to note that the Draft EA states that all outdoor lighting in the project will be shielded to prevent light pollution into the night sky.

10. Traffic and noise mitigation. The project access road is adjacent to the park and tennis courts.

KCA BOARD CONCERN: The access road should be screened off from the park with landscaping, a fence, or a wall, or any combination. Traffic and noise should be mitigated so as not interfere with users of the Center and gateball and tennis court users.

KCA BOARD CONCERN: Parking for the project park should be provided by the developer.

PROJECT ROAD AND CONSTRUCTION CONCERNS

11. Need for secondary access. This project is like a giant cul-de-sac with 116 homes having only one exit.

KCA BOARD CONCERN: For safety reasons it would be desirable to have a second access (exit) road available for residents, not just emergency vehicles.

12. Access Road. The roadway up from the old Lower Kula Road will serve the upper portions of the adjacent park and 116 homes.

KCA BOARD CONCERN: The road should not negatively impact the adjoining Kula Community Center Park and should provide access to the upper portion of the Park. If the road will also be used to access the Kula Ridge Mauka project, the impacts should be included in the EA.

KCA BOARD CONCERN: To handle emergency vehicles and traffic there should be an adequately wide, paved road with walkways on the shoulder.

13. Construction practices on steep slope. On Page 28 off the Draft EA , it states that the grade of the project's land is a very steep 14.8%. Such a steep grade could cause severe problems particularly during the construction period. Since the land below the project is a Community Center with other park facilities, it is in the interest of the County to make sure that erosion and drainage are taken care of in a very careful way. So-called Best Management Practices may not even be adequate to handle such a steep slope considering the amount of grading that will need to be done for the large development.

KCA BOARD CONCERN: The Draft EA several times mentions that the drainage system will be able to handle a 50 year 1 hour peak rainfall. This may not be the appropriate design criteria, since, oftentimes and usually, Kona storms deliver far greater volumes of water during extended periods of time.

In closing, the KCA Board sincerely appreciates your consideration of our comments and concerns.

Sincerely,



Gina Flammer, President

cc. Mayor Charmaine Tavares
Maui County Council Land Use Chair Michael Molina
Maui County Council Member (Upcountry) Gladys Baisa
Maui County Planning Director Jeff Hunt
Maui County Water Director Jeff Eng

Kula Community Association

P.O. Box 417 - Kula, HI 96790
<http://kulamaui.com>

The vision of the Kula Community Association is to preserve open space, support agriculture, maintain a rural residential atmosphere, and to work together as a community. The specific purpose of this association is to improve the quality of life for the residents of Kula, to promote civic welfare, and generally to benefit the community of Kula.

March 29, 2006

TO: Clayton Nishikawa, Project Developer
FROM: Kula Community Association Board

SUBJECT: 116 Unit Project above Kula Community Center (in Waiakoa area)

The Kula Community Association (KCA) Board of Directors has reviewed the Affordable housing project being proposed by Mr. Clayton Nishikawa in Waiakoa on 48 acres immediately above the Kula Community Center and the adjacent tennis courts.

On a number of occasions the KCA Board and its Planning Committee met with Mr. Nishikawa and members of his firm. In addition, the project was presented to the community at the February, 2006 KCA General Meeting. We have also heard from a few community members.

The applicant has indicated that he will be applying for a "201g fast-track" approval, claiming waiver from most County requirements because this project would qualify as an affordable housing project. We further understand that the Council must vote "yes" or "no" within 45 days, with no conditions attached. Therefore, the KCA Board is writing in the hope that the concerns which we raise below will be satisfactorily considered before the project reaches the Council.

Although the Upcountry Community Plan makes no special provision for this kind of project, the Kula Community Association Board recognizes the value such a project would have in our community. We acknowledge the need for affordable housing. We desire to have a richly diverse community. This project would provide for some of this balance in the development of Kula as a whole. Many of the projects we have seen being developed in Kula have been 100% "high end" homes. The KCA, while welcoming those new neighbors to our community, values a balanced, economically diverse community.

We also are expecting a large infusion of new homes in the Hawaiian Home Lands subdivisions of Waiohuli and Keokea. We again welcome these neighbors and the richness they will bring to our community.

The KCA Board is most appreciative of the efforts by Mr. Nishikawa to make a positive and time consuming effort to provide affordable housing. He has undertaken this project at great expense and with considerable risk; and for this we are most grateful. We are also thankful for his presentations and for his helping us to understand the project.

In the following lines, we have listed the salient features of the project, and our comments and major concerns related to them. We have two major concerns: water and the intersection/traffic as well as other issues we wish to raise.

This proposed 51% "affordable housing" project would be located on 48+ acres just above the Kula Community Center. It will consist of 116 lots with four large four-acre "market-priced" agriculture lots on the upper portion; 53 "market-priced" residential lots; and 59 smaller (5,600-6,000 sq. ft.) "affordable housing priced" lots. The land is now designated in the Upcountry Community Plan as "Single Family residential" and as "rural". The zoning is "Agriculture."

1. Because this is a large housing project, it can be expected that there will be many children who will be attending local schools.

1.a KCA BOARD CONCERN: Because of this project's addition of many children to the community at a time that over 400 new homes are being built in the Hawaiian Home Lands, it is absolutely necessary to determine the impact on Kula Elementary School, Kalama Intermediate School and King Kekaulike High School.

2. Since this project is within one mile of the school, the primary-school aged children will not be able to utilize services of the school bus and will have to walk to school along a heavily trafficked Lower Kula Road.

2.a KCA BOARD CONCERN: A required component of this project should be the construction of a walkway connecting the project to Kula Elementary School.

3. With regard to water the developer stated he is not certain of the source of the water for the project.

3.a KCA BOARD CONCERN: Because the source of water is not yet determined, we are unclear as to what specific concerns need to be articulated. We reserve the right to comment when this becomes known.

4. Water availability and the acquisition of meters continue to be major concerns for the upcountry community.

4.a KCA BOARD CONCERN: This "201g project" might unfairly step ahead of other proposals, including those which have a higher priority in the current Upcountry Community Plan. Specifically, both "Hawaiian Home Lands" and "agriculture" have a higher priority to obtain water. Since the HHL is now in an expansion phase, it must be given its very high priority.

4.b KCA BOARD CONCERN: Residents have been waiting for many, many years for a water meter. A water meter waiting-list has been established for the past 13 years, and that list now has gone over the 1,000 mark. There are some on the list who will be building "affordable homes" on their own lots in the upcountry district. This project should only be allowed to jump ahead of other affordable housing homes/projects on the list, if it truly is determined to serve a specific Upcountry need as identified by impartial analyses and community testimony.

5. The developer has suggested 10 year "buy-back" provisions for the "affordable housing

5.a KCA BOARD CONCERN: The "buy-back provisions" for the affordable houses should be for longer than the proposed 10 years. In perpetuity would be best.

5.b KCA BOARD CONCERN: Owners should be required to live in their units. If they are considering moving out and renting to others (except immediate family members), then they should be required to sell the property to a new resident-owner

5.c KCA BOARD CONCERN: The County should be responsible for enforcing the buy-back provisions for this and other affordable housing projects.

6. There is a potential negative impact of lights on the Haleakala Observatories and neighboring properties.

6.a KCA BOARD CONCERN: There should be minimal outdoor lighting. Street lights should be restricted to road intersections, and all outdoor lighting in the project should be shielded to prevent light pollution to the night sky and light trespass to neighboring properties.

7. This project has a high density in a generally rural area

7.a KCA BOARD CONCERN: There should be strict requirements that no "ohana" units can be built. This provision would be consistent with a number of other subdivisions being built in the region (Kulamanu, and the Dowling project across from Kekaulike High School). Limiting the project to a fixed number (116) would make much more certain the expected level of water usage.

8. The developer is proposing a sub-division configuration that would place four very large (4 acre each) lots at the top of the property, necessitating a crowding of 112 units in the lower part of the property. This differs from the Upcountry Community Plan which calls for a combination of "Single-Family" and "Rural", not "gentleman farmer" lots.

8.a KCA BOARD CONCERN: The large lots established on the upper part of the sub-division, there should be designated with agriculture zoning. Further subdivision in these lots should not be allowed.

9. The project's traffic will enter upon the narrow and winding Old Lower Kula Road.

9.a KCA BOARD CONCERN: This rural road is already crowded early in the morning because of commuters and because of the location of Haleakala Waldorf School. The intersection of the road onto Kula Highway already is often backed up. The road has existing drainage problems that need attention. A detailed traffic and road analysis must be completed and necessary remediation of potential traffic problems must be completed prior to the construction of the project.

10. This project is like a giant cul-de-sac with 116 homes having only one exit.

10.a KCA BOARD CONCERN: For safety reasons it would be desirable to have a second access road.

11. The roadway up from the old Lower Kula Road will serve the upper portions of the adjacent park and 116 homes.

11.a KCA BOARD CONCERN: The road should not negatively impact the adjoining Kula Community Center Park and should provide access to the upper portion of the Park.

11.b KCA BOARD CONCERN: There should be an adequately wide paved road, with walkways on the shoulder, to handle emergency vehicle and traffic.

12. There is a shortage of senior housing in the Kula community.

12.a KCA BOARD CONCERN: The KCA Board asks for senior housing in this project, some of it affordable, and some of it market-priced but specifically designed for the needs of seniors.

13. There will be park land within the project.

13.a KCA BOARD CONCERN: Water from the project should be recycled back into the landscaping within the project's park area or the nearby County Park area.

13.b KCA BOARD CONCERN: Maintenance of the lowest portion of the project (approximately 3 acres), adjoining the existing Park needs to be addressed.

13.c KCA BOARD CONCERN: Parking for the park should be provided by the developer.

14. Although the KCA Board has discussed this project, the immediate neighbors have not yet been able to give their input.

14.a KCA BOARD CONCERN: The developer should make a genuine effort to solicit feedback from adjoining neighbors who may be directly impacted by this project. This meeting should happen prior to going to the County Council.

In closing, the KCA Board sincerely appreciates the extensive effort by Mr. Clayton Nishikawa to bring this proposal to our Board at an early stage. We feel that we have been able to give meaningful input.

Sincerely, Karolyn Mossman, President KCA

cc. Mayor Alan Arakawa
Maui County Council
Planning Director Michael Foley and the Maui Planning Commission

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MUNEKIYO & HIRAGA, INC.
1540 KAWAHAU DRIVE, SUITE 100
HAWAII, HONOLULU, HAWAII 96813

July 24, 2008

Gina Flammer, President
Kula Community Association
P. O. Box 417
Kula, Hawai'i 96790

SUBJECT: Draft Environmental Assessment for Proposed Kula Ridge Residential Housing Workforce Housing Subdivision(EAC 2008/0014)

Dear Ms. Flammer:

Thank you for your letters dated April 22, 2008 and March 29, 2006, commenting on the proposed affordable housing project in Kula. We note that the comments referenced in your March 29, 2006 letter are also raised in the April 22, 2008 correspondence. Therefore, the responses provided below are presented to address comments in the order listed in the April 22, 2008 letter.

RESPONSES TO GENERAL COMMENTS

The association's comments regarding consistency with the rural character of the area and consistency with the goals, objectives, and polices of the Makawao-Pukalani-Kula Community Plan, as presented in your letter, have been reviewed and considered by Kula Ridge, LLC. We note that the proposed project is located in proximity to urban uses including the Kula Community Center, Morihara Store, Café 808, Kula Gym, Kula Elementary School, Kula Fire Station and single-family residences. As noted, an approximately 15 acre portion of the site is designated for "Single-Family" use by the Makawao-Pukalani-Kula Community Plan. When average densities are applied to this "Single-Family" area, then combined with average densities for the Rural-designate areas, approximately 120 lots can be developed on the project site. With these considerations in mind, the location of the project is deemed appropriate, particularly in terms of its immediately surrounding land use context.

As stated in the Draft Environmental Assessment (EA), the proposed project was developed with specific spatial configurations based on topographic and boundary patterns established by the surrounding properties. Given the project's objective to meet the need for affordable housing for island residents, the plan as proposed offers a preferred alternative to provide housing in a location in close proximity to similar land uses.

The proposed land use designation for the 4-large lots seeks to gain consistency with the existing Makawao-Pukalani-Kula Community plan.

RESPONSES TO SPECIFIC COMMENTS

1. Traffic and School Concerns

a. Need for Sidewalks

The Traffic Impact Analysis Report (TIAR) assesses the impact of the project on the surrounding roadways during the peak commuter periods along the highway and provides recommendations of improvements that would mitigate the traffic impacts resulting from the proposed project.

The applicant is willing to take part in identifying alternatives for safe access for residents and school children, including working with County agencies and neighboring landowners. In this regard, formulation and implementation of specific design options will require collaboration among various stakeholders, to address issues relating to funding land acquisition and design parameters.

The applicant will be improving a portion of Lower Kula Road to its northern intersection with Kula Highway and will continue to work with the Department of Public Works to identify improvements for the proposed project.

The applicant will also continue coordination efforts with the Department of Parks and Recreation to develop a pedestrian and bike friendly path that can provide non-vehicular access from the subdivision to Kula Community Center.

b. Impact on Lower Kula Road

The applicant understands your concerns regarding the potential stacking of vehicles along Lower Kula Road at its northern intersection with Kula Highway. To minimize traffic impacts arising from the roadway alignment, proposed are exclusive left-turn and right-turn lanes at the intersection with Kula Highway to minimize the impact of left-turning vehicles and vehicle stacking at that intersection.

An additional traffic analysis was prepared using an alternate trip distribution scenario in which all site-generated trips were assumed to travel from origins

and to destinations to the north of the project site. See **Attachment A**. This trip distribution methodology assumes that all site-generated trips are work related and do not have any linked or pass-by destinations.

Based on this scenario, Levels of Service (LOS) at the study intersections are expected to be similar to those included in the original TIAR. The critical movements at the intersections of Lower Kula Road with Kula Highway (north) are expected to remain the same at LOS "C" or better during both peak periods while those at the intersection with Kula Highway (south) are expected to operate at LOS "B" or better during both peak periods. Similarly, all approaches of the intersection with Copp Road are expected to operate at LOS "A". At the intersection of Lower Kula Road with Alanui Place and the Kula Community Center Driveway, the eastbound approach of the intersection is expected to operate at a slightly lower LOS "B" during both peak periods while the other approaches of the intersection are expected to operate at levels-of-service similar to those included in the original TIAR.

Both the TIAR and additional traffic analysis takes into account actual traffic counts which includes school traffic.

Kula Ridge, LLC understands the need to ensure safe pedestrian access to and from the Haleakala Waldorf School. In this regard, the need to extend the sidewalk to the school is viewed as a community-wide concern. Notwithstanding, Kula Ridge, LLC is willing to continue coordination efforts with community members and leaders to identify appropriate solutions. Such solutions, for example, may include coordination with the County's Department of Public Works to formulate a fair-share cost allocation formula which can be used to fund the desired sidewalk improvements.

c. School Enrollment

The Department of Education provided information on projected school enrollment up until School Year (S.Y.) 2012-2013 in their letter dated April 21, 2008. This letter is provided as **Attachment B**. Their projections indicated a decrease in the projected enrollment for schools servicing the proposed subdivision.

With respect to impact on Kula Elementary School, Kalama Intermedicate School and King Kekaulike High School, the applicant acknowledges that the 2007 Legislature passed Act 245, establishing school impact fees. This act is in the process of being implemented. In the Department of Education's

letter commenting on the Draft EA, they noted that they "currently do not know whether this area will be in an impact district or the amount of the fee per residential unit." The applicant will continue to work with the DOE in formulating an appropriate fair-share agreement for the subject project to mitigate impacts upon school facilities.

2. Water and Electrical Concerns

a. Water for Farming

The intent of the four (4) large lots within the subdivision is to provide opportunity for its owners to farm. The specific nature of each owner's agricultural endeavor, including water demand requirements, are not known at this time. While water rates for the private water system will likely be higher than County agricultural rates, the relationship of water costs to overall agricultural feasibility on the four (4) lots are not determinable. It is the expectation of Kula Ridge, LLC that each lot owner will seek to use his/her lands to its highest agricultural potential.

b. A Lack of Water Availability and Water Use Priority

The applicant acknowledges that a water meter wait-list exists, and includes projects with a certain degree of priority. Kula Ridge, LLC continues to pursue the development of an offsite well at the 2,900 feet elevation and does not intend to utilize County water to service the project area. As such, the project area will be serviced with this private water system. Water rates will be shared equally among residents in the proposed subdivision.

c. Private Water System

Preliminary reports indicate that the ground water well is anticipated to yield up to 1,000,000 gallons of water per day. The completion of the well development will, in large part, determine the sustainable yield for the new system. As stated in the Draft EA, the applicant intends to develop the well and related infrastructure according to County standards. Drilling and testing of the new well will be undertaken in compliance with the State Commission on Water Resource Management's requirements for well drilling and pump installation, including the preparation and submittal of required well completion reports. Repair and maintenance of the well will be undertaken on a regular basis.

Continued coordination with the Department of Water Supply (DWS) will be carried out to ensure that water source is adequately and appropriately addressed for the project. Also stated in the Draft EA is the opportunity to create a partnership with the Department of Water Supply in the development of a new water system. Should this alternative be considered, an agreement between the DWS and the applicant will be developed to establish terms and joint development efforts, which includes the long-term maintenance of the related infrastructure.

d. Lack of Electricity for Area and High Cost of Pumping Water

As stated previously, the project area will be serviced with this private water system. Water rates will be shared equally among residents in the proposed subdivision.

The Final EA will also incorporate statements provided by Maui Electric Company, in their comment letter of August 2006. The following will be included in Section II.D.5. Electrical, Telephone, and Cable Television Services of the Final EA as follows.

It is noted that Maui Electric Company will require an electrical line extension, access, and electrical easements in order to provide service to the project.

In addition, energy conservation measures will be considered as part of the project design phase of development and further coordination with Maui Electric Company will occur at that time. As a result, the applicant will consider implementation of the following demand side management measures, where applicable, to conserve natural resources and to promote energy efficiency.

- **Site buildings to take advantage of natural features and maximize their beneficial effects by providing for solar access, daylighting, and natural cooling.**
- **Design south, east, and west shading devices to minimize solar heat gain.**
- **Consolidate utility and infrastructure in common corridors to minimize site degradation and cost, improve efficiency, and reduce impermeable surfaces.**

It should also be noted that Act 204 relating to the implementation of solar or other energy efficient hot water systems was recently signed into law. The applicant confirms that the project will conform with the requirements set forth by this new mandate.

e. Park Uses of Water

Water conservation plans will be developed in connection with project design.

3. Affordable Housing Provision Concerns

a. Buy-Back Provisions

While Kula Ridge LLC has suggested a ten (10) year buy-back provision for the affordable houses, restrictions on the resale of affordable units will be developed in coordination with the Department of Housing and Human Concerns. Parameters for specific terms and conditions for affordable sales price distribution and marketing requirements will be detailed in an affordable housing agreement executed by Kula Ridge, LLC and approved by the County.

4. Lighting and Impacts on Existing Community Center and Park Concerns

a. Outdoor Lighting

We note your comments regarding outdoor lighting and would like to add that the preliminary lighting plan for the project will be designed to ensure that lighting will be shielded and directed away from the night sky.

b. Traffic and Noise Mitigation

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) during daylight hours. Existing residences and community facilities directly below the project site 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 Department of Health (DOH) noise regulations. Should noise during the construction phase of the project exceed the maximum allowable levels, a noise permit may be required.

The applicant has undertaken coordination efforts with the Department of Parks and Recreation in building a portion of the new access road to serve the expansion of the Kula Community Center Tennis Complex. It is anticipated that a landscaped buffer will be planned between the tennis courts and the new access road. This should serve to mitigate potential visual noise perceptions associated with the planned road and the project.

5. **Project Road and Construction Concerns**

a. **Need for Secondary Access**

As stated in the Draft EA, consideration was made to provide a second access point to service the project area off of Lower Kula Road. Topographic conditions, however, do not provide for a viable access point to the north of Kula Community Center. An access point was identified further mauka of the project along its southern border. This access point however, will be made available for emergency vehicles and residents during times of emergency.

b. **Access Road**

As previously mentioned, the applicant will continue to work with the Department of Parks and Recreation to ensure that there are no impacts to the Tennis Complex and Community Center. See **Attachment C**.

In addition, the new access road will be designed to County standards, to provide safe and efficient passage of emergency vehicles.

c. **Construction Practices on Steep Slope**

Slope conditions of the property influences project design, similar to characteristics encountered in surrounding developed areas. The project architect and civil engineer have carefully considered the topographic conditions of the site to develop a workable grading schematic and building layout plan. Construction of the project will be conducted in phases to reduce erosion and drainage impacts to properties below the project. The drainage plan has been developed through consideration of County standards which include a degree of "Factor of Safety".

Gina Flammer, President
July 24, 2008
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All grading will be done in accordance with the Maui County grading ordinance. In addition, a geotechnical report will be done and the grading recommendations contained therein will be incorporated into the project.

We understand that continued dialogue with the Kula Community Association and Maui residents is needed to ensure that this important project can be implemented with sound community support. We look forward to meeting with the Kula Community Association again in the near future.

In the meantime, if there are any questions pertaining to the responses provided, please feel free to contact me.

Very truly yours,



Rowena Dagdag, Planner

RD:yp

Enclosures

cc: Clayton Nishikawa, Kula Ridge LLC (w/enclosures)
Vanessa Medeiros, Department of Housing and Human Concerns (w/enclosures)
Stacy Otomo, Otomo Engineering, Inc. (w/enclosures)

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7551-02
June 16, 2008

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808.946.2277
Fax: 808.946.2253
www.wilsonokamoto.com

Mr. Clayton Nishikawa
Kula Ridge, LLC
1849 Wili Pa Loop
Wailuku, HI 96793

Subject: Kula Ridge

Dear Mr. Nishikawa:

As requested, the following are the responses to the comments provided by DOT Highways Division related to the Traffic Impact Report prepared for the subject project:

1. Comment: *Table 2 on Page 11 of the traffic assessment report show, "Dwelling Units=210". A clarification is needed explaining if there will be 210 units in the project area and how trip generation rates were applied for the various types of housing units (workforce/affordable, market, agricultural, rural) contained in subject project.*

Response: The number "210" is a typo. There are a total of 116 dwelling units, 42 residential lots, 70 affordable housing lots, and 4 agricultural lots. 210 refers to the trip generation land use code (single-family detached housing) utilized for the project. As stated on page 3 of the report, each residential and agricultural lot is expected to house a residential dwelling.

2. Comment: *Table 2 on Page 12 of the traffic assessment report shows zero projected trips generated for a park. An explanation is needed to address why zero trips is assumed to be generated by the three-acre park.*

Response: The trip generation rate utilized for the TIAR is Land Use 412 or County Park. Based upon the proposed park size (3-acres), zero site-generated trips are expected during the AM and PM peak periods. It should be noted that due to the small size of the park, the park will most likely function as a neighborhood park that services the residences that surround it. As such, vehicular trips to and from the park are expected to be minimal.

Comment: *The assumed distribution of project-generated traffic presented in the TIAR that traffic from an affordable/workforce housing project would flow onto Copp Road and travel to/from another residential area is*



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Letter to Mr. Clayton Nishikawa

Page 2

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questionable. As an affordable housing project, this development could be viewed as an aid in 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. This matter should be further evaluated and addressed in the TIAR.

Response: 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 along Kula Highway to assess the worst-case scenario. However, to address these and other comments by DOT, a supplemental letter was prepared for the project (see attached).

3. Comment: *The TIAR should include identification of the geometrics for the recommended westbound right-turn lane on Lower Kula Road at Kula Highway.*

Response: The TIAR provides recommendations for lane use based upon traffic operations. The actual dimensions of the recommended lanes will be determined during the design phase of the project when topographical information is available. The design geometrics will be submitted to DOT for review and approval.

4. Comment: *The Lower Kula Road/Copp Road intersection is identified as an all-way stop in the calculations in the TIAR. This intersection should be noted in the text of the report.*

Response: Although the text does not specifically identify the intersection of Lower Kula Road and Copp Road as an all-way stop, it does indicate that this is an unsignalized intersection. In addition, all analyses performed for that intersection were based on all-way stop control.



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5. Comment: *Based on our review, we anticipate that a dedicated southbound left-turn lane on Kula Highway at Lower Kula Road will be needed to mitigate project generated traffic.*

Response: As previously stated, a supplemental letter was prepared to address this and other comments by DOT.

6. Comment: *We are concerned with the cumulative impact of project generated traffic from the Ridge Project and the Mauka Subdivision will have on Kula Highway. Connection to Kula Highway from the two developments should be addressed in the TIAR.*

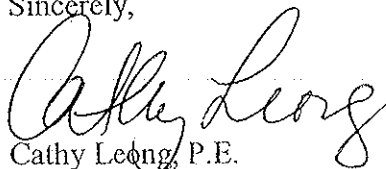
Response: The Kula Ridge TIAR was prepared and finalized prior to that for the Kula Ridge Mauka TIAR and, as such, the plans for Kula Ridge Mauka were not included in this report. However, the Kula Ridge Mauka TIAR, which is currently being revised due to changes in the project plan, will include both projects in its analyses.

7. Comment: *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.*

Response: 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.

Should you have any questions or require additional information, please contact me at 946-2277.

Sincerely,



Cathy Leong, P.E.



7551-02
June 16, 2008

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808.946.2277
Fax: 808.946.2253
www.wilsonokamoto.com

Mr. Clayton Nishikawa
Kula Ridge, LLC
1849 Wili Pa Loop
Wailuku, HI 96793

Subject: Kula Ridge

Dear Mr. Nishikawa:

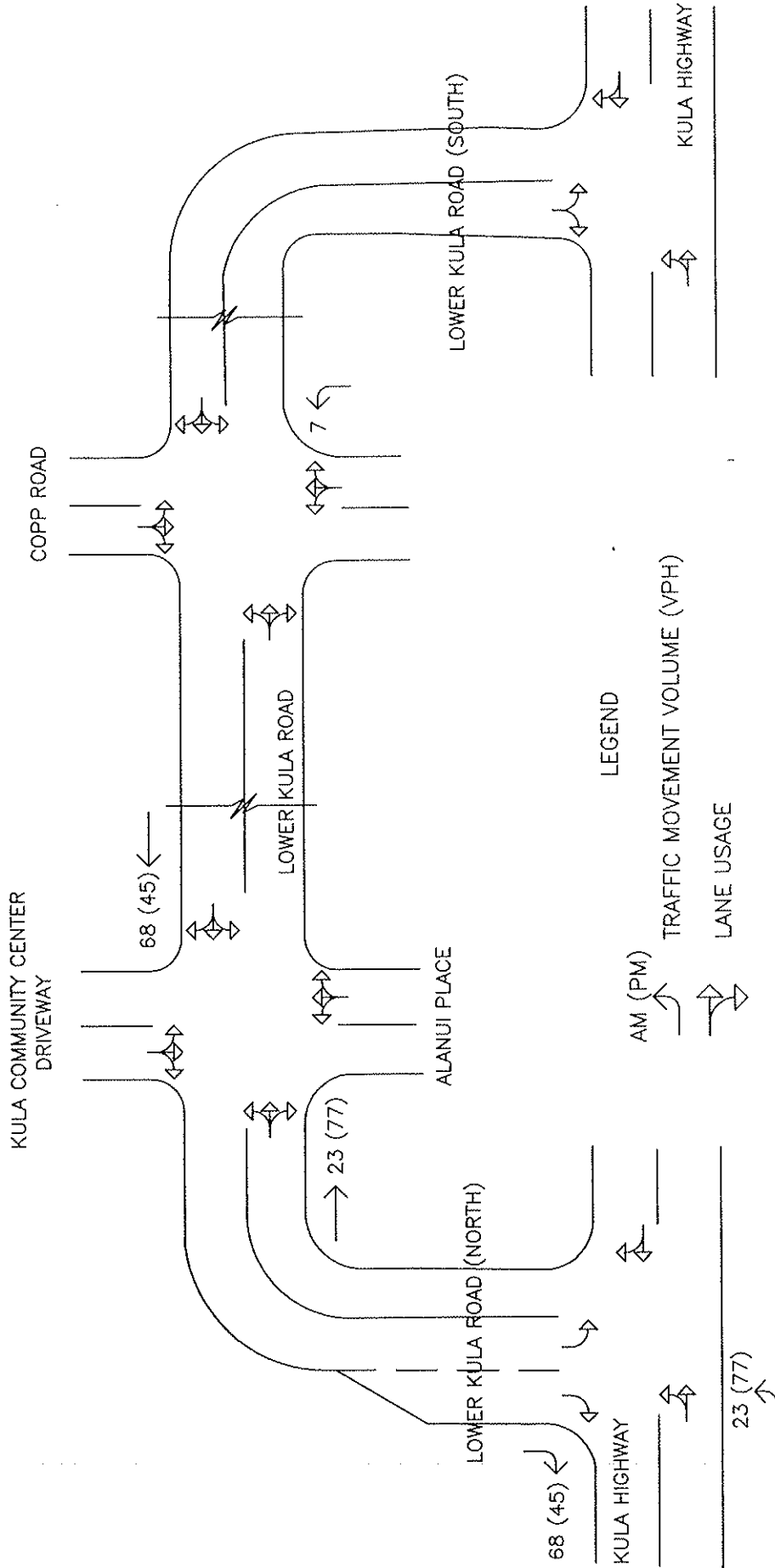
As requested, we assessed an alternate trip distribution scenario for the Kula Ridge project to address comments provided by DOT. The following is a summary of our findings.

Trip Distribution

In comments provided on April 22, 2008, DOT indicated that they did not agree with the trip distribution detailed in the Traffic Impact Report prepared for the Kula Ridge project dated July 2006. To address these comments, an alternate scenario was assessed in which all site-generated trips were assumed to travel from origins and to destinations to the north of the project site. It should be noted, however, that this trip distribution methodology assumes that all site-generated trips are work related and do not have any linked or pass-by destinations. As such, all entering vehicles were assumed to turn left from Kula Highway onto Lower Kula Road via the northern intersection of that roadway with the highway, and then utilized Lower Kula Road to access the project site. Similarly, all exiting vehicles were assumed to turn right onto Lower Kula Road and then right onto Kula Highway. Figure 1 shows the distribution of site-generated vehicles during the AM and PM peak periods for this alternate scenario.

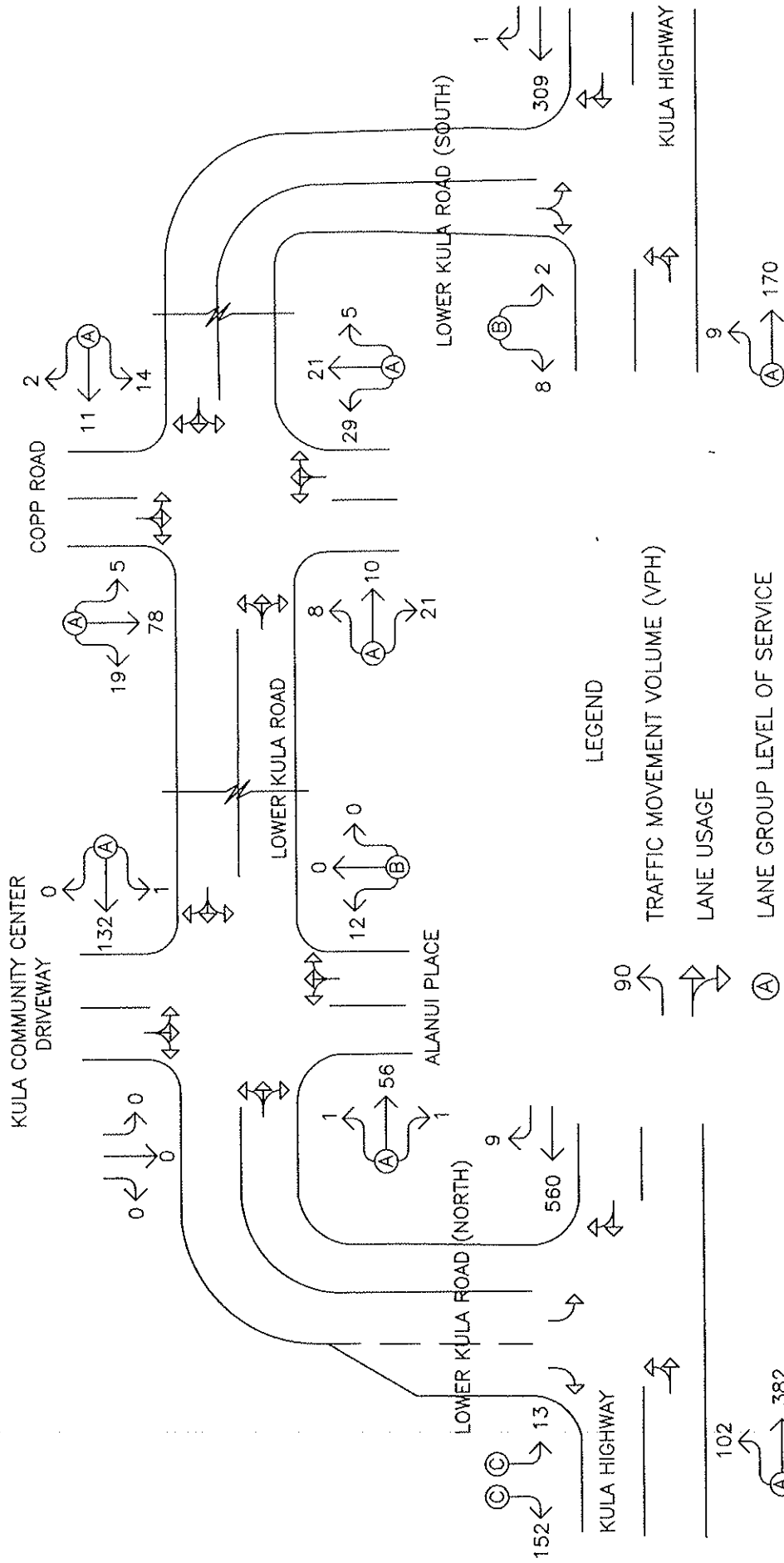
Year 2009 With Project Conditions

The projected Year 2009 AM and PM peak period traffic volumes and operating conditions under the alternate scenario are shown in Figures 2 and 3, and summarized in Table 1. The projected Year 2009 operating conditions based upon the trip distribution included in the original TIAR are provided for comparison purposes. LOS calculations are included in the appendix.



KULA RIDGE
DISTRIBUTION OF SITE-GENERATED TRAFFIC
 ALTERNATE SCENARIO

WILSON OKAMOTO CORPORATION
 ENGINEERS • PLANNERS

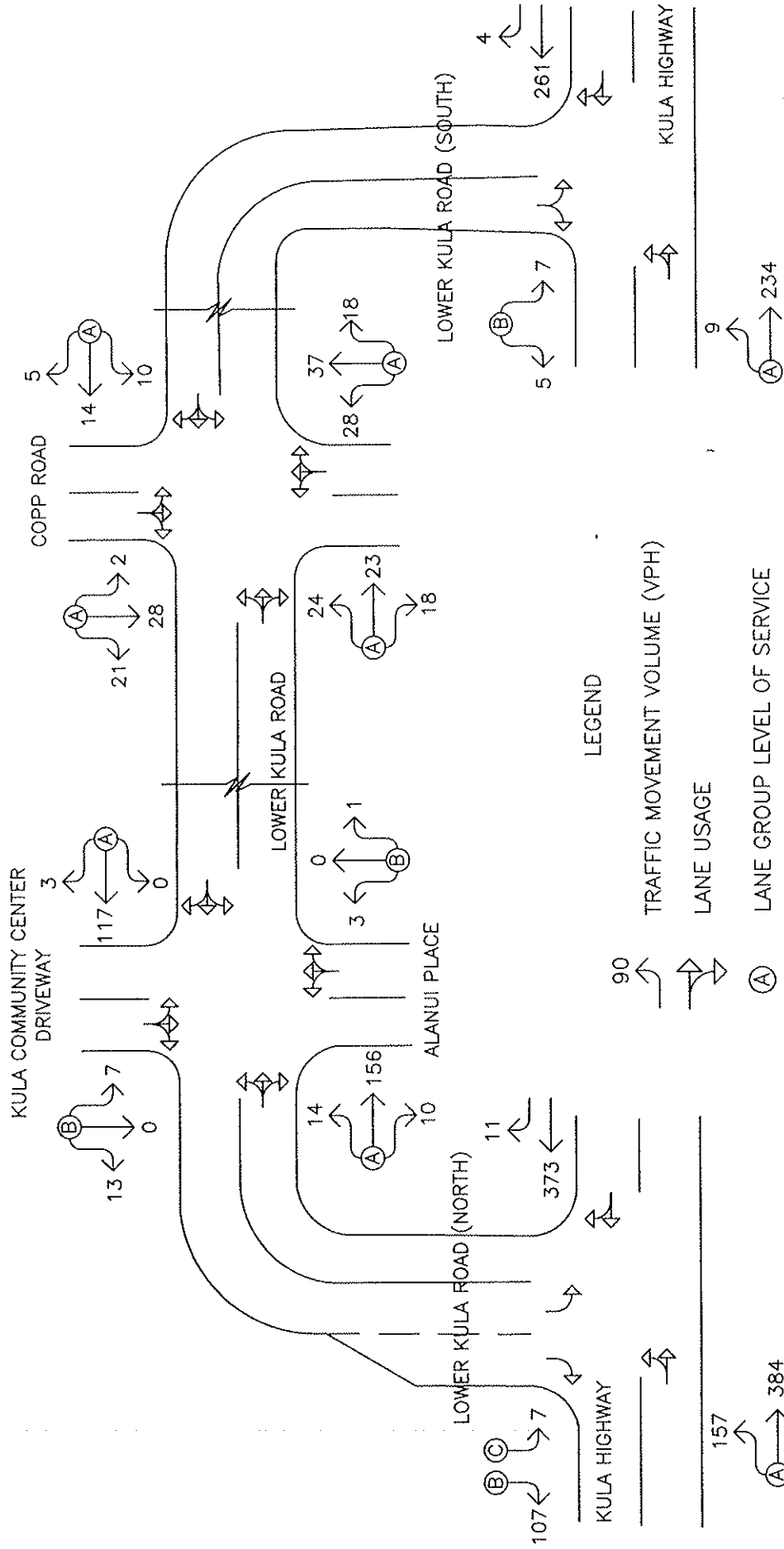


KULA RIDGE

YEAR 2009 AM PEAK HOUR OF TRAFFIC WITH PROJECT
ALTERNATE SCENARIO

FIGURE
2

WILSON OKAMOTO
CORPORATION
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KULA RIDGE

YEAR 2009 PM PEAK HOUR OF TRAFFIC WITH PROJECT
ALTERNATE SCENARIO

FIGURE
3



WILSON OKAMOTO
CORPORATION
ENGINEERS • PLANNERS



**Table 1: Year 2008 (TIAR and Alternate Scenario)
 Traffic Operating Conditions**

Intersection	Critical Approach/ Movement		AM		PM	
			TIAR	Alt Scenario	TIAR	Alt Scenario
Lower Kula Road/ Alanui Place/ Kula Community Center Driveway*	Eastbound		A	B	A	B
	Westbound		-	-	B	B
	Northbound		A	A	A	A
	Southbound		A	A	A	A
Lower Kula Road/ Kula Highway (North)	Westbound	LT	C	C	C	C
		RT	C	C	B	B
	Southbound		A	A	A	A
Lower Kula Road/ Copp Road	Eastbound		A	A	A	A
	Westbound		A	A	A	A
	Northbound		A	A	A	A
	Southbound		A	A	A	A
Lower Kula Road/ Kula Highway (South)	Westbound		B	B	B	B
	Southbound		A	A	A	A

*Note: The LOS shown from the TIAR has been modified to correct a typo in the original report. The LOS shown in Table 1 is based on the capacity analysis worksheets included in Appendix E of the TIAR.

Under the alternate scenario, the levels of service at the study intersections are expected to be similar to those included in the original TIAR. The critical movements at the intersections of Lower Kula Road with Kula Highway (north) are expected to operate at LOS "C" or better during both peak periods while those at the intersection with Kula Highway (south) are expected to operate at LOS "B" or better during both peak periods. Similarly, all approaches of the intersection with Copp Road are expected to operate at LOS "A." At the intersection of Lower Kula Road with Alanui Place and the Kula Community Center Driveway, the eastbound approach of the intersection is expected to operate at a slightly lower LOS "B" during both peak periods while the other approaches of the intersection are expected to operate at levels-of-service similar to those included in the TIAR.

Based upon the operational analyses performed for the alternate scenario, a southbound left-turn lane along Kula Highway at the northern intersection with

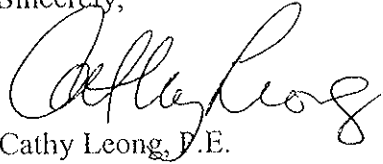


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June 16, 2008

Lower Kula Road as suggested by the DOT is not required. However, the provision of an exclusive turning lane on this approach would minimize the impact of turning vehicles on through traffic along the highway.

Should you have any questions or require additional information, please contact Mr. Pete Pascua or myself at 946-2277.

Sincerely,



Cathy Leong, P.E.

**APPENDIX
CAPACITY ANALYSES CALCULATIONS
ALTERNATE SCENARIO**

TWO-WAY STOP CONTROL SUMMARY

Analyst: c1
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: AM Peak Period
 Intersection: Alanui Dr/Lower Kula Rd
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Alanui Dr
 North/South Street: Lower Kula Rd
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Northbound			Southbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume	1	132	0	1	56	1
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.50	0.50	0.50
Hourly Flow Rate, HFR	1	178	0	2	112	2
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?	No			No		

Minor Street: Approach Movement	Westbound			Eastbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	0	0	0	12	0	0
Peak Hour Factor, PHF	1.00	1.00	1.00	0.60	0.60	0.60
Hourly Flow Rate, HFR	0	0	0	19	0	0
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)	0			0		
Flared Approach: Exists?/Storage	No			/		
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		

Delay, Queue Length, and Level of Service

Approach Movement Lane Config	NB	SB	Westbound			Eastbound		
	1 LTR	4 LTR	7 LTR	8 LTR	9 LTR	10 LTR	11 LTR	12 LTR
v (vph)	1	2	0			19		
C(m) (vph)	1475	1398				654		
v/c	0.00	0.00				0.03		
95% queue length	0.00	0.00				0.09		
Control Delay	7.4	7.6				10.7		
LOS	A	A				B		
Approach Delay							10.7	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: PM Peak Period
 Intersection: Alanui Dr/Lower Kula Rd
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Alanui Dr
 North/South Street: Lower Kula Rd
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		0	117	3	14	156	10
Peak-Hour Factor, PHF		0.69	0.69	0.69	0.84	0.84	0.84
Hourly Flow Rate, HFR		0	169	4	16	185	11
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		7	0	13	3	0	1
Peak Hour Factor, PHF		0.71	0.71	0.71	0.33	0.33	0.33
Hourly Flow Rate, HFR		9	0	18	9	0	3
Percent Heavy Vehicles		2	2	2	2	2	2
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage		No			/ No /		
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		

Delay, Queue Length, and Level of Service

Approach Movement	NB 1	SB 4	Westbound			Eastbound		
			7 LTR	8 LTR	9 LTR	10 LTR	11 LTR	12
Lane Config								
v (vph)	0	16	27			12		
C(m) (vph)	1377	1404	734			596		
v/c	0.00	0.01	0.04			0.02		
95% queue length	0.00	0.03	0.11			0.06		
Control Delay	7.6	7.6	10.1			11.2		
LOS	A	A	B			B		
Approach Delay			10.1			11.2		
Approach LOS			B			B		

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: AM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (North)
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Lower Kula Rd (North)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		560	9		102	382	
Peak-Hour Factor, PHF		0.90	0.90		0.77	0.77	
Hourly Flow Rate, HFR		622	10		132	496	
Percent Heavy Vehicles		--	--		2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR		LT		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		13		152			
Peak Hour Factor, PHF		0.84		0.84			
Hourly Flow Rate, HFR		15		180			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		/
Lanes		1		1			
Configuration		L		R			

Delay, Queue Length, and Level of Service

Approach Movement	NB	SB	Westbound			Eastbound				
			1	4	7	8	9	10	11	12
Lane Config		LT		L		R				
v (vph)		132		15		180				
C(m) (vph)		951		200		484				
v/c		0.14		0.08		0.37				
95% queue length		0.48		0.24		1.76				
Control Delay		9.4		24.5		16.8				
LOS		A		C		C				
Approach Delay					17.4					
Approach LOS					C					

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: PM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (North)
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Lower Kula Rd (North)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Northbound			Southbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume		373	11	157	384	
Peak-Hour Factor, PHF		0.86	0.86	0.90	0.90	
Hourly Flow Rate, HFR		433	12	174	426	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street: Approach Movement	Westbound			Eastbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	7		107			
Peak Hour Factor, PHF	0.82		0.82			
Hourly Flow Rate, HFR	8		130			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage				/		
Lanes	1		1			
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach Movement	NB	SB	Westbound			Eastbound		
	1	4	7	8	9	10	11	12
Lane Config		LT	L		R			
v (vph)		174	8		130			
C(m) (vph)		1115	237		618			
v/c		0.16	0.03		0.21			
95% queue length		0.55	0.10		0.80			
Control Delay		8.8	20.7		12.4			
LOS		A	C		B			
Approach Delay				12.9				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.21

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

Phone: (808) 946-2277
 E-Mail:

Fax: (808) 946-2253

ALL-WAY STOP CONTROL (AWSC) ANALYSIS

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: AM Peak Period
 Intersection: Copp Rd/Lower Kula Rd
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year:
 Project ID: Alternate Scenario
 East/West Street: Copp Rd
 North/South Street: Lower Kula Rd

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	29	21	5	5	78	19	14	11	2	8	10	21
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.69		0.80		0.61		0.79	
Flow Rate	79		126		43		48	
% Heavy Veh	2		2		2		2	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	1.00 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	79		126		43		48	
Left-Turn	42		6		22		10	
Right-Turn	7		23		3		26	
Prop. Left-Turns	0.5		0.0		0.5		0.2	
Prop. Right-Turns	0.1		0.2		0.1		0.5	

Prop. Heavy Vehicle	0.0	0.0	0.0	0.0
Geometry Group	1	1	1	1
Adjustments Exhibit 17-33:				
hLT-adj	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7
hadj, computed	0.1	-0.1	0.1	-0.2

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	79		126		43		48	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.07		0.11		0.04		0.04	
hd, final value	4.32		4.13		4.50		4.15	
x, final value	0.09		0.14		0.05		0.06	
Move-up time, m		2.0		2.0		2.0		2.0
Service Time	2.3		2.1		2.5		2.2	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	79		126		43		48	
Service Time	2.3		2.1		2.5		2.2	
Utilization, x	0.09		0.14		0.05		0.06	
Dep. headway, hd	4.32		4.13		4.50		4.15	
Capacity	329		376		293		298	
Delay	7.78		7.82		7.76		7.40	
LOS	A		A		A		A	
Approach:								
Delay		7.78		7.82		7.76		7.40
LOS		A		A		A		A
Intersection Delay	7.73							
Intersection LOS					A			

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Wilson Okamoto Corporation
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E-Mail:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: PM Peak Period
 Intersection: Copp Rd/Lower Kula Rd
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Copp Rd
 North/South Street: Lower Kula Rd

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	28	37	18	2	28	21	10	14	5	24	23	18
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.94		0.85		0.91		0.75	
Flow Rate	87		58		30		86	
% Heavy Veh	2		2		2		2	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	1.00 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	87		58		30		86	
Left-Turn	29		2		10		32	
Right-Turn	19		24		5		24	
Prop. Left-Turns	0.3		0.0		0.3		0.4	
Prop. Right-Turns	0.2		0.4		0.2		0.3	

Prop. Heavy Vehicle	0.0	0.0	0.0	0.0
Geometry Group	1	1	1	1
Adjustments Exhibit 17-33:				
hLT-adj	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7
hadj, computed	-0.0	-0.2	0.0	-0.1

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	87		58		30		86	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.08		0.05		0.03		0.08	
hd, final value	4.19		4.04		4.31		4.19	
x, final value	0.10		0.07		0.04		0.10	
Move-up time, m		2.0		2.0		2.0		2.0
Service Time	2.2		2.0		2.3		2.2	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	87		58		30		86	
Service Time	2.2		2.0		2.3		2.2	
Utilization, x	0.10		0.07		0.04		0.10	
Dep. headway, hd	4.19		4.04		4.31		4.19	
Capacity	337		308		280		336	
Delay	7.66		7.32		7.47		7.66	
LOS	A		A		A		A	
Approach:								
Delay		7.66		7.32		7.47		7.66
LOS		A		A		A		A
Intersection Delay	7.56				Intersection LOS	A		

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TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: AM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (South)
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Lower Kula Rd (South)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume			309	1	9	170	
Peak-Hour Factor, PHF			0.83	0.83	0.66	0.66	
Hourly Flow Rate, HFR			372	1	13	257	
Percent Heavy Vehicles			--	--	2	--	--
Median Type/Storage			Undivided			/	
RT Channelized?							
Lanes			1	0	0	1	
Configuration			TR		LT		
Upstream Signal?			No		No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		2		8			
Peak Hour Factor, PHF		0.75		0.75			
Hourly Flow Rate, HFR		2		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	NB	SB	Westbound			Eastbound		
			7	8	9	10	11	12
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		13		12				
C(m) (vph)		1185		614				
v/c		0.01		0.02				
95% queue length		0.03		0.06				
Control Delay		8.1		11.0				
LOS		A		B				
Approach Delay				11.0				
Approach LOS				B				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: PM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (South)
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year:
 Project ID: Alternate Scenario
 East/West Street: Lower Kula Rd (South)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		261	4	9	234		
Peak-Hour Factor, PHF		0.92	0.92	0.93	0.93		
Hourly Flow Rate, HFR		283	4	9	251		
Percent Heavy Vehicles		--	--	2	--	--	
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR		LT		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		7		5			
Peak Hour Factor, PHF		0.61		0.61			
Hourly Flow Rate, HFR		11		8			
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	NB 1	SB 4	Westbound			Eastbound		
			7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		9		19				
C(m) (vph)		1275		575				
v/c		0.01		0.03				
95% queue length		0.02		0.10				
Control Delay		7.8		11.5				
LOS		A		B				
Approach Delay				11.5				
Approach LOS				B				



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 Kula Ridge Residential Workforce Housing Subdivision, Kula, Maui, TMK: (2) 2-3-001:174

The Department of Education (DOE) has reviewed the DEA for the proposed Kula Ridge Residential Workforce Housing Subdivision. We have the following comments:

Please update your figures to reflect the following 2007 update of capacity and projected enrollments at DOE schools. Our capacity and future projection numbers have changed since the data last provided to you.

	ACTUAL ENROLLMENT	CAPACITY	PROJECTED ENROLLMENT				
	2007-2008		2006 -2007	2008-09	2009-10	2010-11	2011-12
Kula Elementary	455	588	421	414	408	405	401
Kalama Intermediate	894	1118	881	877	873	871	868
Kekaulike High	1354	1288	1262	1197	1158	1143	1117

The 2007 Legislature passed a bill establishing school impact fees. The bill became Act 245 and is in the process of being implemented. We currently do not know whether this area will be in an impact district or the amount of the fee per residential unit. If the project falls within an impact district, the DOE will meet 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

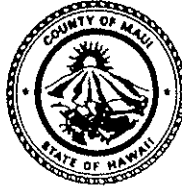
PH:jmb

- c: Randolph Moore, Assistant Superintendent, OSFSS
- Duane Kashiwai, Public Works Administrator, FDB
- Bruce Anderson, CAS, Baldwin/King Kekaulike/Maui High Complex Areas
- Rowena Dagdag, Munekiyo & Hiraga, Inc.

Attachment B

APR 14 2008

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 Nakoa Street, Unit 2, Wailuku, Hawaii 96793

April 9, 2008

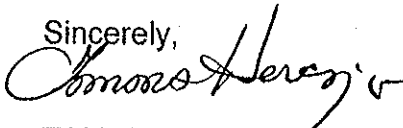
Vanessa Medeiros, Director
Department of Housing and Human Concerns
200 South High Street, Suite 400
Wailuku, Hawaii 96793

SUBJECT: Draft Environmental Assessment and Preliminary Section 201H-38, Hawaii Revised Statutes (HRS) Application for Proposed Kula Ridge Residential Workforce Housing Subdivision, Kula, Maui, Hawai'i TMK (2)2-3-001:174

Dear Ms. Medeiros:

The Department of Parks and Recreation is currently working with the developer to build a portion of the new access road adjacent to the Kula Community Center Tennis Complex. The work will be done in conjunction with the Kula Tennis Complex expansion project. Improvements to the access road will allow for staging and construction activity to occur for the tennis court expansion. The developer has been extremely cooperative with Parks efforts to improve the tennis facility. We will continue to work with the developer to ensure that there are no impacts to the Tennis Complex and Community Center.

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

Sincerely,

TAMARA HORCAJO
Director

cc: Rowena Dagdag, Munekiyo & Hiraga, Inc.
Patrick Matsui, Chief of Parks Planning & Development

Attachment C

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XII. REFERENCES

XII. REFERENCES

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County of Maui, Makawao-Pukalani-Kula Community Plan, July 23, 1996.

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APPENDICES

APPENDIX A.

Preliminary Construction Specifications for Affordable Units

Proposed Construction

DESCRIPTION OF MATERIALS

No. _____
(To be inserted by Agency)

Under Construction

Property address Lower Kula Road City Kula State HI

Mortgagor or Sponsor _____
(Name) (Address)

Contractor or Builder Architectural Design & Construction, Inc. 1849 Willi Pa Loop Wailuku, HI 96793
(Name) (Address)

INSTRUCTIONS

- For additional information on how this form is to be submitted, number of copies, etc., see the instructions applicable to the FHA Application for Mortgage Insurance, VA Request for Determination of Reasonable Value or other, as the case may be.
- Describe all materials and equipment to be used, whether or not shown on the drawings, by marking an X in each appropriate check-box and entering the information called for in each space. If space is inadequate enter "See misc," and describe under item 27 or on an attached sheet. THE USE OF PAINT CONTAINING MORE THAN THE PERCENT OF LEAD BY WEIGHT PERMITTED BYLAW IS PROHIBITED.
- Work not specifically described or shown will not be considered unless required, then the minimum acceptable will be assumed. Work exceeding minimum requirements cannot be considered unless specifically described.
- Include no alternatives, "or equal" phrases, or contradictory items. (Consideration of a request for acceptance of substitute materials or equipment is not thereby precluded.)
- Include signatures required at the end of this form.
- The construction shall be completed in compliance with the related drawings and specifications, as amended during processing. The specifications include this Description of Materials and the applicable building code.

1. EXCAVATION:
Bearing soil, type _____

2. FOUNDATIONS:
Footings: concrete mix Type I or II ASTM C-150; strength psi 3000 Reinforcing #4, see structural details
Foundation wall: material Concrete, Type I or II ASTM C-150 Reinforcing #4, see structural details
Interior foundation wall: material Concrete, Type I or II Party foundation wall _____
Columns: material and sizes 6x6 Douglas Fir, No. 1 Piers: material and reinforcing 12x12 CMU, Fully Grouted
Girders: material and sizes 4x12 Douglas Fir, No. 1 Sills: material NA
Basement entrance arcaaway NA Window arcaaways NA
Waterproofing NA Footing drains NA
Termite protection Termimesh Stainless Steel Mesh
Basementless space: ground cover NA; insulation NA; foundation vents NA
Special foundations NA

3. CHIMNEYS:
Material _____ Prefabricated (make and size) _____
Flue lining: material _____ Heater flue size _____ Fireplace flue size _____
Vents (material and size): gas or oil heater _____; water heater _____
Additional information: _____

4. FIREPLACES:
Type: solid fuel; gas-burning; circulator (make and size) _____ Ash dump and clean-out _____
Fireplace: Facing _____; lining _____; hearth _____; mantel _____
Additional information: _____

5. EXTERIOR WALLS:
Wood frame: wood grade, and species 2x Douglas Fir, No. 1 Corner bracing. Building paper or felt Kraft or Bituminous
sheathing Structural II; thickness 1/2"; width 48" solid; space _____ o.c.; diagonal;
Siding Fiber cement Lap; grade II; type A; size 12'; exposure 6"; fastening HDC nails
Shingles Fiber cement; grade II; type A; size 4'; exposure 7"; fastening HDC nails
Stucco Glass Mat Gyp.; thickness 5/8"; Lath Synthetic plaster finish, weight _____ lb.
Masonry veneer _____ Sills _____ Lintels _____ Base flashing _____
Masonry: solid faced stuccoed; total wall thickness _____; facing thickness _____; facing material _____
Backup material _____; thickness _____; bonding _____
Door sills _____ Window sills _____ Lintels _____ Base flashing _____
Interior surfaces: dampproofing, _____ coats of _____; furring _____
Additional information: _____
Exterior painting: material Acrylic latex; number of coats 2
Gable wall construction: same as main walls; other construction _____

6. FLOOR FRAMING:
Joists: wood, grade, and species Doug. fir No. 4; other _____; bridging Solid; anchors HDC Simpson
Concrete slab: basement floor; first floor; ground supported; self-supporting; mix Type I or II; thickness 4"
reinforcing 6x6 10/10 WWM; insulation _____; membrane 10 Mil vapor barrier
Fill under slab: material TBD; thickness _____; Additional information: _____

7. SUBFLOORING: (Describe underflooring for special floors under item 21.)
Material: grade and species Structural I plywd with P.I. Index of 48/24, size 3/4", type T&G
Laid: first floor; second floor attic _____ sq. ft.; diagonal; right angles. Additional information: Glued & Nailed

8. FINISH FLOORING: (Wood only. Describe other finish flooring under item 21.)

LOCATION	ROOMS	GRADE	SPECIES	THICK- NESS	WIDTH	BLOG.PAPER	FINISH
First floor							
Second floor							
Attic floor							

Additional information: _____

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0575-0042. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching, gathering data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

9. PARTITION FRAMING:
 Studs: wood, grade, and species Douglas Fir No. 1 size and spacing 2x4 @ 16" oc Other 2x4 @ 24" oc where occur

Additional information: _____

10. CEILING FRAMING:
 Joists: wood, grade, and species Douglas Fir No. 1 Other _____ Bridging 2x4

Additional information: Wood truss bottom chord for ceiling framing

11. ROOF FRAMING:
 Rafters: wood, grade, and species _____ Roof trusses (see detail): grade and species Douglas Fir No. 1

Additional information: _____

12. ROOFING:
 Sheathing: wood, grade, and species 5/8" Structural I P.I. Index 40/20 solid spaced _____ o.c.

Roofing Asphalt Shingle; grade _____; size 12" x 36"; type ASTM D 3018, Type 1

Underlay Single layer of shingle underlayment; weight or thickness 30 lb; size 3' wide; fastening HDG staples

Built-up roofing _____; number of plies _____; surface material _____

Flashing: material copper; gage or weight 16 oz. gravel stops; snow guards

Additional information: drip edge

13. GUTTERS AND DOWNSPOUTS:

Gutters: material _____; gage or weight _____; size _____; shape _____

Downspouts: material _____; gage or weight _____; size _____; shape _____; number _____

Downspouts connected to: Storm sewer; sanitary sewer; dry-well. Splash blocks: material and size _____

Additional information: _____

14. LATH AND PLASTER:

Lath walls, ceilings: material _____; weight or thickness _____ Plaster: coats _____; finish _____

Dry-wall walls, ceilings: material Gyp. bd.; thickness 1/2"; finish Light orange peel

Joint treatment Taped and sanded

15. DECORATING: (Paint, wallpaper, etc.)

ROOMS	WALL FINISH MATERIAL AND APPLICATION	CEILING FINISH MATERIAL AND APPLICATION
Kitchen	Interior Latex Flat Enamel	Interior Latex Flat Enamel
Bath	Interior Latex Flat Enamel	Interior Latex Flat Enamel
Other <u>Liv, Bedr</u>	Interior Latex Flat	Interior Latex Flat

Additional information: _____

16. INTERIOR DOORS AND TRIM:

Doors: type Hollow Core; material Hardboard; thickness 1 3/8"

Door trim: type 1x3 S2S; material Poplar Base: type S2S; material Poplar; size 1/2"x5 1/2"

Finish: doors Alkyd Semi-Gloss; trim Alkyd Semi-Gloss

Other trim (item, Type and location) _____

Additional information: _____

17. WINDOWS:

Windows: type Horiz. Slidg; make Alpine or Milgard; material Vinyl; sash thickness 2.75"

Glass: grade Class A sash weights; balances, type _____; head flashing 25 Mil. Tape

Trim: type Exterior 1x4; material Douglas Fir Paint Latex Semi-Gloss; number coats 2

Weatherstripping: type Fin Seal; material Rubber Storm sash, number _____

Screens: full; half, type Metal Frame; number _____; screen cloth material Fiberglass

Basement windows: type _____; material _____; screens, number _____; Storm sash, number _____

Special windows _____

Additional information: _____

18. ENTRANCES AND EXTERIOR DETAIL:

Main entrance door: material Douglas Fir; width 3'-0"; thickness 1 3/4" Frame: material Douglas Fir; thickness 3/4"

Other entrance doors: material Douglas Fir; width 3'-0"; thickness 1 3/4" Frame: material Douglas Fir; thickness 3/4"

Head flashing _____ Weatherstripping: type _____; saddles _____

Screen doors: thickness _____; number _____; screen cloth material _____ Storm doors: thickness _____; number _____

Combination storm and screen doors: thickness _____; number _____; screen cloth material _____

Shutters: hinged; fixed. Railings wood balusters, 2x2; Attic louvers _____

Exterior millwork: grade and species Douglas Fir, Select Merchant Paint Latex Semi-Gloss; number coats 2

Additional information: _____

19. CABINETS AND INTERIOR DETAIL:

Kitchen cabinets, wall units: material Plywood; lineal feet of shelves TBD; shelf width _____

Base units: material Plywood; counter top Laminate; edging Laminate

Back and end splash Laminate Finish of cabinets Factory stain finish; number coats 2

Medicine cabinets: make NA; model _____

Other cabinets and built-in furniture _____

Additional information: _____

20. STAIRS:

STAIR	TREADS		RISERS		STRINGS		HANDRAIL		BALUSTERS	
	Material	Thickness	Material	Thickness	Material	Thickness	Material	Thickness	Material	Thickness
Basement										
Main	<u>Doug. Fir</u>	<u>2x12</u>	-	-	<u>Doug. Fir</u>	<u>4x12</u>	<u>Doug. Fir</u>	<u>1 1/2" d</u>	<u>Doug. Fir</u>	<u>2x2</u>
Attic										

Disappearing: make and model number _____

Additional information: _____

21. SPECIAL FLOORS AND WAINSCOT: (Describe carpet as listed in Certified Products Directory.)

Floors		Location	Material, Color, Border, Sizes, Gage, Etc.	Threshold Material	Wall Base Material	Underfloor Material
Floors	Kitchen		Resilient Flooring		Poplar	Plywd.
	Bath		Resilient Flooring		Poplar	Plywd.
			Carpet		Poplar	Plywd.
Wainscot		Location	Material, Color, Border, Sizes, Gage, Etc.	Height	Height Over Tub	Height in Showers (From Floor)
Wainscot	Bath					

Bathroom accessories: Recessed; material _____; number _____; Attached; material Chrome _____; number _____
 Additional information: _____

22. PLUMBING

Fixture	Number	Location	Make	Mfr's Fixture Identification No.	Size	Color
Sink	1	Kitchen	Kohler Cadence	K-3145-4	33x22	Stainless
Lavatory	2	Baths	Sterling	65020140	19" round	White
Water closet	2	Baths	Sterling Windham	402215	29"x16"x29"	White
Bathtub	2	Baths	Sterling Advantage	61030110	60"x30"x72"	White
Shower over tub	2	Baths	Delta Classic Shower	T13420		Chrome
Stall shower						
Laundry trays						

A Curtain rod A Door Shower pan: material _____
 Water supply: public; community system: individual (private) system.*
 Sewage disposal public; community system: individual (private) system.*
 * Show and describe individual system in complete detail in separate drawings and specifications according to requirements.
 House drain (inside): cast iron; tile; other ABS Plastic House sewer (outside): cast iron; tile; other ABS Plastic
 Water piping: galvanized steel; copper tubing; other _____ Still cocks, number _____
 Domestic water heater: type Solar _____; make and model Rheem Solaraide _____; heating capacity 80 gal _____
 _____ gph. 100' rise. Storage tank: material _____; capacity _____ gallons.
 Gas service: utility company; liq. pet. gas; other _____ Gas piping: cooking; house heating.
 Footing drains connected to storm sewer; sanitary sewer; dry well. Sump pump; make and model _____
 _____; capacity _____; discharges into _____

23. HEATING

Hot water. Steam. Vapor. One-pipe system. Two-pipe system.
 Radiators. Convectors. Baseboard radiation. Make and model _____
 Radiant panel: floor; wall; ceiling. Panel coil: material _____
 Circulator. Return pump. Make and model _____; capacity _____ gpm.
 Boiler: make and model _____ Output _____ Btuh.; net rating _____ Btuh.
 Additional information: _____
 Warm air: Gravity. Forced. Type of system _____
 Duct material: supply _____ return _____ Insulation _____; thickness _____ Outside air intake.
 Furnace: make and model _____ Input _____ Btuh.; output _____ Btuh.
 Additional information: _____
 Space heater; floor furnace; wall heater. Input _____ Btuh.; output _____ Btuh.; number units _____
 Make, model _____ Additional information: _____
 Controls: make and types _____
 Additional information: _____
 Fuel: Coal; oil; gas; liq. pet. gas; electric; other _____; storage capacity _____
 Additional information: _____
 Firing equipment furnished separately: Gas burner, conversion type. Stoker: hopper feed bin feed
 Oil burner: pressure atomizing; vaporizing _____
 Make and model _____ Control _____
 Additional information: _____
 Electric heating system: type _____ Input _____ watts; @ _____ volts; output _____ Btuh.
 Additional information: _____
 Ventilating equipment: attic fan, make and model _____, capacity _____ cfm.
 Kitchen exhaust fan, make and model GE Standard Range Hood JV338HBB _____
 Other heating, ventilating, or cooling equipment _____

24. ELECTRIC WIRING:

Service: overhead; underground. Panel: fuse box; circuit-breaker; make 200 AMP's _____ No. circuits _____
 Wiring: conduit; armored cable; nonmetallic cable; knob and tube; other _____
 Special outlets: range; water heater; other _____
 Doorbell. Chimes. Push-button locations. _____ Additional information: _____

25. LIGHTING FIXTURES:

Total number of fixtures ⁹ _____ Total allowance for fixtures, typical installations, \$ 500.00

Nontypical installation _____
 Additional information: _____

26. INSULATION:

Location	Thickness	Material, Type, and Method of Installation	Vapor Barrier
Roof			
Ceiling	6 1/4"	R-19 Fiberglass Batt Insulation	
Wall			Tyvek
Floor			

27. MISCELLANEOUS: (Describe any main dwelling materials, equipment, or construction items not shown elsewhere; or use to provide additional information where the space provided was inadequate. Always reference by item number to correspond to numbering used on this form.)

HARDWARE: (make, material, and finish.) Schlage Avanti 625 Bright Chrome Door Hardware

SPECIAL EQUIPMENT: (State material or make, model and quantity. Include only equipment and appliances which are acceptable by local law, custom and applicable FHA standards. Do not include items which, by established custom, are supplied by occupant and removed when he vacates premises or chattels prohibited by law from becoming realty.)

PORCHES:

Entry Porch with wood deck or concrete slab

TERRACES:

GARAGES:

5/8" Type "X" Gyp. Bd. @ walls and ceiling
20 min. rated door with closer from garage to dwelling

WALKS AND DRIVEWAYS:

Driveway: width 16'; base material Subgrade; thickness _____; surfacing material Concrete; thickness 4"
Front walk: width _____; material _____; thickness _____; Service walk: width _____; material _____; thickness _____
Steps: material _____; treads _____; risers _____; Check walls _____

OTHER ONSITE IMPROVEMENTS:

(Specify all exterior onsite improvements not described elsewhere, including items such as unusual grading, drainage structures, retaining walls, fence, railings, and accessory structures.)

LANDSCAPING, PLANTING, AND FINISH GRADING:

Topsail _____" thick: front yard; side yards; rear yard to _____ feet behind main building.
Lawns (seeded, sodded, sprigged): front yard _____; side yards _____; rear yard _____
Planting: as specified and shown on drawings; as follows:
_____ Shade trees, deciduous, _____" caliper. _____ Evergreen trees _____, to _____', B & B.
_____ Low flowering trees, deciduous, _____, to _____' _____ Evergreen shrubs _____ to _____', B & B.
_____ High-growing shrubs, deciduous, _____, to _____' _____ Vines, 2-years
_____ Medium-growing shrubs, deciduous, _____, to _____'
_____ Low-growing shrubs, deciduous, _____, to _____'

IDENTIFICATION. This exhibit shall be identified by the signature of the builder, or sponsor, and/or the proposed mortgagor if the latter is known at the time of application.

Date _____ Signature _____
Signature _____

Preliminary Outline Specifications for Kula Ridge Affordable Housing

Kula Ridge will have four Architectural styles within the neighborhood project. The four styles are commonly found within Hawaii's unique cultural and historic heritage:

Plantation Style

The "Plantation" architectural style takes its historical architectural context from old Plantation villages found throughout Hawaii. Front porches were a common design element. Materials proposed to be used with the plantation style will be corrugated metal roofing and board and batten wood siding. T1-11 siding will also be incorporated in some plans.

Bungalow Style

The Bungalow style is another architectural style that is commonly found in many parts of Hawaii. It can also be commonly found in Kula. Gable roofs with front porches were a common element associated with the Bungalow style. Exterior materials proposed with the Bungalow style will be Asphalt shingle roofing and a composite exterior lap siding for durability.

Craftsmen Style

The Craftsmen style is also commonly found architectural style in the Hawaiian Islands as well as in Kula. Gable roofs with detailed porches were common with this style as well as cedar shingle siding. Asphalt shingle roofing is proposed with this style of architecture as well as a composite exterior siding that will have the appearance of real cedar shingle exterior siding.

Contemporary Hawaiian

One of the more popular styles of architecture in Hawaii today can be described as "Contemporary Hawaiian" architecture. Incorporating the front porch or covered lanai, the Contemporary Hawaiian style integrates a double pitched roof as its distinctive characteristic. Exterior plaster for its exterior wall material will be used and concrete tiled roofs will be used on some of the plans to facilitate blending with market priced homes on adjacent lots.

Foundation All of the homes foundations will be either post and pier construction or poured in place concrete slab foundation on grade.

Framing Wall and roof construction will be wood framed construction. A wood framed, panelized system is proposed to be integrated to facilitate faster wall erection. Integration of pre-fabricated wood trusses will facilitate faster roof construction.

Roofing Roofing material will vary according to Architectural character. Roofing materials proposed are corrugated metal roofing, asphalt shingle roofing and concrete tile roofing.

Doors and Windows Exterior windows will be low maintenance, vinyl windows. Door to be solid wood doors at entry door and hollow core at interior doors.

Interior walls Gypsum board over wood framing, taped, sanded, textured and painted.

Flooring Carpet with pad in Bedrooms and sheet vinyl in baths and Kitchen. Upgrades may include wood laminate flooring.

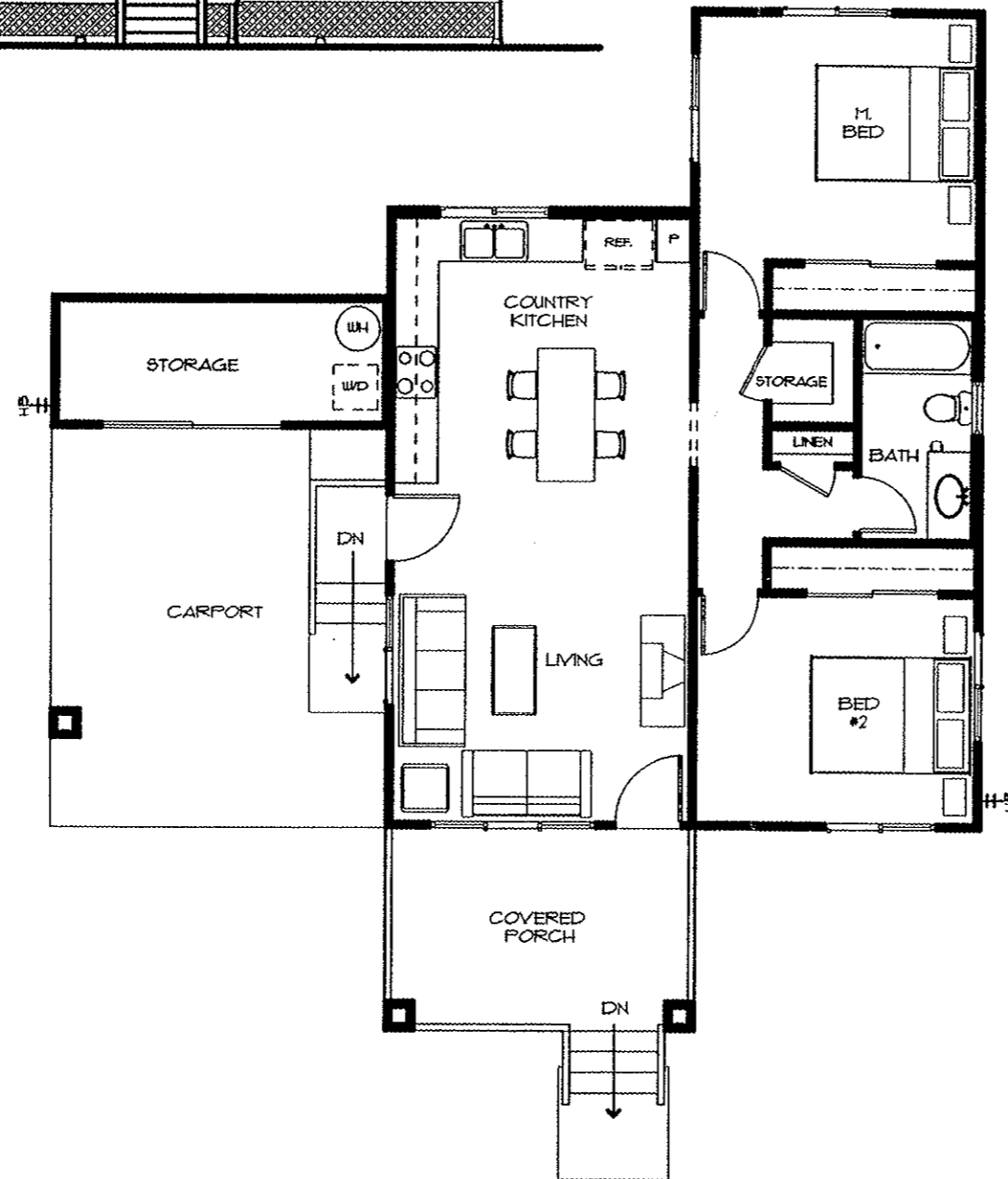
Countertops Plastic laminate. Upgrades may include granite countertops.

Appliances To be selected.

Plumbing fixtures To be selected.

Cabinets To be selected.

*Kula Ridge
Plan A*



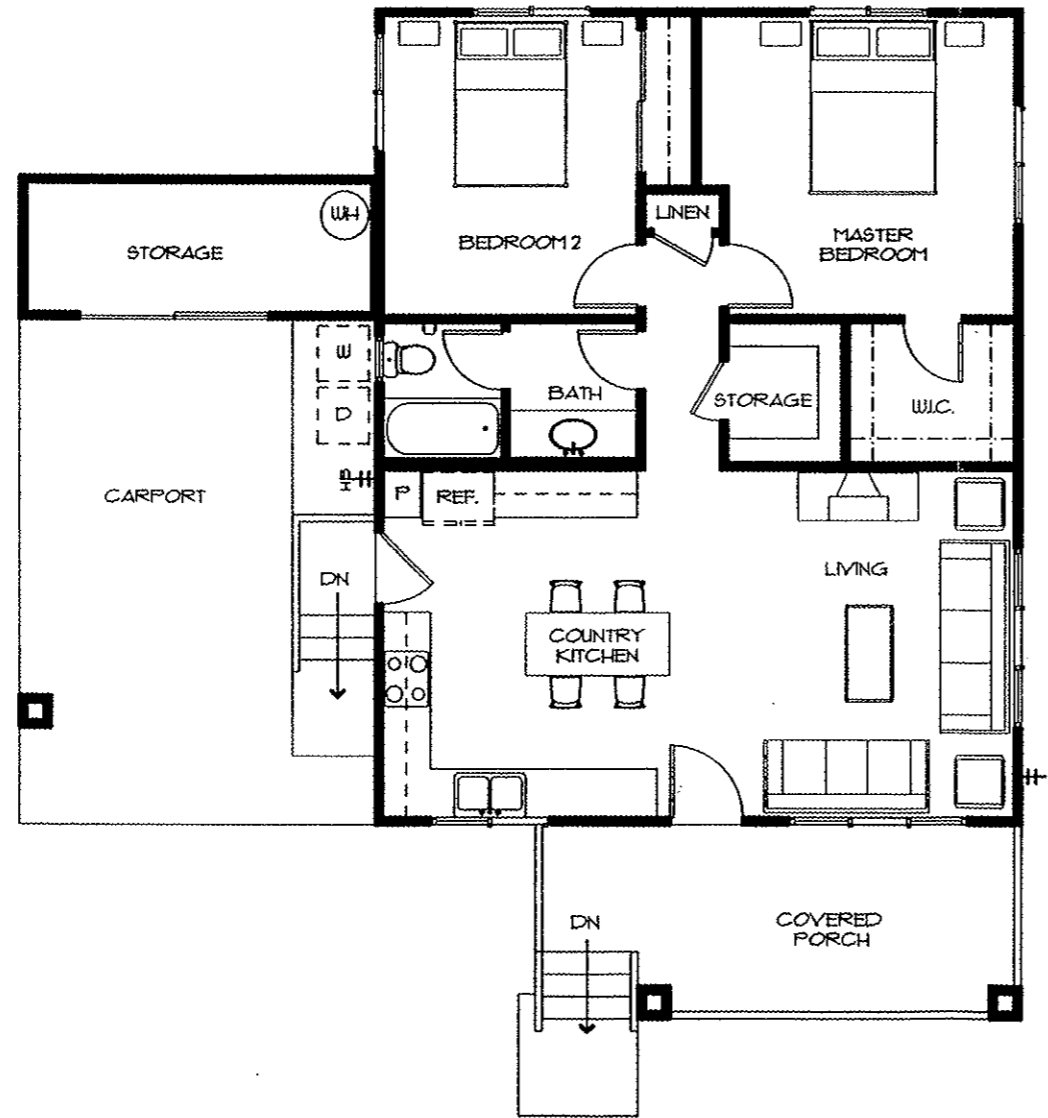
*Living Area: 875 sf
Covered Lanai: 126 sf
Carport: 360 sf*



Architectural Design & Construction, Inc.

1849 Wili Pa Loop · Wailuku, Maui, Hawaii 96793
Telephone: (808) 986-8300 · Fax: (808) 986-8301 · Email: adc@adcmaui.com

*Kula Ridge Affordable Homes
Plan B Post & Pier*



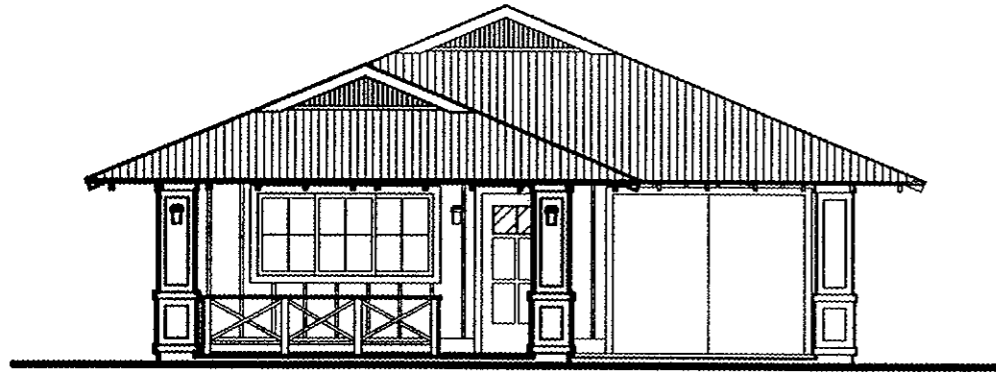
*Living Area: 918 sf
Covered Lanai: 162 sf
Carport: 343 sf*



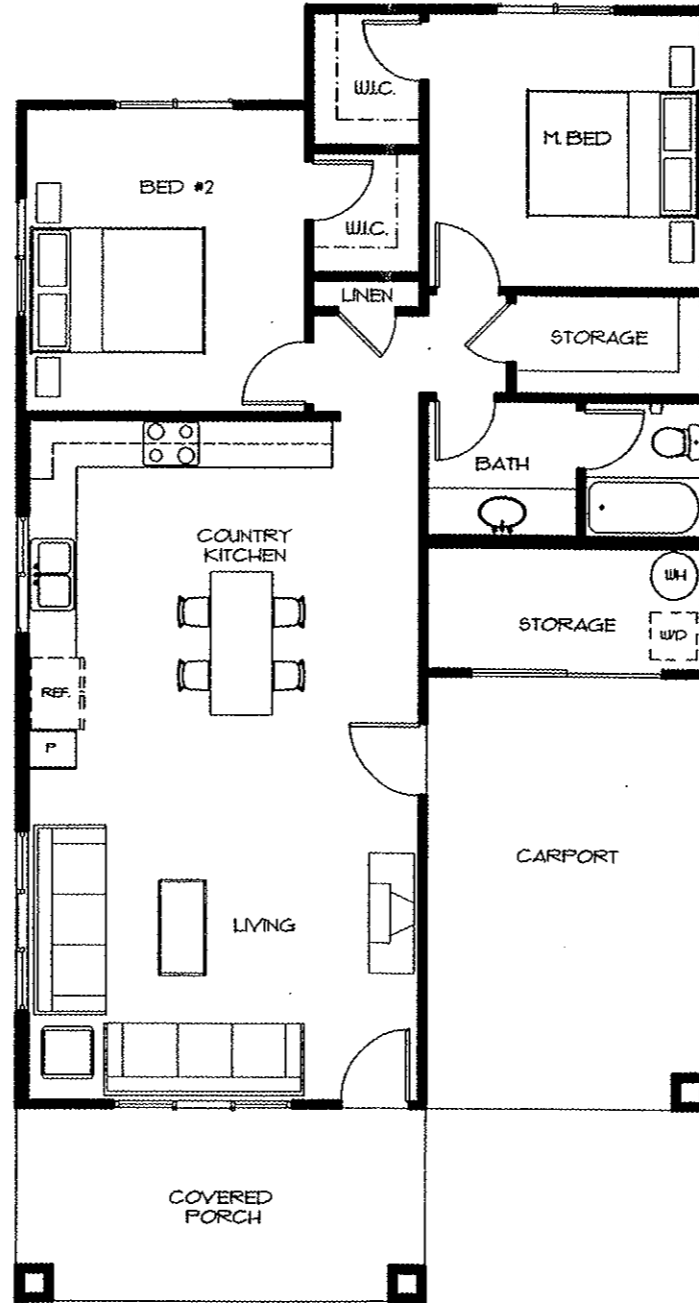
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*Kula Ridge Affordable Homes-
Plan C*



*Living Area: 1,010 sf
Covered Lanai: 137 sf
Carport: 277 sf*



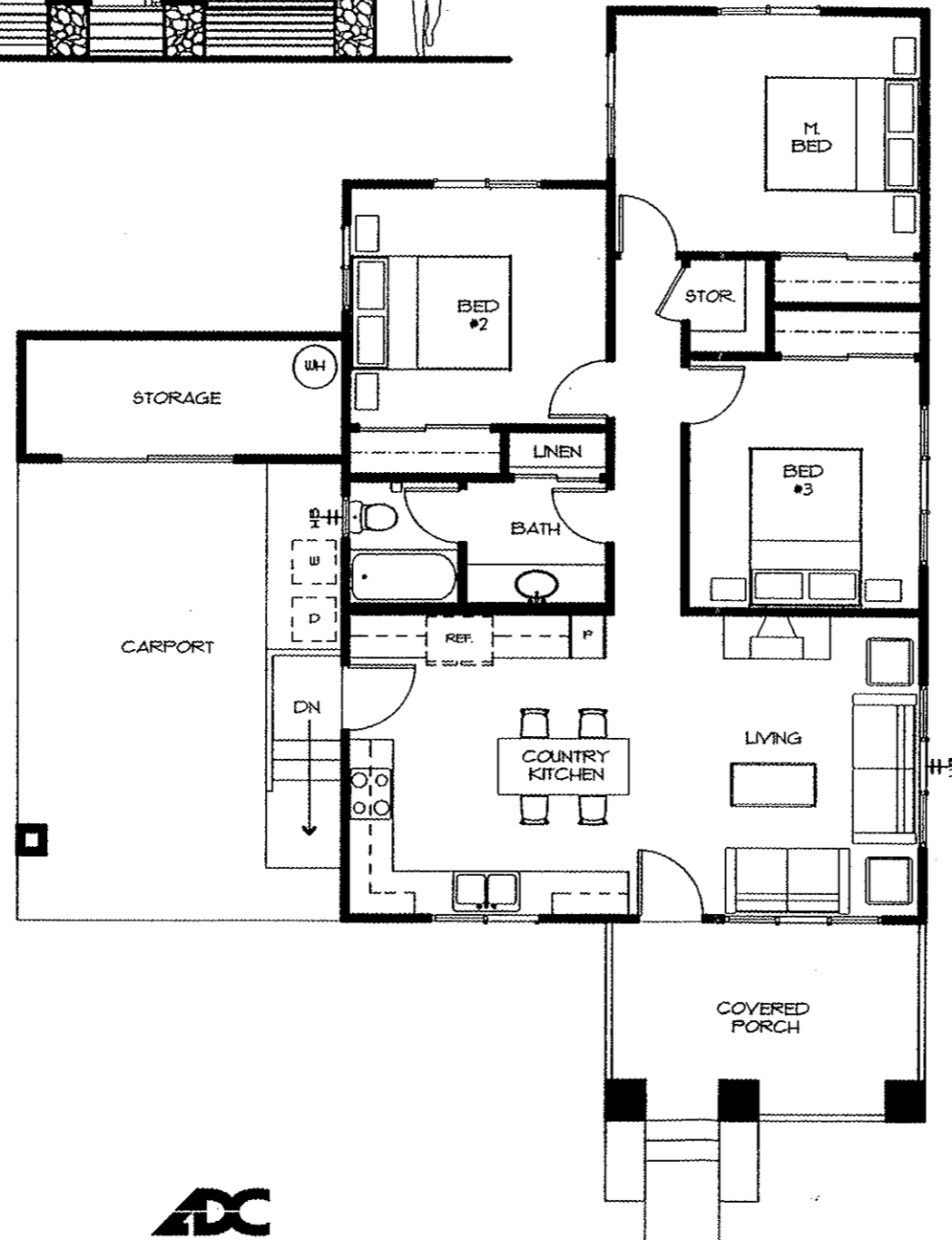
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*Kula Ridge Affordable Homes-
Plan D*



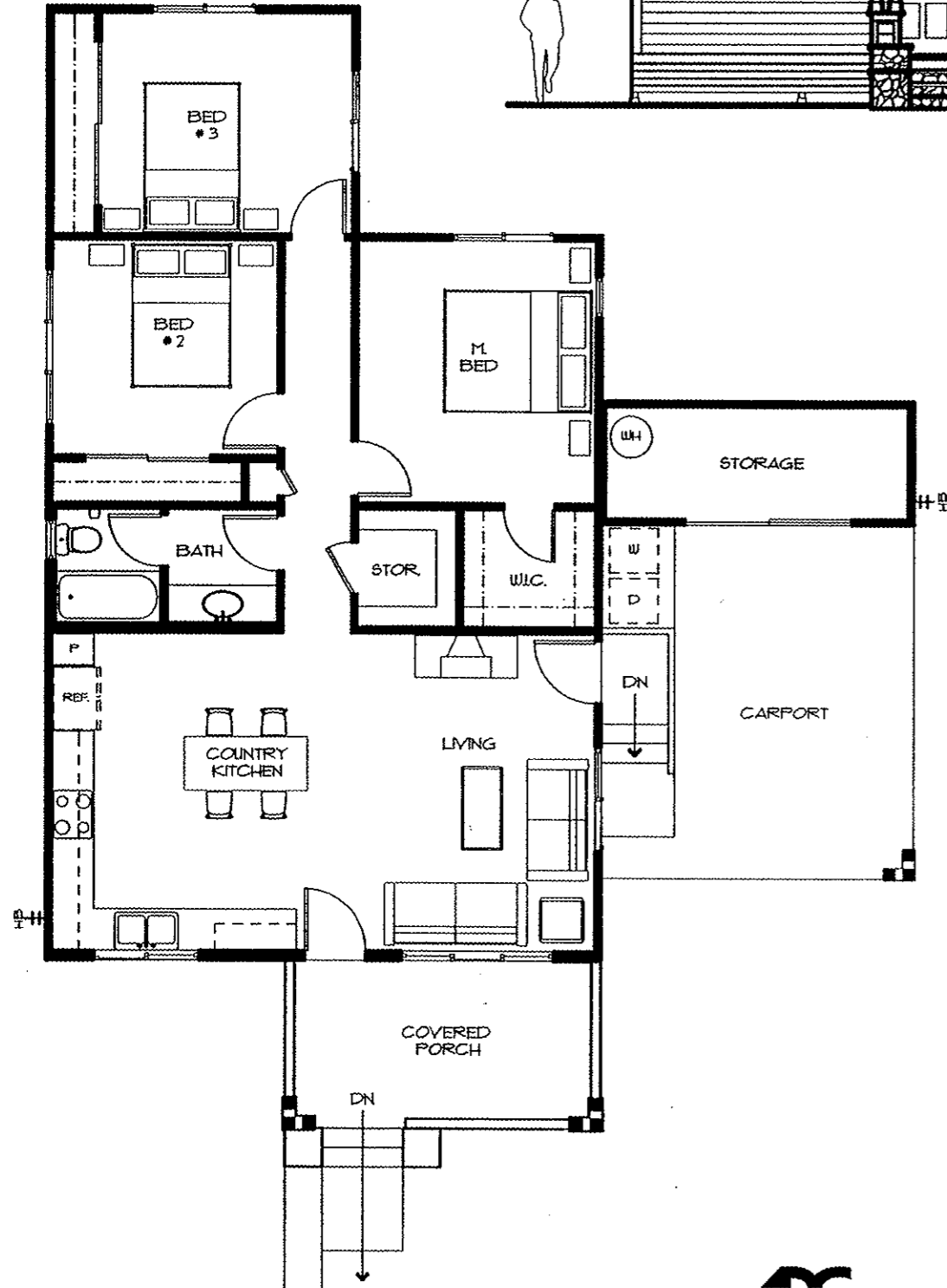
*Living Area: 1,038sf
Covered Lanai: 135 sf
Carport: 360 sf*



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*Kula Ridge
Plan E*



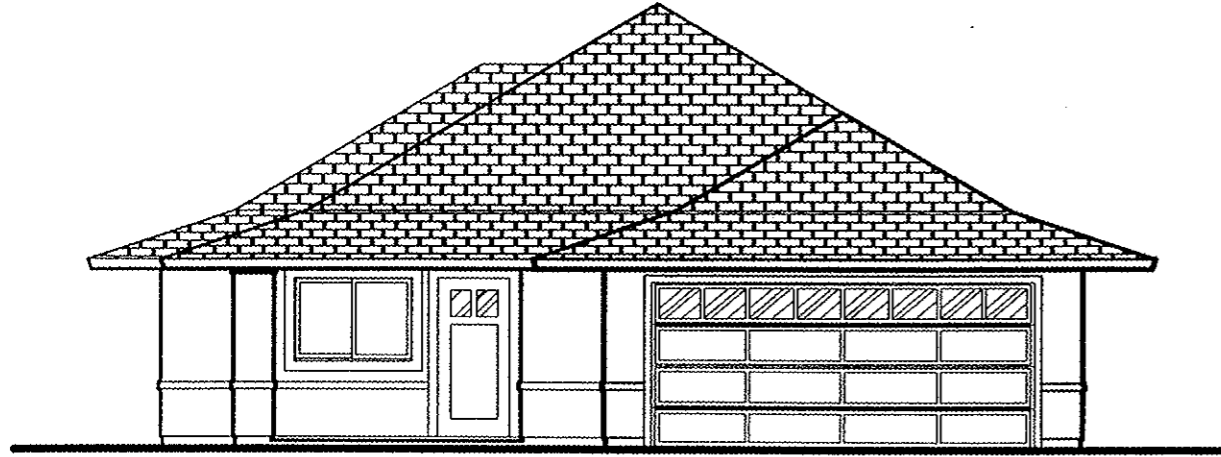
*Living Area: 1,110 sf
Covered Lanai: 124 sf
Carport: 345 sf*



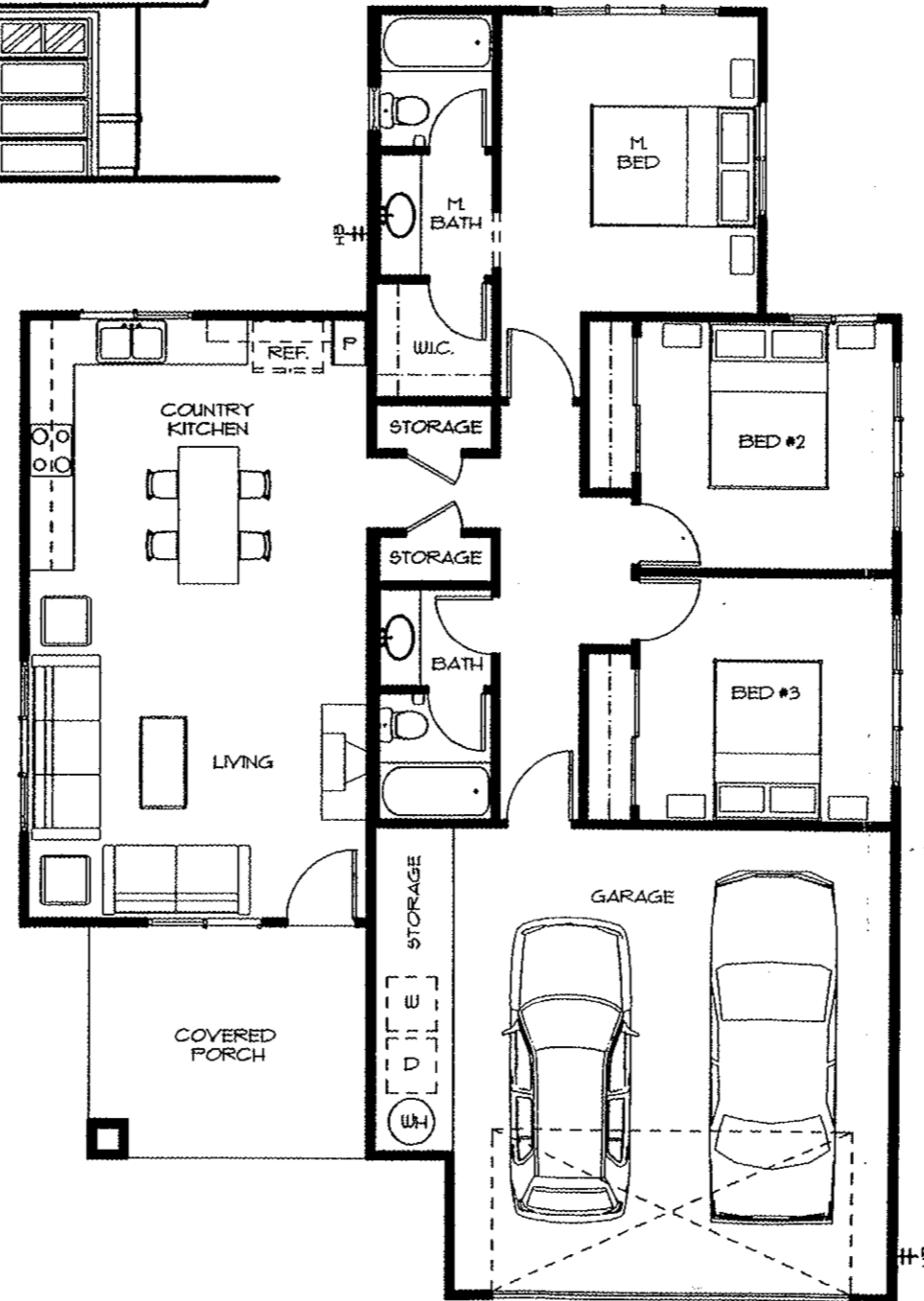
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*Kula Ridge Affordable Homes-
Plan F*



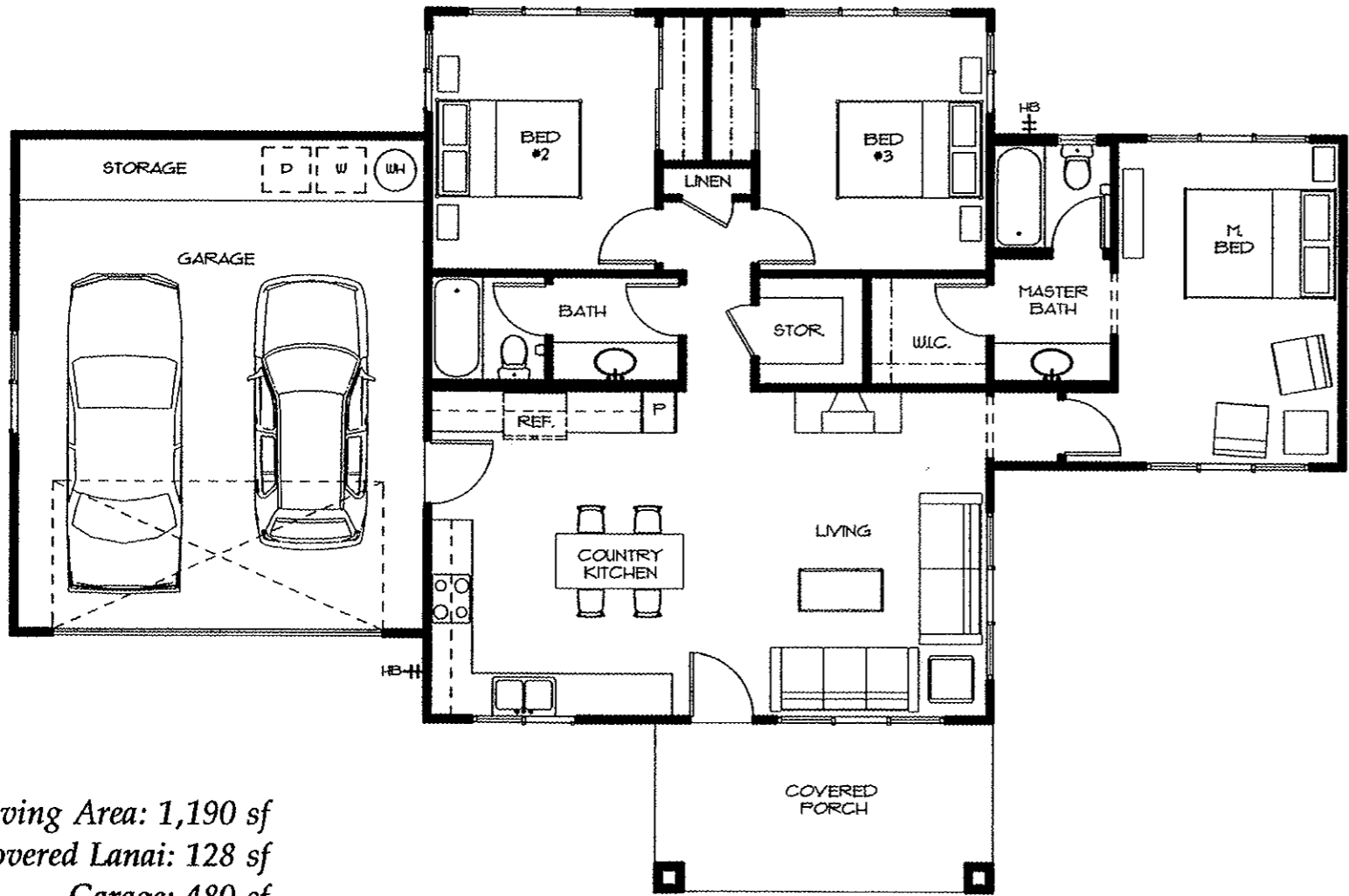
*Living Area: 1157 sf
Covered Lanai: 120 sf
Garage: 457 sf*



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*Kula Ridge Affordable Homes-
Plan G*



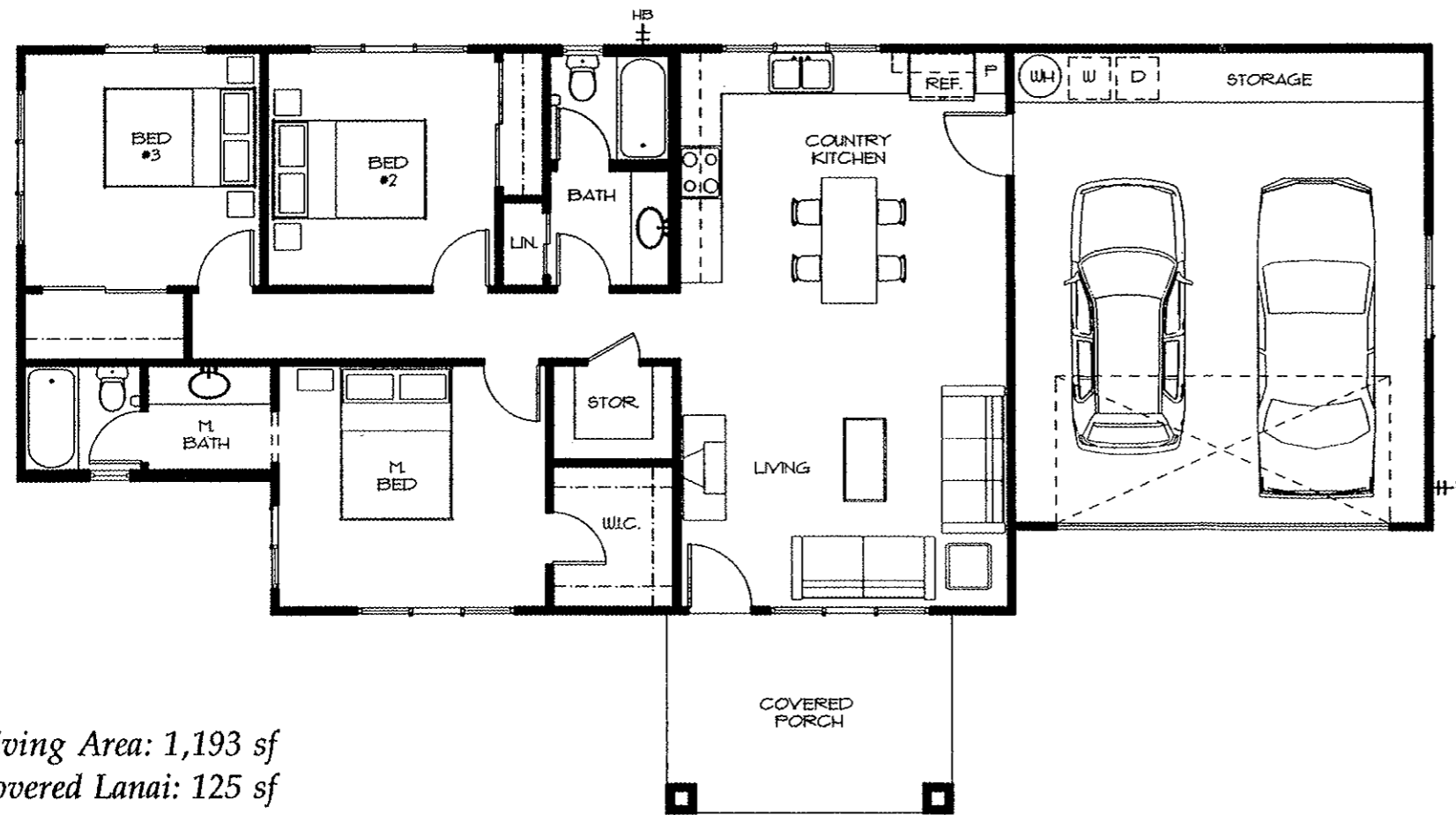
*Living Area: 1,190 sf
Covered Lanai: 128 sf
Garage: 480 sf*



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Telephone: (808) 245-2200 Fax: (808) 245-2201 Email: ad@admaui.com

*Kula Ridge Affordable Homes-
Plan H*



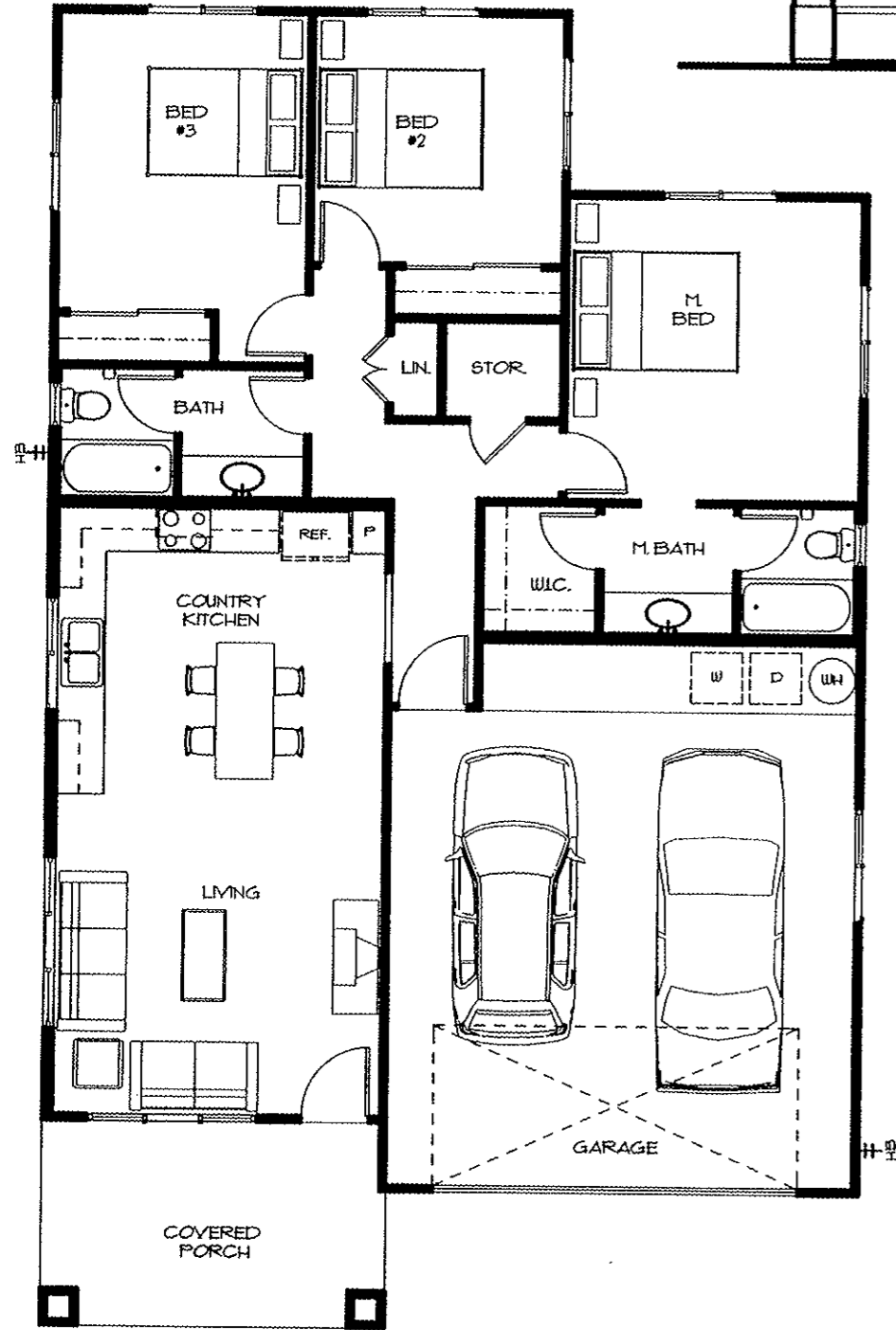
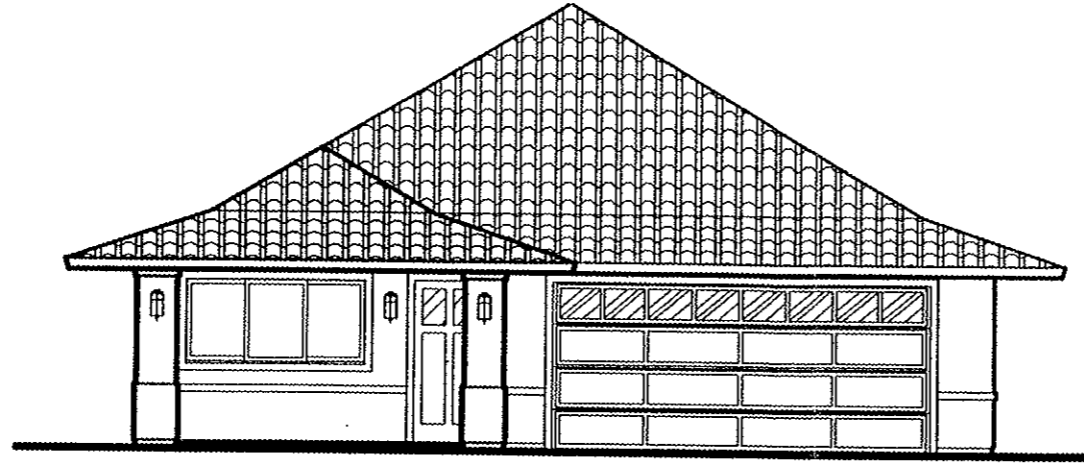
*Living Area: 1,193 sf
Covered Lanai: 125 sf
Garage: 460 sf*



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*Kula Ridge Affordable Homes
Plan J*



*Living Area: 1,227 sf
Covered Lanai: 137 sf
Garage: 490 sf*



Architectural Design & Construction, Inc.

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APPENDIX B.

Proposed Section 201H-38, HRS Exemptions

PROPOSED EXEMPTIONS FOR AFFORDABLE HOUSING SUBDIVISION
PROPOSED SECTION 201H, HRS, EXEMPTIONS
FROM THE MAUI COUNTY CODE ("MCC")

A. EXEMPTION FROM TITLE 2, MCC, ADMINISTRATION AND PERSONNEL

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

B. EXEMPTION FROM TITLE 14, PUBLIC SERVICES

1. Exemption from Chapter 14.12, Water Availability shall be granted to exempt the project from the need to obtain written verification of long term, reliable supply of water.
2. Exemption from Chapter 14.74, Impact Fees for Traffic and Roadway Improvements in Makawao-Pukalani-Kula, Maui, Hawaii, to exempt the project from traffic impact fees should such fees be adopted prior to the issuance of building permits for the project.

C. EXEMPTIONS FROM TITLE 16, MCC, Buildings and Construction

1. 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 fire, electrical, plumbing, building permit fees and demolition permit fees, as well as inspection fees.

D. EXEMPTIONS FROM TITLE 18, MCC, SUBDIVISIONS

1. 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 change in zoning and community plan amendment to enable subdivision approval.
2. An exemption from Section 18.16.320, MCC, Parks and Playgrounds, shall be granted to allow the 3.0 acres of parks within the project to satisfy the park dedication and assessment requirements.
3. An exemption from Section 18.16.050 MCC, Minimum Right-of-way and Pavement Widths, shall be granted to allow 24 ft. right-of-way and 20 ft. pavement widths for private

streets serving not more than four (4) lots in the R-0 zero lot line residential district.

E. EXEMPTIONS FROM TITLE 19, MCC, ZONING

1. An exemption from Chapter 19.02, MCC, Interim District, shall be granted to permit the development and use of the parcel for single-family and rural residential purposes, including supporting infrastructure requirements. Further, this exemption shall allow the subdivision of the property in the plat configuration shown in Attachment "A". The following zoning standards shall apply to the proposed lots:

Affordable Lots

Minimum Lot Size 4,600 square feet
Minimum Lot Width 52 feet
Front Yard Setback 10 feet
Zero Lot Line In conformance with R-0 Standards
Access Yard Setback Line 15 feet

Other Setback
Lines 6 feet at 1-story, 10 feet at 2-story

Market Lots

Minimum Lot Size 6,000 square feet
Minimum Lot Width 60 feet
Front Yard Setback 15 feet
Other Setback
Lines 6 feet at 1-story, 10 feet at 2-story

Height: No building shall exceed 2-story or 30 feet in height from finished grade of the subdivision.

F. EXEMPTIONS FROM TITLE 20, MCC, ENVIRONMENTAL PROTECTION

1. 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.

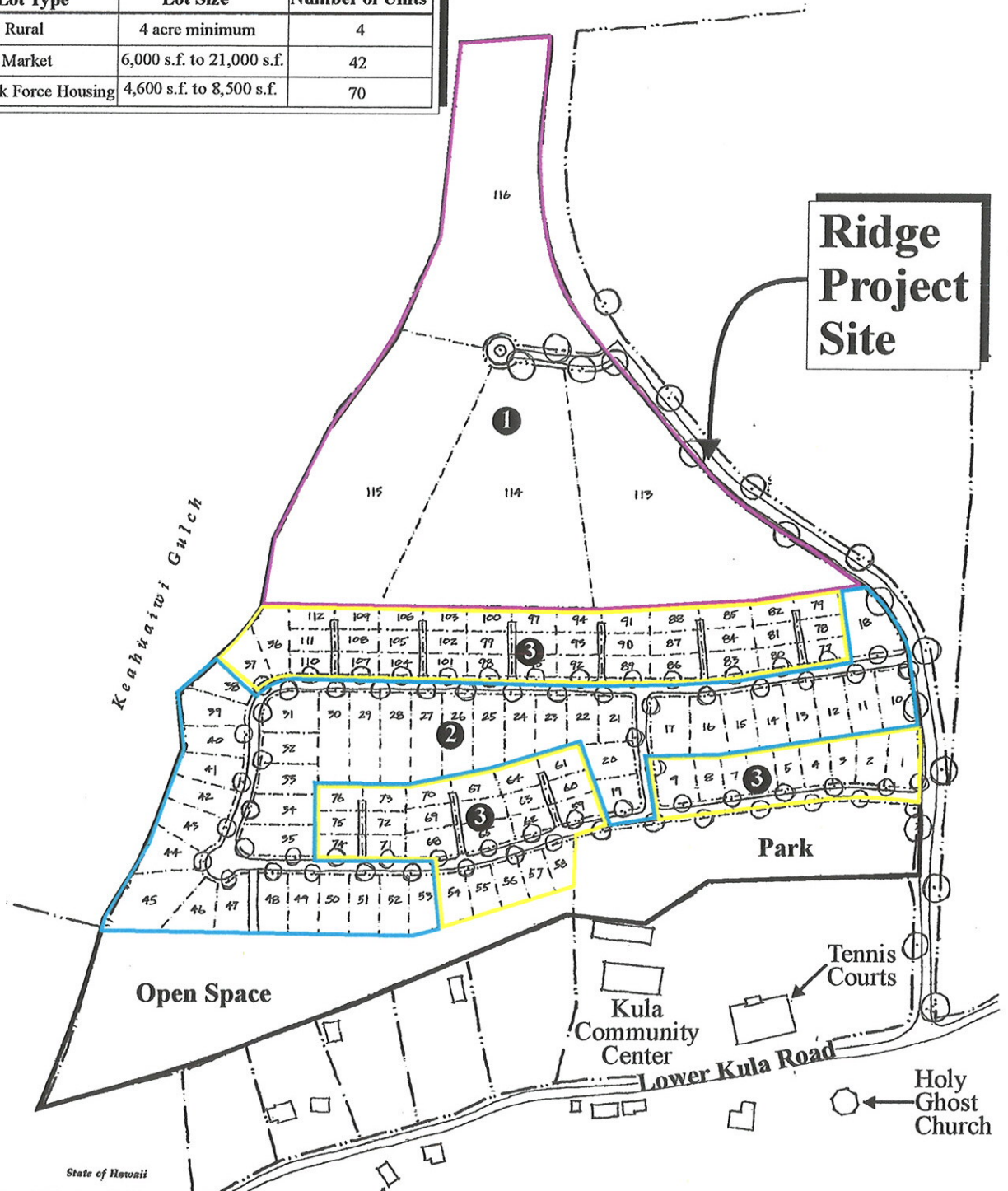
G. EXEMPTIONS FROM HAWAII ADMINISTRATIVE RULES (HAR), TITLE 11,
CHAPTER 62, WASTEWATER SYSTEMS

1. An exemption from Section 11-62-32 HAR, Spacing of Individual Wastewater Systems, shall be granted to permit the development of individual wastewater systems for 116 single-family homes.

KEY

LAND USE SUMMARY

	Lot Type	Lot Size	Number of Units
1	Rural	4 acre minimum	4
2	Market	6,000 s.f. to 21,000 s.f.	42
3	Work Force Housing	4,600 s.f. to 8,500 s.f.	70



State of Hawaii

Source: Architectural Design & Construction, Inc.

Attachment A Proposed Kula Ridge Residential Workforce Housing Subdivision

Conceptual Site Plan

NOT TO SCALE



Prepared for: Kula Ridge, LLC

MUNEKIYO & HIRAGA, INC.

Nishikawa\KulaAH\ConceptSite

APPENDIX C.

**Agricultural Impact Study,
November 2006**

*KULA RIDGE AFFORDABLE HOUSING SUBDIVISION:
IMPACT ON AGRICULTURE*

*KULA RIDGE AFFORDABLE HOUSING SUBDIVISION:
IMPACT ON AGRICULTURE*

*PREPARED FOR:
Kula Ridge LLC*

*PREPARED BY:
Decision Analysts Hawaii, Inc.*

DECISION ANALYSTS HAWAII, INC.

November 2006

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EXECUTIVE SUMMARY

1. PROPOSED DEVELOPMENT

Kula Ridge, LLC proposes to develop the Kula Ridge Affordable Housing Subdivision, a planned affordable housing subdivision to be located in Kula, Maui. The Project will contain 116 single-family residential units including 70 affordable homes and four 4-acre agricultural lots.

2. AGRICULTURAL CONDITIONS

None of the Project site has high quality soils. However, about 16 acres (35%) of the Project site have agronomic conditions that are suitable for "high-elevation" crops that are grown commercially in Kula. Most of the better agricultural land is located at the mauka portion of the site where the four 4-acre agricultural lots are planned.

3. LOCATIONAL ADVANTAGES AND DISADVANTAGES FOR CROP PRODUCTION

In terms of location, farmers in Kula are well-situated to supply the small Maui Island market. And compared to other farmers in Hawaii, they can also compete reasonably well in supplying mainland markets, as long as their products have long shelf-lives and so can be shipped by surface vessel.

However, compared to farmers on O'ahu, they are at a disadvantage in supplying the Honolulu market. Furthermore, they are at a disadvantage in supplying mainland markets if their products have short shelf-lives and so must be shipped by air. Also, farmers in Kula are at a disadvantage in competing against the low-cost producers who supply mainland markets.

4. SURROUNDING LAND USES

The Project site is bordered on the north by Keahuauiwi Gulch, to the south and east are abandoned pasture lands, and to the west along Lower Kula Road are the Kula Community Center, Gateball Field and Tennis Courts. Single-family homes are also located along the western boundary of the Project site. None of these properties appear to support commercial agricultural activities.

5. RECENT CROP FARMING

From the mid-1990s through November 2005, a full-time commercial farmer leased approximately 15 acres of the upper portion of the Project site, of which about 10 acres had "good" soils. Although profitability was marginal, the operation supported the farmer plus one employee.

This former tenant quit commercial farming due to the planned development of the Project and the difficulties associated with earning a livelihood from farming. He now has permanent employment with the State of Hawaii as an agriculture inspector.

6. IMPACT ON EXISTING AGRICULTURAL OPERATIONS

Two people jointly lease about 20 to 25 acres in the lower portion of the Project site to graze eight horses and mules. This is a non-commercial operation that generates no revenues and provides no employment. Both of the tenants have full-time jobs unrelated to their grazing operation.

Development of the Project and the related loss of grazing land will not require these tenants to reduce the size of their herd because they lease a sufficient amount of grazing land elsewhere in Kula. It is also possible that one or more of the four owners of the 4-acre parcels will lease some of their land to these tenants for grazing their animals.

In view of the negligible impact of the Project on this grazing operation, mitigation measures for the loss of grazing lands are not recommended.

7. POTENTIAL AGRICULTURAL USE OF LARGE LOTS

The Project will include four agricultural lots of at least 4 acres each. These lots are located in the upper portion of the Project site where most of the better soils are found.

Even though homes will be built on these agricultural lots, one or more of the future lot owners might farm a portion of their land or graze animals on them, or might lease a portion of their property to others who might farm the land or graze animals. Correspondingly, the Project might result in a slight increase in agricultural activity, even though it is a residential development.

8. GROWTH OF DIVERSIFIED CROPS (CUMULATIVE IMPACT)

The Project will commit about 36 acres of low-quality agricultural land to a non-agricultural use, leaving about 12 acres of the better land available for agriculture as part of four 4-acre lots. For each agricultural lot, this leaves about 1 acre for a home and possibly an *ohana* home.

If the 36 acres had good soils, and if this land were used to grow a typical vegetable or fruit crop, then it could support about 4.5 farm jobs. More realistically, development on this agricultural land—combined with other developments in Hawaii and on Maui Island—involves the loss of too little agricultural land to significantly affect (1) the availability of land to farmers in Hawaii, (2) agricultural land rents, (3) the growth of diversified crops, or (4) potential agricultural employment. This conclusion is based on the finding that, as a result of the contraction of plantation agriculture, ample land is available for diversified crops, with the available supply far exceeding likely or potential demand.

The Project might adversely affect the growth of diversified agriculture in Kula since the market for agricultural land is tighter there than it is in most other areas of the state. However, the impact would be slight since nearly all of the 36 acres that will be lost to agriculture have poor soils.

In view of the negligible impact of the Project on the growth of diversified agriculture, mitigation measures for the loss of agricultural land are not recommended.

9. OFFSETTING BENEFITS

The loss of about 36 acres of low-quality agricultural land will be offset by the benefit of 116 homes, including 70 affordable homes, that are needed to house Maui residents.

10. CONSISTENCY WITH STATE AND CITY POLICIES

a. Availability of Lands for Agriculture

The *Hawaii State Constitution*, the *Hawaii State Plan*, the *State Agriculture Functional Plan*, the *County of Maui General Plan 1990*, and the *County's Makawao-Pukalani-Kula Community Plan* call directly or implicitly for preserving the economic viability of plantation agriculture and promoting the growth of diversified agriculture. To accomplish this, an adequate supply of agriculturally suitable lands and water must be assured.

With regard to plantation agriculture, the Project site is not and never was part of a sugarcane or pineapple plantation.

With regard to diversified agriculture, the Project will reduce the availability of agricultural land by about 36 acres, most of which has poor soils. About 12 acres of the better land will remain available for agriculture as part of four 4-acre lots. This small loss of agricultural land will not limit the Statewide growth of diversified agriculture since an enormous supply of agricultural land is now available due to the contraction of plantation agriculture.

b. Conservation of Agricultural Lands

In addition to the above, State policies call for conserving and protecting prime agricultural lands, including protecting agricultural lands from urban development.

However, these policies—which were written before the major contraction of plantation agriculture in the 1990s—assume implicitly that profitable agricultural activities eventually will be available to utilize all available agricultural lands. This has proven to be a questionable assumption in view of the enormity of the contraction of plantation agriculture, the abundant supply of land that came available for diversified agriculture, and the slow growth in the amount of land being utilized for diversified agriculture.

Furthermore, discussions in the Agriculture portion of the *State Functional Plan* recognize that redesignation of lands from Agricultural to Urban should be allowed "... upon a demonstrated change in economic or social conditions, and where the requested redesignation will provide greater benefits to the general public than its retention in ... agriculture," that is, when an "overriding public interest exists." The enormous contraction in plantation agriculture, resulting in the supply of agricultural land far exceeding demand, constitutes a major change in economic conditions. Moreover, development in the Project site will provide community benefits (i.e., needed homes for Maui residents, including 70 affordable homes). Furthermore, the Project is expected to have no significant impact on existing or potential agricultural employment.

c. Community Plan

In terms of agriculture, the Project is consistent with the *Makawao-Pukalani-Kula Community Plan* in that none of the site is designated Agriculture. Instead, the Project site is designated for Single-Family Residential and Rural use.

**KULA RIDGE AFFORDABLE HOUSING SUBDIVISION:
IMPACT ON AGRICULTURE**

1. INTRODUCTION⁽¹⁾

Kula Ridge, LLC proposes to develop the Kula Ridge Affordable Housing Subdivision ("the Project"), a planned affordable housing subdivision to be located in Kula, Maui. Figure 1 shows the location of the Project; Figure 2 shows the site location and the Tax Map Key; and Figure 3 shows the conceptual site plan for the Project. All figures are located at the end of this report.

The Project site is within the State Agricultural District (Figure 4). The County of Maui ("County") *Makawao-Pukalani-Kula Community Plan* designates the site for "Rural" and "Single-Family Residential" uses (Figure 5). County zoning for the Project site is "interim." The Project will require a State Land Use District Boundary Amendment, changes in the *Makawao-Pukalani-Kula Community Plan*, and changes in zoning.

This report addresses the impacts of the Project on agriculture. The material below gives the following information: its location; a description of the Project; the agricultural conditions at the site, along with supporting Figures 6 to 9; potential crops; locational advantages and disadvantages for crop production; surrounding land uses; details on recent crop farming; the impact of the Project on an existing grazing operation; potential agricultural use on some proposed agricultural lots; the impact of the Project on the growth of diversified crops, along with supporting Figure 10 which shows the release of land from plantation agriculture and the increase in acreage in diversified crops; benefits of the Project that will offset adverse agricultural impacts; and consistency of the Project with State and County agricultural policies.

Two appendices are at the end of the report. Appendix A provides a listing of planned and proposed projects on Maui and the amount of agricultural land that would be affected. Appendix B provides a summary of State and County goals, objectives, policies and guidelines related to agricultural lands.

2. LOCATION OF THE PROJECT ⁽¹⁾

The Project site is located on the western flank of Mt. Haleakala, *mauka* of Kula Highway and adjacent to the town of Waiahoa (Figure 1). As shown in Figure 2 the Project site is also identified by Tax Map Key (2) 2-3-01.174.

3. PROJECT DESCRIPTION⁽¹⁾

The Kula Ridge Affordable Housing Subdivision will provide 116 single-family homes located on 48,117 acres. As shown in Figure 3, the Project will include the following components:

Item	Number	Lot Size	Acres
Affordable homes	70	5,600 to 8,500 sf	9.25
Market-priced homes	42	6,000 to 21,000 sf	11.12
Homes (+ a potential <i>ohana</i> home on each lot)	4	4 acres minimum	16.25
Park and green space		n.a.	8.00
Right of way, common areas		n.a.	3.50
Total	116		48.12

Most of the land for the four 4-acre lots would remain available for agricultural uses.

4. AGRICULTURAL CONDITIONS

a. Soil Type⁽²⁾

Underlying the property is a soil type belonging to the Pu u Pa-Kula-Pane association (Figure 6).

As shown in Figure 7, the Project site contains only one soil type as rated by the Soil Conservation Service, now known as the Natural Resources Conservation Service (NRCS). The soil type is KxAd; Kula cobbly loam with 12 to 20 % slopes.

b. Soil Characteristics⁽²⁾

Soil type KxAd has the following characteristics:

- surface layer: about 8 inches thick consisting of loam soils
- subsoil: about 46 inches thick consisting of loam, silty loam, and silty clay loam soils
- subangular blocky structure in the subsoil
- slightly acid in the surface layer, and slightly acid to neutral in the subsoil
- moderate permeability
- medium runoff
- moderate erosion hazard
- water capacity of about 1.8 inches per foot

c. Soil Ratings

Three classification systems are commonly used to rate soils in Hawaii: (1) Land Capability Grouping, (2) Agricultural Lands of Importance to the State of Hawaii, and (3) Overall Productivity Rating.

Land Capability Grouping (NRCS Rating)⁽²⁾

The 1972 Land Capability Grouping by the NRCS rates soils according to eight levels, ranging from the highest classification level "I" to the lowest "VIII."

The one soil type at the Project site is rated IVe. Class IV soils have very severe limitations that reduce the choice of plants, or require very careful management, or both. The subclassification "e" indicates that the soils are subject to severe erosion if they are cultivated and not protected.

Agricultural Lands of Importance in the State of Hawaii (ALISH)⁽³⁾

ALISH ratings were developed in 1977 by the NRCS, the UH College of Tropical Agriculture and Human Resources, and the State Department of Agriculture. This system classifies land into three broad categories: (a) Prime agricultural land which is land that is best suited for the production of crops because of its ability to sustain high yields with relatively little input and with the least damage to the environment; (b) Unique agricultural land which is non-Prime agricultural land used for the production of specific high-value crops; and (c) Other agricultural land which is non-Prime and non-Unique agricultural land that is important to the production of crops.

All the soils at the Project site are rated Other (see Figure 8).

Overall Productivity Rating (LSB Rating)⁽⁴⁾

In 1972, the University of Hawaii (UH) Land Study Bureau (LSB) developed the Overall Productivity Rating, which classifies soils according to five levels, with "A" representing the class of highest productivity and "E" the lowest.

About 16 acres (34%) of the Project site have soils rated C, about 25 acres (52%) are rated D, and about 7 acres (14%) are rated E (see Figure 9). Most of the better agricultural land is located at the mauka portion of the Project site.

Summary Evaluation of Soil Quality

These soil-rating systems suggest that none of the Project site has high quality soils. However, the LSB rating suggests that about 16 acres (35%) has soils that are suitable for farming (C rating).

d. Elevation⁽¹⁾

The elevation of the Project site ranges from about 2,769 feet at the western end to about 3,085 feet at the eastern end.

e. Slopes^(1,2)

The average slope of the Project site is about 20%, which is relatively steep for most farming.

f. Climatic Conditions

Like other areas in Hawaii, Central Maui has a mild semitropical climate which is due primarily to three factors: (1) Hawaii's mid-Pacific location near the Tropic of Cancer, (2) the surrounding warm ocean waters that vary little in temperature between the winter and summer seasons, and (3) the prevailing northeasterly tradewinds that bring air having temperatures that are close to those of the surrounding waters.

Solar Radiation⁽⁵⁾

This area of Maui where the Project site is located receives considerable sunshine, with average daily insolation of over 400 calories per square centimeter.

Rainfall⁽⁶⁾

Rainfall in the area averages about 30 inches per year. Most of this rainfall occurs during the winter rainy season (October through April), while the summer months (May through September) are hot and dry.

Temperatures⁽⁶⁾

Average temperatures range from the low 50s Fahrenheit in the winter to the mid-80s during the summer.

Winds and Storms^(6,7)

The prevailing northeast tradewinds average about 20 miles per hour. In the winter, the island is often affected by Kona weather conditions, ranging from strong southerly winds with heavy rains, to calm and humid, or rainy weather.

g. Irrigation Water^(1,8)

Irrigation water in Kula is provided by the County.

h. Road Access

Access to the Project site is along its western border via Lower Kula Road which connects to Kula Highway.

i. Summary

None of the Project site has high quality soils. However, about 16 acres (35%) of the Project site have agronomic conditions that are suitable for growing high-elevation crops. Most of the better agricultural land is located at the *mauka* portion of the site where the four 4-acre agricultural lots are planned.

5. POTENTIAL CROPS^(9,10)

Based on the above agronomic conditions, portions of the Project site are suitable for "high-elevation" crops that are grown commercially in Kula, including various fruits (avocados, bananas, papayas, pineapples, tropical specialty fruits), flowers, herbs, and various vegetables (artichokes, beets, cabbage, corn, lettuce, onions, parsley, and zucchini).

6. LOCAL ADVANTAGES AND DISADVANTAGES FOR CROP PRODUCTION

a. Maui Island Market

Farmers in Kula are well-situated to supply the Maui Island market because of the short trucking distance (about 15.5 miles) to Kahului, which is the island's commercial, industrial, distribution and transportation center. While the Maui Island market is significant, it is comparatively small: in 2000, Maui had a *de facto* population of about 156,170 residents and visitors.⁽¹¹⁾

b. Honolulu Market

All farmers on Maui are at a disadvantage in competing against farmers on Oahu for supplying the Honolulu market due to the interisland shipping costs, delays and extra handling. In comparing barge and air-cargo services, shipping by barge is less expensive and larger loads can be shipped, but the shipments are slow and infrequent. Air service is faster and frequent, but it is far more expensive and capacities are limited. A planned new ferry system, if successful, will increase the speed and frequency of surface shipments, and costs will be lower than air freight. In turn, this will allow Maui farmers to be more competitive in Oahu produce markets, and vice versa.

In 2000, Oahu had a *de facto* population of about 927,170 residents and visitors.⁽¹¹⁾ Thus, the Honolulu market is nearly six-times larger than the Maui market.

c. Mainland Market

Compared to Hawaii, the mainland market is enormous: in 2000, the United States had a total population of 281.4 million.⁽¹²⁾ In supplying this market with products that can be carried by container ship because they have long shelf-lives (e.g., canned fruit), farmers on Maui are competitive with farmers on Oahu and other islands. Even though freight from Maui must first be barged to Honolulu then transferred onto a container ship, Matson's overseas shipping service includes interisland barge service at no additional fee: except for some minor port charges, Matson charges a common fare for all islands.⁽¹³⁾

In the case of fresh products that must be shipped by air to the mainland because of their short shelf-lives, farmers on Maui are at a disadvantage compared to farmers on Oahu because most mainland air cargo is shipped via the Honolulu International Airport. Compared to farmers on Oahu, Maui farmers encounter additional costs, delays and handling for interisland air-cargo service and for transferring the fresh products from small interisland aircraft to large overseas aircraft.

However, overseas air-cargo service from Maui has improved somewhat because the current generation of aircraft can depart from the short runway at Kahului with a full load of passengers and a full load of cargo in the hold. This direct service allows farmers on Maui to be more competitive in mainland markets. However, the lift capacity from Maui is limited by the number of direct flights.

In the U.S. mainland market, farmers in Hawaii must also compete against farmers on the mainland and in Mexico, Central and South America, the Caribbean, Australia, New Zealand, Southeast Asia, etc. Most of the competing farm areas have lower production and delivery costs than Hawaii does. Competing against Mexico is particularly difficult given the North America Free Trade Agreement (NAFTA) and Mexico's proximity to major U.S. markets.

d. Summary

In terms of location, farmers in Kula are well-situated to supply the small Maui Island market. And compared to other farmers in Hawaii, they can also compete reasonably well in supplying mainland markets, as long as their products have long shelf-lives and so can be shipped by surface vessel.

However, compared to farmers on Oahu, they are at a disadvantage in supplying the Honolulu market. Furthermore, they are at a disadvantage in supplying mainland markets if their products have short shelf-lives and so must be shipped by air. Also, farmers in Kula are at a disadvantage in competing against the low-cost producers who supply mainland markets.

7. SURROUNDING LAND USES^{(1),(14)}

The Project site is bordered on the north by Keahuauiwi Gulch, to the south and east are abandoned pasture lands, and to the west along Lower Kula Road are the Kula Community Center, Gateball Field and Tennis Courts (see Figures 1, 2 and 3). Single-family homes are also located along the western boundary of the Project site.

Based on the absence of an agricultural property-tax assessment by the County, none of the 1-acre lots along Lower Kula Road appear to support commercial agricultural activities.

8. RECENT CROP FARMING^{(15),(16)}

From the mid-1990s through November 2005, approximately 15 acres of the upper portion of the Project site were leased by a full-time commercial farmer. Lease rent was about \$50 per acre for the 10 acres or so that had "good" soils. Over the years, the farmer grew cabbage, round onions, Chinese parsley and Italian parsley. Although profitability was marginal, the operation supported the farmer plus one employee who was paid less than \$10 per hour.

This former tenant quit commercial farming due to the planned development of the Project and the difficulties associated with earning a livelihood from farming. He now has permanent employment with the State of Hawai'i as an agriculture inspector at Kahului Airport.

9. EXISTING GRAZING OPERATION

a. Grazing Operation

Two people jointly lease about 20 to 25 acres in the lower portion of the Project site to graze eight horses and mules. In lieu of lease rent, the pair provide land stewardship, including fencing the property, keeping the land clear of weeds and trash, paying liability insurance, etc. This is a non-commercial operation that generates no revenues and provides no employment. Their horses and mules are pets and are used for recreation. Both of the tenants have full-time jobs unrelated to their grazing operation.

In order to allow the pasture to regenerate, the tenants rotate some of their herd to other lands they lease in Kula. In all, they lease 40 to 45 additional acres for their animals.

For the future, their plans are to maintain the herd at about the same size.

b. Impact on Grazing Operation

The tenants indicate that development of the Project and the related loss of grazing land will not require them to reduce the size of their herd because they lease a sufficient amount of grazing land elsewhere in Kula. It is also possible

that one or more of the four owners of the 4-acre parcels will lease some of their land to these tenants for grazing their animals (see Section 10).

c. Mitigating Measures

In view of the negligible impact of the Project on this grazing operation, mitigation measures for the loss of grazing lands are not recommended.

10. POTENTIAL AGRICULTURAL USE OF LARGE LOTS

As indicated in Section 3 and shown in Figure 3, the Project will include four lots of at least 4 acres each, and totalling 16.25 acres for the four lots. Most of the better soils are located in the area designated for these large lots.

Even though homes will be built on these agricultural lots, one or more of the future lot owners might farm a portion of their land or graze animals on them, or might lease a portion of their property to others who might farm the land or graze animals. Assuming about one acre is used on each lot for a primary home and possibly an *ohana* home, as much as 12 acres might remain available for agriculture.

Correspondingly, the Project might result in a slight increase in agricultural activity, even though it is a residential development.

11. GROWTH OF DIVERSIFIED CROPS

The Project will commit agricultural land to a non-agricultural use. The impact of this commitment on the growth of diversified crops is addressed below. The material covers the (1) amount of land required for the future growth of diversified crops, (2) availability of land for diversified crops, (3) impact of the Project on the growth of diversified crops, and (4) mitigating measures.

a. Potential Acreage Requirements for Diversified Crops Crops to Replace Imports of Fruits and Vegetables⁽¹⁷⁾

For low-elevation fruits and vegetables that have a history of profitable production in Hawai'i, potential land requirements in 2010 for 100% import substitution for the Hawai'i and O'ahu markets are estimated at 12,700 acres and 8,600 acres, respectively, plus additional acreage for following land between crop plantings. When allowing for competition from imports, these estimates drop to about half. These estimates take into account estimated consumption, production trends, seasonal and annual market shares, yields, and the number of crops per year. Also, these figures are for acreage in crop—not harvested acreage as is typically reported in government publications.

Market shares for Hawai'i growers are limited by the following factors: (1) local varieties are not perfect substitutes for all imports (e.g., premium-priced sweet Maui onions versus inexpensive storage onions); (2) some crops cannot be produced profitably in the summer due to competition from low-cost imports of fruits and vegetables from California, other states, and Mexico; and (3) over-production must be avoided in order to maintain profitable price levels.

Since Hawai'i farmers already supply a portion of the Hawai'i market, land requirements for increased import substitution are a fraction of the above estimates.

Export Crops^(9, 11, 12)

The potential market for export crops is far larger than the Hawai'i market. In 2005, the U.S. population was 296.41 million, compared to Hawai'i's resident-plus-visitor population of 1.45 million. To take advantage of this large potential, Hawai'i farmers are exploring various export crops on lands released from plantation agriculture. Over the next 20+ years, one or more of these crops may prove to be successful and may grow into a major export crop.

However, the history of agricultural efforts in Hawai'i reveals that the successful development of major new export crops requiring large amounts of land is infrequent. For example, over the past 50 years in Hawai'i, farmers have explored numerous possibilities for export crops, but they have developed overseas markets for just one diversified crop that requires more than 10,000 acres (macadamia nuts at 18,000 acres in 2004); one additional crop that requires more than 5,000 acres (coffee at 7,700 acres); and only five additional crops or crop categories that require more than 1,000 acres each (papaya at 2,105 acres, bananas at 1,360 acres, tropical specialty fruits at 1,260 acres, flowers/nursery products at 3,874 acres, and seed crops at 3,870 acres). Tropical specialty fruits include longan, lychee, mango, rambutan, star-fruit, etc.

Feed Crops⁽¹⁸⁾

If feed crops could be grown in Hawai'i and priced competitively against mainland imports, they could replace some of the grains and hay that is now being imported to the State. Unfortunately, a number of commercial attempts in Hawai'i to grow grains and alfalfa have been unsuccessful. The major problems have been (1) pests, particularly birds that eat the grains before they are harvested; (2) humidity that is too high for drying alfalfa properly; and (3) high production costs compared to those of mainland farms.

Biofuel Crops^(19, 20)

Crops can be grown to produce biomass to fuel a boiler, or as feedstock to produce fuels. Examples of the latter include sugarcane, corn or sorghum used

to produce ethanol. In turn, the ethanol is used to produce E-10 gasoline (90% gasoline and 10% ethanol).

In Hawai'i, the common practice is to produce biomass as a by-product of some principal crop. For example, at HC&S on Maui and at Gay & Robinson on Kaula, the sugarcane by-product bagasse is burned to help fuel their respective power plants. In addition, the biofuel company Maui Ethanol plans to use the sugarcane by-product, molasses, from the two sugarcane plantations as a feedstock to produce ethanol. Using conventional technology, the sugar in the molasses will be fermented to produce ethanol, followed by distillation to extract the alcohol.

However, O'ahu Ethanol Corporation plans to build an ethanol plant at Campbell Industrial Park using conventional technology but, at least initially, using imported molasses as the feedstock. The rated capacity will be 15 million gallons of ethanol per year. For the longer term, this company is exploring the economics of growing sweet sorghum to supply feedstock to its ethanol plant. The sorghum would have to be grown on O'ahu because it would be too expensive to ship the sorghum juice from a Neighbor Island to O'ahu. Sorghum juice is mostly water having a low concentration of sugar compared to molasses.

Acreage requirements for a new sorghum biofuel plantation on O'ahu would range from about 6,000 acres for viability to 15,000 if it were to replace all imported molasses. This acreage comprises a substantial share of all of the estimated 14,700 acres of crop land that is available on O'ahu at year end 2006. But it is a small share of the 160,000+ acres of crop land that will be available State-wide (see Section 11.b).

A number of substantial difficulties must be overcome in order to develop a biofuel plantation for supplying feedstock for ethanol production, including:

— Long-term leases

In many areas of the State, it will be difficult to lease the large amount of land required for a biofuel plantation at low lease rents for the 30 or so years required to capitalize the investment in a new plantation. Over time, other farmers and other users of land are likely to make higher offers for lease rents or land purchases.

In view of this potential, the current market value of available agricultural lands is likely to be higher if the lands are not committed long-term at rents that would be low enough to be affordable for a biofuel plantation.

— Capital

Substantial investment capital will be required to cover the cost of a mill to extract the juice from a biofuel crop, a generating plant to provide power, improvements and upgrades to irrigation systems that are in disrepair, trucks and equipment to harvest

and haul the sorghum to the mill and haul the sorghum juice to the ethanol plant, etc.

--- Short-term Profitability

Annual revenues from selling the ethanol plus direct subsidies are estimated by the consultant at about \$2,700 per acre (based on an estimated 900 gallons per acre per year of ethanol at about \$3 per gallon). Even with subsidies, this is low compared to revenues from other crops in Hawaii.

Furthermore, the cost of importing molasses for feedstock or importing ethanol may prove less expensive than growing a biofuel crop in Hawaii. For similar crops (e.g., feed crops), importing has proven to be less expensive than growing and processing crops locally. Also, the U.S. Department of Agriculture has found sorghum to be an expensive feedstock for producing ethanol—about 3.7 times as expensive as corn and 63% more expensive than molasses.

As ethanol production increases on the mainland and in Hawaii, there is a risk that the combined Federal and State subsidies for ethanol (nearly \$1 per gallon) could be reduced, thereby compromising the profitability of a biofuel crop.

--- Long-term Profitability

In the long-term, emerging technology promises a cheaper source of feedstock for ethanol than growing a biofuel crop on a plantation. Instead of producing ethanol using sugars from conventional sources (e.g., molasses, sugarcane, grains, fruits, etc.), the sugar would come from "cellulosic" sources. Using new technology that is in the early stages of commercialization, sugar that is locked in complex carbohydrates of plants is separated into fermentable sugars. Feedstock would include agricultural wastes, yard clippings, discarded paper, wood waste, etc.—i.e., the green waste that is now used for composting. This new technology promises (1) much higher ethanol yields per ton of biomass because the entire plant can be used as feedstock, and (2) lower costs, particularly if there are no growing costs when waste product is used, and if the operator is paid a fee to dispose of municipal and agricultural waste.

Oahu's municipal waste could produce an estimated 160 million gallons of ethanol compared to annual consumption of about 400 million gallons of gasoline. This would allow far higher use of ethanol in gasoline than is needed in E-10. In Hawaii, this new technology is being explored by ClearFuels Technology Inc. Eventually, this less expensive source of feedstock could result in unprofitable biofuel plantations.

The above difficulties and risks suggest that the probability of successfully developing and sustaining a biofuel plantation in Hawaii is low. The more likely scenario is ethanol produced as a by-product from sugar operations and, in the long-term, ethanol produced from green waste.

Recent Crop-acreage Trends⁽⁸⁾

For all diversified crops—i.e., all crops other than sugarcane and pineapple, including crops to replace imports and crops for export—Statewide land requirements grew by an average of 240 acres per year from 1984 through 2004, or about 2,400 acres per decade (see Figure 10).¹

From 1999 to 2004, acreage increased for just three of the major export crop categories: tropical specialty fruits up 350 acres, flowers/nursery products up 1,162 acres, and seed crops up 1,420 acres. During this same period, acreage declined for three of the major export crops: macadamia nuts down 1,900 acres, papaya down 1,395 acres, and bananas down 400 acres. Coffee remained unchanged. The net change was a decrease of 763 acres.

Factors Limiting the Growth of Diversified Crops⁽¹⁷⁾

A great many crops can be grown in Hawaii's year-round subtropical climate, and a number of them can be grown profitably in volumes that require a few hundred acres. However, the modest growth in land requirements for diversified crops reflects the fact that few crops can be grown profitably on a large scale. The primary factors that have limited the growth of diversified agriculture in Hawaii are given below.

- Hawaii's subtropical climate is not well-suited to the commercial production of major crops that grow better in the temperate mainland climates.
- For certain crops, special hybrids adapted to Hawaii's subtropical climate are yet to be developed.
- Crop pests are more prevalent and more expensive to control in Hawaii than they are on the mainland where the cold winters kill many pests.
- Fruit-fly infestations prevent exports of many crops, or require expensive treatment.
- Most soils in Hawaii have low nutrient levels and therefore require high expenditures for fertilizer.

1. In Figure 10, the temporary bump in diversified-crop acreage that occurred in the late 1990s reflects the fact that some former sugarcane fields were newly planted with grasses for future cattle grazing. After cattle grazing began in 2000, much of this acreage was recategorized from crop land to grazing land.

- Hawai'i suffers from high farm-labor costs, largely because the agriculture industry must compete against the visitor industry and related industries for its labor.
- Compared to many other farm areas that supply U.S. markets, the cost of shipping agricultural supplies and equipment to Hawai'i is high, as is the cost of exporting produce from Hawai'i to mainland markets. High shipping costs are due to Hawai'i's remote location and to Federal regulations that require use of American-built ships and U.S. crews between U.S. ports.
- For a number of crops, consumption volumes in Hawai'i are too small to support large, efficient farms (i.e., the volumes are too small to realize economies of scale).
- Trends towards crops that are certified as safe and towards a single supplier of many food items favor large farms.
- Hawai'i farmers must compete against highly efficient mainland and foreign farms which, in a number of cases, can deliver produce to Hawai'i more cheaply than it can be produced locally. This is due to economies of scale and, in comparison to Hawai'i, low costs for land, labor, supplies, fertilizer, pest control, equipment, etc.

b. Statewide Availability of Land for Diversified Crops

Statewide, a vast amount of land has been released from plantation agriculture: about 249,900 acres between 1968 and 2004—an average decrease of over 6,940 acres per year over a 36-year period (see Figure 10).^[9,26] The 2006 closure of Del Monte's pineapple plantation in Kunia, O'ahu increased this acreage by an additional 5,100 acres, resulting in a total release of at least 255,000 acres from plantation agriculture between 1968 and 2007.^[27]

Over this same period, the demand for land for diversified crops increased by about 26,500 acres, or an average of about 740 acres per year. Since 1984, the growth has slowed to an average of 240 acres per year, as previously mentioned.

As the above indicates, the release of land from plantation agriculture has far outpaced the demand for land for diversified crops. The net decrease in crop land amounted to 223,400 acres, and will amount to 228,500 acres after adding the land followed by Del Monte. While some of the released land has been converted or is scheduled to be converted to urban uses and tree plantations, an estimated 160,000+ acres remain available for diversified crops.^[28] Because of the increased availability of agricultural land, a number of landowners report lower per-acre land rents on O'ahu and the Neighbor Islands compared to rents that were charged before the major contraction of plantation agriculture.^[29]

Once the Superferry begins operations in 2007, cultivating crops on the Neighbor Islands for the Honolulu market, and vice versa, will become more economically feasible. For a full load carried in a large pick-up truck, the one-way fare will be about 2¢ per pound.^[28] This will increase the importance of the Statewide availability of agricultural land vis-a-vis the island-wide availability.

The above indicates that ample land is available in Hawai'i to accommodate the growth of diversified crops, whether demand is based on potential or recent trends. In other words, the limiting factor to the growth of diversified crops is not the land supply, but rather the size of the market for crops that can be grown profitably in Hawai'i.

c. Maui Island Availability of Land for Diversified Crops

The above findings also apply to Maui. Since 1977, the contraction and eventual closure of Walluku Sugar Co. and Pioneer Mill released about 11,200 acres from sugarcane production. In addition, the contraction of pineapple operations released about 5,000 acres since 1993.

During the 1980s, about 4,700 acres of sugarcane land in Central Maui were made available for other uses. Some of this land was developed; some was planted in macadamia nuts which continued until 1999; some was planted in pineapple; some was transferred to Hawaiian Commercial & Sugar Co. (HC&S); and some remains fallow.

During the 1990s, the reduction in sugarcane acreage occurred in West Maui, including about 6,000+ acres released in 2000. Similarly, most of the recent reduction in pineapple acreage occurred in West Maui, including about 3,200 acres that were released in 2003. Some of this former plantation land in West Maui was developed and some was converted to other crops, but most of it remains fallow or is used for grazing cattle.

In summary, considerable land remains available on Maui for diversified agriculture, although most of it is in West Maui.

d. Potential Loss of Agricultural Land on Maui to Development^[11,29-31]

Based on information provided by the Maui County Planning Department, Appendix A provides a summary of 202 major residential, resort, commercial, and industrial development projects on Maui Island that will (1) increase the number of residential and visitor units, or (2) involve agricultural land. The listing, which reflects known projects as of April 2006, excludes projects having fewer than six dwelling units, and subdivisions having fewer than four lots.

The projects are organized by District, entitlements, then alphabetically. Entitlements are defined as follows:

- Committed projects include (1) those having 201C approval, (2) those having Project District zoning, (3) Department of Hawaiian

Home Lands (DHHL) projects, (4) approved agricultural subdivisions, and (5) other projects for which the land is zoned for development.

- Designated projects include those having (1) urban Community Plan designation, and (2) Project District zoning but no Phase 2 approval.
- Proposed projects include those lacking urban Community Plan designations.

To the extent that information was provided and is relevant, the information on each project listed in Appendix A includes:

- its entitlements;
- the number of homes (single-family and multi-family homes), the number of visitor units (hotel rooms and time-share units), and the total number of units;
- its total area (if provided and needed only for projects that involve agricultural land), along with the average acreage per unit (i.e., the reciprocal of the density, which applies only to projects that have residential or visitor units); and
- the acreage that is within the State Agricultural District, along with an acreage adjustment (explained below).

If all of the committed, designated and proposed residential and resort projects on Maui Island were approved, built and sold, they would supply about 45,900 homes, including about 31,000 single-family homes and 14,900 multi-family homes (see the last page of Appendix A).

Economic projections prepared by the Maui County Planning Department (June 2006) for the Maui County General Plan 2030 forecast that the number of homes on Maui Island will increase from about 49,870 in 2005 to about 84,350 in 2030, resulting in an increase of about 34,480 homes over this 25-year period. Over time, the pace of development is expected to follow a linear trend, fluctuating above and below the average of about 1,380 new homes per year (34,480 homes ÷ 25 years). At the projected demand of about 1,380 new homes per year, the potential supply of homes listed in Appendix A could be absorbed in about 33 years (a total of 45,900 homes ÷ 1,380 homes per year).

Altogether, the projects listed in Appendix A would affect about 19,900 acres on Maui Island that are now in the State Agricultural District (see the last page of Appendix A). Although this accounting includes some agricultural subdivisions where most of the land will be lost to homes, it also includes other agricultural subdivisions where most of the land will remain available for agriculture. In practice, an estimated 11,800 acres in the Agricultural District would be lost to agriculture if all of these projects were approved and built (see the last

page of Appendix A). This estimate is based on the assumption that agricultural subdivisions having at least 2.5 acres per home will remain available for agriculture.

The estimated 11,800 acres of agricultural land includes prime agricultural land, low-quality land that is suitable for grazing but not farming, and gulch land. It represents less than 5% of the 244,600 acres on Maui Island that are in the State Agricultural District.

In summary, the eventual development over a period of about 33 years of all the committed, designated and proposed projects listed in Appendix A, including the loss of about 36 acres for the Kula Ridge Affordable Housing Subdivision, would leave about 232,800 acres on Maui Island available for agricultural use (244,600 acres - 11,800 acres).

e. Impact on the Growth of Diversified Crops (Cumulative Impact)

The Project will commit about 36 acres of low-quality agricultural land to a non-agricultural use, leaving about 12 acres of the better land available for agriculture as part of four 4-acre lots. If the 36 acres had good soils, and if this land were used to grow a typical vegetable or fruit crop, then it could support about 4.5 farm jobs (based on 100 acres and about 12.5 jobs per 100 acres).

More realistically, development on this agricultural land—combined with other developments in Hawaii and on Maui Island—involves the loss of too little agricultural land to significantly affect (1) the availability of land to farmers in Hawaii, (2) agricultural land rents, (3) the growth of diversified crops, or (4) potential agricultural employment. This conclusion is based on the above finding that ample land is available for diversified crops, with the available supply far exceeding likely or potential demand.

The Project might adversely affect the growth of diversified agriculture in Kula since the market for agricultural land is tighter there than it is in most other areas of the state. However, the impact would be slight since nearly all of the 36 acres that will be lost to agriculture have poor soils.

f. Mitigating Measures

In view of the negligible impact of the Project on the growth of diversified agriculture, mitigation measures for the loss of agricultural land are not recommended.

12. OFFSETTING BENEFITS

The loss of about 36 acres of low-quality agricultural land will be offset by the benefit of 116 homes, including 70 affordable homes, that are needed to house Maui residents.

13. CONSISTENCY WITH STATE AND COUNTY POLICIES⁽⁵²⁾

a. Availability of Lands for Agriculture

The *Hawaii State Constitution*, the *Hawaii State Plan*, the *State Agriculture Functional Plan*, the *County of Maui General Plan 1990*, and the *County's Makawao-Pukalani-Kula Community Plan* call directly or implicitly for preserving the economic viability of plantation agriculture and promoting the growth of diversified agriculture. To accomplish this, an adequate supply of agriculturally suitable lands and water must be assured.

With regard to plantation agriculture, the Project site is not and never was part of a sugarcane or pineapple plantation.

With regard to diversified agriculture, the Project will reduce the availability of agricultural land by about 36 acres, most of which has poor soils. About 12 acres of the better land will remain available for agriculture as part of four 4-acre lots. This small loss of agricultural land will not limit the Statewide growth of diversified agriculture since an enormous supply of agricultural land is now available due to the contraction of plantation agriculture (see Figure 10).

However, the Project might adversely affect the growth of diversified agriculture in Kula since the market for agricultural land is tighter there than it is in most other areas of the state. However, the impact would be slight since nearly all of the 36 acres that will be lost to agriculture have poor soils.

b. Conservation of Agricultural Lands

In addition to the above, State policies call for conserving and protecting prime agricultural lands, including protecting agricultural lands from urban development.

However, these policies—which were written before the major contraction of plantation agriculture in the 1990s—assume implicitly that profitable agricultural activities eventually will be available to utilize all available agricultural lands. This has proven to be a questionable assumption in view of the enormity of the contraction of plantation agriculture, the abundant supply of land that came available for diversified agriculture, and the slow growth in the amount of land being utilized for diversified agriculture (see Section 11 and Figure 10).

Furthermore, discussions in the Agriculture portion of the *State Functional Plan* recognize that redesignation of lands from Agricultural to Urban should be allowed "... upon a demonstrated change in economic or social conditions, and where the requested redesignation will provide greater benefits to the general public than its retention in ...agriculture," that is, when an "overriding public interest exists." The enormous contraction in plantation agriculture, resulting in the supply of agricultural land far exceeding demand, constitutes a major

change in economic conditions. Moreover, development on the Project site will provide community benefits (i.e., needed homes for Maui residents, including 70 affordable homes). Furthermore, the Project is expected to have no significant impact on existing or potential agricultural employment.

c. Community Plan

In terms of agriculture, the Project is consistent with the *Makawao-Pukalani-Kula Community Plan* in that none of the site is designated Agriculture (Figure 5). Instead, the Project site is designated for Single-Family Residential and Rural use.

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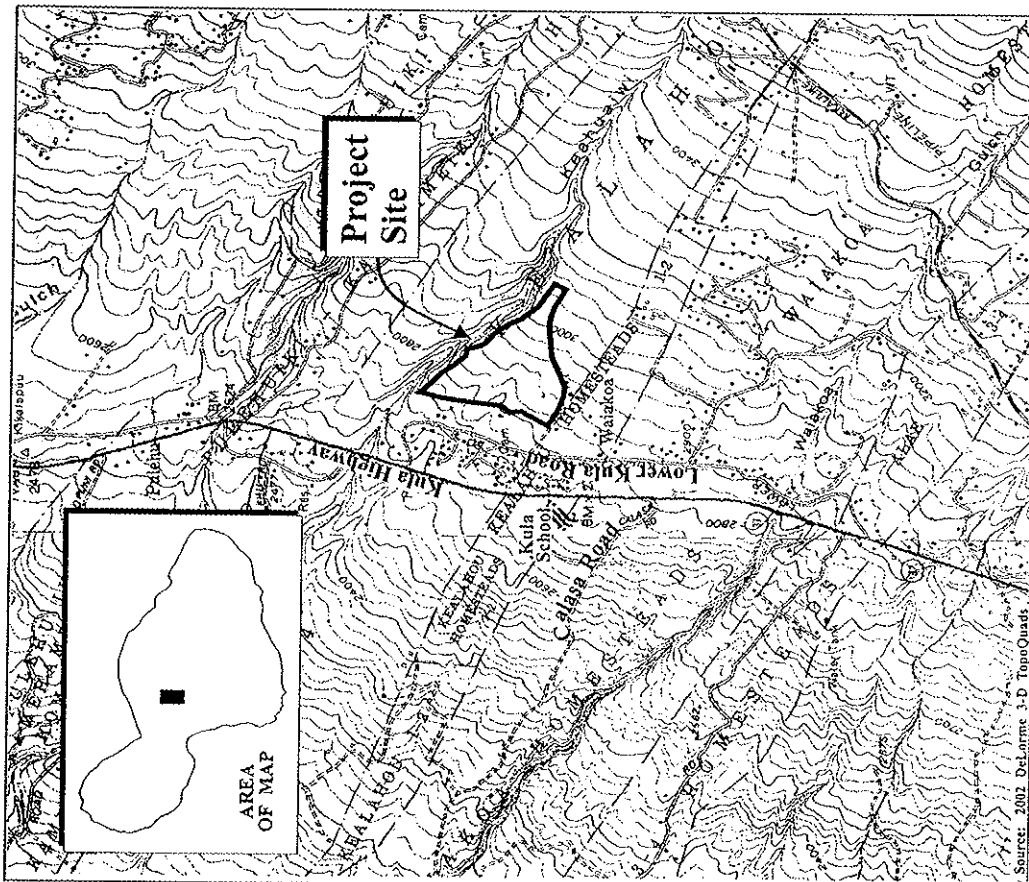
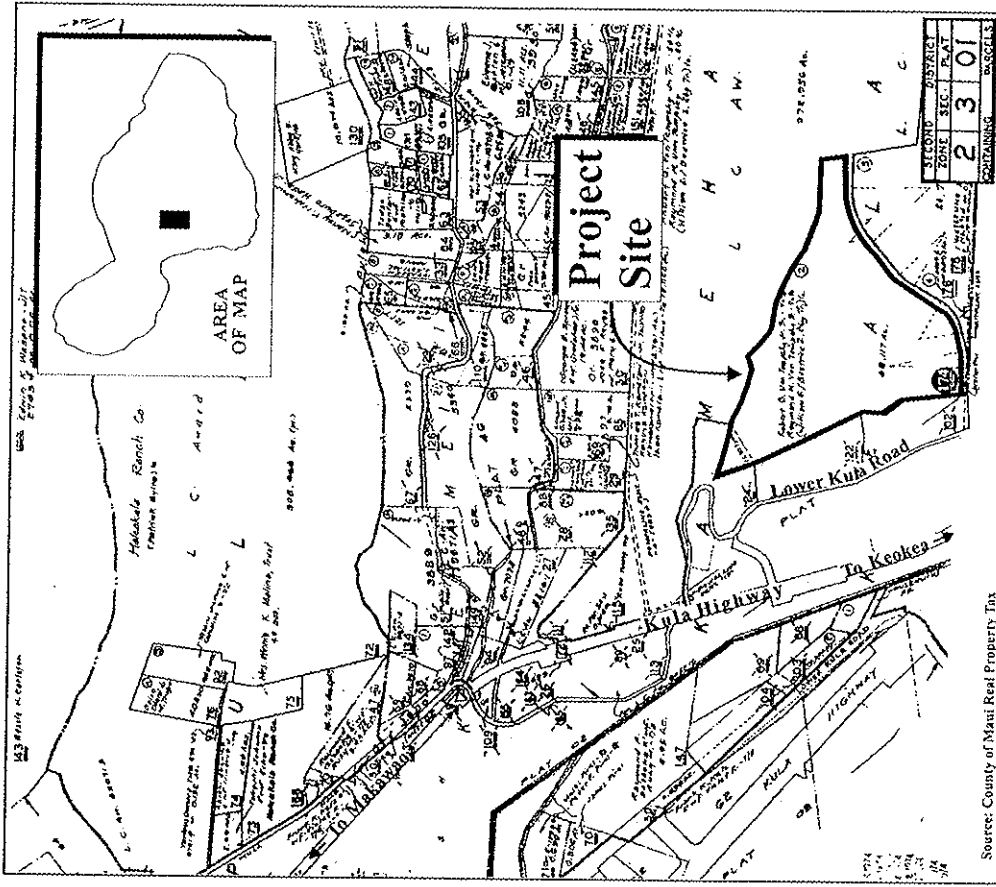


Figure 1 Proposed Kula Ridge Affordable Housing Subdivision Regional Location Map



NOT TO SCALE

Prepared for: Kula Ridge, LLC
 MUNEKIYO & HIRASAKI, P.C.
 1001 Kula Ridge Road, Kula, HI 96753



Source: County of Maui Real Property Tax

Figure 2

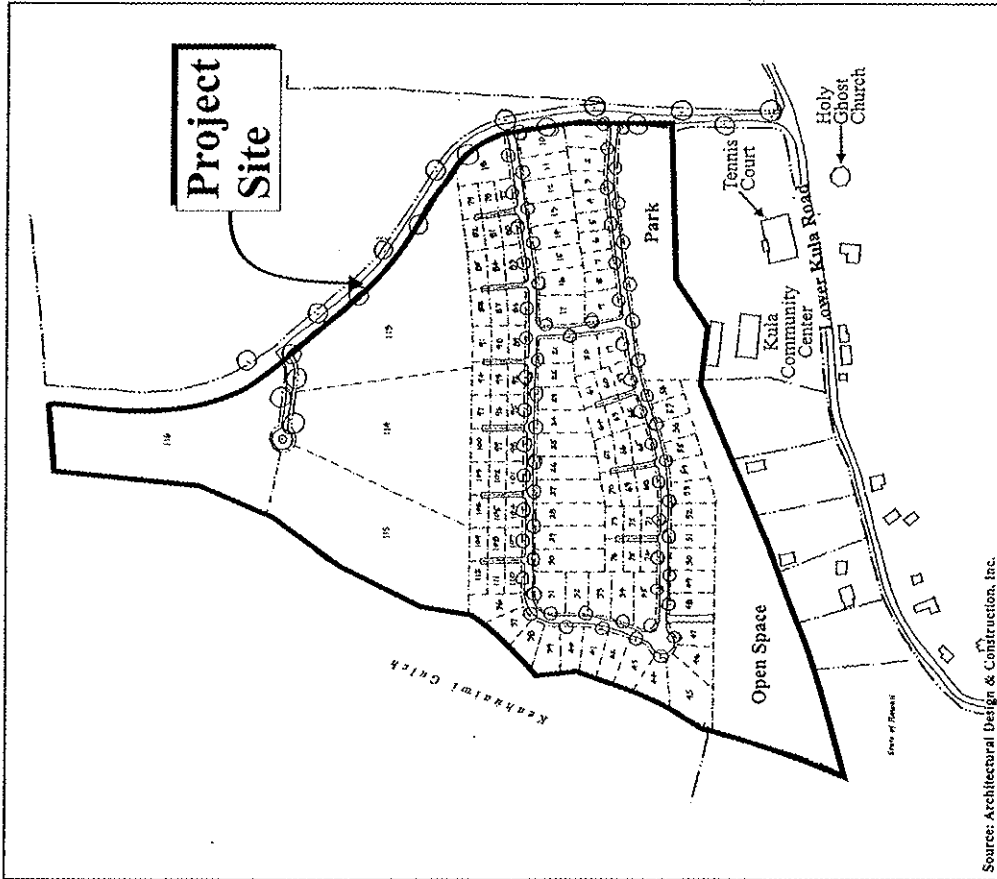
Proposed Kula Ridge Affordable Housing Subdivision Project Site Map



NOT TO SCALE

Prepared for: Kula Ridge, LLC

MUNEKIYO & HIRASAKI, P.C.
 1001 Kula Ridge Road, Kula, HI 96753



Source: Architectural Design & Construction, Inc.

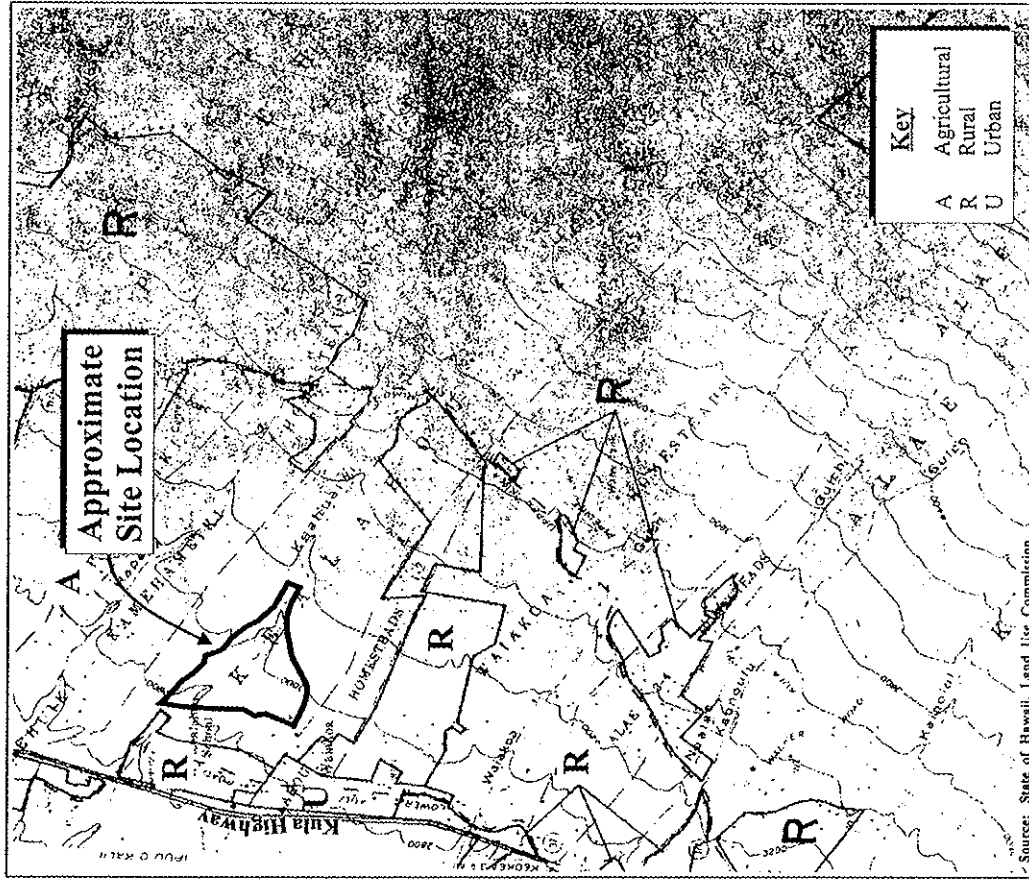
Figure 3 Proposed Kula Ridge Affordable Housing Subdivision Conceptual Site Plan

NOT TO SCALE



Prepared for: Kula Ridge, LLC

MUNEKIYO & HIRAGA, INC.
 818846464@comcast.net



Source: State of Hawaii, Land Use Commission

Figure 4 Proposed Kula Ridge Affordable Housing Subdivision State Land Use District Classifications



NOT TO SCALE

Prepared for: Kula Ridge, LLC

MUNEKIYO & HIRAGA, INC.
 818846464@comcast.net

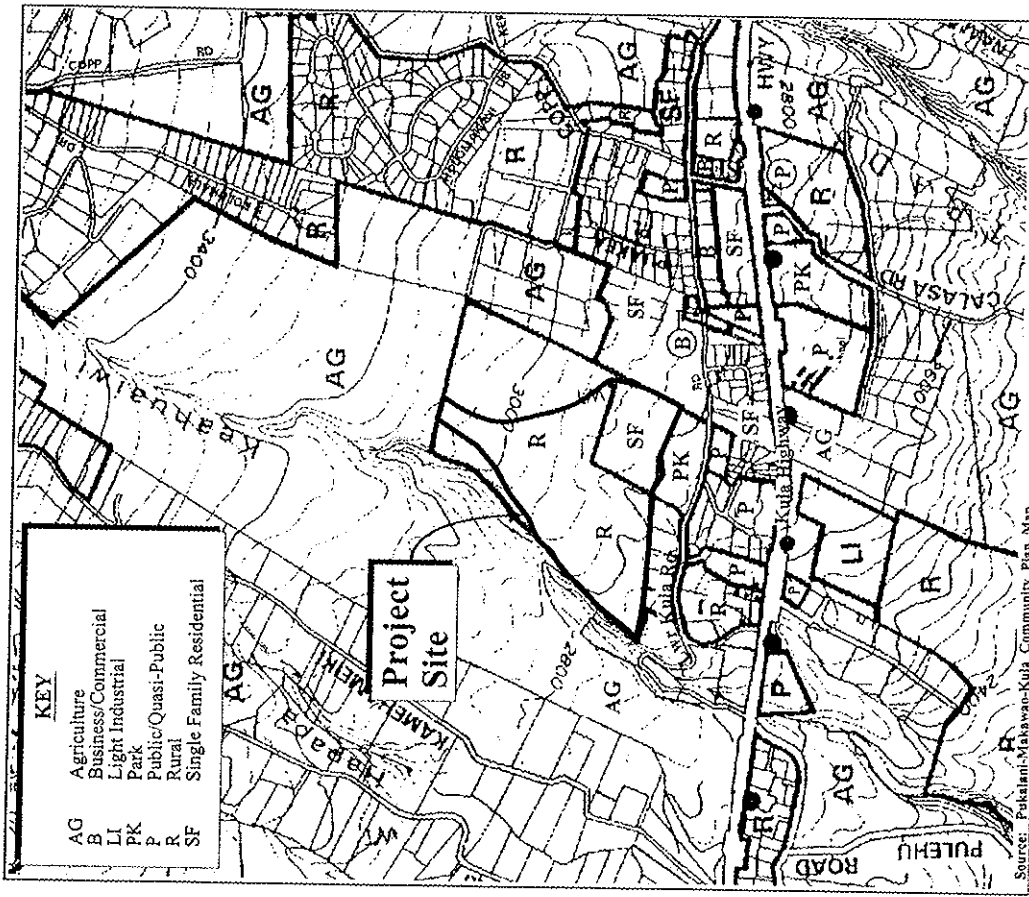


Figure 5 Proposed Kula Ridge Affordable Housing Subdivision Community Plan Land Use Map

Prepared for: Kula Ridge, LLC

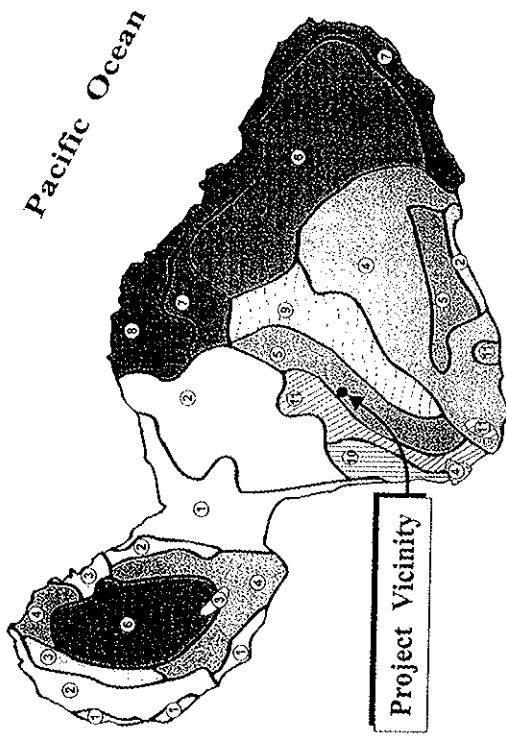
MUREKIYO & NIRAGA, INC.
NHNW000000000000



NOT TO SCALE

LEGEND

- | | | | |
|---|--|---|-----------------------------------|
| ① | Pulehu-Ewa-Juice association | ⑦ | Hana-Makaaie-Kihoa association |
| ② | Waikoa-Kaha-Molokai association | ⑧ | Pauwela-Hiiku association |
| ③ | Honolua-Olelo association | ⑨ | Lamata-Keioopou-Oihoa association |
| ④ | Rock land-Rough mountainous land association | ⑩ | Kawakapu-Makaha association |
| ⑤ | Puu Pe-Kula-Paie association | ⑪ | Kamaole-Ompapu association |
| ⑥ | Hydrandep-Tropequods association | | |



Project Vicinity

Source: USDA, Soil Conservation Service

Figure 6 Proposed Kula Ridge Affordable Housing Subdivision Soil Association Map



NOT TO SCALE

Prepared for: Kula Ridge, LLC

MUREKIYO & NIRAGA, INC.
NHNW000000000000

Figure 10 - Statewide Acreage in Crop: 1960 to 2004

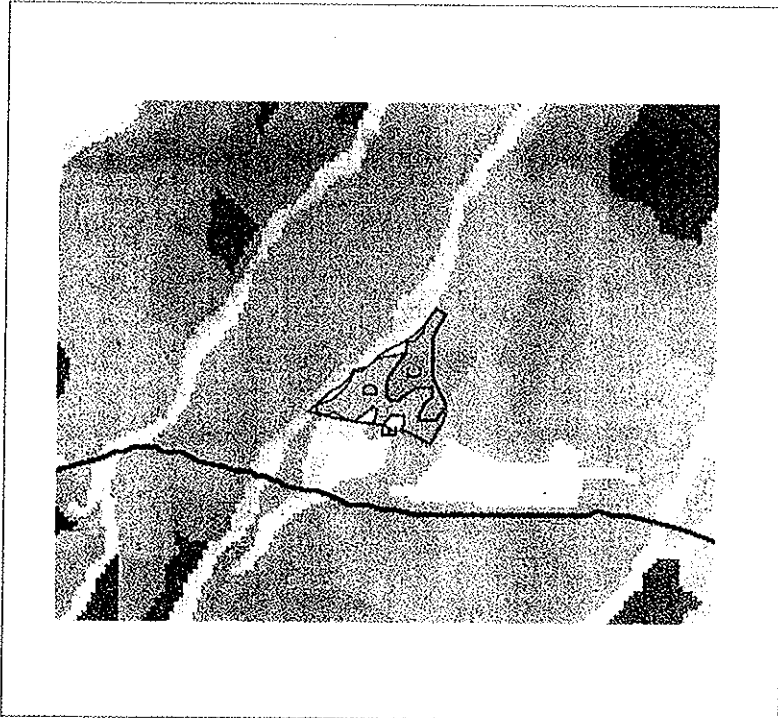
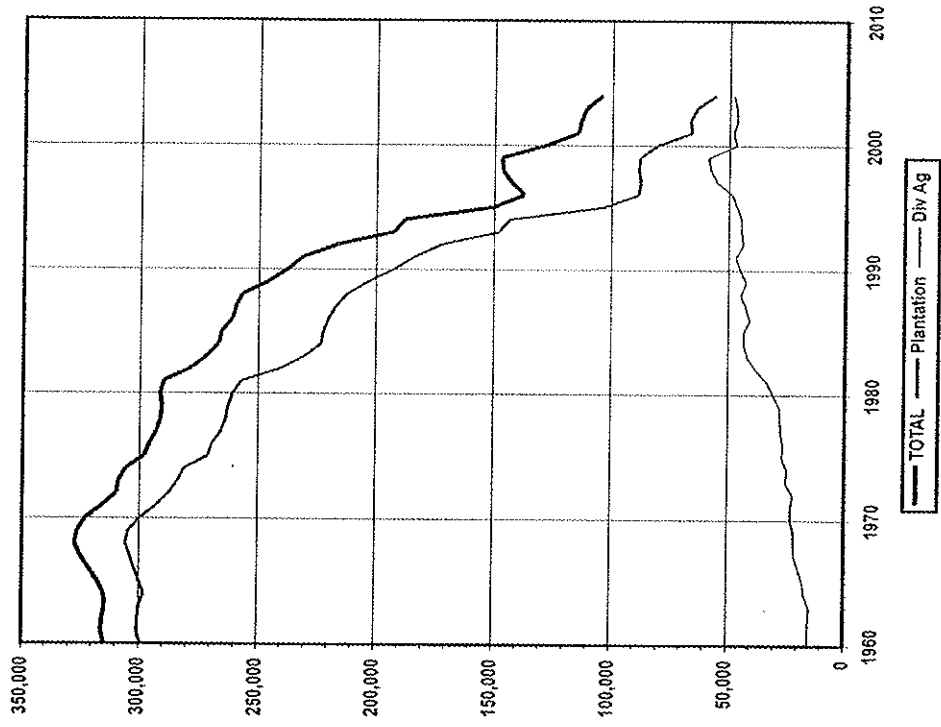


Figure 9 Proposed Kula Ridge Affordable Housing Subdivision Land Study Bureau Soil Ratings

Appendix A. Maui Island Development Projects: April 2006

Project Location and Name	Entitlements	Homes or Units				Project Area			Site Ag District	
		Single-family Homes	Multi-family Homes	Hotel & Time-share Units	Total	Total Project	Per Unit	Total Acres	Adjusted	
		(acres)	(acres)	(acres)	(acres)	(acres)	(acres)	(acres)	(acres)	
West Maui										
Honokowai DHR/L	Committed	1,250			1,250	780	0.62	780	780	
Honouliuli Ridge Ph. 1&2	Committed	50			50	441	8.82	439		
Interwest Honua Kai (North Beach, Lot 4)	Committed		700		700	n.e.	n.e.			
Ka Anapali Coffee Farms	Committed	58			58	336	5.79	336		
Kaanapali Residences - Landloch Parcel 10-H	Committed	18			18	n.e.	n.e.			
Kahana Ridge Villas	Committed		117		117	n.e.	n.e.			
Kapalua Bay	Committed			155	155	n.e.	n.e.			
Kapalua Maui: Master Plan; PD 2	Committed	690			690	1,085	1.57	1,085	1,085	
Kapalua: Master Plan; PD 1	Committed	500			500	249	0.13			
Kapalua: Maui Residential	Committed	690			690	n.e.	n.e.			
Kapua Village: MLP employees	Committed	45			45	n.e.	n.e.			
Kapua Point Homesites	Committed	40			40	n.e.	n.e.			
Lanipoko: Mahanalu Nui, 1	Committed	131			131	438	3.34	438		
Lokahi Kula	Committed	12			12	n.a.	n.a.			
Mahanaulu Nui: Ph. 5	Committed	8			8	n.e.	n.e.			
Makua Plantation: Ph. 1 & 2	Committed	52			52	465	8.94	465		
Makua Ridge: Large Lots	Committed	11			11	458	41.64	458		
Mamoli Maui Ocean Club: Sequel Towers	Committed		26		26	n.e.	n.e.			
Mahele O Waiheae: Ph. 2	Committed					5	0.19	5	5	
Napili Kai (Off Nae Subdiv)	Committed	10			10	n.e.	n.e.			
North Beach: Starwood (Lot 2)	Committed	516			516	n.e.	n.e.			
North Beach: Weston (Lot 1)	Committed	398			398	n.e.	n.e.			
Plantation Inn	Committed	14			14	n.e.	n.e.			
Puunoe: Ph. 1 & 2	Committed	24			24	189	7.00	189		
Royal Lahaina Resort: revitalization	Committed			455	455	n.e.	n.e.			
Sunstone	Committed	5			5	n.e.	n.e.			
Ukamehame Park	Committed	46			46	280	6.09	280		
Villages of Leahi: Ph. 1A	Committed	104			104	111	n.a.	111	111	
Villages of Leahi: Ph. 1B	Committed	253			253	99	0.39			
West Maui Breakers 1	Committed	90			90	n.e.	n.e.			
West Regency Maui: Timeshare Project	Proposed			806	806	n.e.	n.e.			
Ko Anapali 2020: Residences	Proposed	1,257	1,553		2,810	2,064	0.71	1,895	1,895	
Kahana Employee Housing	Proposed	90	12		102	17	0.24	17	17	
Kahana: Lots	Proposed	53			53	876	16.53	874		
Kamehameha Schools Kula Residential Infill	Proposed	900			900	211	0.23	211	211	
Lipoe Point Homes	Proposed	25			25	247	9.88	244		
Napili Farms: Largo Lots	Proposed	38			38	1,282	34.00	1,291		
Napili Maui Residences	Proposed	10			10	n.e.	n.e.			
Olowalu Maui & Makai Plan: Master	Proposed	1,500			1,500	631	0.42	626	609	
Pineapple Ridge	Proposed	24			24	9	0.38			
Pulehu: Master, Proposed PD	Proposed	553	349		902	309	0.35	309	309	
Villages of Leahi: Master	Proposed	2,008	2,340		4,348	n.e.	n.e.			
Wailea Villages	Proposed	401	454		855	133	0.22	184	184	
Total West Maui		11,205	6,151	3,543	20,899	10,704	9.98	9,983	5,005	

Appendix A. Maui Island Development Projects: April 2006

Project Location and Name	Entitlements	Homes or Units			Project Area		State Ag District	
		Single-family Homes	Multi-family Homes	Hotel & Time-share Units	Total Project (acres)	Acres per Unit	Total	Adjusted (acres)
North Maui								
Kaui Pono Subdivision III	Committed	3		3	4	1.33	4	4
Krauss Subdivision	Committed	4		4	9	2.25	9	9
Maiko Bay Homes	Committed	3		3	45	5.63	45	45
Maiko Ranch_Lots	Committed	3		3	10	3.33	10	10
Masaak Doi Subdivision	Committed	3		3	38	12.00	33	33
Pe'ahi Farms at Opaea Point	Committed	16		16	270	16.88	270	270
Pe'ahi Hill Lands	Committed	3		3	1	0.33	1	1
Puu o Malet Rural Subdivision	Committed	3		3	n.e.	n.e.	-	-
Ross Subdivision	Committed	5		5	11	2.20	11	11
Wagner Subdivision	Committed	3		3	5	1.67	5	5
Pala School Community Project District 1	Designated	330		330	n.e.	n.e.	-	-
Kaui Residential AAB	Proposed	140		140	87	0.48	-	-
Total North Maui		521		521	458		388	30
Central Maui								
Central Maui Landfill Phase IV	Committed				20	n.e.	20	20
Consolidated Baseyards	Committed				21	n.e.	21	21
E Paepae Ka Puaos-Spearskenville	Committed	16		16	45	2.81	-	-
Hale Kapili Project	Committed		4	4	n.e.	n.e.	-	-
Iao Valley Large Lot Subdivision	Committed	7		7	n.e.	n.e.	-	-
Kahului Town Center Redevelopment	Committed	302		302	n.e.	n.e.	-	-
Kahe Street Corridor and Shops	Committed	90		90	n.e.	n.e.	-	-
Kalaheini Master Plan Project District 3	Committed	1,403		1,403	2,232	n.e.	-	-
Lukemau Hale, Sr. Affordable Housing	Committed	62		62	n.e.	n.e.	-	-
Maabahi Ag Subdivision	Committed	10		10	72	7.20	69	69
Maabahi Maui Ag Subdivision	Committed	2		2	n.e.	n.e.	-	-
Marriott Courtyard Hotel, Kahala Airport	Committed	502		502	140	n.e.	-	-
Maui Lani, Master Plan PD 1	Committed	3,163		3,163	3,895	1.085	0.30	76
Maui Student Housing	Committed	409		409	n.e.	n.e.	-	-
Pihaana... Project District 2	Committed	85		85	73	0.14	5	5
Waiehu Ana	Committed	17		17	279	16.41	261	261
Waiehu Koa, Phase 3	Committed	115		115	48	0.37	20	20
Waiehu Alapua Ag Subdivision	Committed	15		15	113	7.06	113	113
Waiehu Valley Large Lot Subdivision	Committed	24		24	373	15.54	373	373
Waikapu Gardens	Committed	410		410	98	0.23	85	85
Waiehu Maui Ag Subdivision	Committed	2		2	22	11.00	22	22
Waiau County Estates	Committed	184		184	452	2.46	449	449
Waipahoehoe	Committed	37		37	n.e.	n.e.	-	-
Waipahoehoe Maui	Committed	104		104	n.e.	n.e.	-	-
Waimoana	Committed	4		4	152	38.00	152	152
Waimoana, Phase 4	Committed	96		96	n.e.	n.e.	-	-
Waipahoehoe, Phase 1	Committed	38		38	n.e.	n.e.	-	-
Hale Hoomanu, Mental Health Kikoa	Designated	6		6	n.e.	n.e.	-	-
Pala Maui	Designated	465		465	234	0.50	227	227

A-2

Appendix A. Maui Island Development Projects: April 2006

Project Location and Name	Entitlements	Homes or Units			Project Area		State Ag District	
		Single-family Homes	Multi-family Homes	Hotel & Time-share Units	Total Project (acres)	Acres per Unit	Total	Adjusted (acres)
South Maui								
Alii Village Subdiv.	Committed	27		27	n.e.	n.e.	-	-
Alpha Village	Committed	78		78	n.e.	n.e.	-	-
Amoron Heavii	Committed				n.e.	n.e.	-	-
Central Maui Baseyard	Committed				451	n.e.	-	-
Chambers Apartments	Committed	16		16	n.e.	n.e.	-	-
Club World Mark Kihiki	Committed				200	n.e.	-	-
Cove Beach Villas	Committed	32		32	n.e.	n.e.	-	-
Hale Mahalo Ekihu 1, Phase 1	Committed	54		54	n.e.	n.e.	-	-
Hale Mahalo Ekihu 2, Phase 2	Committed	58		58	n.e.	n.e.	-	-
Hokulani Golf Villas	Committed	55		55	240	n.e.	-	-
Hono Ala Hale	Committed	89		89	82	n.e.	-	-
Hoonani Subdivision	Committed	28		28	n.e.	n.e.	-	-
Hoolua Wailea MF-9	Committed	120		120	n.e.	n.e.	-	-
Ilili Condos	Committed	4		4	n.e.	n.e.	-	-
Kai An Village MF Residential Project	Committed	99		99	n.e.	n.e.	-	-
Kai Maalani	Committed	112		112	n.e.	n.e.	-	-
Kai Maui Wailea Master	Committed	80		80	n.e.	n.e.	-	-
Kalama Heights, Phase 2	Committed	12		12	n.e.	n.e.	-	-
Kalama Hills	Committed	92		92	n.e.	n.e.	-	-
Kamalii Alapua Estates (Waipahoehoe Estates)	Committed	38		38	n.e.	n.e.	-	-
Kanani Wailea	Committed	95		95	n.e.	n.e.	-	-
Kaui Homes	Committed	14		14	n.e.	n.e.	-	-
Ke Ala Ocean Villas	Committed	7		7	n.e.	n.e.	-	-
Kenilworth Sub	Committed	12		12	n.e.	n.e.	-	-
Kenilworth Plaza	Committed	4		4	n.e.	n.e.	-	-
Kihei Hanalei Condominiums	Committed	12		12	n.e.	n.e.	-	-
Kihei Kaunalea	Committed	28		28	n.e.	n.e.	-	-
Kihei Home	Committed	31		31	n.e.	n.e.	-	-
Lanai Apts.	Committed	18		18	n.e.	n.e.	-	-
Lihoa Village Subdivision	Committed	65		65	n.e.	n.e.	-	-
Total Central Maui		8,776	5,692	140	14,610	4,851	3,892	2,872

A-3

Appendix A. Maui Island Development Projects: April 2006

Project Location and Name	Entitlements	Homes or Units			Project Area		State Ag District	
		Single Family Homes	Multi-family Homes	Hotel & Time-share Units	Total Project (acres)	Per Unit (acres)	Total (acres)	Adjusted (acres)
Maui at Wailea Condos	Committed	15	n.e.	15	n.e.	n.e.	-	-
Maui Lu Timeshare	Committed	338	400	788	n.e.	n.e.	234	234
Maui Research & Tech Park - Project District 6	Committed	7	7	14	387	n.e.	22	22
MF21 Subdivision - PD 8	Committed	99	n.e.	99	22	3.14	-	-
Moana Estates	Committed	17	n.e.	17	n.e.	n.e.	-	-
One Palaeoa Bay PD 8	Committed	20	n.e.	20	n.e.	n.e.	-	-
One Wailea Bay	Committed	7	7	14	n.e.	n.e.	-	-
Overstock Subdivision: 7 lot	Committed	16	n.e.	16	5	0.32	3	3
Papaia Subdivision	Committed	8	n.e.	8	n.e.	n.e.	-	-
Paradise Ridge Estates	Committed	32	32	64	n.e.	n.e.	-	-
Papaia Ranch Villas	Committed	105	105	210	n.e.	n.e.	-	-
Wailea MF-10	Committed	144	144	288	n.e.	n.e.	-	-
Wailea MF-10 Subdivision	Committed	9	n.e.	9	n.e.	n.e.	-	-
Wailea MF-11	Committed	12	12	24	n.e.	n.e.	-	-
Wailea Villas (MF-4) (Papaia)	Committed	25	25	50	n.e.	n.e.	-	-
Garota Makana Residences	Designated	10	6	16	n.e.	0.90	5	5
Hale Puna Condos	Designated	73	31	104	n.e.	n.e.	-	-
Kiheiwa: Maui	Designated	31	n.e.	31	n.e.	n.e.	-	-
Kiheiwa: Wailea	Designated	1,150	257	1,407	257	0.22	257	257
Kahelela Maui Residences - Project District 12	Designated	2,000	808	2,808	0.40	0.40	765	765
Maui Village AAB - Project District 11	Designated	1,400	584	1,984	n.e.	n.e.	558	558
Puunene Aestep - Project District 10	Designated	1,400	584	1,984	0.42	0.42	584	584
Wailea 670 (Hanaui) - Project District 9	Designated	96	n.e.	96	n.e.	n.e.	96	96
Ka Ono Ulu - Industrial Park	Proposed	4	1	5	0.26	0.26	1	1
Kelani Condos Makana	Proposed	59	24	83	n.e.	n.e.	114	114
Kamaole Heights	Proposed	600	600	1,200	1.14	0.19	114	114
Kapehu Kaiwaha Res. AAB	Proposed	1,105	545	1,650	7.18	0.44	31	31
Makana Resort: Hotel & Condos	Proposed	6,158	2,825	8,983	10.82	4.08	2,872	2,872
Total South Maui								
Subcountry Maui								
A.L. & P. Phillips Subdivision	Committed	3	3	6	11	3.67	11	11
Abner Dalma Subdivision	Committed	3	3	6	6	2.00	6	6
Baryng Subdivision	Committed	3	3	6	8	2.67	8	8
Blackburn Subdivision	Committed	5	n.e.	5	n.e.	n.e.	-	-
Cameron Kakauni Subdivision	Committed	3	3	6	n.e.	n.e.	-	-
DeRigo Subdivision	Committed	7	7	14	59	8.43	59	59
Edmond Estates Subdivision	Committed	7	7	14	46	5.71	40	40
Freitas Subdivision	Committed	4	4	8	3	0.75	3	3
Halealea Homesites 1 & 2	Committed	15	15	30	81	5.40	87	87
Hali'imaui - Residential	Committed	148	69	217	69	0.47	69	69
Jacaranda Hill	Committed	3	3	6	2	0.67	2	2
Joan Ferreira Subdivision	Committed	3	3	6	24	8.00	24	24
Koaibou 1 & 2 Homesteads	Committed	7	7	14	16	2.28	7	7

Appendix A. Maui Island Development Projects: April 2006

Project Location and Name	Entitlements	Homes or Units			Project Area		State Ag District	
		Single Family Homes	Multi-family Homes	Hotel & Time-share Units	Total Project (acres)	Per Unit (acres)	Total (acres)	Adjusted (acres)
Keoaea/Waioli Subdivision DHHL	Committed	405	n.e.	405	445	1.10	445	445
Kulamau: Hanalei Res	Committed	14	n.e.	14	n.e.	n.e.	-	-
Kulamau Estates: Phase 1	Committed	40	40	80	13	n.e.	-	-
Kulamau Estates: Phase 2, Jacaranda Grove	Committed	13	n.e.	13	n.e.	n.e.	-	-
Kulamau Ridge: Ridge at Kulamau	Committed	57	n.e.	57	n.e.	n.e.	-	-
Maha Village Subdivision	Committed	24	n.e.	24	n.e.	n.e.	-	-
Mary Deembara Subdivision	Committed	3	n.e.	3	n.e.	n.e.	-	-
Mauiloa Subdivision	Committed	3	n.e.	3	7	2.33	7	7
Pikolo Farms Subd.	Committed	10	10	20	23	2.30	23	23
Slice Subdivision	Committed	3	n.e.	3	n.e.	n.e.	-	-
Waiehu: Hanalei Subdivision (Kula Res 1,2) DHHL	Committed	36	36	72	281	7.25	281	281
Waiehu Lot 104 (Kula Res 1,2) DHHL	Committed	4	4	8	200	50.00	200	200
Waiehu Uka Subdivision (Kula Res 1,2) DHHL	Committed	55	55	110	192	3.43	192	192
Waihi "Hoopai" Phillips Subd	Committed	3	n.e.	3	2	0.67	2	2
Waihi Project Cook Estate: Project District 3	Designated	64	n.e.	64	n.e.	n.e.	-	-
Kamaole Lant. - Pukalani Maile	Designated	155	155	310	81	0.52	81	81
Kula Lodge: Project District 1	Designated	12	12	24	n.e.	n.e.	-	-
Silverwood Inn: Project District 2	Proposed	1,200	1,200	2,400	353	0.29	351	351
Hali'imaui Expansion - JALP346	Proposed	1,500	441	1,941	421	0.28	421	421
Ka Ono Ulu Lots	Proposed	2	2	4	3	1.50	3	3
Kuaoana by Hanalei	Proposed	49	49	98	14	0.29	14	14
Kula Ridge Affordable Housing Subdivision	Proposed	116	116	232	48	0.41	48	48
Kula Senior Housing	Proposed	36	36	72	n.e.	n.e.	-	-
Total Upcountry Maui								
Subcountry Maui								
Hanaea Beach Subdivision	Committed	3	3	6	2	0.67	1	1
Hana Com. Health Ctr. Etc.	Committed	20	20	40	n.e.	n.e.	-	-
Hana Ranch Affordable Housing	Committed	288	288	576	38	0.13	38	38
Hana Ranch Store	Committed	3	3	6	3	n.e.	3	3
Hana Substation Subdivision	Committed	3	3	6	25	8.33	20	20
Honomeale Subdivision	Committed	6	6	12	42	5.25	42	42
Waiehu Hanalei DHHL	Committed	102	102	204	724	7.10	724	724
Garden of Eden Apartment	Proposed	3	3	6	30	10.00	30	30
Haleani Gardens 2: Split High Housing Corp	Proposed	14	14	28	6	0.43	6	6
Total East Maui								
TOTAL MAUI ISLAND								
		30,958	14,888	45,846	150,765	23,316	18,882	11,809

n.e. - not estimated (i.e., acreages were not estimated for projects that do not involve agricultural land);
n.a. - not applicable (i.e., units per acre were not calculated for industrial and commercial projects)
Source: Maui County Planning Department, 2005.

(d) Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:

- (1) Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.
- (10) Support the continuation of land currently in use for diversified agriculture.

Section 226-104 Population growth and land resources priority guidelines.

- (b) Priority guidelines for regional growth distribution and land resource utilization:
 - (2) Make available marginal or non-essential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.

Section 226-106 Affordable Housing

Priority guidelines for the provision of affordable housing:

- (1) Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income and gap-group households.

3. AGRICULTURAL STATE FUNCTIONAL PLAN (1991)^(b)

(Functional plans are guidelines for implementing the State Plan. They are approved by the Governor, but not adopted by the State Legislature.)

Objective H: Achievement of Productive Agricultural Use of Lands Most Suitable and Needed for Agriculture.

Policy H(2): Conserve and protect important agricultural lands in accordance with the Hawaii State Constitution.

Action H(2)(a): Propose enactment of standards and criteria to identify, conserve, and protect important agricultural lands and lands in agricultural use.

Action H(2)(c): Administer land use district boundary amendments, permitted land uses, infrastructure standards, and other planning and regulatory functions on important agricultural lands and lands in agricultural use, so as to ensure the availability of agriculturally suitable lands and promote diversified agriculture.

**APPENDIX B
SELECTED STATE AND COUNTY GOALS,
OBJECTIVES, POLICIES AND GUIDELINES
RELATED TO AGRICULTURAL LANDS**

1. HAWAII STATE CONSTITUTION (Article XI, Section 3):

...to conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable lands...

2. HAWAII STATE PLAN (Chapter 226, Hawaii Revised Statutes, as amended)^{(1),(2)}

Section 226-7 Objectives and policies for the economy--agriculture.

(a) Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:

- (1) Viability in Hawaii's sugar and pineapple industries.
- (2) Growth and development of diversified agriculture throughout the State.
- (3) An agriculture industry that continues to constitute a dynamic and essential component of Hawaii's strategic, economic, and social well-being.
- (b) To achieve the agricultural objectives, it shall be the policy of the State to:
 - (2) Encourage agriculture by making best use of natural resources.
 - (10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.
 - (16) Facilitate the transition of agricultural lands in economically nonfeasible agricultural production to economically viable agricultural uses.

Section 226-103 Economic priority guidelines.

(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:

- (1) Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.

4. COUNTY OF MAUI GENERAL PLAN 1990⁽⁴⁾

Theme No. 1: PROTECT MAUI COUNTY'S AGRICULTURAL LAND AND RURAL IDENTITY

Amendments to the General Plan will preserve agricultural lands for the continuing pursuits of both land intensive and labor intensive agricultural pursuits. This action will also achieve preservation of an open space resource.

I. POPULATION, LAND USE, THE ENVIRONMENT AND CULTURAL

RESOURCES

B. LAND USE

Objective

3. To preserve lands that are well suited for agricultural pursuits.

Policies

- a. Protect prime agricultural lands from competing nonagricultural land uses.
- b. Promote the use of agricultural lands for diversified agricultural pursuits by providing public incentives and encouraging private initiative.
- c. Support the right to farm consistent with the identification of productive agricultural lands.
- d. Discourage the conversion, through zoning or other means, of productive or potentially productive agricultural lands to nonagricultural uses, including but not limited to golf courses and residential subdivisions.
- e. Provide adequate irrigation water and access to agricultural lands.

II. ECONOMIC ACTIVITY

C. AGRICULTURE

Objective

1. To foster growth and diversification of agriculture and aquaculture throughout Maui County.

Policies

- a. Support programs to maintain the viability of the sugar and pineapple industry.
- b. Support and promote programs to maintain the viability of diversified agriculture, specialty crops, forestry and aquaculture.

Objective

2. To maximize the use and yield of productive agricultural land throughout the County.

Policies

- a. Ensure the availability of land that is well suited for agricultural production.
- b. Encourage the development of agricultural parks throughout Maui County.
- f. Support "right-to-farm" provisions in the event potential conflicts arise from adjacent residential uses.
- g. Discourage establishment of pseudo-agricultural subdivisions.

5. COUNTY OF MAUI, MAKAWAO-PUKALANI-KULA COMMUNITY PLAN⁽⁵⁾

B. Goals, Objectives and Policies

ECONOMIC ACTIVITY

Objectives and Policies

1. Provide for the preservation and enhancement of agricultural lands and operations, emphasizing the importance of promoting diversified agriculture to the region's economic base and lifestyle.
3. Protect existing agricultural operations from urban encroachment.
9. Encourage the continuation of sugar, pineapple, cattle ranching, and diversified agriculture as major agricultural activities in the region and at the same time encourage the pursuit of alternative agricultural industries.

Implementing Actions

9. Encourage the continuation of sugar, pineapple, cattle ranching, and diversified agriculture as major agricultural activities in the region and at the same time encourage the pursuit of alternative agricultural industries.

LAND USE

Objectives and Policies

1. Recognize the value of open space, including agricultural lands and view planes to preserve the region's rural character.
2. Establish land use patterns which recognize the "Right to Farm," in order to minimize conflicts between existing agricultural operations and urban-related activities.
3. Discourage speculation in agricultural lands.

4. Encourage land use patterns which will support the long-term viability of agriculture.
5. Encourage and support the development of land use performance and subdivision standards such as cluster development which will encourage viable farm operations and discourage estate subdivisions on agricultural lands such as Kula 200 or Kula Glen.
6. Encourage new residential developments in areas which are contiguous extensions of, or infills within the established residential pattern, and which do not adversely affect agricultural uses.
9. Encourage the use of mechanisms such as land trusts and farm trusts to preserve open space and agricultural activity.
11. Make available agricultural lands for those who wish to farm.
16. Recognize the four (4) semi-urban centers of Makawao Town, Pukalani, Hali'imaile and Waialoa Village. Within them, support the following land use and circulation patterns:
 - c. Within Hali'imaile: Existing agricultural operations and baseyard.
 - d. Within and surrounding Waialoa: Agricultural uses and open space.

ENVIRONMENT

1. Preserve environmental resources by maintaining important agricultural lands as an integral part of the open space setting in each community.
2. Recognize agricultural lands as an essential ingredient to the Upcountry atmosphere. Criteria for determining such lands may include:
 - Land Study Bureau productivity ratings for agricultural lands.
 - Lands presently in cultivation.
 - Agricultural Lands of Importance to the State of Hawaii (ALISH).

6. REFERENCES

- [1] State of Hawaii. Office of State Planning. Office of the Governor. *The Hawaii State Plan, 1991*. Honolulu, Hawaii. 1991.
- [2] Act 25, S.B. No. 1158, April 15, 1993.
- [3] Hawaii Department of Agriculture. *The Hawaii State Plan: Agriculture, State Functional Plan*. Honolulu, Hawaii. 1991.
- [4] County of Maui. *The General Plan of the County of Maui, 1990 Update*. Adopted by Ordinance No. 2039, as amended by Ordinance No. 2234. April 23, 1993
- [5] County of Maui. *Makawao-Pukalani-Kula Community Plan*. Maui County Council. July 1996.

APPENDIX D.

**Biological Resources Survey,
April 2006**

**BIOLOGICAL RESOURCES SURVEY
KULA RIDGE PROJECT
KULA, MAUI**

INTRODUCTION

The Kula Ridge project lies on approximately 48 acres of land (TMK 2-3-001:174) in Kealahou, Kula, Maui. It is bounded on the north by Keahuaiwi Gulch, on the east and south by pastures, and on the west by the Kula Community Center and single family residences.

SITE DESCRIPTION

The property consists of pasture and former agricultural land that is mostly covered with grasses, agricultural weeds and a few scattered trees. The property lies on the Kula slope between 2,750 feet and 3,100 feet elevation. Soils are all of the Kula Cobby Loam (KxAd) which is a well drained, dark reddish brown loam which is neutral to slightly acid (Foote et al. 1972). Annual rainfall averages 25 to 30 inches (Armstrong, 1983). One old farm dwelling remains on the property.

BIOLOGICAL HISTORY

Kula once had a dense native forest stretching across its slopes between the 2,000 feet and 6,000 feet elevations. This would have been a mixed mesic forest dominated by koa (*Acacia koa*) and 'ohi'a (*Metrosideros polymorpha*), with a mixture of 'ohe (*Tetraplasandra karvianensis*), kolea launui (*Myrsine lessertiana*) and kawa'u (*Hex anomala*), and a great variety of understory of shrubs, vines and ferns. This forest was gradually destroyed during the 1800's by herds of wild goats and grazing cattle, and by the cutting of trees for fence posts and fire wood by early settlers in the region.

During the 1900's the gentler slopes were farmed extensively and cattle grazing was widespread, turning the steeper slopes into grasslands. Since 1960 introduced tree species, principally black wattle (*Acacia mearnsii*) and Tasmanian bluegum (*Eucalyptus globulus*), have spread across Kula turning former grasslands into dense forested thickets.

Today the last vestiges of native vegetation cling to the steep sides of rocky gulches, and the area is dominated by non-natives.

BIOLOGICAL RESOURCES SURVEY

for the

KULA RIDGE PROJECT

KULA, MAUI

by

**ROBERT W. HOBODY
ENVIRONMENTAL CONSULTANT
Kokomo, Maui
April 2006**

Prepared for: Kula Ridge LLC.

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the proposed Kula Ridge Project which was conducted in April, 2006.

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 to ensure maximum coverage of the many areas of this large property. Areas most likely to harbor native or rare plants such as gulches or rocky outcroppings were more intensively examined.

Notes were made on plant species, distribution and abundance as well as terrain and substrate.

DESCRIPTION OF THE VEGETATION

The vegetation on the property can be placed into two general categories: pasture and abandoned farm. The pasture consists of open grassland. There are a wide variety of grasses but the predominant one is kikuyu grass (*Perisetum clandestinum*). Also present are a few scattered shrubs such as 'imiko (*Indigofera suffruticosa*) and hairy abutilon (*Abutilon grandifolium*), and the weedy tree, black wattle.

The abandoned farm land is occupied by a host of agricultural weeds. Predominant are green amaranth (*Amaranthus hybridus*), golden crown-beard (*Verbesina enceloides*), swine cress (*Coronopus didymus*), tineroo (*Neomotonia wrightii*), Castor bean (*Ricinus communis*) and apple of Peru (*Miconia pflysalodes*). A few fruit trees occupy the field margins: avocado (*Persea americana*), Peach (*Prunus persica*) and pomegranate (*Punica granatum*).

The total number of plant species recorded on the property was ninety-two. Of these seven were native species, most occurring along the edge of the gulch, on rock outcrops or field margins. These include kilau (*Pteridium aquilinum* var. *decompositum*) Kalamoho lauli'i (*Pellaea ternstrofia*), kalamalo (*Eragrostis arypoides*), kupala (*Sicyos pachycarpus*), koali awahia (*Tromoea indica*), popolo (*Solanum americanum*) and 'uhaloa (*Waltheria indica*). All of these species are rare or uncommon on the property, but are otherwise widespread and common throughout Hawaii. The gulch adjacent to the property, while harboring a few species of common native plants, is essentially a dense forest of black wattle and a few other weed species.

DISCUSSION AND RECOMMENDATIONS

The vegetation throughout the project is dominated by a wide array of non-native plant species, mostly pasture grasses and agricultural weeds. The seven species of common native plants occur mainly along the edge of the gulch on the margin of the property.

No Federally listed Endangered or Threatened native plants (USFWS, 1999) were encountered during the course of the survey nor were any species that are candidate for such status seen. No habitats or rare plant communities were seen on the property.

Because the vegetation is dominated by non-native plants and no rare or protected species occur on or adjacent to the property, there is little of botanical concern and the proposed land uses are not expected to have a significant negative impact on the botanical resources in this part of Maui.

Because of the steepness of the land, erosion is a potential concern. It is recommended that during any land clearing work special care be taken to use accepted contouring and terracing techniques to avoid significant soil runoff.

It is also recommended that native plants species known to have occurred in Kula be incorporated into the landscaping design of the completed project. The Maui Country Planting Plan can be consulted for ideas.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within each of three groups: Ferns, Monocots and Dicots. Taxonomy and nomenclature of the ferns, are in accordance with Palmer (2005) while the flowering plants (Monocots and Dicots) 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).
 non-native = all those plants brought to the islands intentionally or accidentally after western contact.
 polynesian = all those plants brought to the islands by the Hawaiians during the course of their migrations.
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.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
FERNS			
DENNSTAEDTIACEAE (Braeken Fern Family)			
<i>Pteridium aquilinum</i> (L.) Kuhn var.	kilau	endemic	rare
<i>décompositum</i> (Gaud.) R.M. Tyron			
PTERIDACEAE (Brake Fern Family)			
<i>Pellaea ternifolia</i> (Cav.) Link	kalamoho laulii	indigenous	rare
MONOCOTS			
AGAVACEAE (Agave Family)			
<i>Furcraea foetida</i> (L.) Haworth	Mauritius hemp	non-native	rare
COMMELINACEAE (Dayflower Family)			
<i>Commelina diffusa</i> N.L. Burm.	honohono	non-native	rare
POACEAE (Grass Family)			
<i>Axonopus fissifolius</i> (Raddi) Kuhlm.	narrow-leaved carpet grass	non-native	rare
<i>Bromus catharticus</i> Vahl	rescue grass	non-native	rare
<i>Bromus floridaceus</i> L.	soft chess	non-native	rare
<i>Cenchrus ciliaris</i> Kunth	buffelgrass	non-native	rare
<i>Chloris gayana</i> Kunth	Rhodes grass	non-native	rare
<i>Cynodon dactylon</i> (L.) Pers.	manienie	non-native	uncommon
<i>Digitaria violascens</i> Link	kukaepua'a	non-native	rare
<i>Ehrharta erecta</i> Lam.	-----	non-native	uncommon
<i>Eleusine indica</i> (L.) Gaertn.	wiregrass	non-native	rare
<i>Eragrostis atropioides</i> Hillebr.	kalamalo	endemic	rare
<i>Eragrostis pectinacea</i> (Michx.) Nees	Carolina lovegrass	non-native	rare
<i>Melinis minutiflora</i> P. Beauv.	molasses grass	non-native	rare
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	non-native	uncommon
<i>Panicum maximum</i> Jacq.	Guinea grass	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANC
<i>Paspalum dilatatum</i> Poir.	Dallis grass	non-native	uncommon
<i>Pennisetum clandestinum</i> Chiov.	Kikuyu grass	non-native	common
<i>Setaria verticillata</i> (L.) P. Beauv.	bristly foxtail	non-native	rare
<i>Sporobolus africanus</i> (Poir.) Robyns & Tournay	African dropseed	non-native	rare
<i>Vulpia myuros</i> (L.) C.C. Gmelin	rat tail fescue	non-native	rare
DICOTS			
ACANTHACEAE (Acanth Family)			
<i>Thunbergia alata</i> Bojer ex Sims	black-eyed susan vine	non-native	rare
AMARANTHACEAE (Amaranth Family)			
<i>Amaranthus hybridus</i> L.	green amaranth	non-native	uncommon
<i>Amaranthus viridis</i> L.	spleen amaranth	non-native	rare
ANACARDIACEAE (Mango Family)			
<i>Schinus terebinthifolius</i> Raddi.	Christmas berry	non-native	rare
APIACEAE (Parsley Family)			
<i>Coriandrum sativum</i> L.	coriander	non-native	uncommon
ASCLEPIADACEAE (Milkweed Family)			
<i>Asclepias curassavica</i> L.	butterfly bush	non-native	rare
<i>Asclepias physocarpa</i> (E.Meyer) Schlechter	balloon plant	non-native	rare
ASTERACEAE (Sunflower Family)			
<i>Bidens pilosa</i> L.	Spanish needle	non-native	common
<i>Coryza bonariensis</i> (L.) Cronq.	hairy horseweed	non-native	uncommon
<i>Cortula australis</i> (Sieber ex Spreng.) J.D. Hooker	Australian brass buttons	non-native	uncommon
<i>Galinisoga parviflora</i> Cav.	-----	non-native	uncommon
<i>Gnaphalium purpurea</i> (L.) Cabrera	purple cudweed	non-native	rare
<i>Hypochaeris glabra</i> L.	smooth cats ear	non-native	rare

7

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANC
<i>Lactuca sativa</i> L.	prickly lettuce	non-native	rare
<i>Senecio madagascariensis</i> Poir.	fire weed	non-native	uncommon
<i>Sonchus oleraceus</i> L.	<i>pualele</i>	non-native	rare
<i>Verbena enceloides</i> (Cav.) Benth. & Hook.	golden crown-beard	non-native	common
BIGNONIACEAE (Bignonia Family)			
<i>Jacaranda minosifolia</i> D. Don	jacaranda	non-native	rare
<i>Podranea ricasoliana</i> (Tanfani) Sprague	pink trumpet vine	non-native	rare
BRASSICACEAE (Mustard Family)			
<i>Capsella bursa-pastoris</i> (L.) Medik	shepherd's purse	non-native	uncommon
<i>Coronopus didymus</i> (L.) Sm.	swine cress	non-native	uncommon
<i>Leptidium virginicum</i> L.	-----	non-native	rare
<i>Sisymbrium officinale</i> (L.) Scop.	hedge mustard	non-native	rare
CACTACEAE (Cactus Family)			
<i>Opuntia ficus-indica</i> (L.) Mill.	panini	non-native	rare
CARYOPHYLLACEAE (Pink Family)			
<i>Petrohagia velutina</i> (Guss.) P. Ball & Heyw.	childing pink	non-native	rare
<i>Polycarpon tetraphyllum</i> (L.) L.	-----	non-native	rare
<i>Siene gallica</i> L.	small-flowered catchfly	non-native	rare
CHENOPODIACEAE (Goosefoot Family)			
<i>Chenopodium album</i> L.	goosefoot	non-native	uncommon
<i>Chenopodium ambrosioides</i> L.	Mexican tea	non-native	rare
<i>Chenopodium murale</i> L.	'abeheha	non-native	rare
CONNVOLVULACEAE (Morning Glory Family)			
<i>Ipomoea tiliacea</i> (J.Burm.) Merr.	koali awahia	indigenous	uncommon
CUCCURBITACEAE (Gourd Family)			

8

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE	SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
<i>Sicyos pacificarpus</i> Hook. & Arnott	kupala	endemic	uncommon	<i>Psidium guajava</i> L.	guava	non-native	ABUND. rare
EUPHORBIACEAE (Spurge Family)				ONAGRACEAE (Evening Primrose Family)			
<i>Ricinus communis</i> L.	Castor bean	non-native	uncommon	<i>Oenothera laciniata</i> J. Hill	cut-leaved evening primrose	non-native	rare
FABACEAE (Pea Family)				OXALIDACEAE (Wood Sorrel Family)			
<i>Acacia mearnsii</i> De Wildman	black wattle	non-native	uncommon	<i>Oxalis corniculata</i> L.	'ih'i'ai	non-native	rare
<i>Chamaecrista nictitans</i> (L.) Moench	partridge pea	non-native	rare	PASSIFLORACEAE (Passion Flower Family)			
<i>Desmodium intortum</i> (Mill.) Urb.	-----	non-native	rare	<i>Passiflora subpefata</i> Ort.	white passion flower	non-native	rare
<i>Desmodium sandwicense</i> E. Meyer	Spanish clover	non-native	uncommon	PLANTAGINACEAE (Plantain Family)			
<i>Indigofera suffruticosa</i> Mill.	'inikō	non-native	uncommon	<i>Plantago lanceolata</i> L.	narrow-leaved plantain	non-native	rare
<i>Macropitium latifoloides</i> (L.) Urb.	wild bean	non-native	rare	PORTULACACEAE (Purslane Family)			
<i>Medicago lupulina</i> L.	black medick	non-native	rare	<i>Portulaca oleracea</i> L.	pigweed	non-native	rare
<i>Medicago polymorpha</i> L.	bur clover	non-native	uncommon	PRIMULACEAE (Primrose Family)			
<i>Melilotus indica</i> (L.) All.	yellow sweet clover	non-native	uncommon	<i>Anagallis arvensis</i> L.	scarlet pimpernel	non-native	rare
<i>Neonotonia wrightii</i> (Wight & Arnott) Lackey	tineroo	non-native	uncommon	PROTEACEAE (Protea Family)			
<i>Trifolium repens</i> L.	white clover	non-native	uncommon	<i>Grevillea robusta</i> A. Cunn. ex R. Br.	silk oak	non-native	rare
<i>Vicia sativa</i> L.	common vetch	non-native	rare	PUNICACEAE (Pomegranate Family)			
LAMIACEAE (Mint Family)				<i>Punica granatum</i> L.	pomegranate	non-native	rare
<i>Salvia coccinea</i> B. Juss. ex Murray	scarlet sage	non-native	rare	ROSACEAE (Rose Family)			
LAURACEAE (Laurel Family)				<i>Cotoneaster pannosus</i> Franch.	cotoneaster	non-native	rare
<i>Persea americana</i> Mill.	avocado	non-native	rare	<i>Prunus persica</i> (L.) Batsch	peach	non-native	rare
MALVACEAE (Mallow Family)				SOLANACEAE (Nightshade Family)			
<i>Abutilon grandifolium</i> (Willd.) Sweet	hairy abutilon	non-native	uncommon	<i>Nicanandra physalodes</i> (L.) Gaertn.	apple of Peru	non-native	uncommon
<i>Malva neglecta</i> Wallr.	cheeseweed	non-native	rare	<i>Solanum americanum</i> Mill.	popoto	indigenous	rare
<i>Sida rhombifolia</i> L.	Cuban jute	non-native	uncommon	STERCULIACEAE (Cacao Family)			
MYRTACEAE (Myrtle Family)				<i>Walfertia indica</i> L.	'uhua'ua	indigenous	rare
<i>Eucalyptus robusta</i> J.E. Smith	swamp-mahogany	non-native	rare	TILIACEAE (Linden Family)			

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Triumfetta semitriloba</i> Jacq.	Sacramento bur	non-native	uncommon
TROPAEOLACEAE (Nasturtium Family)			
<i>Tropaeolum majus</i> L.	garden nasturtium	non-native	rare
VERBENACEAE (Verbena Family)			
<i>Lantana camara</i> L.	lantana	non-native	uncommon
<i>Verbena littoralis</i> Kunth	hā u owi	non-native	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 Endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

Three mammal species were observed on the property during two site visits. Taxonomy and nomenclature follow Tomich (1986).

Axis deer (*Axis axis*) – Sign of axis deer was everywhere on the north side of the property along Keahuaui Gulch. The deer apparently bed down in the gulch during the day, then emerge in the evenings to browse in the pastures, agricultural lands and even peoples yards through the night. Deer populations are increasing in this part of Maui.

Domestic horse (*Equus caballus*) – Four horses were being pastured in the lower part of the property and are attended to by their owners daily.

Domestic cat (*Felis catus*) – One cat was observed in the agricultural field and tracks were seen elsewhere. Domestic cats make forays into the property, mostly in the evenings, to hunt for rats and mice.

Other mammals seen on adjacent properties that may at times find their way on to the project area include domestic dogs (*Canis familiaris*), chicken (*Gallus gallus*), goats (*Capra hircus*) and cattle (*Bos Taurus*). Not seen but likely occur on the property are mongoose (*Herpestes auropunctatus*), rats (*Rattus rattus*) and mice (*Mus musculus*).

A special effort was made to look for the native Hawaiian hoary bat by making an evening surveys of the property. These bats are known to occur sporadically at mid elevations across Kula. When present in an area they can be easily identified as they forage for insects, their distinctive flight patterns clearly visible in the glow of twilight.

No evidence of such activity was observed though visibility was excellent and plenty of flying insects were seen.

BIRDS

There was moderate birdlife in both diversity and numbers on this property. An ample supply of herbaceous plants, seeds and insects were observed, following a good winter wet season. Seventeen species of birds were seen including one endemic owl, one migratory bird and fifteen non-native species. Taxonomy and nomenclature follow American Ornithologists' Union (2005).

House Finch (*Carpodacus mexicanus*) – Many small flocks of these finches were seen and their calls were heard throughout the property.

Common myna (*Acridotheres tristis*) – Many mynas, mostly in pairs, were seen feeding in the fields and in flight.

Zebra dove (*Geopelia striata*) – Small flocks of these doves were seen feeding in the fields and calling from shrubs and trees.

Ring-necked pheasant (*Phasianus colchicus*) – Pheasants were scattered throughout the pastures and fields. Their calls could be heard in all parts of the property.

Northern cardinal (*Cardinalis cardinalis*) – Several cardinals were seen and heard calling from trees throughout the property.

Spotted dove (*Streptopelia chinensis*) – A few of these large doves were seen in the fields and heard calling.

Black francolin (*Francoelinus francolinus*) – A few gray francolins were seen and heard in the fields and field margins.

Gray francolin (*Francoelinus pondicerianus*) – A few individuals were flushed from cover in the lower part of the property. Their distinctive buzzing calls were heard widely.

Japanese white-eye (*Zosterops japonica*) – A few white-eyes were seen in trees and shrubs and their high-pitched calls could be heard throughout the property.

House sparrow (*Passer domesticus*) – A few sparrows were seen and heard in the lower part of the property close to structures where they prefer to nest.

Skylark (*Alauda arvensis*) – Skylarks were seen individually and in pairs in the pasture and flying and calling overhead.

Nutmeg manikin (*Lonchura punctulata*) – One flock of these small birds was seen in a tree near the top of the property.

Hawaiian short-eared owl, Pueo (*Asio flammeus sandwicensis*) – Four pueo were seen flying over the fields during the evening survey. These endemic owls are Endangered on O'ahu, but still are fairly common on several islands including Maui. Their preferred habitat is upcountry pastures.

Northern mockingbird (*Mimus polyglottos*) – Two individuals were heard and seen in flight along forested margins.

Cattle egret (*Bubulcus ibis*) – Two egrets were seen feeding near grazing animals in the pasture.

Japanese bush-warbler (*Cettia diphona*) – One bush warbler was heard calling from dense brush near the bottom of the property.

Pacific golden plover, Kolea (*Pūvīvīvī fūvūvū*) – One kolea was seen flying across the property during the evening.

INSECTS

While insects in general were not tallied, they were abundant throughout the area and fueled the bird life observed. One native Sphingid moth, Blackburn's sphinx moth (*Manduca blackburni*) has been put on the Federal Endangered species list and this designation requires special focus (USFWS 2000). Blackburn's sphinx moth is known to occur in parts of East Maui and Central Maui but is not presently known from central Kula. Its native host plants are species of 'Aiea (*Notthocestrum spp.*) and non-native alternative host plants are tobacco (*Nicotiana tabacum*) and tree tobacco (*Nicotiana glauca*). None of these plants were found on the property, and no Blackburn's sphinx moth or their larvae were observed.

CONCLUSIONS AND RECOMMENDATIONS

Fauna surveys are seldom comprehensive due to the short window of observation, the seasonal nature of animal activities and the usually unpredictable nature of their daily movements. This survey, however, should be considered fairly representative due

to the abundance of food resources present throughout the area and the resulting level of animal use. While ideal for many types of non-native animals the habitat is not suitable for many native species, most notably our native forest birds. None of these forest birds occur anywhere in the vicinity of this property. One native owl was found to use the property. The development of the property would likely result in a small loss of feeding habitat for this species. The area, however, is not significant and the owl is still rather common. All of the other bird species are widespread and common and of no particular environmental concern.

No Federally Endangered or Threatened species were encountered during the course of the survey and no special habitats were identified. The proposed changes in land use should have no significant negative impact on the fauna resources in this part of Maui.

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).
 migratory = all species that spend part of their annual life cycle in Hawaii and part of it elsewhere. Migrant birds typically spend their spring and summer months breeding in the arctic and their fall and winter months in Hawaii.
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>			
Axis deer	<i>Axis axis</i>	non-native	common
Domestic horse	<i>Equus caballus</i>	non-native	uncommon
Domestic cat	<i>Felis catus</i>	non-native	rare
<u>BIRDS</u>			
House finch	<i>Carpodacus mexicanus</i>	non-native	common
Common myra	<i>Artiotheres tristis</i>	non-native	common
Zebra dove	<i>Geopelia striata</i>	non-native	common
Ring-necked pheasant	<i>Phasianus colchicus</i>	non-native	common
Northern cardinal	<i>Cardinalis cardinalis</i>	non-native	uncommon
Spotted dove	<i>Streptopelia chinensis</i>	non-native	uncommon
Black francolin	<i>Francolinus francolinus</i>	non-native	uncommon
Gray francolin	<i>Francolinus pondicerianus</i>	non-native	uncommon
Japanese white-eye	<i>Zosterops japonica</i>	non-native	uncommon
House sparrow	<i>Passer domesticus</i>	non-native	uncommon
Skylark	<i>Alauda arvensis</i>	non-native	uncommon
Nutmeg mannikin	<i>Lonchura punctulata</i>	non-native	rare
Short-eared owl / Pueo	<i>Asio fanninensis sandwicensis</i>	endemic	rare
Northern mockingbird	<i>Mimus polyglottos</i>	non-native	rare
Cattle egret	<i>Butorides ibis</i>	non-native	rare
Japanese bush-warbler	<i>Cettia diphone</i>	non-native	rare
Koia, Pacific golden plover	<i>Pūvialis fulva</i>	migratory	rare

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APPENDIX E.

Archaeological Inventory Survey, April 2006

SCS Project Number 681-1

**AN ARCHAEOLOGICAL INVENTORY SURVEY REPORT
ON 48.117 ACRES LOCATED IN,
KEALAHOU AHUPUA'A, KULA, MAKAWAO DISTRICT,
MAUI ISLAND, HAWAII
[TMK: 2-3-001:174]**

Prepared by:
**Leann McGerty
Jennifer Hunt**
and
Robert L. Spear, Ph.D.
April 2006

Prepared for:
**Clayton Nishikawa
1849 Wili Pa Loop
Wailuku, HI 96793**

SCIENTIFIC CONSULTANT SERVICES, INC.



711 Kapiolani Blvd. Suite 975 Honolulu, Hawaii 96813

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ABSTRACT

Scientific Consultant Services, Inc. (SCS) conducted Archaeological Inventory Survey on 48.117 acres of land in Kealahou Ahupua'a, Makawao District, Maui Island (TMK: 2-3-001:174). A total of 18 archaeological sites consisting of 32 individual features were documented during the Inventory Survey. Identified sites included agricultural and habitation features represented by terraces, alignments, walls, modified outcrops, a rock mound, and an enclosure. Eighteen archaeological sites (50-50-11-5970 to 50-50-11-5987) were assessed as significant under Criterion D of Hawaii's State Historic Preservation criteria. All 18 sites have yielded sufficient information and no additional archaeological work is recommended.

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INTRODUCTION

Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey on 48.117 acres of land in Kealahou Ahupua'a, Makawao District, Maui Island (TMK: 2-3-001:174) (Figure 1). Archaeological Inventory Survey of the project area was conducted to determine the presence/absence of archaeological features/deposits within the project area and to provide recommendations to the State Historic Preservation Division (SHPD) concerning site mitigation during planned development within the project area.

ENVIRONMENTAL SETTING

LOCATION

The project area is parcel 174 of TMK 2-3-001. It consists of 48.117 acres of undeveloped land, owned by Clayton Nishikawa, AIA. The project area is located in the town of Kula, located in leeward east Maui, on the southwestern slopes of Haleakalā (Figure 2). Kula exists between the elevations of 2,792 and 3,017 ft. amsl (above mean sea level), in Kealahou Ahupua'a. It lies between Keāhuaiwi Gulch to the north, and Waiakoa Gulch to the south. The property is bounded by an easement to the south and southeast, which separates it from mostly undeveloped land. On its east and northeast perimeter, it is bounded by Keāhuaiwi Gulch. To the north, is a former quarry site. To the west is Kealahou Subdivision, and Kula Community Center (Randal and Dora Von Tempsky Memorial Park). A portion of the property has been used historically for habitation, and a currently occupied historic house exists on the property. At present, the property is also being utilized as a horse pasture. Extensive machine (bulldozer) alterations are evident in many areas of the project area. A four-wheel drive access road traverses through the project area.

The project area is located on an extensively altered piece of land. Ranching activity has most likely taken place on the project area for a minimum of one hundred years. Kula native Darlene Tavares (whose family previously owned the building that now houses Morihara Store, less than 0.25 miles from the project area), confirmed that the project area was most likely occupied by a Japanese farming family, which was commonplace in Kula in the mid to late 1800s. A historic house still stands on the property, typical of plantation-style homes of the 1930s. Bulldozer grading activity, including construction of a dirt road and the presence of horses, has altered much of the project area's original integrity.

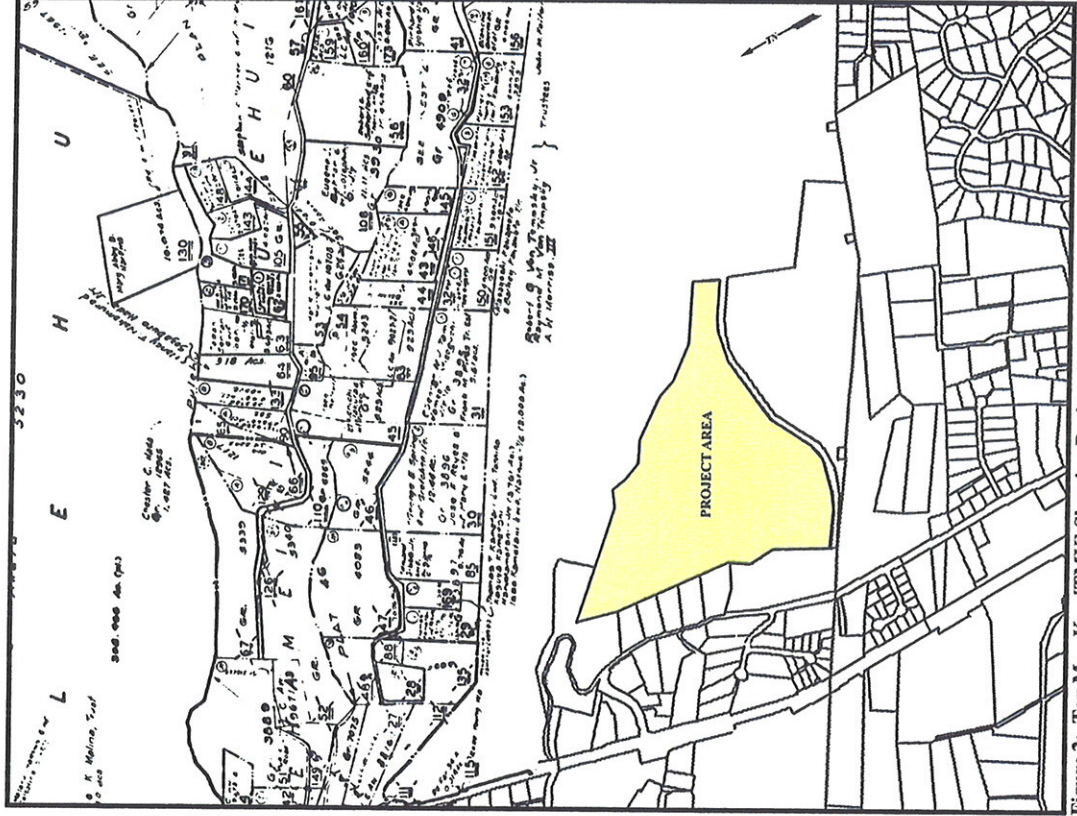


Figure 2: Tax Map Key [TMK] Showing Project Area.

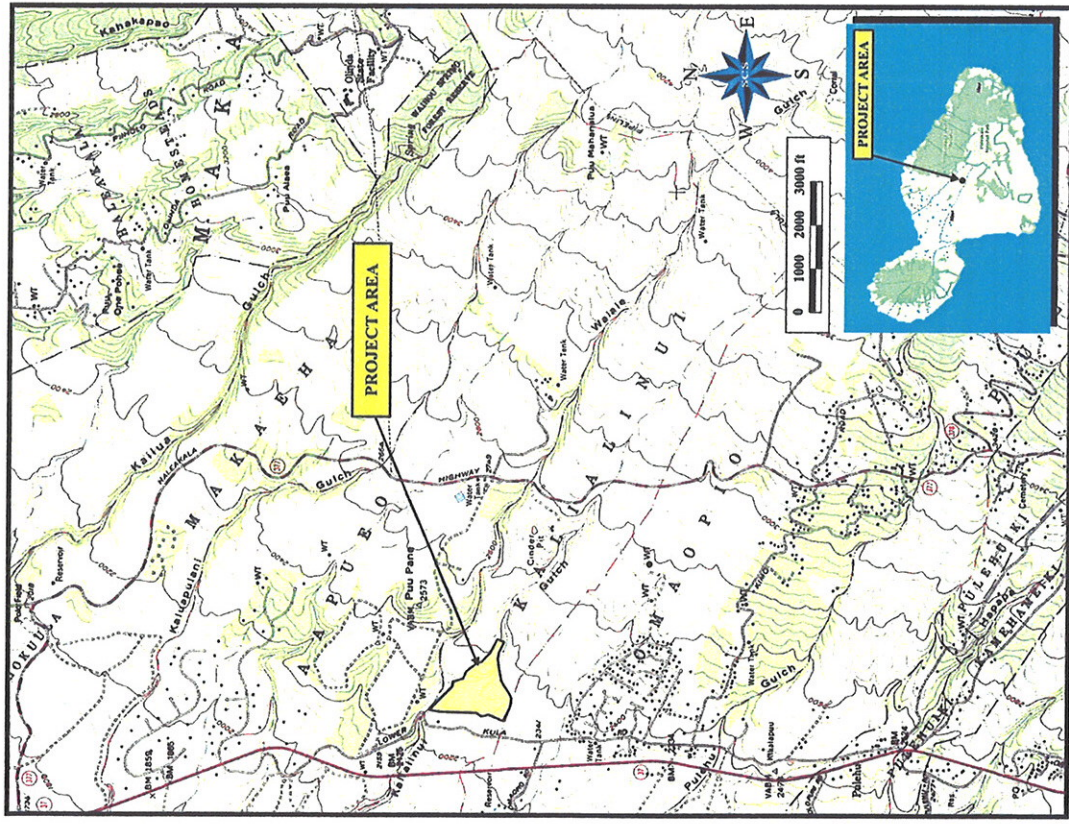


Figure 1: USGS Pu'u O Kali Quad Showing Project Area.

CLIMATE

Kula can be translated as "open country," "field," or "plain." These descriptions are all fitting to Kula, where the land is spread out for many miles, along two parallel highways. Kula exists between the elevations of approximately 2,000 and 3,500 feet amsl. Kula is known for its temperate conditions, with an average annual temperature of 66° F. The region is relatively dry, with an average annual rainfall of 25-40" per year (Juvik and Juvik 1998).

SOILS

Kula lies on the southwestern slopes of Haleakalā. As this volcano reached maturity, cinder cones formed along rifts that extended to the east, southwest, and north of the summit. Volcanic flows from this development are classified as the Kula Volcanic Series. After a long period of erosion, huge canyons were cut and later filled by the volcanic flows of the Hana Volcanic Series (Kyselka and Lanterman 1980:22). Cones of this series can still be seen today, stretching from Hāna up to Haleakalā, and down to La Perouse Bay.

Kula is the physiographic region of Maui classified as "Kula Slightly Dissected Upland" (Juvik and Juvik 1998). The abundance of vegetation here is a reflection of the richness of the soils that exist in this region. Kula lies in the convergence zone of the Kula Volcanic Series and the Hana Volcanic Series. Soils found here developed in material weathered by volcanic ash and overlying fragmented *a'ā* lava.

The soils found in Kula are classified as having Puu Pa-Kula-Pane association. It is well-drained, medium textured, and exists on the medium to high uplands of Maui. These soils are gently sloping to steep, and make up about nine percent of the island. The Puu Pa-Kula-Pane association is utilized for truck crops, orchards, pasture, and wildlife habitat (Foote *et al.*, 1973).

VEGETATION

The volcanic flows from the cinder cones are classified as the Kula Volcanic Series (Kyselka and Lanterman 1980:22). The Hana Volcanic Series can still be seen today, stretching from Hāna up to Haleakalā and down to La Perouse Bay.

Kula is the physiographic region of Maui classified as "Kula Slightly Dissected Upland" (Juvik and Juvik 1998). The abundance of vegetation here is a reflection of the richness of the soils that exist in this region. Kula lies in the convergence zone of the Kula Volcanic Series and the Hana Volcanic Series. Soils found here developed in material weathered by volcanic ash, and overlying fragmented *a'ā* lava.

CULTURAL AND HISTORICAL CONTEXT

TRADITIONAL SETTLEMENT PATTERNS

The district of Kula was known for dry land agriculture, and later, pig husbandry. Dryland field systems were characterized by extensive stone and earthen embankments, reliance on rainfall, and regular rotation of crops (Kolb *et al.* 1997:6). These systems were also noted for their arid conditions and lack of perennial streams (Chun *et al.* 2005). In fact, the word *kula* is also used to describe lands which were dry and inaccessible to water, except from rainfall (Malo, 1951). According to Kolb *et al.* (1997), the key component of Kula's economy was the dryland agriculture in and near the upland forests. '*Uala*, or sweet potato, is a tuber that will not grow in very wet areas. Handy & Handy (1972) noted that the primary staple of Kula was the '*uala*: sweet potato:

Kula was always an arid region, throughout its long, low seashore, vast stony *kula* lands, and broad uplands. Both on the coast, where fishing was good, and on the lower westward slopes of Haleakala a considerable population existed.....fishing and raising occasional crops of potatoes along the coast, and cultivating large crops of potatoes inland, especially in the central and northeastern section including Keokea, Waiohuli, Koheo, Kaunouli, and Waiakoa...Kula was widely famous for its sweet-potato plantations. '*Uala* was the staple of life here.

Malo also noted the farming of '*uala* in the early Hawaiian agricultural practices of upland areas:

If a field of potatoes was desired, the soil was raised into hills, in which the stems were planted; or the stems might merely be thrust into the ground any how, and the hilling done after the plants were grown; the vines were also thrown back upon the hill. In six months the potatoes were ripe. Such was the cultivation of *kula* land [1951:205].

The upland forest was an important resource to early Hawaiians, and before the deforestation that occurred as a result of clearing that made way for pasture-land, there was a sizable amount of moisture and water available to the area. The large upland forest provided wood for fire, tools, weapons, houses, and canoes. It also provided a source of medicinal plants, a habitat for native birds that were hunted for food and feathers, and wood for temple images.

The upland forest also played a sacred role in pre-Contact times. As noted in "Maoli Nō" (Nature Conservancy, 2005):

The ancient Hawaiians recognized gods everywhere in nature and honored a pantheon of natural deities. The upland forest was *wao akua*, the realm of the gods, and trees were physical manifestations of various gods in this spiritual realm. Entry into the forest was

limited to a few consecrated individuals and involved a strict protocol, including a statement of identity and purpose and appropriate offerings. If the purpose was to collect trees, only a single tree or species could be collected at a time. The upland forest was sacred to Ku, the god of war, governance, and leadership.

Pigs played an important political and ceremonial role in the history of Hawai'i. Ruling chiefs collected pigs as taxes. They were used in extensive ritual ceremonies to solidify social relationships between the commoners and those who ruled them (Kolb *et al.* 1997). In order to raise a substantial amount of pigs, the success of crops, such as 'uala and taro, was important, as it provided the primary source of feed. The dry upland of Kula was an ideal place for raising pigs, as well as the crops of 'uala and dry land taro to feed them.

Agricultural products from Kula are among the earliest documented commodities to have been sold or traded with foreigners (Donham, 1992). La Pérouse, an explorer who visited Maui in 1786, recorded in his ship's log that three hundred pigs had been traded to restore his food supplies (La Pérouse 1969).

The many identified *heiau*, building platforms, rock walls, terraces, and petroglyphs located throughout Kula suggests a landscape of extensive agriculture across the open plains and pastures, with a dispersed population, not unlike Kula today (Tulchin *et al.*, 2003).

WAHI PĀMI (SIGNIFICANT PLACES)

Kula was important in legend and as a sacred place. In legend, A'apueo the owl, who is known to have instigated a well-known battle between the owls and the chiefs of Wailuku, was from Kula. As Uaua (1871) noted in Handy and Handy, "A certain ahupua'a there bears the name of Aapueo to this day." It has been determined that the sacred volcano Haleakalā served as a final resting place for the dead of Kula and Honua'ula (1972).

Numerous accounts in oral history and legend concerning Kula have been documented by Sterling (1998) and Wong Smith (Brown and Haun 1989). Wong Smith has a well-documented summary of references to Kula, a part of an archaeological study of Waionuli and Keōkeā. However, there has been little mention of Kealahou Ahupua'a in legend or history. Keāhuaiwi Gulch, which borders Kealahou, contains a few deposits of 'ālaea and pictographs on its walls (Sterling, 1962). Sterling has also noted that further down the Gulch, a collection of petroglyphs was found high up on the walls. Fredericksen & Fredericksen (1992) noted that petroglyphs were recorded in Waikōa Gulch, which is adjacent to the Kealahou Ahupua'a. Walker (1931) describes a *heiau* and a platform in the Waikōa Ahupua'a.

PAST POLITICAL BOUNDARIES AND LAND TENURE

In ancient Hawai'i, it was the role of the people to *malama 'āina*, or care for the land. It was a reciprocal relationship. If the people took care of the land, as a primary responsibility, the land would in turn care for the people, by providing food, clothing, and shelter. The harmony and balance of this relationship was called *pono*.

The *ali'i*, or chiefs, belonged to the ruling class and were considered the protectors of the *maka 'āinana* (common people). They were believed to be the human representations of the *ākua*, or gods. Their duty was to maintain a balance between appeasing the gods by caring for the land, and in return, the common people provided for the *ali'i* (Kame'eichihwa, 1992).

Land was considered the property of the king or *ali'i 'ai moku* (the *ali'i* who eats the island/district), which he held in trust for the gods. The title of *ali'i 'ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him, and, in turn, distributed smaller parcels to lesser chiefs. The *maka 'āinana* (commoners) worked the individual plots of land.

In general, several terms, such as *moku*, *ahupua'a*, *'i'i* or *'i'i 'āina* were used to delineate different land sections. A district (*moku*) contained smaller land divisions (*ahupua'a*) that customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua'a* were able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua'a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *'i'i 'āina* or *'i'i* were smaller land divisions next to importance to the *ahupua'a* and were administered by the chief who controlled the *ahupua'a* in which it was located (Lyons 1875:33; Lucas 1995:40). The *lele* or *'i'i lele* were two *'i'i* parcels within an *ahupua'a* that were separated from each other. The *mo'o 'āina* were narrow strips of land within an *'i'i*. The land holding of a tenant, or *hoa 'āina*, residing in an *ahupua'a* was called a *kūleana* (Lucas 1995:61).

HISTORIC PERIOD

By the mid-1800s, large-scale sugar production had begun with the partnership of two men, S.T. Alexander and H.P. Baldwin, and their sugar plantation, Hawaii Commercial & Sugar (HC&S). With the growth of the sugar industry and the establishment of numerous plantations, workers from all over the world were recruited, including Portugal, Germany, Russian, Puerto Rico, Philippines, China, and Japan. This diverse group of people joined together, under

government contract, to labor in the sugarcane fields. When their contracts were expired, many immigrants settled in the upcountry area. The predominant groups which settled in Kula were the Portuguese, Chinese, and Japanese.

In the 1840s, many Hawaiian and Chinese were growing Irish potatoes in the Kula area. Some Chinese working as contract laborers in Kohala on the Big Island heard about the demand for labor on Maui. Many left the Big Island and settled in the Keōkeha area on Maui. Potatoes were initially cultivated to provision whaling ships, and then in 1849, to supply mining areas in California during the gold rush.

Extensive clearing of the upland forest, for sugarcane fields and potato farming, contributed to the rise of aridity in the Kula. The cool, relatively dry climate, and rich soil was perfect for growing crops, as was evident from the traditional Hawaiian cultivation of *ʻuala* in the area. Potatoes became such a dominant crop on Maui, that the area became known as “the potato district.” According to Kuykendall (1938), the fields covered an area as large as 12 miles, and by 1847, the annual production of potatoes was 20,000 barrels. With the expansion of ranching in the upcountry area, considerable amounts of land were cleared for pasture and ranch land, contributing to the deforestation of the upland forest, but creating the rich *paniolo* (cowboy) tradition for which the upcountry area is so famous.

THE GREAT MĀHELE

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on Western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kamehameha III was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kame'ele'iwa 1992:169-70, 176; Kelly 1983:45, 1998:4; Daws 1962:111; Kuykendall 1938 Vol. 1:145). The Great *Māhele* of 1848 divided Hawaiian lands between the king, the chiefs, and the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were thus made available and private ownership was instituted, the *maka'āinana*, if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, *ōkēpū* (on O'ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame'ele'iwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16).

In 1848 the Hawaiian population was around 88,000, of which 29,220 were males over the age of 18. There were only 14,195 applications for LCA awards submitted by *maka'āinana*. Of these claims, only 8,421 were awarded to less than 30% of the eligible males. The land received by the *maka'āinana* was less than 1% of all the total land in Hawai'i (Kame'ele'iwa 1992).

The entire *ahupua'a* of Kealahou was awarded to Kohokalohe (LCA8452*M), mother of future king, Kalākaua and queen, Lili'uokalani. The majority of LCAs awarded in Kula during the *Māhele*, were located between the 2,000 to 4,000 foot elevation in each *ahupua'a* (Tulchin *et al.* 2003). According to Chun *et al.* (2005), citing Haun and Henry (2001):

The distribution of LCAs in Kula describes a narrow horizontal band within specific elevation ranges and vegetation zones, in contrast to a typical valley system layout in which awardees often claimed agricultural lands along alluvial valley terraces and house lots and *kūla* land along the coast.

The Waihona Aina database (2006) lists a total of 21 land claims made for Kealahou Ahupua'a out of which 14 were awarded. Several were located within the project area and included, LCA9010 to Heiehua, LCA 10144 to Makahiki, and LCA 9673 to Lonoaea. Claims were noted for *kūla*, *koalkou* trees, and stream use.

The tradition of family farms in Kula began with the availability of homesteads at the end of the 19th century. Many sugar plantations had been leasing government land, and as the leases expired, pressure for homestead land grew. The government land was leased or sold in one to ten acre lots, in an effort to encourage farming (Brown and Haun 1989). Many lots were bought by former plantation workers, including the Chinese and Japanese. To this day, the Japanese have a rich history of farming in the Kula area. Goldman (2003) describes one account of a Japanese farming family, in a conversation with John Hashimoto, of Kula:

“My grandfather started the farm,” said John Hashimoto, resting reluctantly on the back steps of the old Kula farmhouse. “His name was Shimichi Hashimoto, an *issei* who came here from Japan. My grandfather bought ten acres; I think that was before 1910. Those days, nobody bought land. They'd save money and go back to Japan. But he came and stayed. He bought this land when this road was impassible. Everybody said, ‘fool, what will you do with the land?’”

Goldman goes on to say:

The answer would take generations—long enough for Shimichii's son Isami to become a leader in Kula's farming community, Isami's son John to follow in his footsteps, and John's son Howard to become the fourth generation to run what was by then a twenty-five acre farm.

PREVIOUS ARCHAEOLOGY

The earliest archaeological studies in Hawai'i were conducted in the early 20th century by John Stokes, Thomas Thrum and, for Maui, Winslow Walker. At that time, there was a heavy emphasis in recording religious sites and features. Winslow Walker conducted an island-wide survey for the Bishop Museum in 1930. According to Kolb *et al.* (1997), Walker documented 23 *heiau* in the Kula area, all situated in a band existing between 1,800-3,000 feet in elevation. Other site types in the district were of significantly lower in number: 3 fishponds, 11 abandoned villages, and 5 ancient villages (replaced with modern communities). Winslow Walker, in his 1930 island-wide survey, noted the presence of one *heiau* in the land of Waiakoa, which is adjacent to the land of Kealahou. Another platform *heiau* in Waiakoa measuring 36 by 45 feet, was identified by Poepoe (in Sterling 1998).

Two large-scale archaeological studies of Keōkeā and Waiohuli to the west and south of the project area have produced an abundance of information on the archaeological patterns and cultural history of upcountry Maui. In 1986, the Bishop Museum was contracted to conduct a reconnaissance survey of both Keōkeā and Waiohuli. An inventory survey was conducted by Brown *et al.* (1989) that identified 159 archaeological sites consisting of 274 features. One hundred and eighty-seven of the features were associated with permanent habitation. According to Brown *et al.* (1989), radiocarbon dates from this study revealed dates ranging from A.D. 1680 to 1890.

In 1992, the State Historic Preservation Division (SHPD) conducted research in both Keōkeā and Waiohuli. During this survey, 217 sites were identified, consisting of 1,093 features. More than half of the features were associated with agriculture. Two hundred and twelve features were associated with permanent habitation, and 121 were associated with temporary habitation. Six *heiau* were also identified. According to Kolb *et al.* (1997), radiocarbon dates from this study revealed dates ranging from A.D. 1399 to 1955.

Over 200 radiocarbon dates presented in Kolb's study (*ibid.* 1997) provides an extensive chronology and a detailed account of settlement and subsistence for Kula. Kolb's analysis of upland residential sites suggested that the area was inhabited primarily by commoners and low-

ranking chiefs. The primary subsistence was based on sweet potato, dry land taro, and banana. Between the years A.D. 1660 and 1700, settlements in the uplands began to grow along with growth of pig husbandry. It is thought that these settlements supported the political structure of the *ali'i* (Haun and Henry 2001).

Department of Hawaiian Homelands (DHHL) landholdings in the *āhupua'a* of Keōkeā, are located approximately 5.5 miles to the southwest of Kealahou. Landholdings in Waiohuli, are located approximately 3.4 miles from Kealahou. The extensive archaeological testing that has been conducted in these areas has greatly contributed to the overall understanding of the archaeological patterns of upcountry Maui, as well as the cultural traditions of the past in both ancient and historic times.

In 2001, Haun & Associates conducted an inventory survey in the land of Karnehānenui, which is adjacent to Kealahou. In this survey, three historic sites were identified, including an agricultural clearing mound and two cattle walls.

Within the Kealahou *āhupua'a* and the project area, archaeological field studies are very few and are limited in scope. The majority of archaeological studies in the region have focused on neighboring *āhupua'a*. Ethnographic information for Kealahou *āhupua'a* is also extremely limited.

Petroglyphs and pictographs were identified in Keāhūaiwi Gulch by Sterling (1962). She stated:

.....we went first to Keāhūaiwi Gulch in Kealahou about 1/4 of a mile up the gulch from the old quarry. Here there is a natural crossing and on the Ulupekua side is a bluff shelter. There were traces of alaea rubbings on the walls but it could not be determined whether they were actual pictographs...Further up the gulch on the Makawao side is a deposit of alaea and a series of pictographs fairly high up on the walls. In the streambed we found porous cooking stone and opihī shell....We then went below the Lower Kula Road to about .6 of a mile down the same gulch from the old quarry. Here are a collection of petroglyphs fairly high up on the Makawao side of the gulch.

In 2003, Scientific Consultant Services conducted an inventory survey in Kealahou. This survey was of a 0.7 acre parcel of land, and two sites were identified, including two features, a historic cattle wall/boundary wall, and a pre-historic agricultural terrace.

ANTICIPATED SURVEY FINDINGS

Based on archival research of the area and adjacent *ahupua'a*, and the relatively large-scale archaeological studies of the nearby areas of Kōkeka and Waiohūi, it was thought that archaeological features associated with agricultural practices and habitation could be present within the confines of the project area and might include, stone and earth embankments, terraces, mounds, modified outcrops, petroglyphs, garden enclosures, animal enclosures, boundary walls, platforms, surface artifacts, and midden scatters. There is also the possibility of the presence of human burials.

METHODOLOGY

The Inventory Survey was conducted between April 17 and May 5, 2006 by Donna Shefcheck, Jennifer Frey, Ian Bassford, James Powell, Angela Susak, and Randy Ogg. Field Director Guerin Tome, under Principle Investigator, Michael Dega, Ph.D. The inventory survey incorporated 48.117 acres in Kealahou Ahupua'a. Fieldwork consisted of a systematic pedestrian survey of the project area with the crew spaced a variable 10 m, depending on ground visibility. Consultation was undertaken with the Department of Land and Natural Resources (DLNR) SHPD Maui archaeologist Dr. Melissa Kirkendall. All suggestions were implemented accordingly.

ARCHIVAL METHODS

In addition to referencing available SCS resources, archival research was conducted at the SHPD library facility (Wailuku and Kapolei, HI) and on the SHPD website. Archival work consisted of general research on the history and archaeology of the project area, as well as specific searches of previous archaeological studies in and around the subject parcel. Historic land use data were obtained from various sources including the Waiohūa Aima Database 2006 website.

FIELD METHODS

All of the identified archaeological sites were marked with flagging tape and notes describing their location, construction characteristics, and excavation potential were recorded. During the Inventory Survey all identified features were mapped to scale using a tape and compass and were photographed. Sites were recorded in sufficient detail to reflect their overall integrity, size, and location in the project area. All sites were located with a hand-held GPS unit. Sites deemed appropriate were subjected to limited sub-surface excavations in the form of test units (TU), shovel probes (SP), and stratigraphic trenches (ST). Test Units were excavated using

a trowel, by natural stratigraphic layers divided in 10 cm levels as necessary. Shovel Probes and Stratigraphic Trenches were excavated by natural layers, rather than arbitrary levels. Where noted, excavation fill was screened through 6 mm and 3 mm mesh nested in series. Profiles and standard planview maps were generated for each excavated unit. Soil layer color was recorded using Munsell color charts and soil composition was recorded on standard SCS stratigraphy forms.

LABORATORY METHODS

Artifacts were sorted, analyzed, and catalogued at the SCS laboratory in Honolulu and are presently curated at the SCS laboratory in Honolulu along with all field notes, illustrations, and photographs. Portable artifacts were transported to the SCS laboratory in Honolulu. These materials were catalogued, described and quantified, and analyzed and interpreted in the laboratory. Appendix A contains the results of the artifact analysis. Laboratory work also included digital drafting of site locations and plan views for reporting purposes and the digitizing of all photographs and maps for archival purposes.

ARCHAEOLOGICAL INVENTORY SURVEY RESULTS

A pedestrian survey of 48.117 acres revealed the presence of 18 archaeological sites including 33 features (Table 1). Figure 3 shows the location of the 18 archaeological sites. Two SP and six TU were excavated in Sites 50-50-11-5979, 5980, 5982, and 5983.

Table 1: Sites Identified During Inventory Survey

Site #	# of Fe.'s	Type	Function	Age
50-50-11-5970	1	Wall	Ranching	Historic
5971	1	Wall	Ranching	Historic
5972	1	Alignment/wall	Agriculture	Pre-Historic
5973	3	Alignment/wall	Agriculture	Pre-Historic
5974	1	Modified Outcrop	Agriculture	Early Historic
5975	1	Modified Outcrop	Agriculture	Undetermined
5976	1	Modified Outcrop	Agriculture	Pre-Historic
5977	1	Platform	Undetermined	Undetermined
5978	4	Terraces	Habitat	Pre-Historic
5979	2	Terraces	Agriculture	Pre-Historic
5980	8	Modified Outcrop/Terrace/closure	Agriculture/Habitat	Pre-Historic
5981	1	Wall	Ranching	Historic
5982	1	Terraces	Agriculture	Pre-Historic
5983	1	Mound	Activity Area	Pre-Historic
5984	1	House	Habitat	Historic
5985	2	Enclosure/Wall	Activity Area/Ranching	Historic
5986	1	Modified Outcrop, Rock Mound	Undetermined	Undetermined
5987	1	Wall	Ranching	Historic

SITE 50-50-11-5970 was located in the bottom of a drainage gully.

Feature 1 was a low-lying core-filled rock wall extending *mauka/makai*, incorporating *in situ* boulders and standing three courses high. It measured approximately 22.00 by 2.20 by 0.15/0.90 m high (Figure 4). The feature was in poor condition and had been severely altered by at least one bulldozed road that bisected the feature, as well as damage from cattle. The function of Feature 1 was interpreted as a ranching wall.

SITE 50-50-11-5971 was located south of Site 50-50-11-5970 and was oriented *mauka/makai*.

Feature 1 was a double-faced, core-filled wall that had been reduced to one course high. It was constructed with large boulders and a sub-angular cobble fill. The wall measured 30 m by 1.50 m by 0.30/0.67 m high (Figure 5). A horseshoe was identified on the surface near the feature. Although the wall had been impacted by cattle and bulldozer activities, it was in relatively good condition. Feature 1 is interpreted as the remains of a historic cattle/boundary wall.

SITE 50-50-11-5972 was located adjacent to a shallow swale and intersects the western boundary of the project area.

Feature 1 was one to two course high, stacked alignment/wall lying perpendicular to the slope contour. It measured 7.00 by 0.25/0.55 by 0.40/0.80 m high (Figure 6). Based on its location and style, Feature 1 is interpreted as the remnants of a partially stacked agricultural feature of prehistoric origin.

SITE 50-5-11-5973 consisted of three features and was located on top of moderately steep hill in the southwest portion of the project area. Visibility was hampered by thick vegetation and there had been recent bulldozer activity to the north and west. To the southeast was a barbed-wire fence, a driveway and an occupied house (Figure 7).

Feature 1 was a roughly stacked rock-faced terrace constructed with medium to large boulders and standing from one to three courses high. It measured 23.70 by 0.70 by 0.83m high. The surface of terrace was level. The terrace was interpreted to be an early historic agricultural feature.

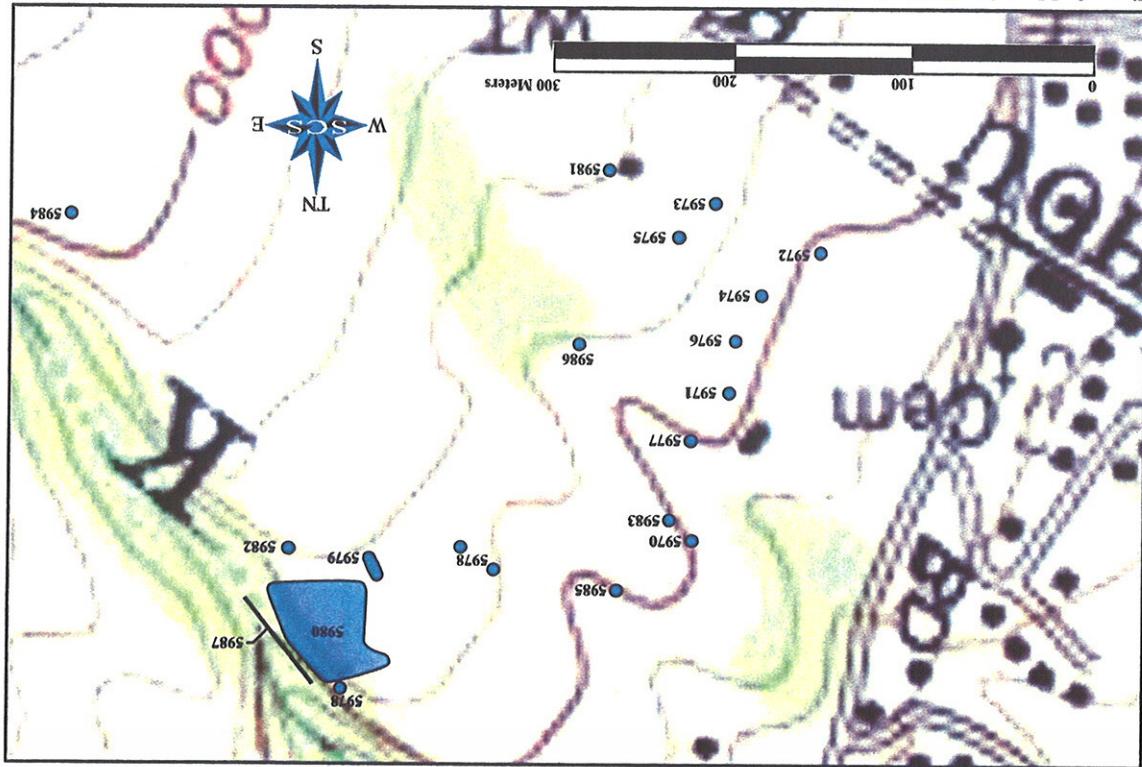


Figure 3: Map of Archaeological Sites Within the Project Area.

Feature 2 was a rock-faced, soil-surfaced terrace. The facing construction was informal and rough suggesting it was a later addition containing the soil surface. It measured 16.50 by 6.30 by 0.70 m high. The terrace was interpreted to be an early historic agricultural feature.

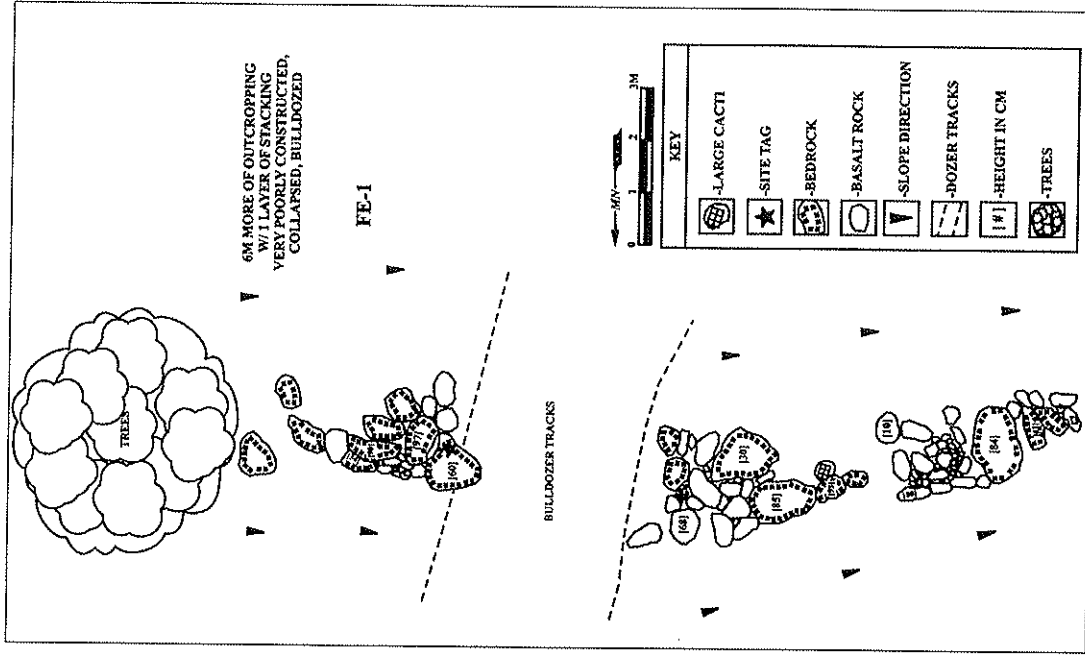


Figure 4: Site S970, Feature 1 Plan View.

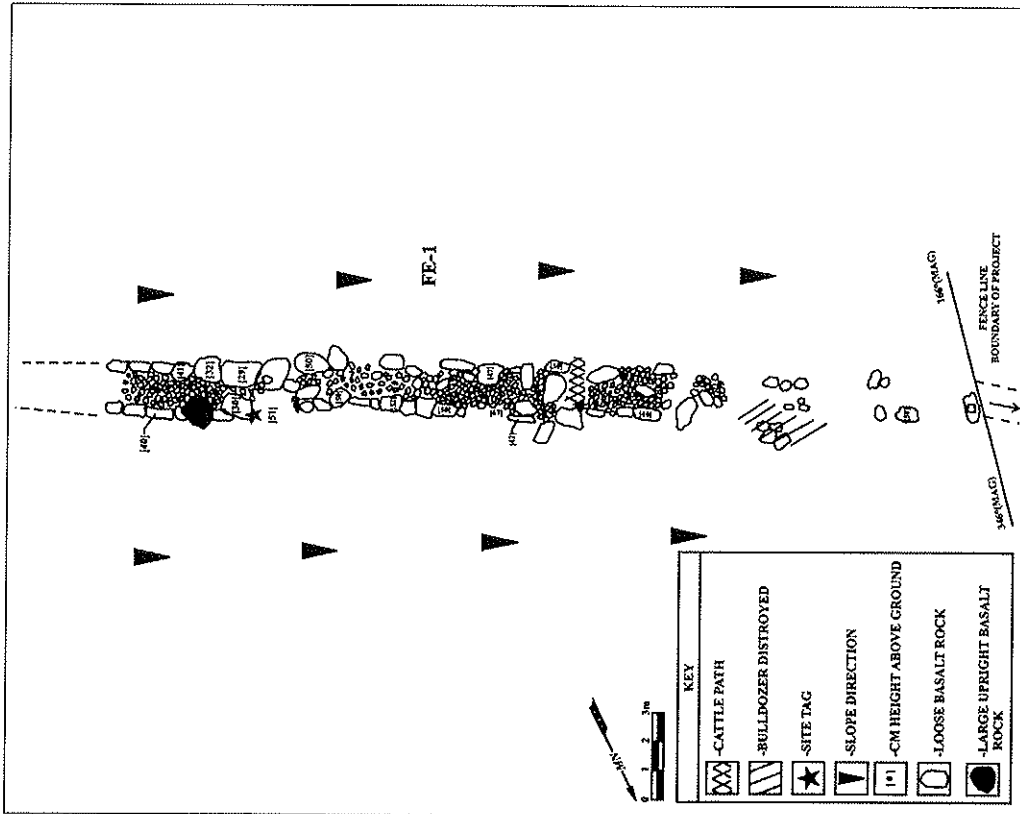


Figure 5: Site 5971, Feature 1 Plan View.

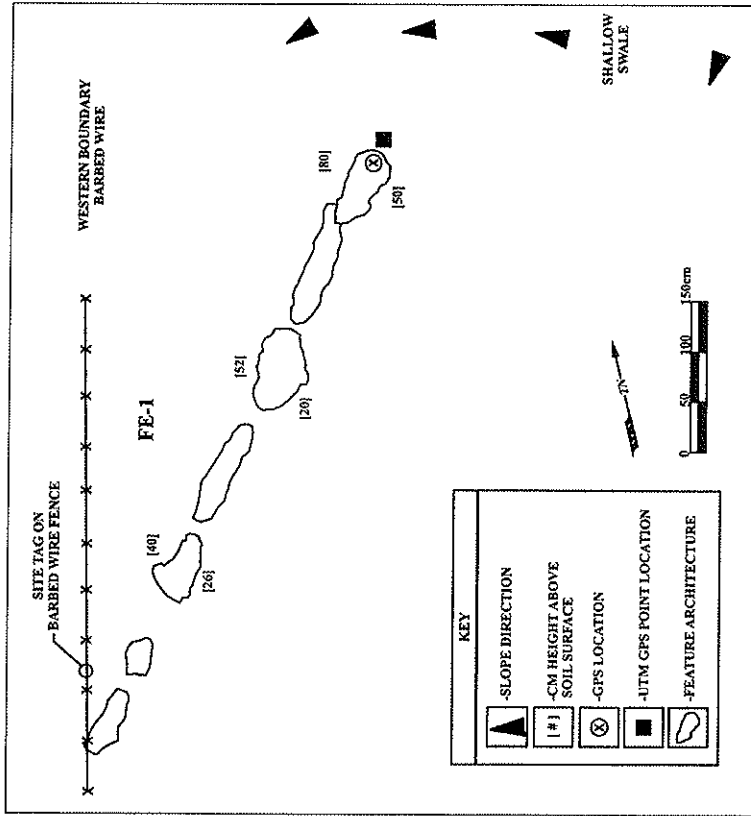


Figure 6: Site 5972, Feature 1 Plan View.

Figure 9: Site S975, Feature 1 Plan View.

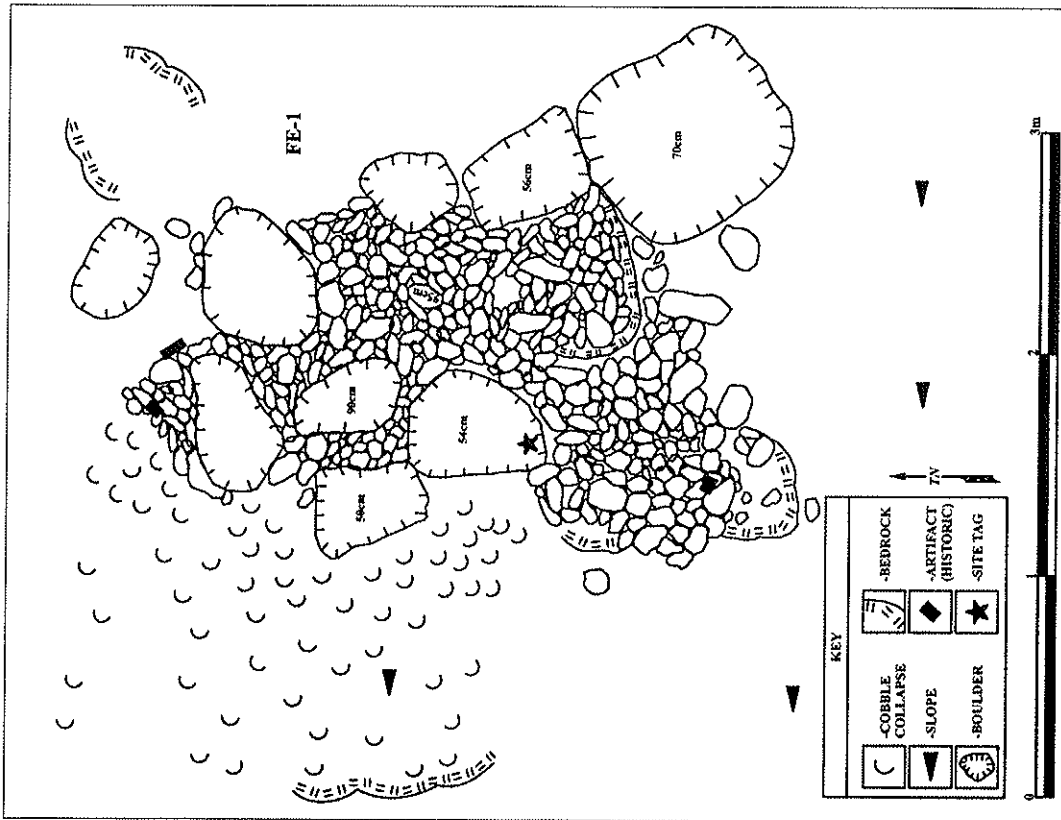
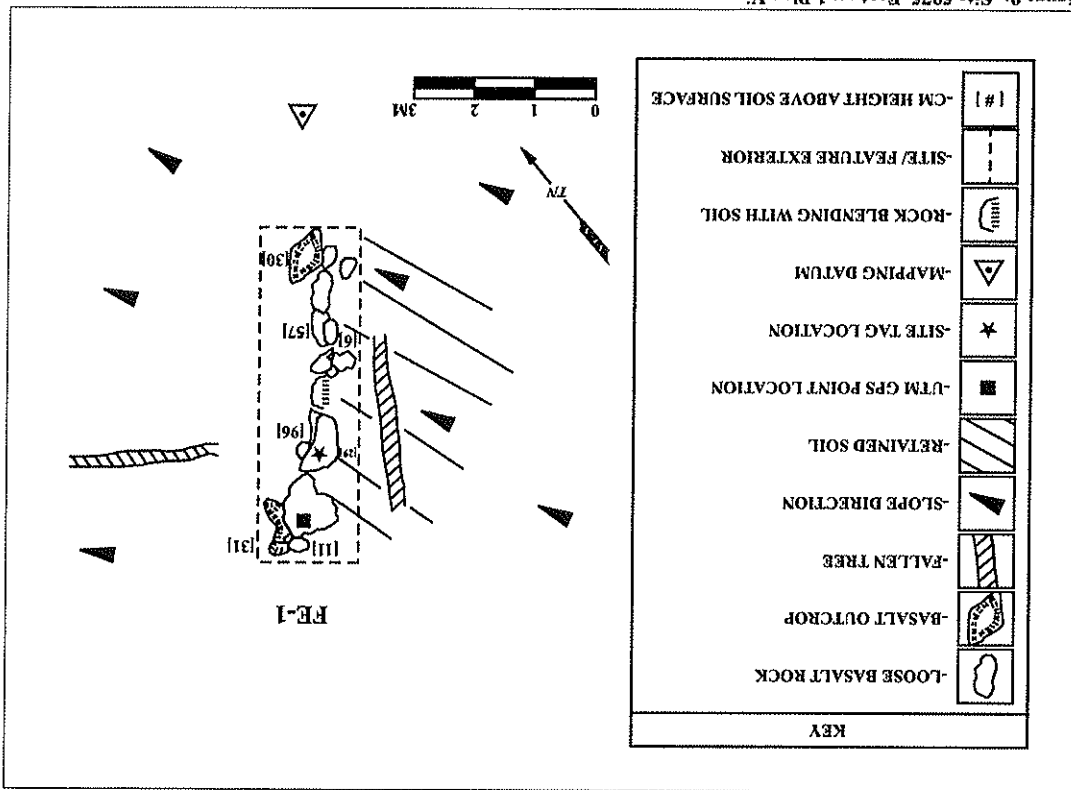


Figure 8: Site S974, Feature 1 Plan View.

Figure 11: Site 5977, Feature 1 Plan View.

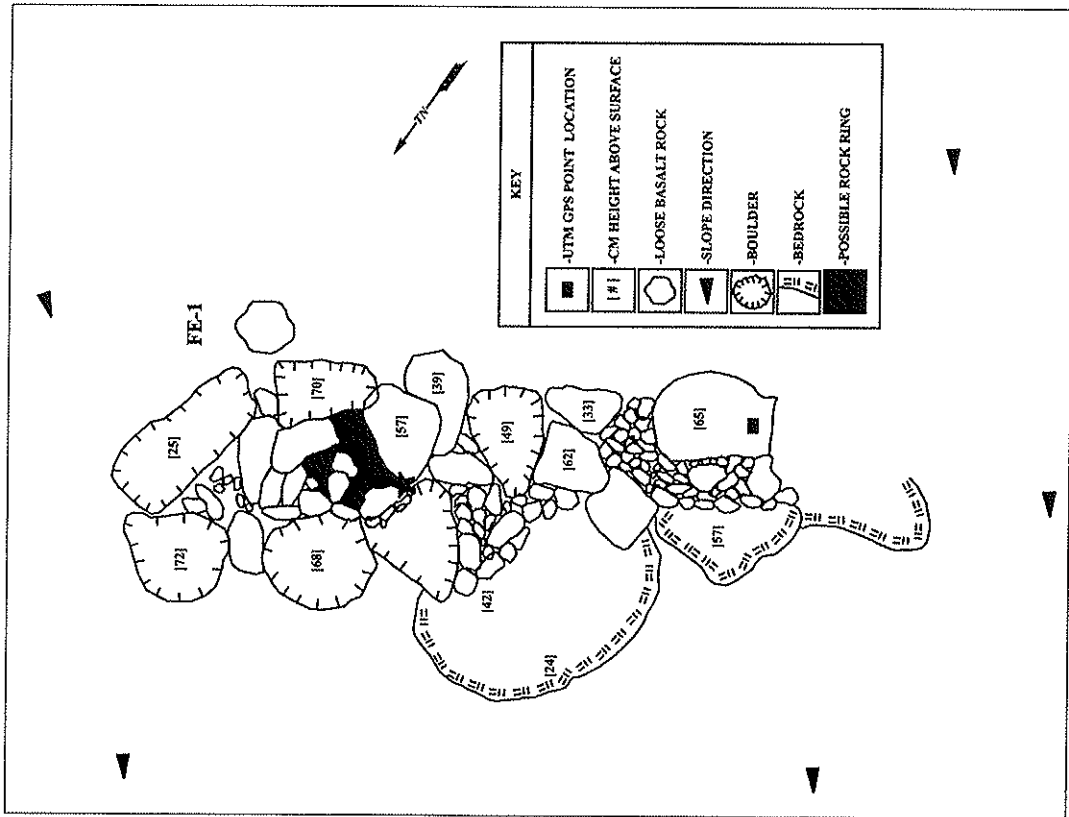
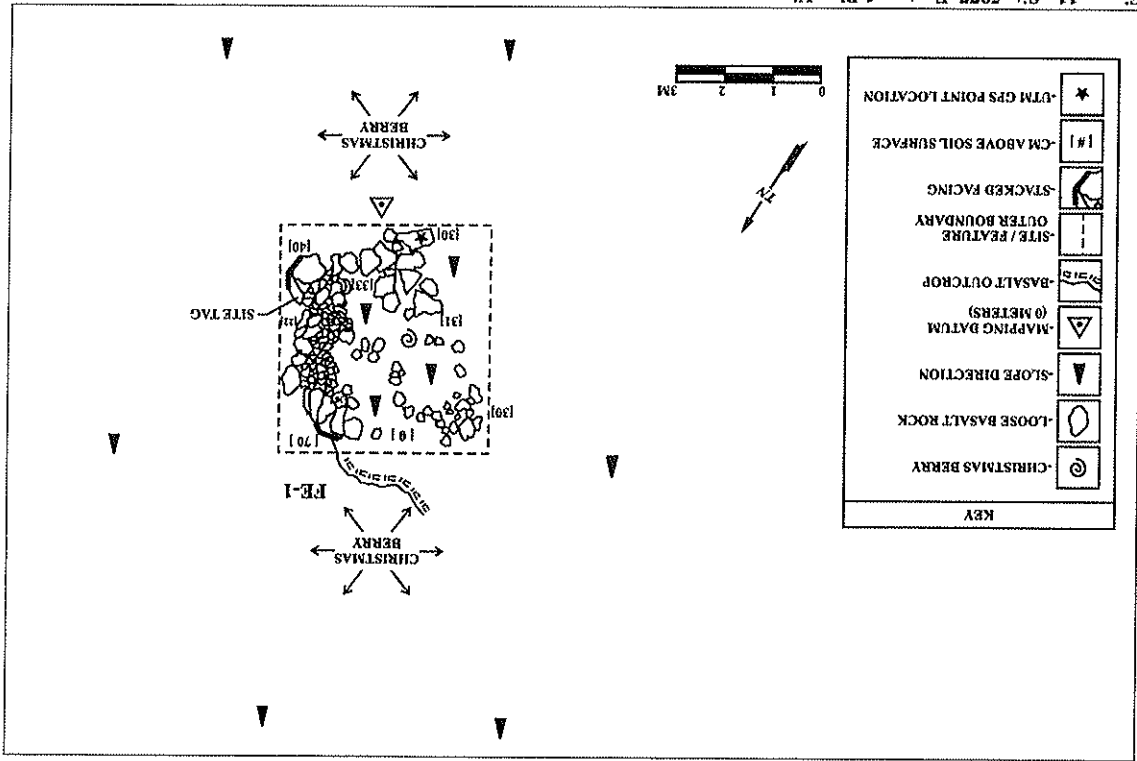


Figure 10: Site 5976, Feature 1 Plan View.

Feature 1 was a soil-surfaced, rock-faced terrace constructed with medium to large cobbles and small boulders situated at the head of the gully/wash. It measured 31.20 by 2.32 by 0.86 m high. The terrace facing was approximately 1.50 to 2.00 m thick.

Feature 2 was a soil-surfaced, rock-faced terrace constructed with medium to large cobbles and small boulders and was standing three to seven courses high. It measured 23.20 by 2.10 by 0.72 m high. The terrace facing was approximately 1.50 m thick.

Feature 3 was a soil-surfaced, rock-faced terrace constructed with medium to large cobbles and small boulders. It measured 21.60 by 2.10 by 0.63 m high.

Feature 4 was a soil-surfaced, rock-faced terrace constructed with medium to large cobbles and small boulders and was standing three to seven courses high. A glass bottle was found on the surface. The terrace measured 62.00 by 0.32 m high on the interior and 2.52 m high on the exterior. The terrace facing was 1/1.5 m thick. This terrace extended out of the gully/wash and onto the flat surface to the north. All of these features were interpreted as pre-Contact agricultural terraces.

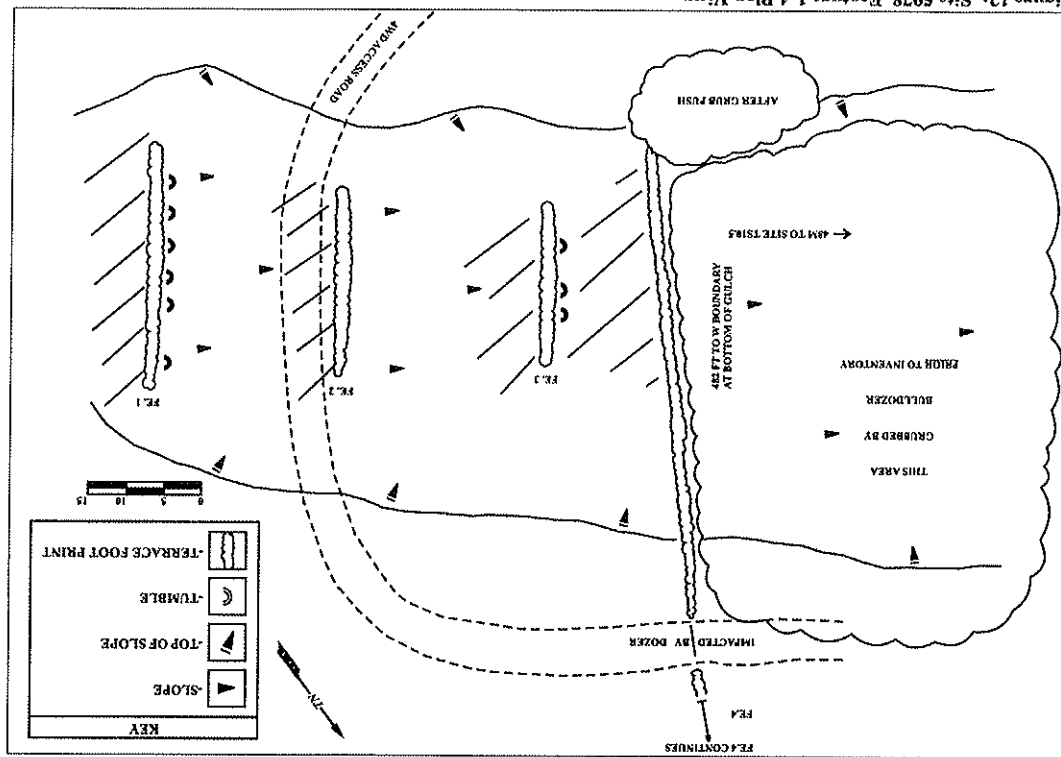
SITE 50-50-11-5979 consisted of two features located to the northeast of Site 50-50-11-5978 on a slight slope.

Feature 1 was a partially soil-surfaced and partially paved, rock-faced terrace (Figure 13). Cobble fill was situated in the southwest corner of the feature and the facing was three to six courses high. It measured 8.50 by 5.50 by 0.94/1.52 m high and the thickness of the facing was approximately 0.60 m.

SP-1 (0.50 by 0.50 m) was placed against the exterior of the mauka portion of Feature 1 on a slight southeast to northwest slope. The excavated fill was screened through 6-mm and 3-mm mesh nested in series. Three stratigraphic layers were identified in the exposed section (Figure 14).

Layer I (0-4 cmbs) consisted of a dark brown (10YR 3/3) fine silt containing no cultural material.

Layer II (4-13 cmbs) consisted of a very dark brown (7.5YR 2.5/2) with dark reddish brown (2.5YR 2.5/3) semi-compact, crumbly clay-silt containing no cultural material.



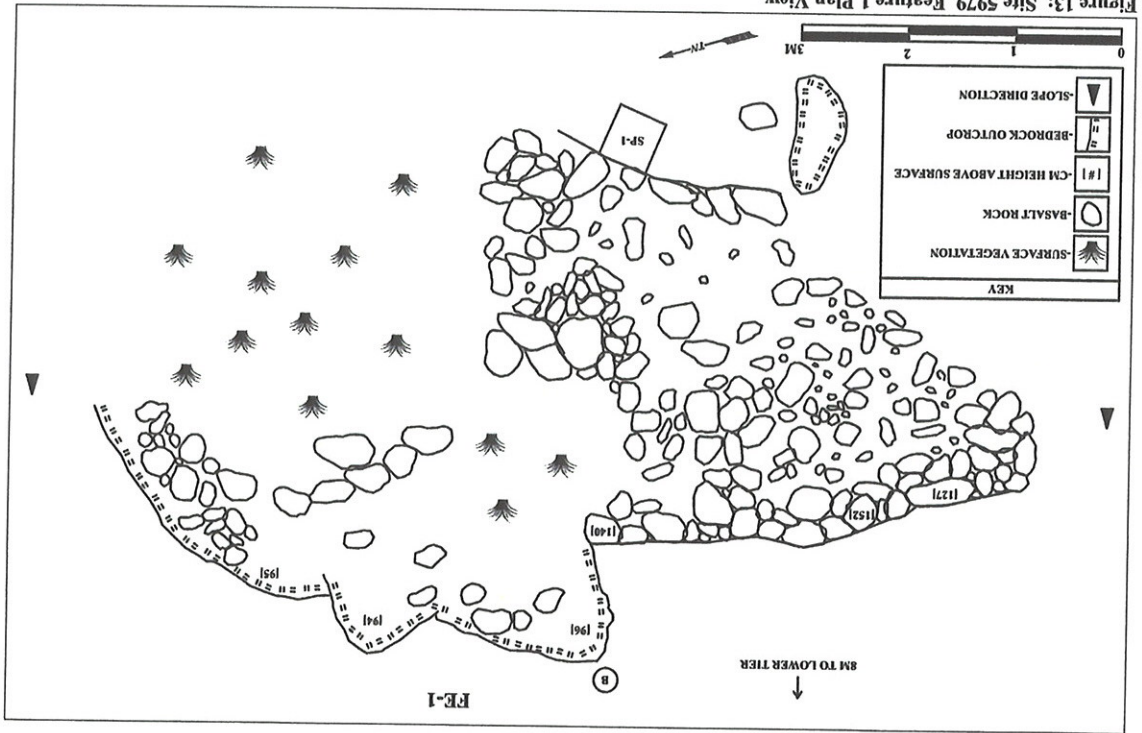


Figure 13: Site 5979, Feature I Plan View.

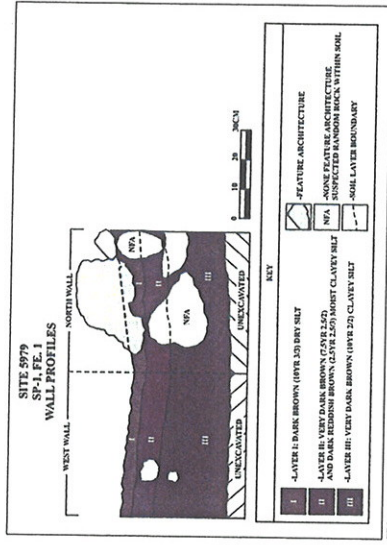


Figure 14: Site 5979, SP-1 Profile West And North Walls.

Layer III (13-25 cmbs) consisted of a very dark brown (10YR 2/2) semi-compact crumbly clay-silt containing one porcelain shard. Excavation was terminated on bedrock.

28

Feature 2 was a partially soil-surfaced and partially paved, rock-faced terrace constructed with medium to large cobbles and large boulders (Figures 15 and 16). It measured 14.40 m long by 1.08 m high with a terrace facing thickness of 0.60 m wide. The terrace was three to six courses high.



Figure 15: Site 5979, Feature 2 To East.

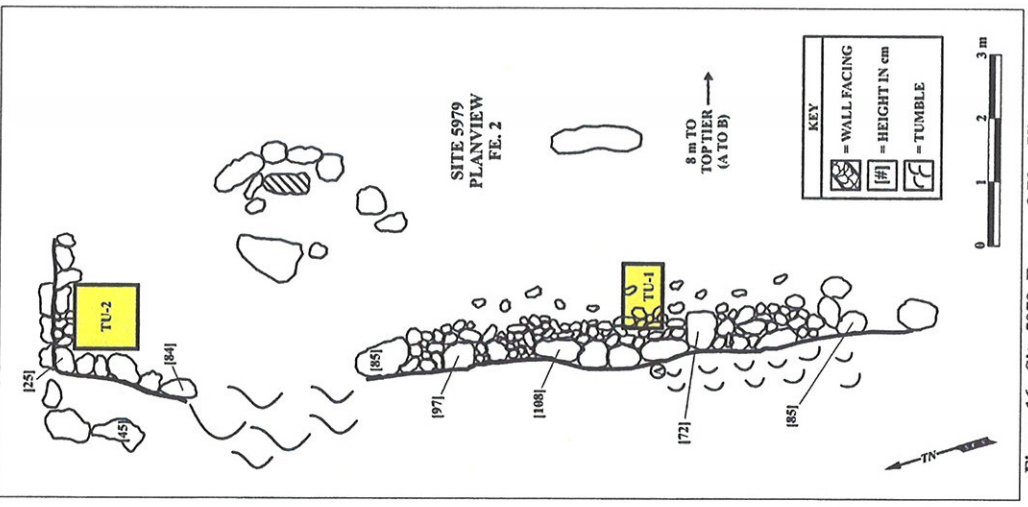


Figure 16: Site 5979, Feature 2 Plan View.

TU-1 (1.00 by 0.50 m) was placed in the center of the terrace interior. The excavated fill was screened through 3 mm mesh screen. Two stratigraphic layers were identified in the exposed section (Figure 17).

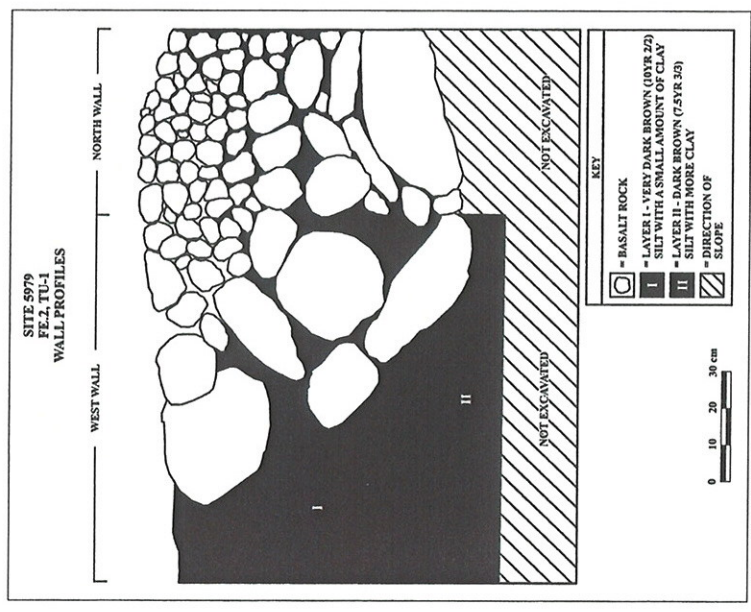


Figure 17: Site 5979, Feature 2, TU-1 North And West Wall Profiles.

Layer I (0-80 cmbs) consisted of a very dark brown (10YR 2/2) silty-clay containing no cultural material.

Layer II (80-100 cmbs) consisted of a dark brown (7.5YR 3/3) clay-silt containing no cultural material.

TU-2 (1.00 by 1.00 m) was placed in the northeast corner of the terrace. The excavated fill was screened through 3-mm mesh screen. Two stratigraphic layers were identified in the exposed section (Figure 18).

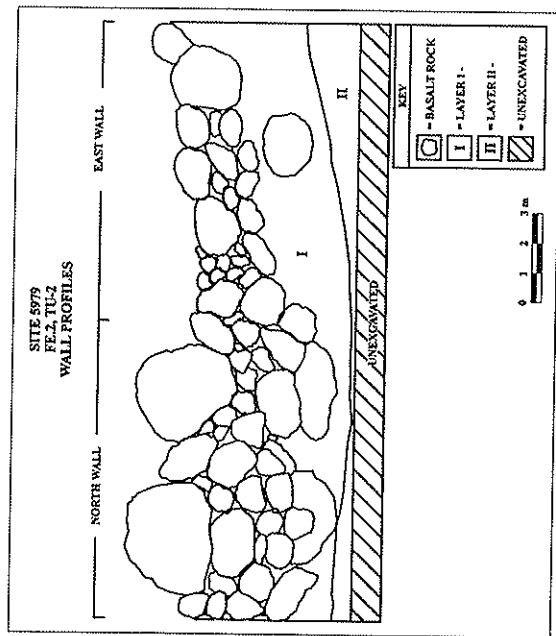


Figure 18: Site S979, Feature 2, TU-2 North And East Wall Profiles.

Layer I (0-60 cmbs) consisted of a very dark brown (10YR 2/2) silty-clay containing charcoal flecks and the base of the facing.

Layer II (60-70 cmbs) consisted of a dark brown (7.5YR 3/3) clay-silt containing no cultural material.

Both Features 1 and 2 were interpreted as pre-Contact agricultural terraces.

SITE 50-50-11-5980 consisted of eight features located on the slightly raised edge of Keāhuaiwi Gulch that terminates in a steep *pu ʻū* at its north end. A shallow swale extended to the southwest. Basalt flakes, a basalt core, edge-altered basalt flakes, a basalt awl, an adze blank, two adzes and a possible awl were identified on the surface near Features 6 and 7.

Feature 1 was a modified outcrop forming an enclosure that became a soil-surfaced terrace with a stacked and piled rock facing (Figures 19 and 20). It measured 5.60 by 5.60 by 1.30 m high.

SP-1 (0.50 by 0.50 m) was placed within the enclosure of Feature 1. The excavated fill was screened through 6 mm and 3 mm mesh nested in series. Three stratigraphic layers were identified in the exposed section (Figure 21).

Layer I (0-16 cmbs) consisted of a dark brown (10YR 3/3) fine silty loam containing 70% cobbles and no cultural material.

Layer II (16-44 cmbs) consisted of a very dark brown (10YR 2/2) fine, semi-compact silt containing 70% cobbles and no cultural material.

Layer III (44-76 cmbs) consisted of a dark yellowish brown (10YR 3/6) fine, semi-loose silt containing 5% rock fill and no cultural material.

The function of Feature 1 was interpreted as agricultural.

Feature 2 was a rock-faced terrace constructed with stacked cobbles and boulders (Figure 22). There was a small level pebble pavement in the eastern portion of the terrace which measured 4.40 by 2.70 by 0.80 m high with a wall thickness of 0.60 m. The stacked facing was one to two courses high. This feature was interpreted as a temporary habitation/shelter.

Feature 3 was located on the edge of a gulch and consisted of a mound of piled boulders with piled cobbles on its west side (see Figure 22). It measured 3.50 by 2.40 by 0.90 m high. This feature was interpreted as a planting/clearing mound.

Feature 4 was located on the west slope of a *pu ʻū* and consisted of a modified outcrop constructed with cobbles and boulders stacked on bedrock (Figure 23). It measured 13.00 by 2.40 by 1.30 m high. Its function was undetermined.

Feature 5 was located on a south spur of a *pu ʻū* and consisted of cobbles and boulders stacked along a bedrock outcrop (Figure 24). It measured 13.00 by 0.50/2.00 by 0.75 m high and stood two to three courses high at its north end.

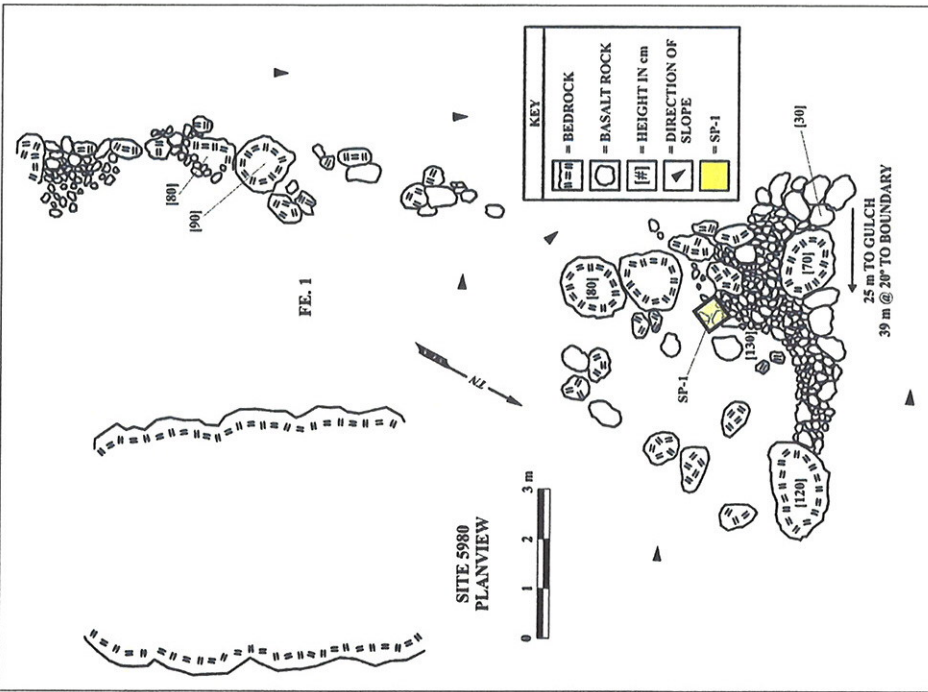


Figure 19: Site 5980, Feature 1 Plan View.



Figure 20: Site 5980, Feature 1 To Northeast.

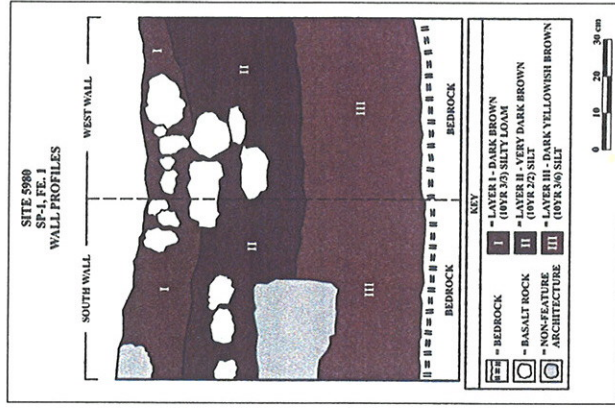


Figure 21: Site 5980, Feature 1, SP-1 South And West Wall Profiles.

Figure 23: Site 5980, Feature 4 Plan View.

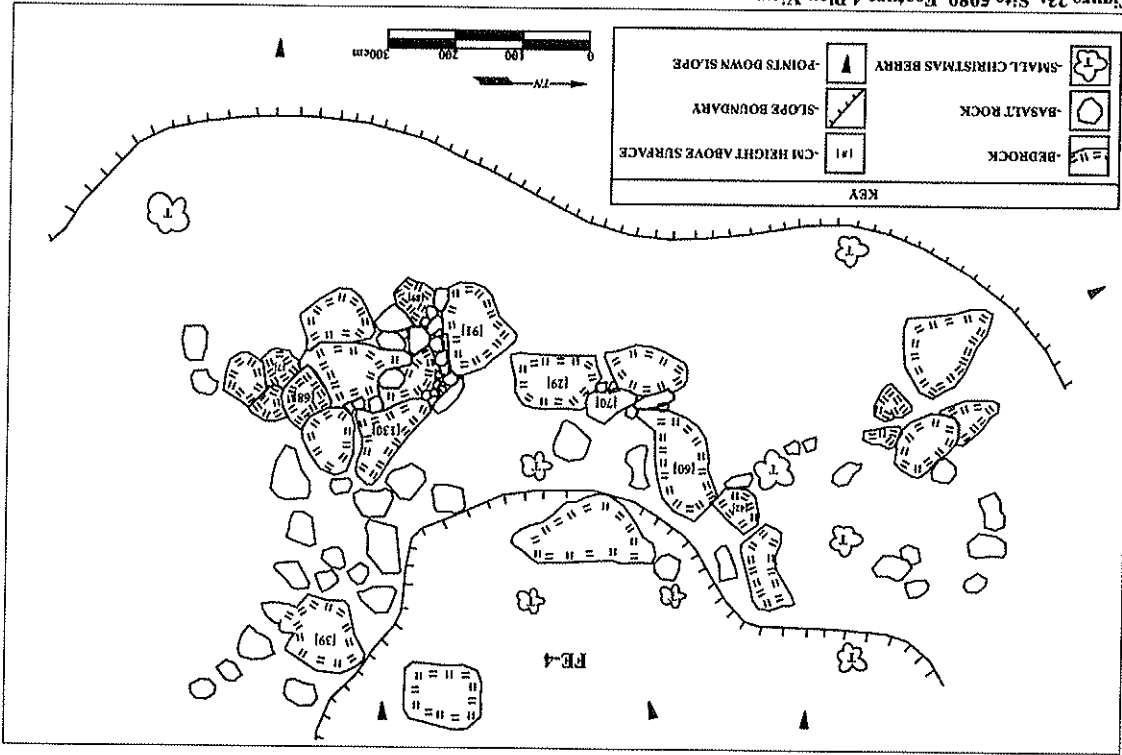
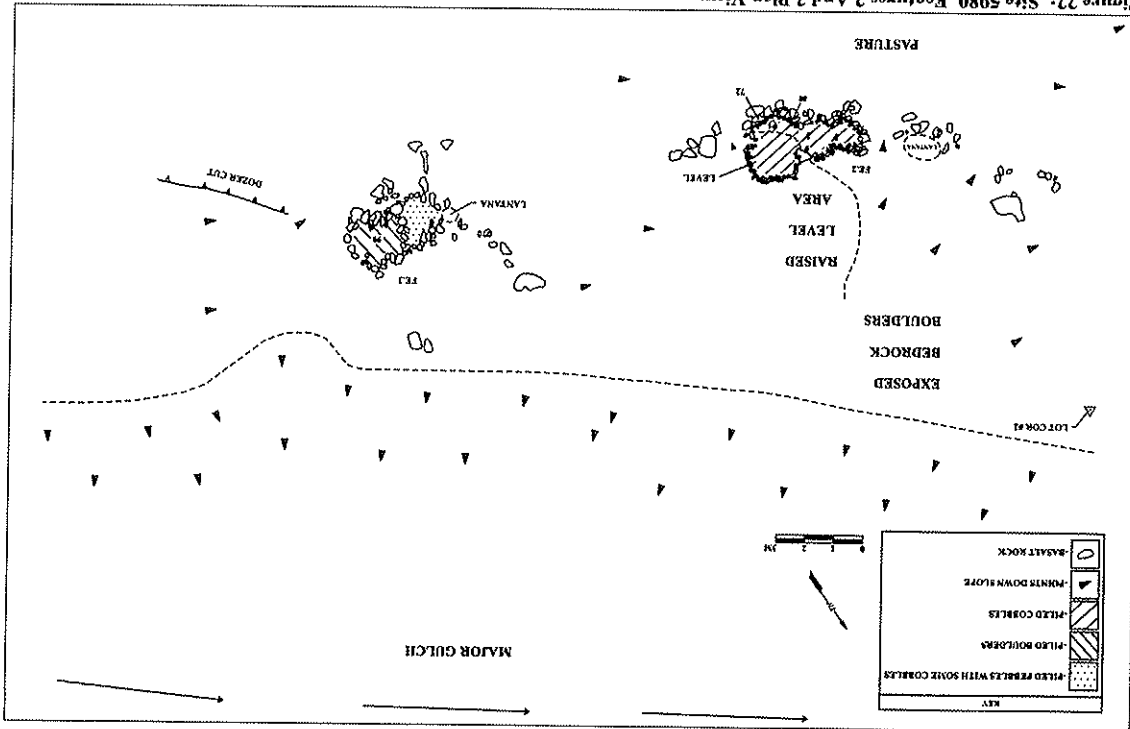


Figure 22: Site 5980, Features 2 And 3 Plan View.



Feature 6 was located on a west spur of a *pu'ū* and consisted of a soil-surfaced, rock-faced terrace constructed with cobbles and boulders stacked three courses high (Figures 25 and 26). It measured 14.00 by 2.40 by 1.00 m high. A possible re-worked large basalt flake was identified on the surface.

TU-1 (1.00 by 1.00 m) was placed in the southeast corner of the terrace. The excavated fill was screened through 6-mm and 3-mm mesh nested in series. Three stratigraphic layers were identified in the exposed section (Figure 27).

Layer I (0-30 cmbs) consisted of a very dark brown (7.5YR 2.5/2) very fine silt loam containing 80% gravel in the first 10 cm of matrix. A basalt core was recovered between 20 and 30 cmbs.

Layer II (30-64 cmbs) consisted of a very dark brown (10YR 2/2) very fine silt loam containing less than 10% gravel. At 36 cmbs and 48 cmbs two incised rocks were identified.

Layer III (64-70 cmbs) consisted of a dark reddish brown (5YR 3/4) silt loam containing no cultural material. Excavation was terminated on bedrock.

The incised rock may represent the results of what was traditionally known as a *hoana* stone which was often used for sharpening pointed tools, such as bone picks and needles, rather than a polishing or whetstone used most frequently on flat surfaces of larger tools (Figure 28).

Feature 7 was a modified outcrop constructed with stacked cobbles and boulders and incorporating some large, flat basalt slabs either standing on end or lying flat on two courses of stacked cobbles (Figure 29). It measured 6.00 by 2.00 by 0.65 m high. A lithic scatter was found on and around the feature and extended to the edge of a gully to the south.

Feature 8 was an enclosure constructed with basalt boulders stacked two to three courses high (Figures 30 and 31). It measured 2.40 by 2.25 by 0.47 m high. Both features had been impacted by animal activity. This site was interpreted as an agricultural/habitation complex.

SITE 50-50-11-5981 extended east-west and was located in the southern portion of the project area.

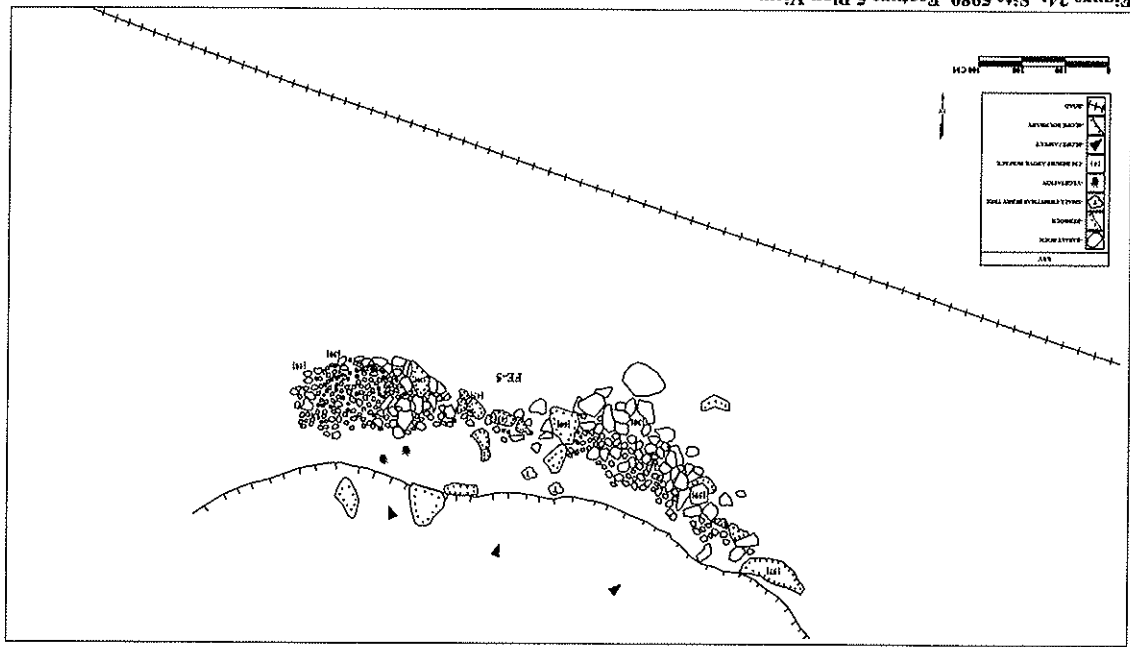


Figure 24: Site 5980, Feature 5 Plan View.

Figure 26: Site 5980, Feature 6, View to Northwest.



Figure 27: Site 5980, Feature 6, TU-1 West And North Wall Profiles.

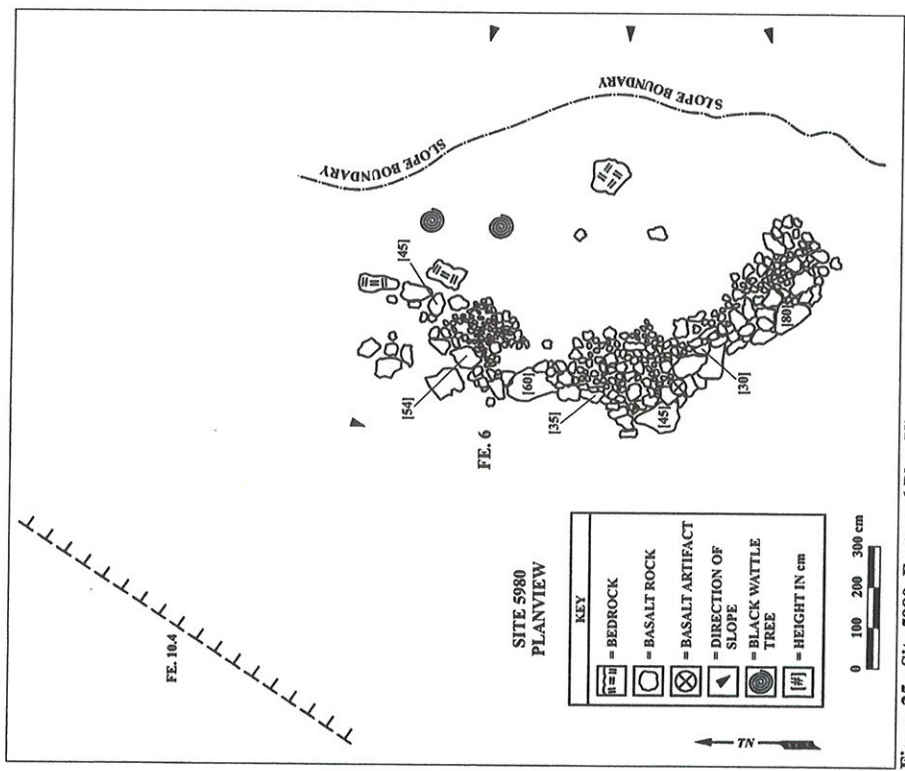
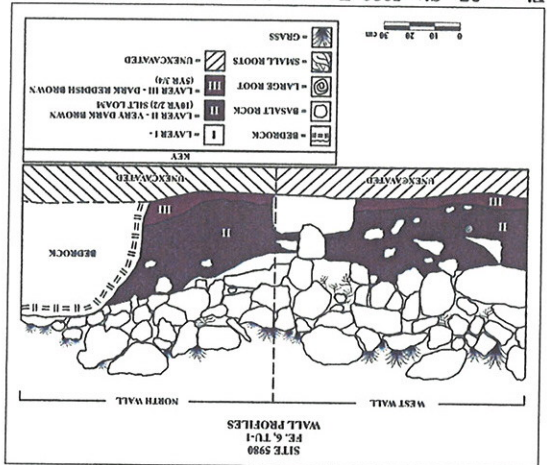


Figure 25: Site 5980, Feature 6 Plan View.

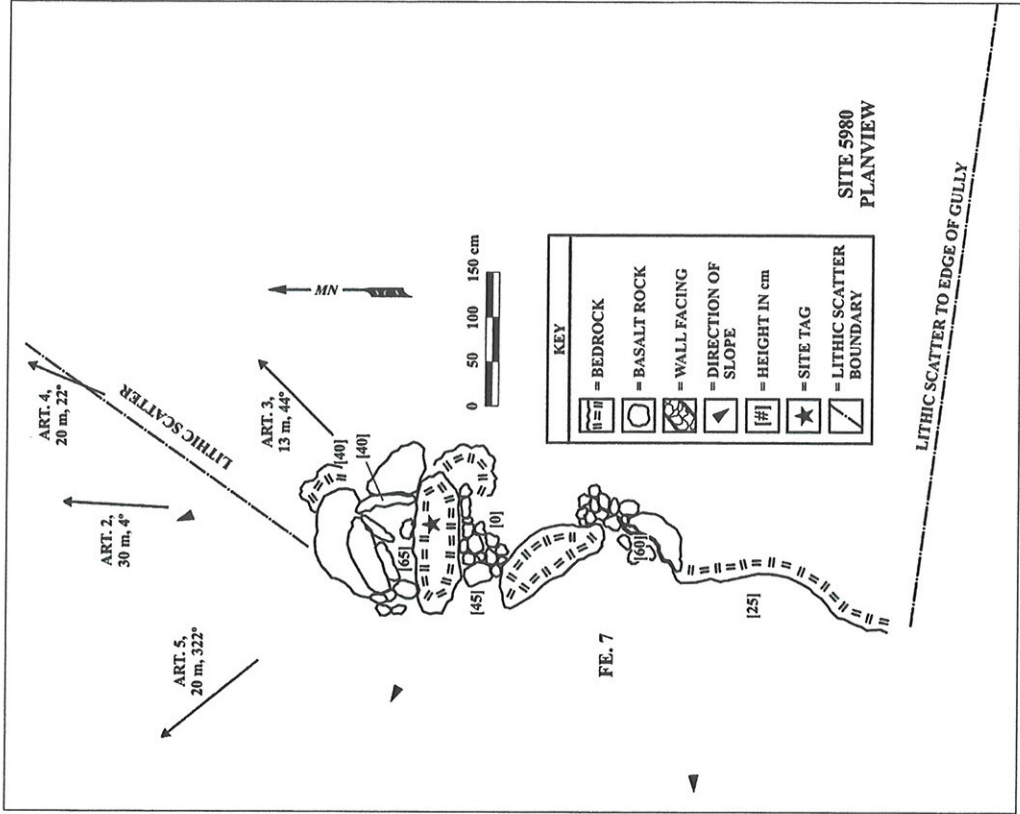


Figure 29: Site 5980, Feature 7 Plan View.



Figure 28: Site 5980 Incised Boulder From Feature 6, TU-1.

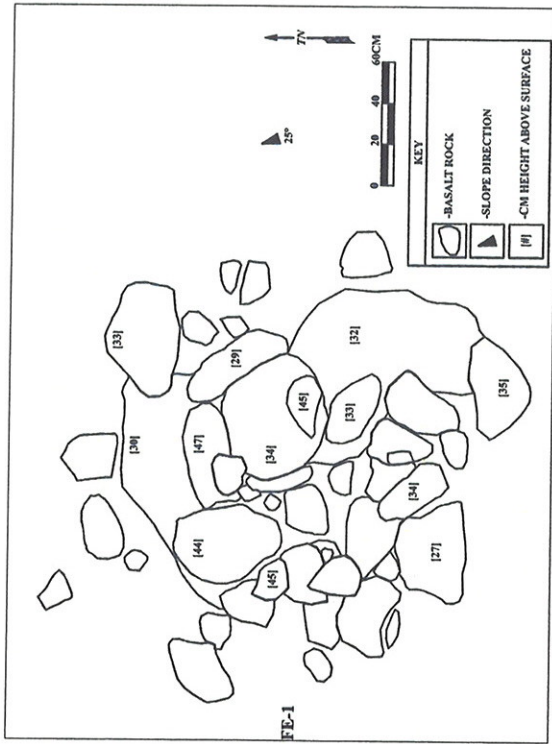


Figure 30: Site 5980, Feature 8 Plan View.



Figure 31: Site 5980, To North.

Feature 1 was a double-faced, cobble-filled, roughly L-shaped wall constructed with boulders and cobbles, and stacked three to six courses high (Figure 32). It measured 26.20 by 0.80 by 0.90 high to the north-south and 7.50 by 0.80 by 0.90 m high in the east-west jog. This feature was interpreted as an historic ranching wall.

SITE 50-50-11-5982 was located south of Site 50-50-11-5980.

Feature 1 consisted of a three-tiered, rock-faced terrace, three to five courses high in the middle and one to two courses high at the bottom terrace (Figures 33 and 34). The top terrace measured 9.00 by 1.40 by 1.30 m high and has been impacted by bulldozer activity. The lower terrace measured 11.00 by 0.75 by 0.62 m high.

TU-1 (0.50 by 0.50 m) was placed in the middle terrace and incorporated part of the facing. The excavated fill was screened through 6-mm and 3-mm mesh nested in series. Two stratigraphic layers were identified in the exposed section (Figure 35).

Layer 1 (0-57 cmbs) consisted of a very dark brown (10YR 2/2) fine, clay-silt consisting of some charcoal at the bottom of the facing construction.

Layer II (57-70 cmbs) consisted of very dark brown (10YR 2/2) mottled clay-silt containing no cultural material.

This site was interpreted as prehistoric agricultural terraces.

SITE 50-50-11-5983 was located to the southeast of Site 50-50-11-5978 on the slope of a gully.

Feature 1 is a rock mound constructed from piled pebbles, small to medium cobbles, and small boulders on top of bedrock (Figure 36). It measured 8.00 by 4.00 by 1.65 m high. A piece of plastic and a basalt core were identified on the surface of the feature.

TU-1 (1.00 by 0.50 m) was placed in the rock mound. The excavated fill was screened through 6 mm and 3 mm mesh nested in series. Three distinct layers of architecture were identified in the exposed section (Figure 37).

Layer I (0-25 cmbs) consisted of a basalt pebbles and cobbles 5 to 10 cm in length, roots, colluvial and aeolian silt.

Layer II (25-65 cmbs) consisted of medium sized rocks 8 to 15 cm in length and contained no cultural material.



Figure 32: Site 5981, Feature 1. View to Southeast.

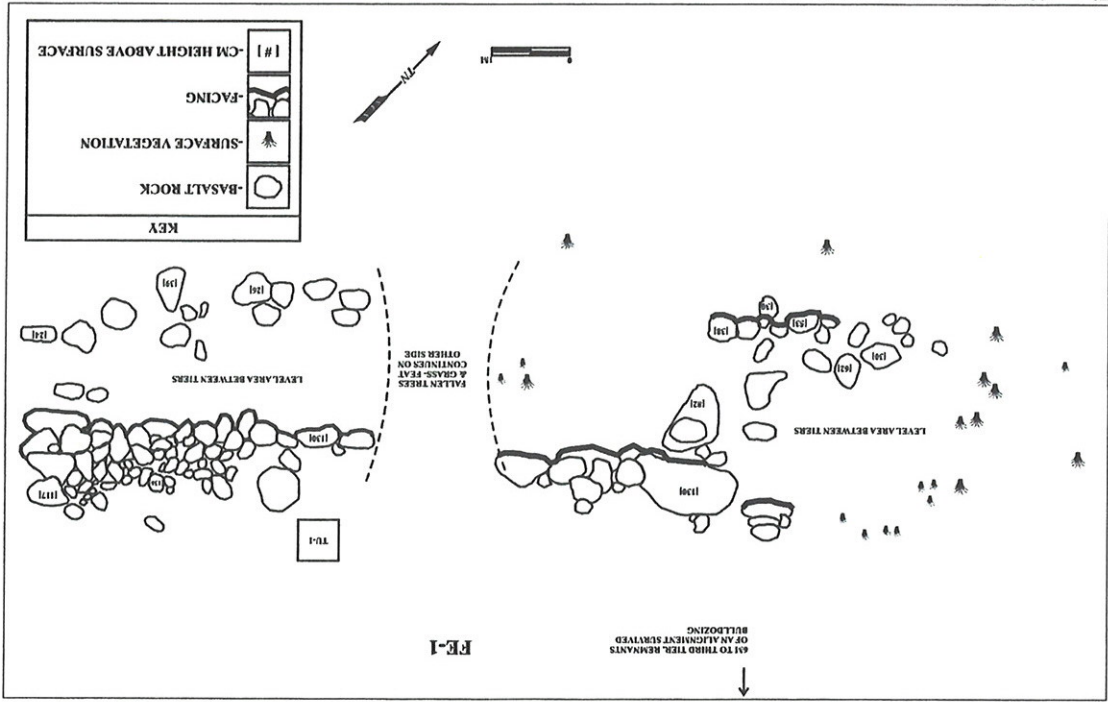


Figure 33: Site 5982, Feature 1 Plan View.



Figure 34: Site 5982, Feature 1. View to South.

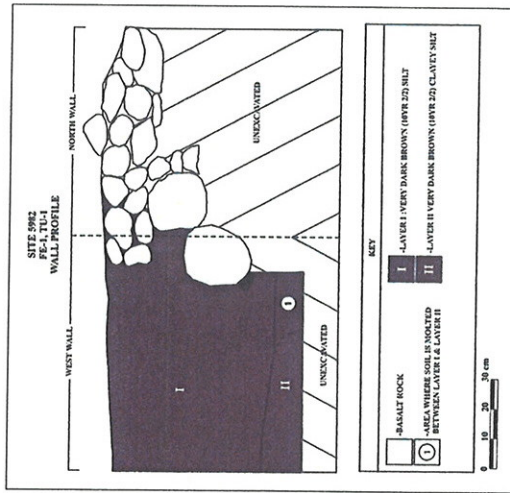


Figure 35: Site 5982, Feature 1, TU-1 West And North Wall Profiles.

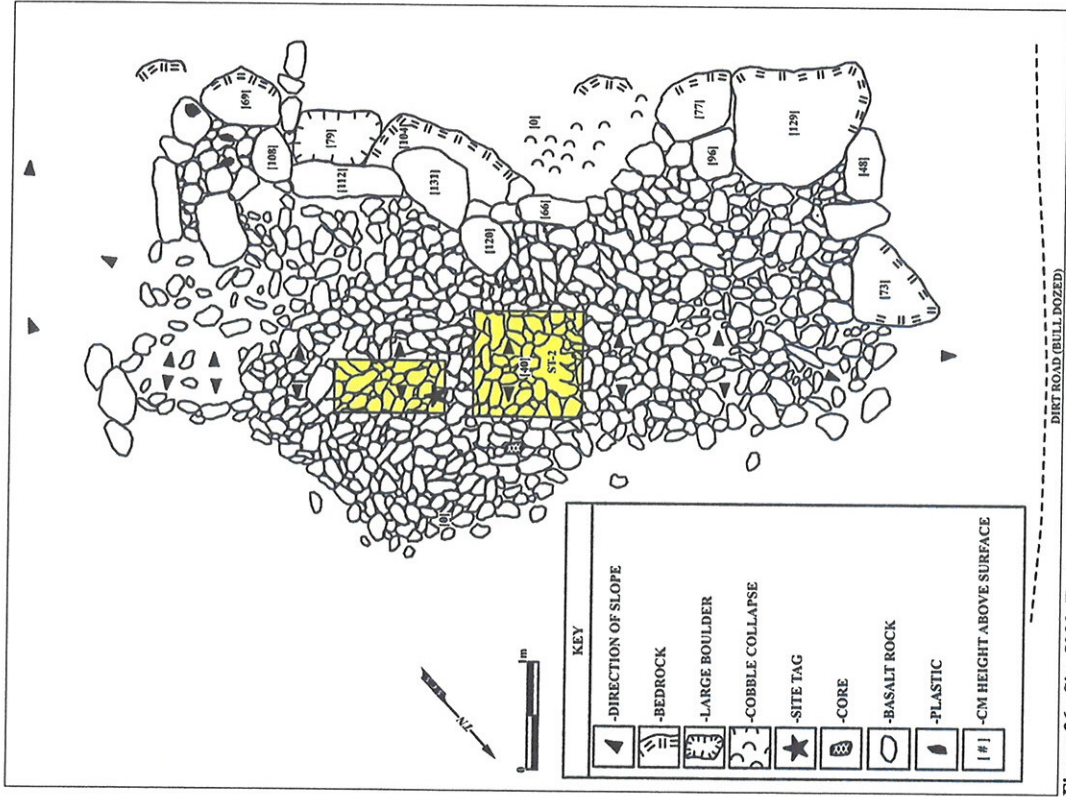


Figure 36: Site 5983, Feature 1 Plan View.

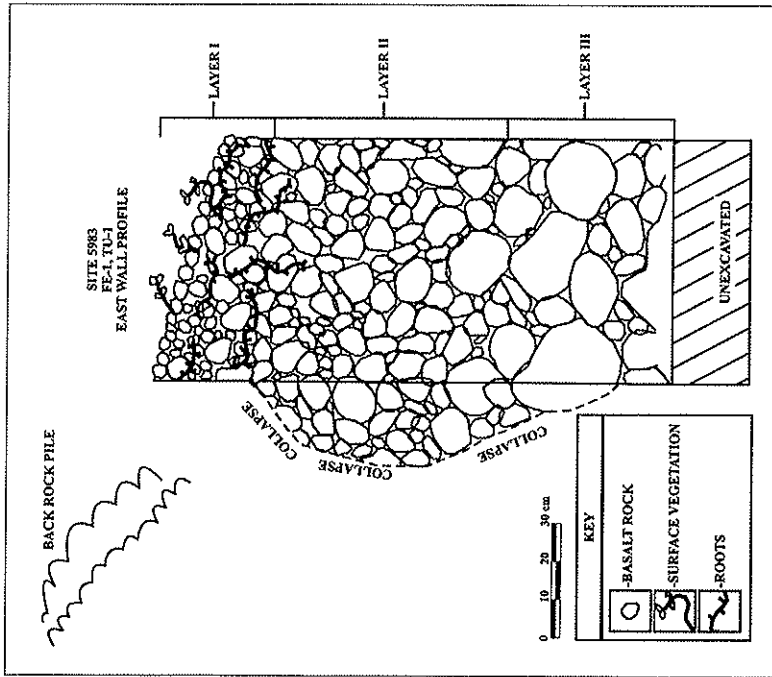


Figure 37: Site 5983, Feature 1, TU-1 East Wall Profile.

Layer III (65-95 cmbs) consisted of small boulders 25 to 30 cm in length and contained no cultural material.

TU-2 (1.00 by 1.00 m) was located to the west of TU-1 on top of Feature 1. Two distinct layers of architecture were identified in the exposed section (Figure 38).

Layer I (0-47 cmbs) consisted of dark brown (10YR 3/3) colluvial and aeolian silt, pebbles and cobbles measuring less than 10 cm in diameter, and no cultural material.

Layer II (47 to 100 cmbs) consisted of a dark brown (10YR 3/3) colluvial and aeolian silt, cobbles measuring 10 to 40 cm in diameter, and no cultural material.

Feature 1 was interpreted as a possible activity area.

SITE 50-50-11-5984 was located on a flat portion of rolling hills in the eastern section of the project area.

Feature 1 was an historic house site that had been bulldozed. Historic debris, including tin cans doorknobs, sake bottles, sections of metal roofing, pipes, and plastic were identified in the area (Figure 39). The site measured 30.00 by 50.00 m (1,500² m²) and is adjacent to a well-established apricot tree. The structure is shown on TMK 2-3-01.

SITE 50-50-11-5985 consisted of two features and was located on the south side of a gulch in the northwestern portion of the project area.

Feature 1 was a basalt rock enclosure constructed of small cobbles and large boulders stacked six courses high on the exterior (Figures 40 and 41). It was built on top of bedrock and measured 5.20 by 4.40 by 2.00 m high. The wall thickness was 1.10 m. Historic midden was found on the surface of this feature, including glass and pottery shards, a leather shoe, aluminum cans and an aluminum pot handle (see Appendix A).

Feature 2 was located at the bottom of the nearby gulch and consisted of a core-filled, wall, with a stacked basalt rock facing four to six courses high (Figure 42). It measured 49.00 by 1.00 by 0.69 m high. This site was interpreted as agriculture and ranching.

SITE 50-50-11-5986 was located on the south side of the southern gulch in the center of the project area.

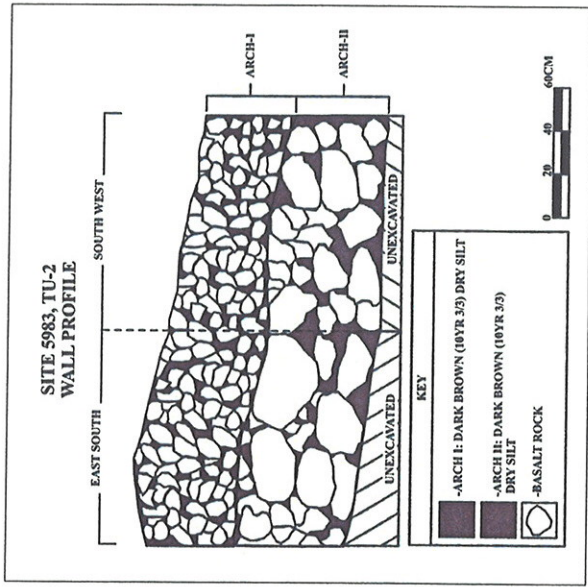


Figure 38: Site 5983, Feature 1, TU-2 East And Southwest Wall Profiles.



Figure 39: Site 5984, Feature 1, Historic Domestic Remnants.

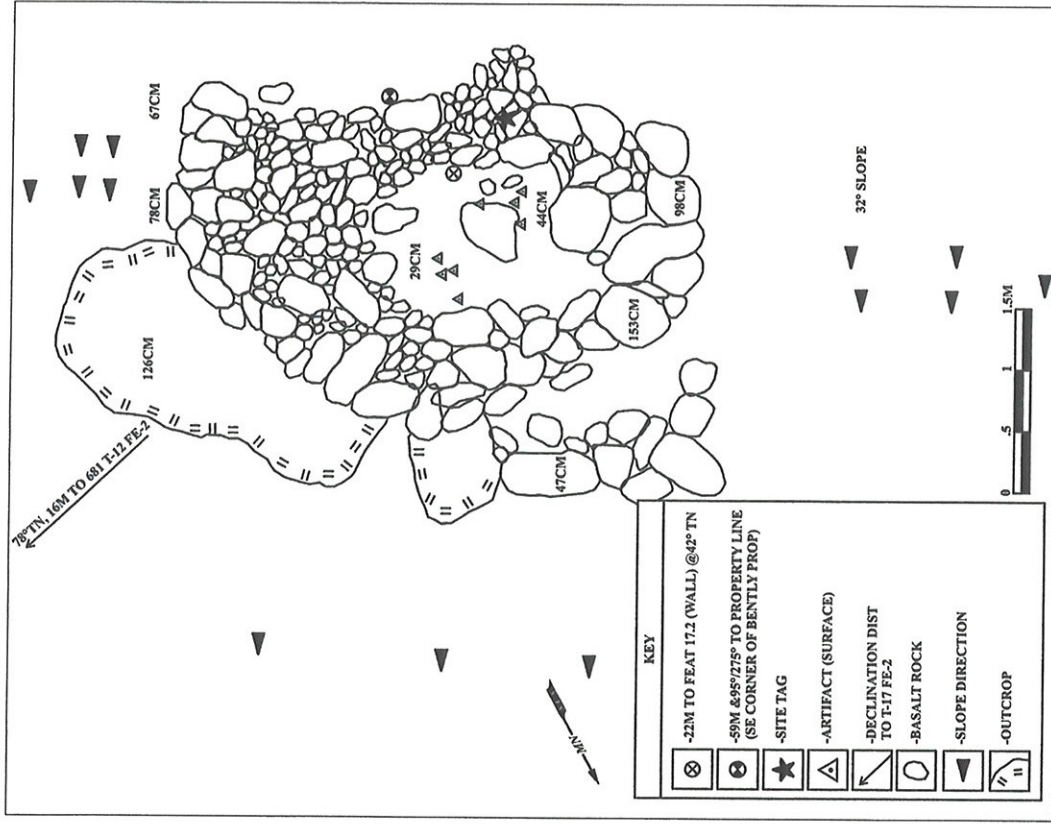


Figure 40: Site 5985, Feature 1 Plan View.



Figure 41: Site 5985, Feature 1. View to North.

Feature 1 was a modified outcrop extending *mauka/makai* along the gully (Figure 43). It measured 30.00 by 1.00 by 0.60 m high and was constructed with large boulders stacked three courses high.

SITE 50-50-11-5987 was located on the southern top edge of Keāhauwi Gulch to the east of Site 50-50-11-5980.

Feature 1 was a double-faced, core-filled wall constructed with sub-angular basalt cobbles and boulders (Figure 44). It measured 43.00 by 1.00 by 1.30 m high and stood six courses on its northern side. There was a sudden drop into the gulch directly to the north of the wall. The feature was interpreted as a ranch wall.

DISCUSSION

The project area had been previously impacted by many years of cattle grazing and erosion and, as would be expected, the integrity of the identified sites was greatly altered by these activities. Extensive machine (bulldozer) alterations were evident in many areas of the project and a four-wheel drive access road traversed the land. The 18 identified sites were spread throughout the project area with the majority located at the 1,000-foot contour elevation. Eight sites were considered pre-Contact based on the architecture and type. Seven sites were interpreted as historic and three were undetermined. LCA claims in Kealahou Ahupua'a during the *Māhele* mainly clustered between 2,000 to 4,000 feet amsl and in the fourteen awarded, were claims for forest trees, stream use and *kula* for agriculture. The results of the survey confirmed the anticipated remains suggested by the historical and archaeological research.

Pre-Contact settlement patterns of modified outcrops (50-50-11-5976, 5980), rock mounds (5983), low walls (5972), a small enclosure that may represent temporary habitation (5980), agricultural terraces (5975, 5978, 5979, 5982), fit the model for upcountry occupation reflected in early historic documents (LCA) and archaeological studies and are appropriate for dry land cultivation. Also the forest, which extended to a lower elevation, would have provided many valued resources necessary for a subsistence economy.

Historical information indicated that during the 1840s, large-scale cultivation of potatoes included vast areas of *kula* land. The introduction of cattle combined with the agricultural



Figure 42: Site 5985, Feature 2. View to North.

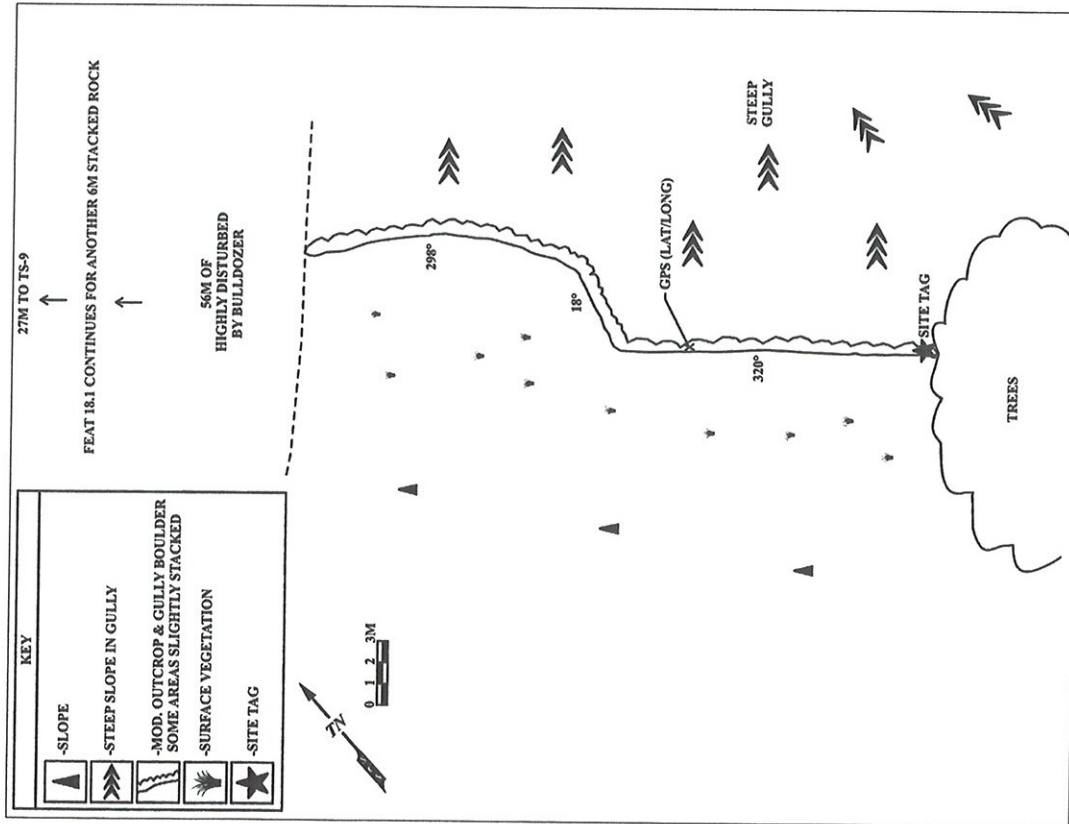


Figure 43: Site 5986, Feature 1 Plan View.



Figure 44: Site 5987, Feature 1. View to West.

pursuits meant land had to be cleared for pasture and planting. Ultimately, deforestation impacted the rainfall in the district and periods of drought became more common. Deforestation also allowed soil to be carried to the coast where it filled the fishponds with mud (*Honolulu Advertiser* 1962, A:15).

Part of the project area was used for habitation as Site 50-50-11-5984 confirm. Other sections were still being used as pasture. Sites 50-50-11-5970, 5971, 5981, 5985, and 5987 consisted of walls and an enclosure, and were interpreted as the results of historical ranching activities. House site 50-50-11-5984 was probably in use during this time. It is very probable that pre-Contact terraces were modified and re-used for potato cultivation in the 1800s.

The sites listed as undetermined (Sites 50-50-11-5974, 5976 and 5986), were difficult to define as traditional methods were still practiced during the early historic period.

Sub-surface testing by two shovel probes and six test units resulted in no identified cultural material. Sites 50-40-11-5980, Features six and seven included a sharpening stone

(hoana) and a surface lithic scatter, confirming traditional activities were present. Surface artifacts from Site 50-50-11-5985 reflected domestic 19th century historic activities.

SIGNIFICANCE ASSESSMENT AND RECOMMENDATIONS

Eight traditional, seven historic, and three undetermined archaeological sites were documented in approximately 48 acres of land in Kealahou Ahupua'a. All traditional sites are likely remnants of pre-Contact agricultural and temporary habitation sites. The seven historic sites are the remnants of historic agriculture and ranching and associated activities. The three undetermined sites represent traditional architecture that may have continued into the historic period.

These sites have been evaluated for significance according to the criteria established for the Hawai'i State Register of Historic Places. The five criteria are classified below:

- Criterion A: Site is associated with events that have made a significant contribution to the broad patterns of our history
- Criterion B: Site is associated with the lives of persons significant to our past
- Criterion C: Site is an excellent site type; embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual construction
- Criterion D: Site has yielded or has the potential to yield information important in prehistory or history
- Criterion E: Site has cultural significance to an ethnic group; examples include religious structures, burials, major traditional trails, and traditional cultural places

All 18 of the sites have been assessed as significant under Criterion D. Sufficient information in the form of photographs and maps have been recovered from the 18 sites and no further archaeological work is recommended as further archaeological procedures would not contribute a significant volume of additional data to the interpretation of the history of the region.

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APPENDIX A : CULTURAL MATERIAL INVENTORY

SCS PROJECT 681 KULA RIDGE MIDDEN INVENTORY						
Field Site Bag	Feature	Unit	Layer	Depth	Collected Material Identification	Comments
1	5977	-	Surface	-	Glass Bottle	Overall Height: 20.1 cm Body Height: 10.5 cm Mouth Diameter (max): 1.7 cm Base Diameter: 5.3 cm See below.
Complete, light green glass bottle, automatic machine made (base and two sides), crown top finish, sloped and embossed collar, steeply sloped shoulders, cylindrical and embossed body, flat and embossed base. Collar embossment (raised): 9. Bottle body front embossment: 1st line (arched): PROPERTY OF, 2nd line (arched): MAUI, 3rd line (arched): SODA WORKS, 4th line (horizontal, near base) illegible, appears to be an isosceles triangle. Bottle back embossment: 1st line (horizontal): NET CONTENTS, 2nd line (horizontal): 9 FLUID OUNCES. Base embossment: M or W. Bottle manufacturer unknown due to illegible embossment; suspect Illinois Pacific Glass Co. (1902-25), Illinois Pacific Glass Corp. (1925-30), or Illinois Pacific Coas Co. (1930-32) due to presence of isosceles triangle.						
2	5978	5	Surface	-	Glass Bottle	Overall Height: 21.9 cm Body Height: 13.9 cm Mouth Diameter (max): 1.7 cm Base Diameter: 4.2 cm See below.
Complete, clear glass bottle, automatic machine made (base and two sides), crown top finish, sloped collar, steeply sloped shoulders, raised ring around shoulder, cylindrical and embossed body, body also displays several raised rings around bottle, flat and embossed base. Bottle body front embossment (all horizontal): 1st line: PROPERTY OF, 2nd line: FINODE, 3rd line: 1/2 of a ring, and 4th line: NET CONTENTS 6 1/2 FL. OZ. Bottle body back embossment (horizontally): CITRIC ACID ADDED						
2. Base embossment: 1st line (horizontal): 54, 2nd line (arched): 4911 G-21 manufacturer's stamp 7. The manufacturer's stamp is a horizontal diamond bisected by a vertical oval and a capital I in the intersection of the two shapes. Bottle manufacturer is Owens-Illinois Pacific Coast Co. (1925-49).						
3	5979	TU-2	1/6	52 emb	Charcoal	0.1 g Recovered from TU-2 southwest quadrant.
4	5979	2	TU-2	1/6	Charcoal with Matrix	1.0 g Recovered from TU-2 southwest quadrant.
5	5979	2	TU-2	1/1	Charcoal	0.1 g Recovered from TU-2 southwest quadrant.
6	5979	2	TU-2	1	Charcoal with Matrix	0.9 g Recovered from TU-2 southwest quadrant.
7	5979	2	TU-2	1/1	Charcoal with Matrix	5.4 g Recovered from TU-2 southwest quadrant.
8	5979	-	Surface	-	Basalt A&Bz	11.5 cm Length 3.5 cm Width 3.0 cm Thickness (max) Polished steep bevel, 3-sides polished, rectangular cross-section.
9	5980	-	Surface	-	Possible Basalt A&Bz Blank	-
10	5980	7	Surface	-	Edge Altered Basalt Flake	- Based on secondary flake; one altered corner edge; artifact found 44°/224° @ 13 m from site 681.
11	5980	7	Surface	-	Possible Basalt A&Bz	- Artifact found 4° @ 20 m from site 681.
12	5980	6	Surface	-	Basalt Core	- Bi-polar striking platform.

SCS PROJECT 681 KULA RIDGE MIDDEN INVENTORY						
Field Bag	Site Feature	Unit	Layer	Depth	Collected Material Identification	Count/Remarks
13	5980	6	TU-2	UG	20-30 cmbs Edger Almond Basalt Flake	1 Based on interior flake; one angled, convex edge
14	5980	6	TU-2	III/1	Incised Basalt Stone	1 Incising extends from one side of stone to the other; stone underside displays crossed incisions
15	5980	6	TU-2	III/2	Incised Basalt Stone Fragments	3 Associated with previously described incised stone
16	5984	-	Surface	-	Ferrous Metal Door Knob with Vertical Rimlock	1 Artifact design suggests post 1860 manufacture
17	5985	1	Surface	-	Ferrous Metal Can Fragments	2 Can is rectangular, lip side seam, hand soldered; design post 1840
17	5985	1	Surface	-	Non-Diagnostic Ferrous Metal Fragments	50+
17	5985	1	Surface	-	Bottle Glass Body Sherds	2 Amethyst colored
17	5985	1	Surface	-	Bottle Glass Body Sherds	1 Clear, flat
17	5985	1	Surface	-	Bottle Glass Body Sherds	1 Olive green colored
17	5985	1	Surface	-	Whiteware Rim Sherd	1 Exterior and interior glazed, exterior decorated underglaze with horizontal green, pink/red, and blue stripes
17	5985	1	Surface	-	Rubber Shoe Sole Fragments	11 Shoe nails present
18	5985	1	Surface	-	Bottle Glass Base Sherd	1 Olive green colored, push-up style
18	5985	1	Surface	-	Whiteware Base Sherd	1
19	5985	1	Surface	-	Bottle Glass Body Sherd	1 Amethyst colored
19	5985	1	Surface	-	Ferrous Metal Can Fragment	1 Can is round cornered, hand soldered tapered can; design post 1875
19	5985	1	Surface	-	Ferrous Metal Can Fragments	2 Can is cylindrical, double seamed; design post 1895

SCS PROJECT 681 KULA RIDGE MIDDEN INVENTORY						
Field Bag	Site Feature	Unit	Layer	Depth	Collected Material Identification	Count/Remarks
19	5985	1	Surface	-	Non-Diagnostic Ferrous Metal Can Fragments	5
20	5985	1	Surface	-	Whiteware Rim Sherds	2 Exterior and interior glazed, exterior decorated underglaze with horizontal green, pink/red, and blue stripes
20	5985	1	Surface	-	Whiteware Body Sherds	3 Exterior and interior glazed, exterior decorated underglaze with horizontal green, pink/red, and blue stripes
20	5985	1	Surface	-	Non-Bottle Glass Vessel Rim Sherd	1 Green colored, rim is unglazed and exterior decorated with molded floral pattern
20	5985	1	Surface	-	Non-Bottle Glass Vessel Body Sherd	2 Green colored, exterior decorated with molded floral pattern
20	5985	1	Surface	-	Bottle Glass Finish Sherd	1 Amber colored brandy/ wine finish
20	5985	1	Surface	-	Bottle Glass Finish Sherd	1 Crown top finish, post 1904
20	5985	1	Surface	-	Bottle Glass Finish Sherd	1 Crown top finish, post 1904
20	5985	1	Surface	-	Bottle Glass Body Sherd	1 Embossed with words and symbols; DISTILLERIES and a crown above
20	5985	1	Surface	-	Bottle Glass Body Sherds	3 Light green colored
20	5985	1	Surface	-	Bottle Glass Base Sherd	1 Light green colored
20	5985	1	Surface	-	Bottle Glass Body Sherds	4 Clear
20	5985	1	Surface	-	Bottle Glass Body Sherds	6 Olive green colored
20	5985	1	Surface	-	Bottle Glass Body/ Base Sherd	1 Body embossed; 1st line (horizontal); NET CONTENTS; 2nd line (horizontal); 9 FLUID CONTENTS

SCS PROJECT 681 KULA RIDGE MIDDEN INVENTORY									
Field Bag	Site	Feature	Unit	Layer	Depth	Collected Material Identification	Measurements	Count	Remarks
20	5985	1	-	Surface	-	Bottle Glass Body Sherds	-	4	One shard embossed: 1st line (horizontal): ...AM'S No., 2nd line (horizontal): STANDARD. Aeneclyst thined.
20	5985	1	-	Surface	-	Bottle Glass Body Sherd	-	1	Aeneclyst thined, body is multi-faceted
20	5985	1	-	Surface	-	Bottle Glass Body/ Base Sherd	-	1	Iron for pressing clothing
21	5985	2	-	Surface	-	Sud Iron Fragment	-	1	Artifact found 50 m from Site 5987 @ 205°
22A	150	-	-	Surface	-	Yellowware Body Sherd	-	1	Artifact found 20 m from Site 5987 @ 205°
22B	150	-	-	Surface	-	Whiteware Rim Sherd	-	1	Artifact found 20 m from Site 5987 @ 205°
23	5974	1	-	Surface	-	Porcelain Tea Cup Rim/Body/Base Sherd	Overall Height: 6.8 cm	1	Exterior and interior glazed, exterior decorated underglaze with blue and green floral transfer print.

APPENDIX F.

**State Historic Preservation
Division Letter Dated
February 27, 2007**

LINDA LINCOLN
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
GOVERNMENT WAYNE BLDG. 10TH FLOOR
HONOLULU, HI 96813
DEPUTY DIRECTOR
ALBERT H. HENNING
DIRECTOR OF RECREATION
HONOLULU, HI 96813
DIRECTOR OF FORESTRY
HONOLULU, HI 96813
DIRECTOR OF WATER RESOURCE MANAGEMENT
HONOLULU, HI 96813
DIRECTOR OF CONSERVATION AND COASTAL LANDS
HONOLULU, HI 96813
DIRECTOR OF CONSERVATION AND RESOURCES ENFORCEMENT
HONOLULU, HI 96813
DIRECTOR OF FORESTRY AND WILDLIFE
HONOLULU, HI 96813
DIRECTOR OF HISTORIC PRESERVATION
HONOLULU, HI 96813
DIRECTOR OF LAND
HONOLULU, HI 96813

February 27, 2007

Dr. Michael Dega
Scientific Consultant Services, Inc.
711 Kapiolani Boulevard, Suite 975
Honolulu, Hawaii 96813

LOG NO: 2007.0636
DOC NO: 0702MK21
Archaeology

Dear Dr. Dega:

**SUBJECT: Chapter 6E-42 Historic Preservation Review -
Archaeological Inventory Survey on 48.117 Acres for Clayton Nishikawa
Kealahou Ahupuaa, Makawao District, Island of Maui
TMK (2) 2-3-001:174**

Thank you for the opportunity to review this revised report which was received by our staff on November 13, 2006 (McGerty et al. 2006, *An Archaeological Inventory Survey Report on 48.117 Acres Located in Kealahou Ahupuaa, Kula, Makawao District, Maui Island, Hawaii [TMK: 2-3-001:174]*)...Scientific Consultant Services, Inc., ms. We have previously provided comments on the draft archaeological inventory survey report (DOC NO: 0610MK35) and recommended the following revisions.

13-276-5 (f) a summary of findings

- (2) Map or maps locating all historic properties, with boundaries and one site location map being a relevant portion of the USGS survey topo map
- (3) Table presenting sites with SHIP number, formal type and possible function
- (4) If multiple sites within a major functional type (religious, burial, perm hab and temp hab) include a summary of each type
- (5) Re-evaluation of ideas on historic land use
- (6) If more than five sites within a major functional type, include:
 - (A) A table itemizing each site and relevant constituent structures
 - (B) Map showing distribution of sites within that functional type

The above revisions have been acceptably addressed in the revised report and accompanying correspondence.

We agree that all of the sites are significant under Criterion "D" for information content. As indicated in the review of the draft report, the historic properties represent pre-Contact agricultural use of the area, and post-Contact use for ranching, agriculture and historic habitation.

Dr. Michael Dega
Page 2

We also believe that archaeological monitoring is warranted. We will await submittal of an archaeological monitoring plan for review and acceptance concurrent with applications for proposed development.

The report is acceptable. If you have any questions, please contact Dr. Melissa Kirkendall at (808) 243-5169.

Aloha,



Melanie Chinn, Administrator
State Historic Preservation Division

MK:kf

c: Bert Ratté, DPWEM, County of Maui
Jeff Hunt, Director, Dept. of Planning, 250 S. High Street, Wailuku, HI 96793
Maui Cultural Resources Commission, Dept. of Planning, 250 S. High Street, Wailuku, HI 96793

APPENDIX G.

Traffic Impact Assessment Report, July 2006

Traffic Impact Report

Kula Ridge



Submitted to:
Kula Ridge, LLC



Submitted by:
Wilson Okamoto Corporation

July 2006

**TRAFFIC IMPACT REPORT
FOR THE**

KULA RIDGE DEVELOPMENT

Prepared for:

Kula Ridge, LLC
1849 Wili Pa Loop
Waituku, Hawaii 96793

Prepared by:

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826
WOC Ref #7551-01

July 2006

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APPENDIX D	Existing Peak Period Traffic Analysis
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	Capacity Analysis Calculations
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I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to identify and assess the traffic impacts resulting from the proposed Kula Ridge development in Kula on the island of Maui. The project site for the proposed residential development is located east of Lower Kula Road near the Kula Community Center.

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.

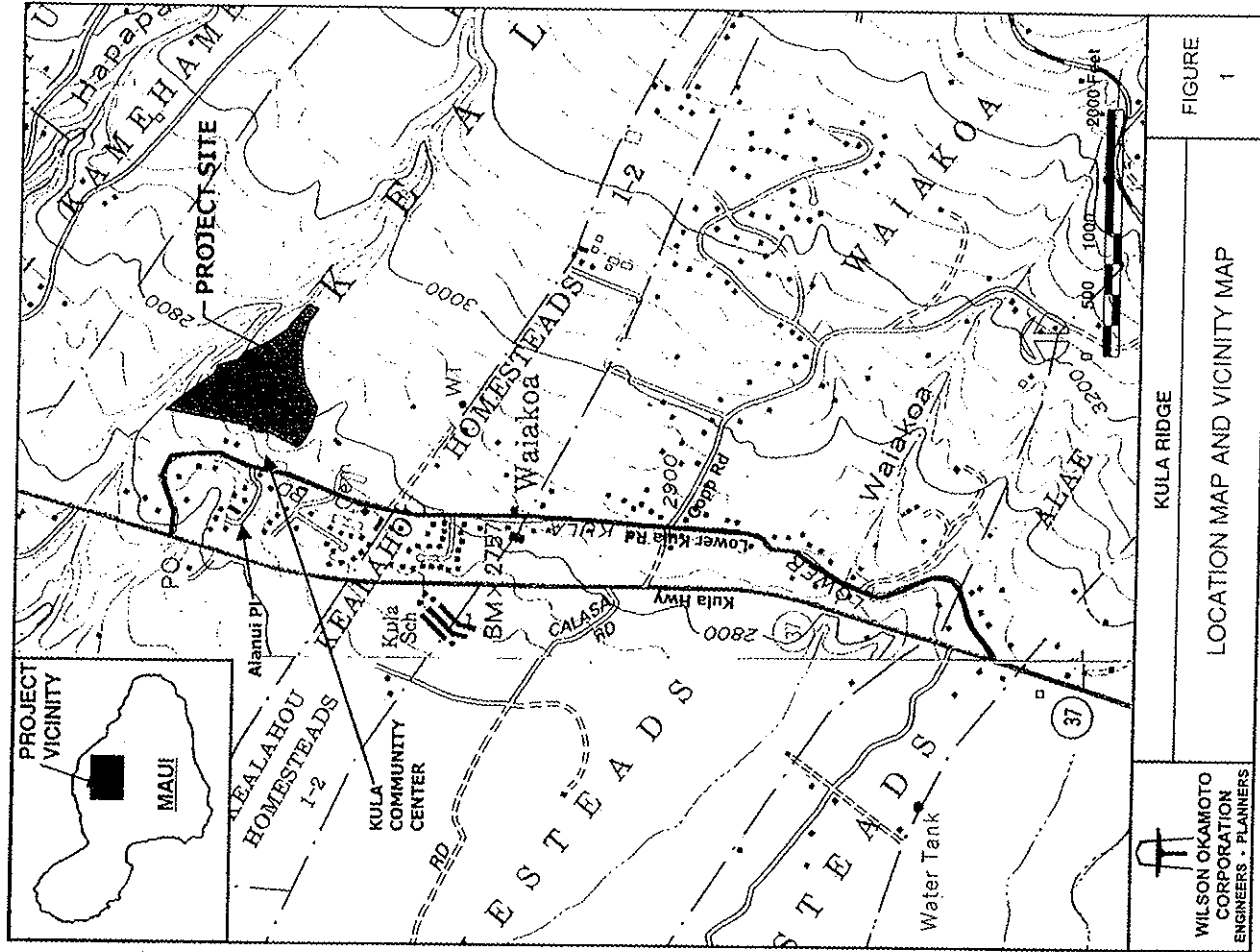
II. PROJECT DESCRIPTION

A. Location

The project site is located along Lower Kula Road east of the Kula Community Center in Kula on the island of Maui (see Figure 1) and is further identified as Tax Map Key: 2-3-001: 174. Access to the project site will be provided via a new access road off Lower Kula Road south of Alanui Place.

B. Project Characteristics

The proposed Kula Ridge development will be located on an approximately 48.117-acre site located east of Lower Kula Road. The project site will be divided into 42 residential lots, 70 affordable housing residential lots, 4 agricultural lots, and



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KULA RIDGE
LOCATION MAP AND VICINITY MAP

FIGURE
1

approximately 3-acre park that will be dedicated to the County of Maui. Each residential and agricultural lot is expected to house a residential dwelling that is anticipated to be completed and occupied by the Year 2009. Access to the project site will be provided via a new access road off Lower Kula Road. Figure 2 shows the proposed project site plan.

III. EXISTING TRAFFIC CONDITIONS

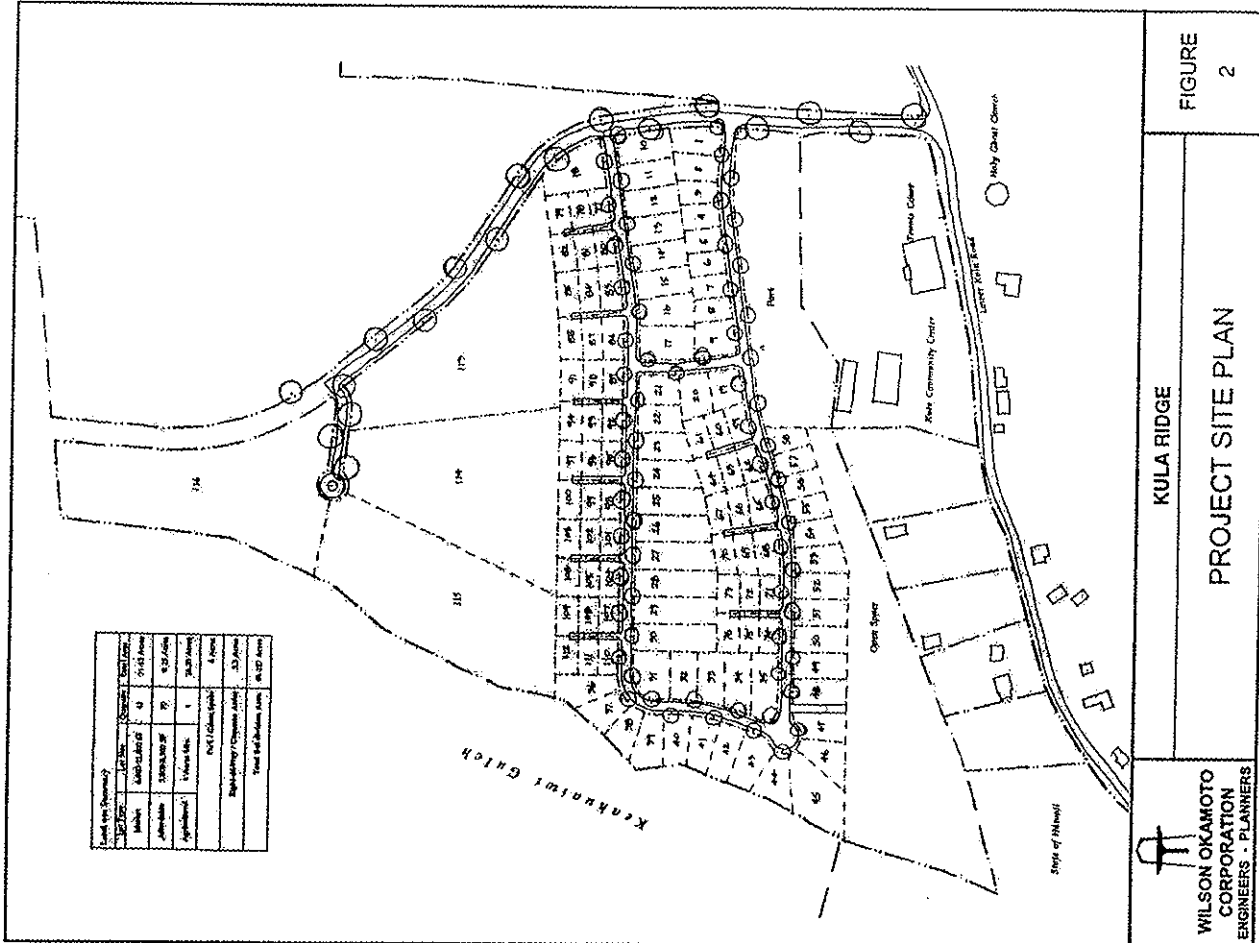
A. General

The proposed development will be located east of Lower Kula Road southeast of the intersection with Kula Highway. Kula Highway is a predominately two-way, two-lane State of Hawaii roadway generally oriented in the north-south direction that serves as the primary access road through central Maui between Haleakala Highway in Pukalani and Ulupalakua.

B. Area Roadway System

In the vicinity of the project site, Lower Kula Road is a predominantly two-way, two-lane roadway generally oriented in the north-south direction that intersects Kula Highway several times along its alignment. Northwest of proposed project site, Lower Kula Road intersects Alanui Place and the driveway for the Kula Community Center. At this unsignalized intersection, both approaches of Lower Kula Road have one lane that serves all traffic movements. Alanui Place is a two-way, two-lane roadway that provides access to the residential properties along its alignment. At the intersection with Lower Kula Road, the Alanui Place approach has one lane that serves all traffic movements. The westbound approach of the intersection is comprised of the driveway for the Kula Community Center which has one lane that serve all traffic movements at this intersection.

Northwest of intersection with Alanui Place, Lower Kula Road intersects Kula Highway. At this unsignalized T-intersection, the Lower Kula Road approach has one lane that serves left-turn and right-turn traffic movements. The northbound approach of the highway has one lane at this intersection that serves through and right-turn



WILSON OKAMOTO CORPORATION ENGINEERS - PLANNERS
 KULA RIDGE PROJECT SITE PLAN
 FIGURE 2

traffic movements while the southbound approach has one lane that serves left-turn and through traffic movements.

South of the intersection with Alanui Place, Lower Kula Road intersects Copp Road. At this unsignalized intersection, both approaches of Lower Kula Road have one lane that serves all traffic movements. Copp Road is a two-way, two-lane roadway generally oriented in the east-west direction that provides access to the residential neighborhoods along its alignment. At the intersection with Lower Kula Road, both approaches of Copp Road have one lane that serves all traffic movements.

Further southwest, Lower Kula Road intersects Kula Highway again. At this unsignalized T-intersection, the Lower Kula Road approach has one lane that serves left-turn and right-turn traffic movements. The northbound approach of the highway has one lane at this intersection that serves through and right-turn traffic movements while the southbound approach has one lane that serves left-turn and through traffic movements.

C. Traffic Volumes and Conditions

1. General

a. Field Investigation

A field investigation was conducted on May 31 and June 1, 2005, and April 25-26, 2006 and consisted of manual turning movement count surveys during the morning peak period between 6:00 AM and 8:00 AM, and the afternoon peak period between 3:00 PM and 6:00 PM at the following intersections:

- Lower Kula Road, Alanui Place, the Kula Community Center driveway
- Lower Kula Road and Kula Highway (North)
- Lower Kula Road and Copp Road
- Lower Kula Road and Kula Highway (South)

In addition, 24-hour mechanical traffic count surveys were collected along Lower Kula Road and Kula Highway to verify the peak

traffic periods in the project vicinity. Appendix A includes the existing traffic count data.

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) to identify the traffic impacts associated with traffic demands during the peak periods of traffic.

LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS "A" through "F", LOS "A" representing ideal or free-flow traffic operating conditions and LOS "F" unacceptable or potentially congested traffic operating conditions.

"Volume-to-Capacity" (v/c) ratio is another measure indicating the relative traffic demand to the road 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 indicates that the traffic demand exceeds the road's carrying capacity. The LOS definitions are included in Appendix B.

2. Existing Peak period Traffic

a. General

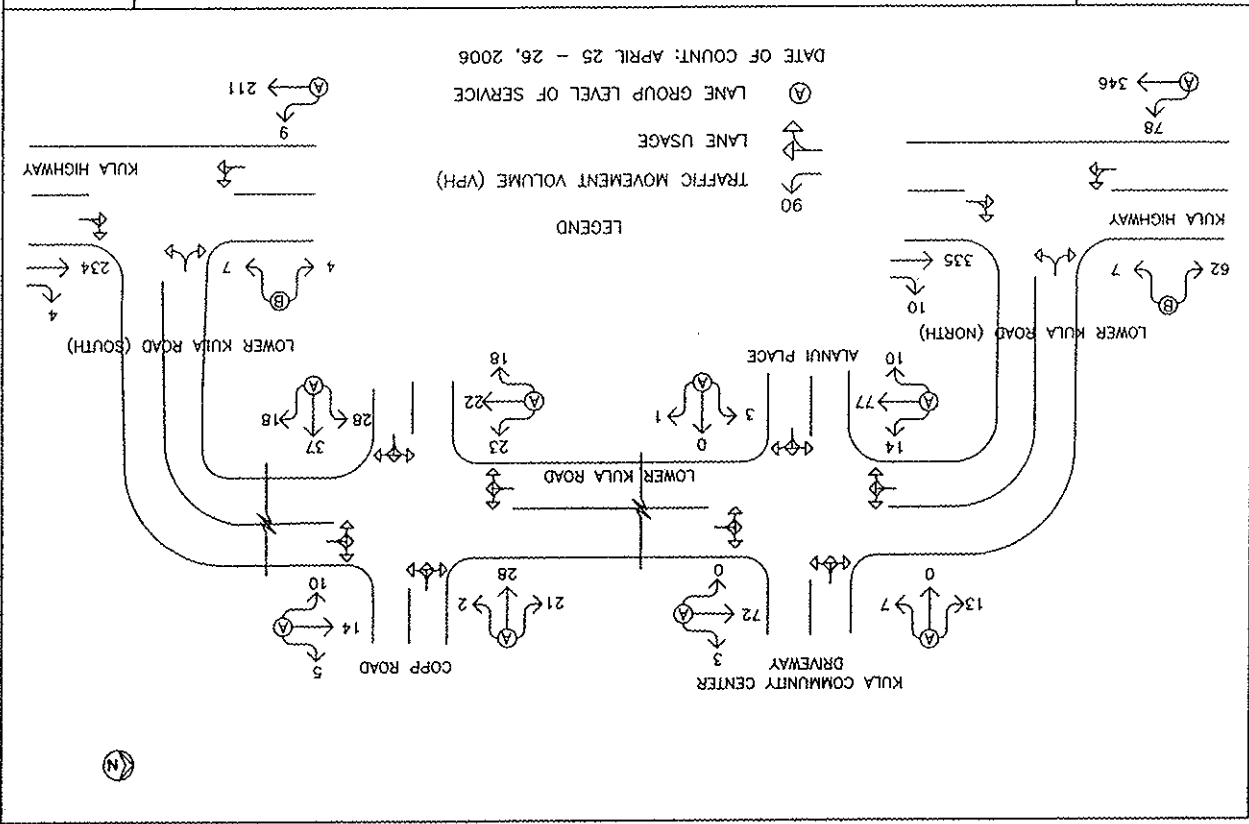
Figures 3 and 4 illustrate the existing AM and PM peak period traffic volumes and operating conditions. The morning peak hour of traffic generally occurs between 7:00 AM and 8:00 AM in the project vicinity. In the afternoon, the peak hour of traffic generally occurs between the hours of 3:45 PM and 4:45 PM. 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



EXISTING PM PEAK HOUR OF TRAFFIC

KULA RIDGE

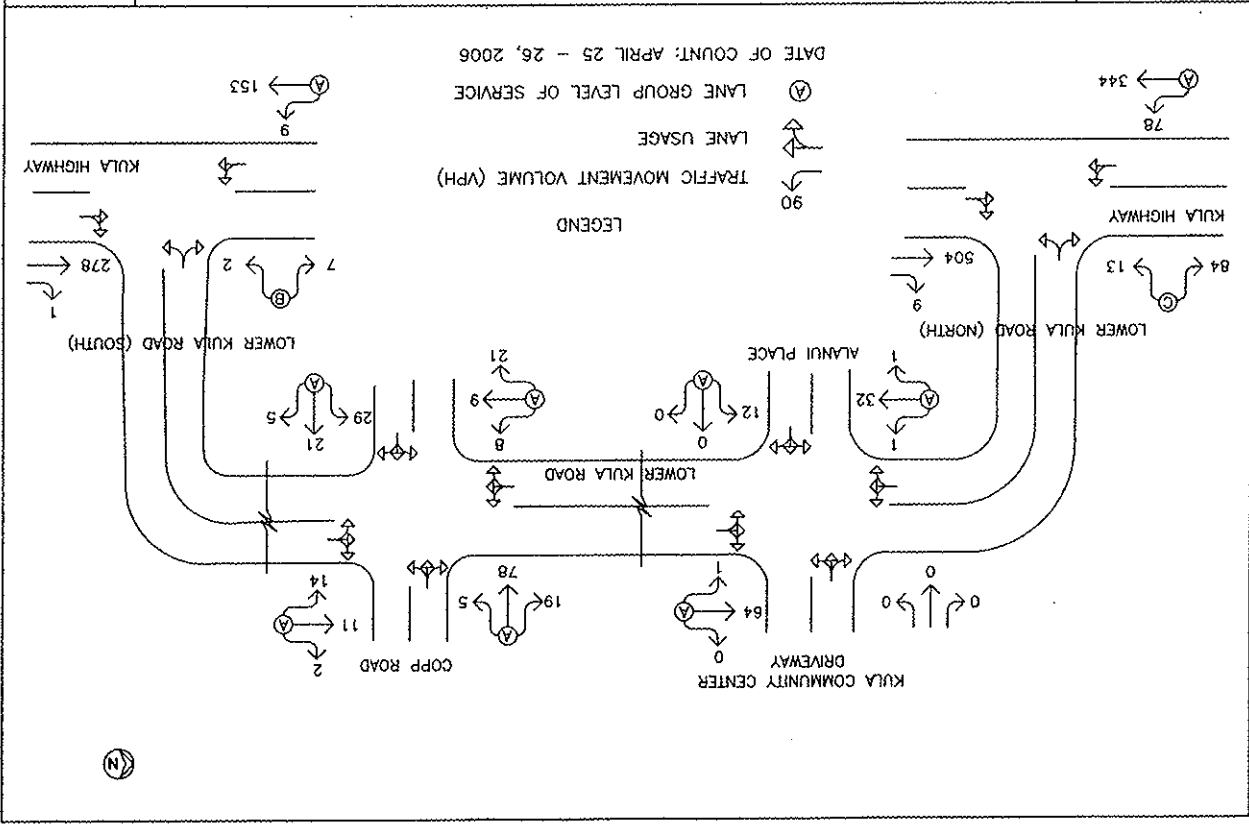
FIGURE 4



EXISTING AM PEAK HOUR OF TRAFFIC

KULA RIDGE

FIGURE 3



each intersection may differ slightly as shown in Table 1.

Table 1: Peak Periods of Traffic

Intersection	AM Peak	PM Peak
Lower Kula Road/Alanui Place/Kula Community Center Driveway	7:00 AM to 8:00 AM	3:45 PM to 4:45 PM
Lower Kula Road/Kula Highway (North)	7:00 AM to 8:00 AM	3:30 PM to 4:30 PM
Lower Kula Road/Copp Road	7:00 AM to 8:00 AM	3:45 PM to 4:45 PM
Lower Kula Road/Kula Highway (South)	7:00 AM to 8:00 AM	4:00 PM to 5:00 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.

b. **Lower Kula Road, Alanui Place, the Kula Community Center Driveway**

At the intersection with Alanui Place and the Kula Community Center driveway, Lower Kula Road carries 65 vehicles northbound and 34 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 75 vehicles traveling northbound and 101 vehicles traveling southbound. Both approaches of Lower Kula Road operate at LOS "A" during both peak periods.

The Alanui Place approach of the intersection carries 12 vehicles and 4 vehicles eastbound during the AM and PM peak periods, respectively, while the Kula Community Center driveway carries no vehicles during the AM peak period and 20 vehicles during the PM peak period. Both approaches of the intersection operate at LOS "A" during both peak periods.

c. **Lower Kula Road and Kula Highway (North)**

At the northern intersection with Kula Highway, Lower Kula Road carries 97 vehicles westbound during the AM peak period.

During the PM peak period, the traffic volume is less with 69 vehicles traveling westbound. The Lower Kula Road approach of the intersection operates at LOS "C" and LOS "B" during the AM and PM peak periods, respectively.

The Kula Highway approaches of the intersection carry 513 vehicles northbound and 422 vehicles southbound during the AM peak period. During the PM peak period, the overall traffic volume is less with 345 vehicles traveling northbound and 424 vehicles traveling southbound. The critical traffic movement on the highway approaches at this intersection is the southbound left-turn and through traffic movement which operates at LOS "A" during both peak periods.

d. **Lower Kula Road and Copp Road**

At the intersection with Copp Road, Lower Kula Road carries 27 vehicles northbound and 38 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are slightly higher with 29 vehicles traveling northbound and 63 vehicles traveling southbound. Both approaches of Lower Kula Road operate at LOS "A" during both peak periods.

The Copp Road approaches of the intersection carry 55 vehicles eastbound and 102 vehicles westbound during the AM peak period. During the PM peak period, the overall traffic volume is less with 83 vehicles traveling eastbound and 51 vehicles traveling westbound. Both approaches of Copp Road operate at LOS "A" during both peak periods.

e. **Lower Kula Road and Kula Highway (South)**

At the southern unsignalized intersection with Kula Highway, Lower Kula Road carries 9 vehicles westbound during the AM peak period. During the PM peak period, the traffic volume is slightly higher with 11 vehicles traveling westbound. The Lower Kula Road

approach of this intersection operates at LOS "B" and LOS "A" during the AM and PM peak periods, respectively.

The Kula Highway approaches of the intersection carry 279 vehicles northbound and 162 vehicles southbound during the AM peak period. During the PM peak period, the overall traffic volume is approximately the same with 238 vehicles traveling northbound and 220 vehicles traveling southbound. The critical traffic movement on the highway approaches at this intersection is the southbound left-turn and through traffic movement which operates at LOS "A" during both peak periods.

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 periods of traffic.

Table 2: Peak Hour Trip Generation

SINGLE-FAMILY DETACHED HOUSING		Dwelling Units = 210	
INDEPENDENT VARIABLE		PROJECTED TRIP ENDS	
AM PEAK	ENTER		23
	EXIT		68
	TOTAL		91
PM PEAK	ENTER		77
	EXIT		45
	TOTAL		123

Table 2: Peak Hour Trip Generation (Cont'd)

COUNTY PARK		Acres of Development = 5	
INDEPENDENT VARIABLE		PROJECTED TRIP ENDS	
AM PEAK	ENTER		0
	EXIT		0
	TOTAL		0
PM PEAK	ENTER		0
	EXIT		0
	TOTAL		0
TOTALS			
AM PEAK	ENTER		23
	EXIT		68
	TOTAL		91
PM PEAK	ENTER		77
	EXIT		45
	TOTAL		123

2. Trip Distribution

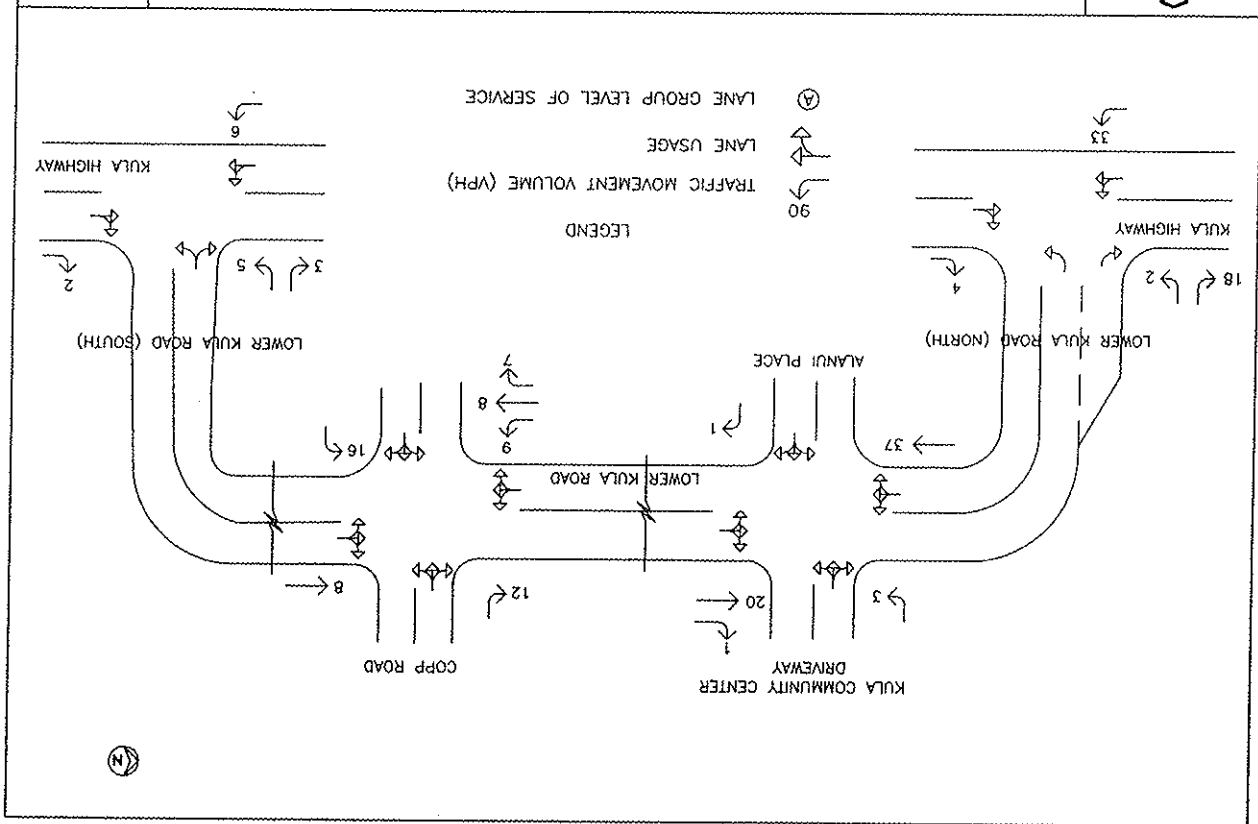
Figures 5 and 6 show the distribution of site-generated traffic during the AM and PM peak periods. Access to the proposed Kula Ridge development will be provided via a new access road off Lower Kula Road. The directional distribution of site-generated traffic was based on the prevalent distribution of traffic along Lower Kula Road. As such, 46.9% of the vehicles were assumed to be traveling northbound while 53.1% were assumed to be traveling southbound during the AM peak period. Similarly, during the PM peak period, 67.0% were assumed to be traveling northbound while 33.0% were assumed to be traveling southbound. The directional distribution of traffic at the study intersections was assumed to remain similar to existing conditions.



DISTRIBUTION OF SITE-GENERATED TRAFFIC YEAR 2009 PM PEAK HOUR OF TRAFFIC

KULA RIDGE

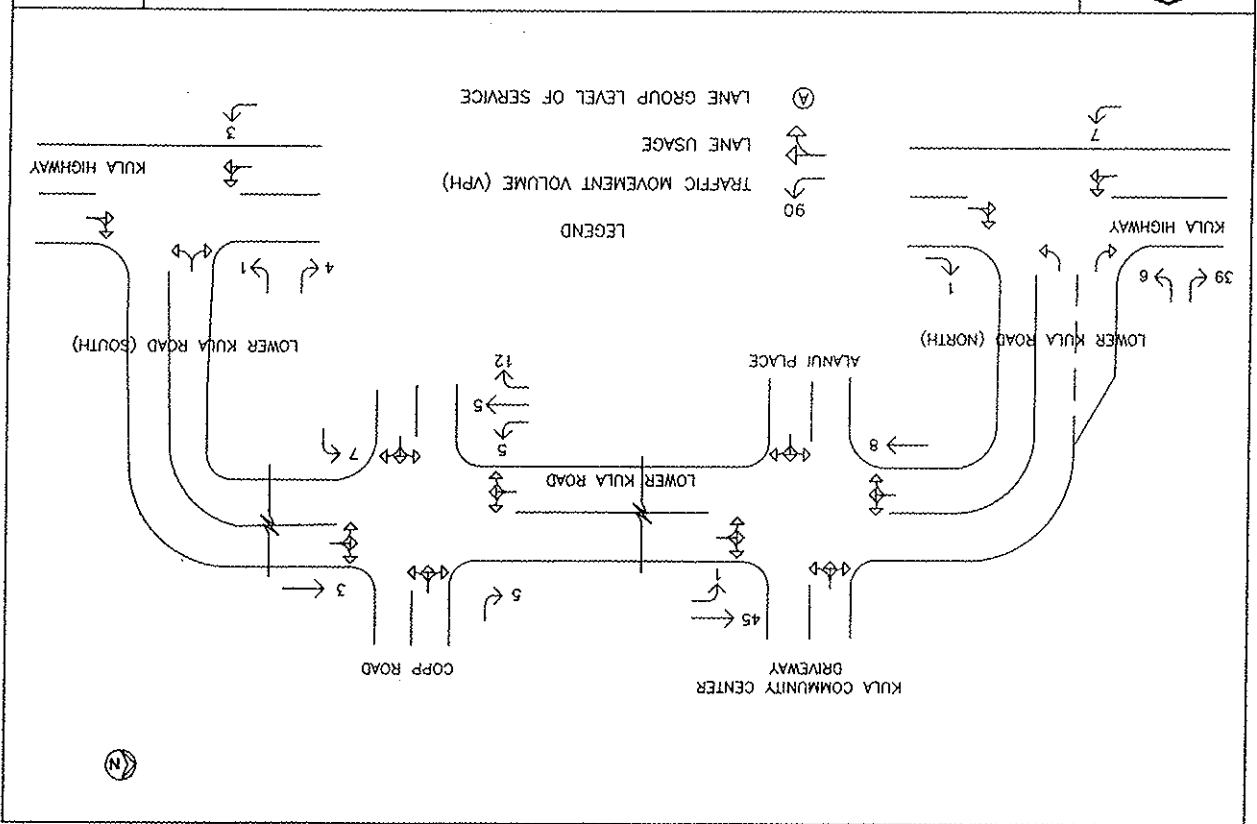
FIGURE 6



DISTRIBUTION OF SITE-GENERATED TRAFFIC YEAR 2009 AM PEAK HOUR OF TRAFFIC

KULA RIDGE

FIGURE 5



B. Through Traffic Forecasting Methodology

An analysis of both historical traffic data and traffic projections contained within the Maui Long-Range Land Transportation Plan (MLRLTP) was made to determine an appropriate ambient growth of traffic demands in the project vicinity. Using linear regression analyses, historical data indicates an average annual traffic growth rate in the vicinity of approximately 2.7%, while the MLRLTP indicates an average annual traffic growth rate of less than 0.5%. Therefore, for conservative analysis purposes, the travel forecast used in this study is based upon the historical traffic count data obtained from the State Department of Transportation (DOT). Using Year 2006 as the base year, a growth factor of 1.11 was applied to the existing traffic demands on the highways to achieve the projected ambient traffic demands for Year 2009.

C. Other Considerations

The Kula Senior Community Housing project is located southwest of the project site adjacent to Kula Highway across from Kula Elementary School. The proposed residential project is expected to be completed by Year 2006 and is expected to provide approximately 36 one-bedroom units for senior citizens with limited annual incomes. As detailed in the "Traffic Impact Report for the Kula Senior Community Housing", dated December 2005, the proposed development is anticipated to generate 2 trips and 4 trips during the AM and PM peak periods, respectively. These trips were assigned to the street network in the study area to account for trips generated by the proposed senior housing project.

D. Total Traffic Volumes Without Project

The projected Year 2009 AM and PM peak period traffic volumes and operating conditions without the proposed Kula Ridge development are shown in Figures 7 and 8, and summarized in Table 3. The existing levels of service are provided for comparison purposes. LOS calculations are included in Appendix D.

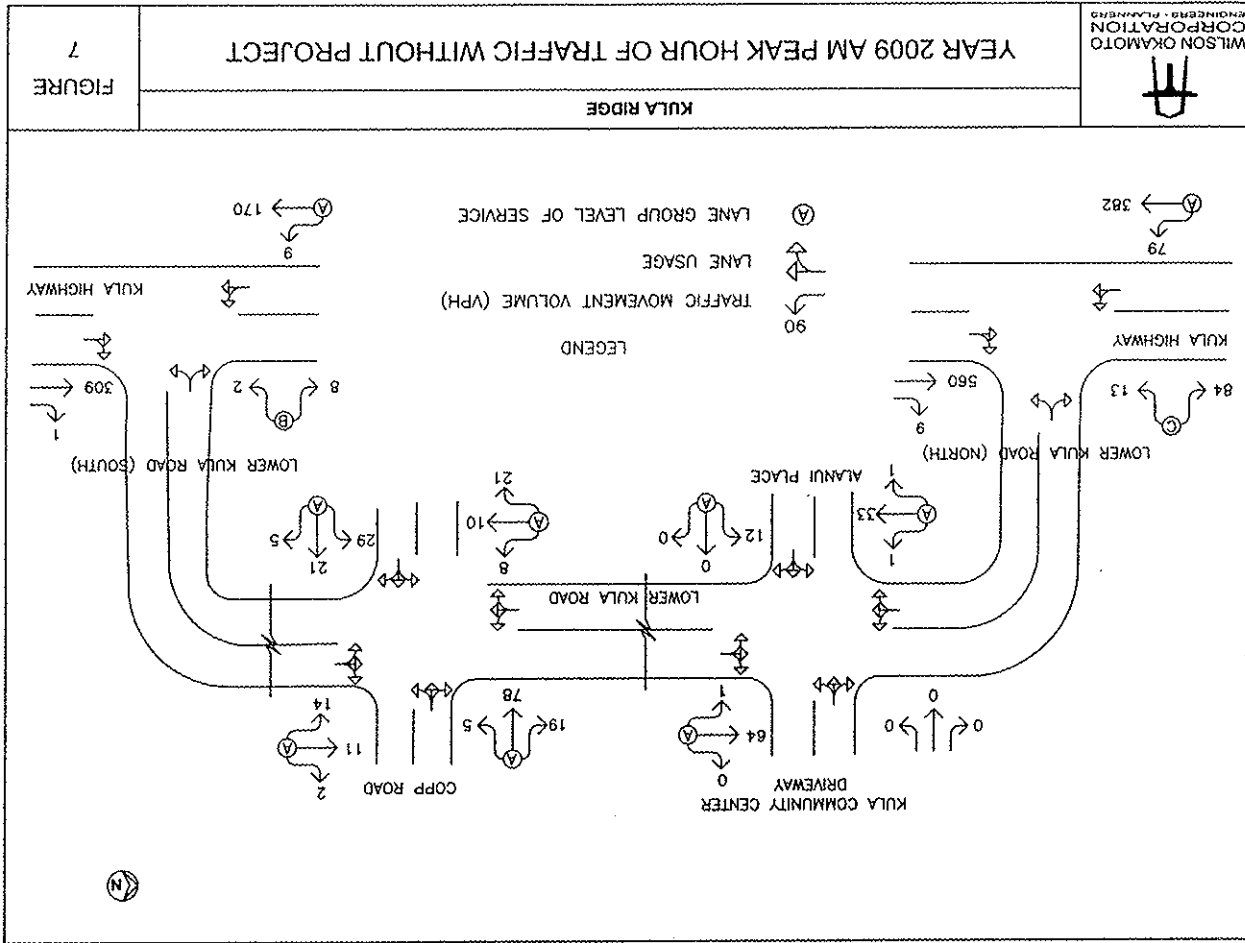


FIGURE 7

YEAR 2009 AM PEAK HOUR OF TRAFFIC WITHOUT PROJECT

KULA RIDGE



Table 3: Existing and Projected (Without Project) LOS Traffic Operating Conditions

Intersection	Critical Approach/Movement	AM		PM	
		Year 2009 w/out Proj	Year 2009 w/out Proj	Year 2009 w/out Proj	Year 2009 w/out Proj
Lower Kula Road/Alarui Place/Kula Community Center Driveway	Eastbound	A	A	A	A
	Westbound	-	-	A	A
	Northbound	A	A	A	A
Lower Kula Road/Kula Highway (North)	Westbound	A	A	A	A
	Southbound	C	C	B	B
	Eastbound	A	A	A	A
Lower Kula Road/Copp Road	Westbound	A	A	A	A
	Northbound	A	A	A	A
	Southbound	A	A	A	A
Lower Kula Road/Kula Highway (South)	Westbound	B	B	B	B
	Southbound	A	A	A	A

Traffic operations under Year 2009 without project conditions are expected to remain similar to existing conditions. The approaches of the intersections of Lower Kula Road with Alarui Place/Kula Community Center Driveway and Copp Road are expected to continue operating at LOS "A" while the westbound and southbound approaches of the southern intersection with Kula Highway are anticipated to continue operating at LOS "B" and LOS "A," respectively, during the AM and PM peak periods. Similarly, at the northern intersection of Lower Kula Road with Kula Highway, the westbound approach is anticipated to continue operating at LOS "C" and LOS "B" during the AM and PM peak periods, respectively, while the southbound approach is anticipated to continue operating at LOS "A" during both peak periods.

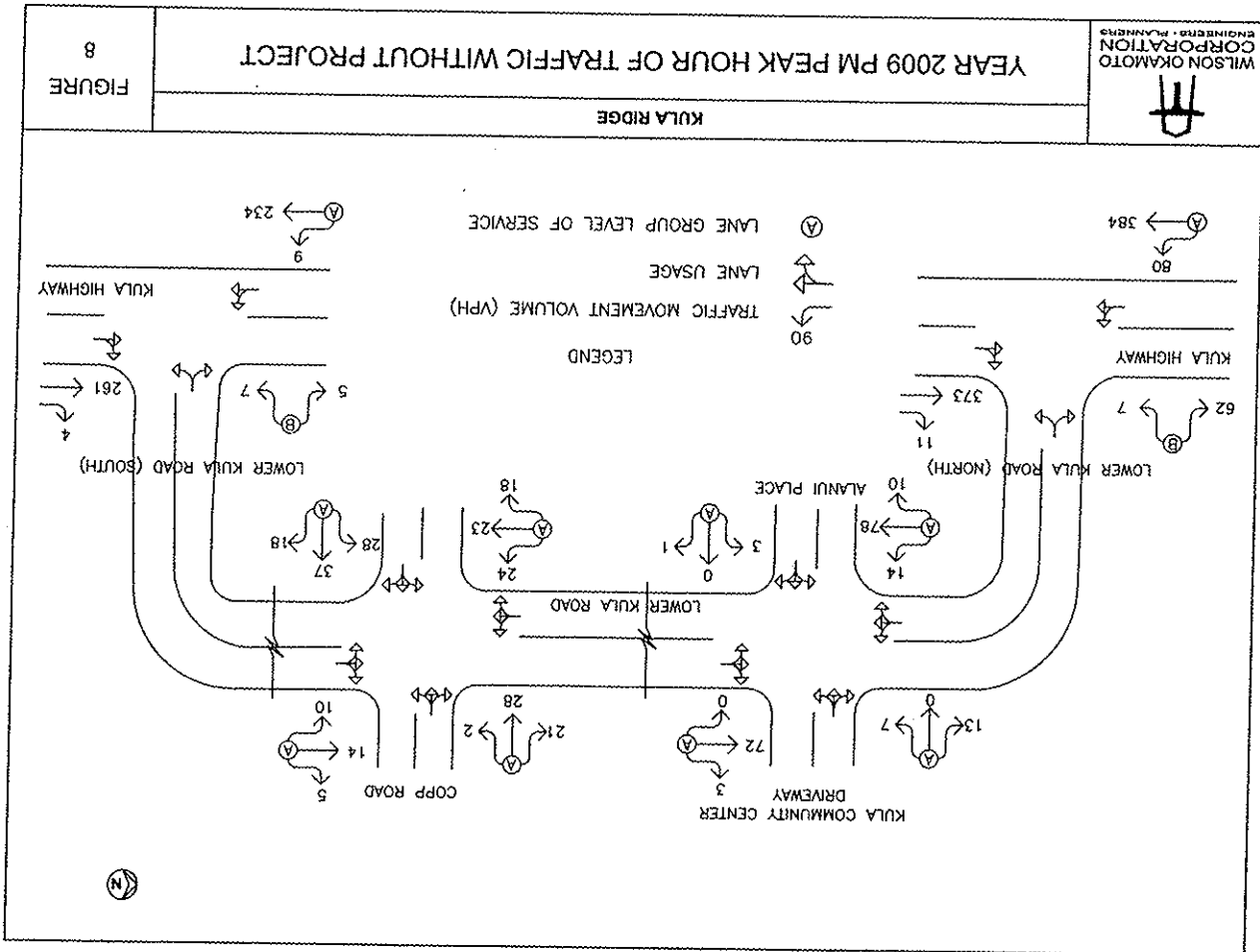


FIGURE 8

E. Total Traffic Volumes With Project

The projected Year 2009 AM and PM peak period traffic volumes and operating conditions with the development of the proposed Kula Ridge development are shown in Figures 9 and 10. The cumulative volumes consist of site-generated traffic superimposed over Year 2009 projected traffic demands. The traffic impacts resulting from the proposed project are addressed in the following section.

V. TRAFFIC IMPACT ANALYSIS

The Year 2009 cumulative AM and PM peak hour traffic conditions with the development of the Kula Ridge development are summarized in Table 4. The westbound approach of the northern intersection of Lower Kula Road with Kula Highway is assumed to have been modified to provide dedicated turning lanes. The existing and projected Year 2009 (Without Project) operating conditions are provided for comparison purposes. LOS calculations are included in Appendix E.

Table 4: Existing and Projected Year 2009 (With and Without Project) Traffic Operating Conditions

Intersection	Critical Approach/ Movement	AM			PM		
		Exist	Year 2009 w/out Proj	Year 2009 w/ Proj	Exist	Year 2009 w/out Proj	Year 2009 w/ Proj
Lower Kula Road/ Alanui Place/ Kula Community Center Driveway	Eastbound	A	A	A	A	A	A
	Westbound	-	-	-	A	A	A
	Northbound	A	A	A	A	A	A
	Southbound	A	A	A	A	A	B
Lower Kula Road/ Kula Highway (North)	Westbound	C	C	C	B	B	C
	RT						B
Lower Kula Road/ Copp Road	Southbound	A	A	A	A	A	A
	Eastbound	A	A	A	A	A	A
	Westbound	A	A	A	A	A	A
	Northbound	A	A	A	A	A	A
Lower Kula Road/ Kula Highway (South)	Southbound	A	A	A	A	A	A
	Westbound	B	B	B	B	B	B
	Southbound	A	A	A	A	A	A

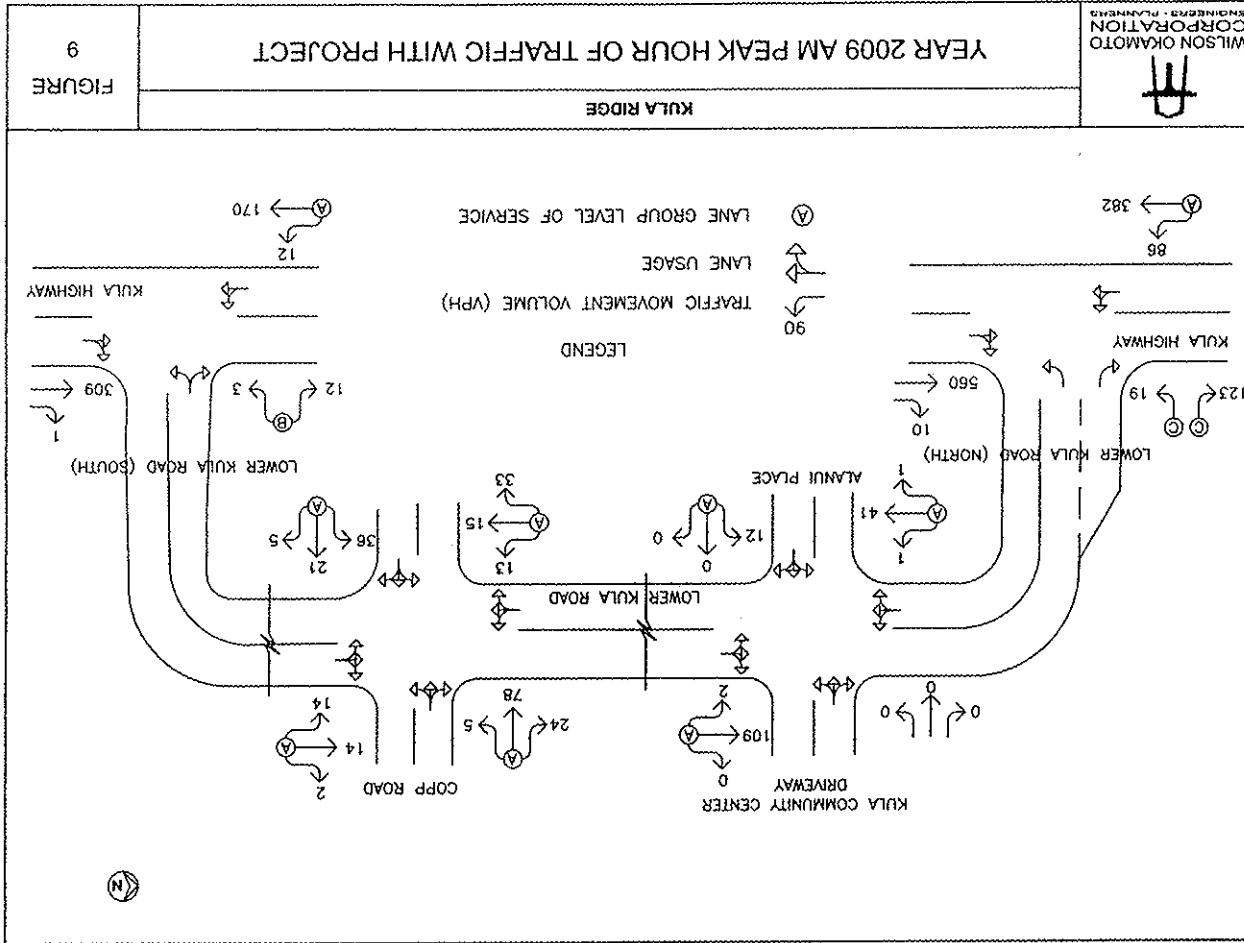


FIGURE 9

YEAR 2009 AM PEAK HOUR OF TRAFFIC WITH PROJECT

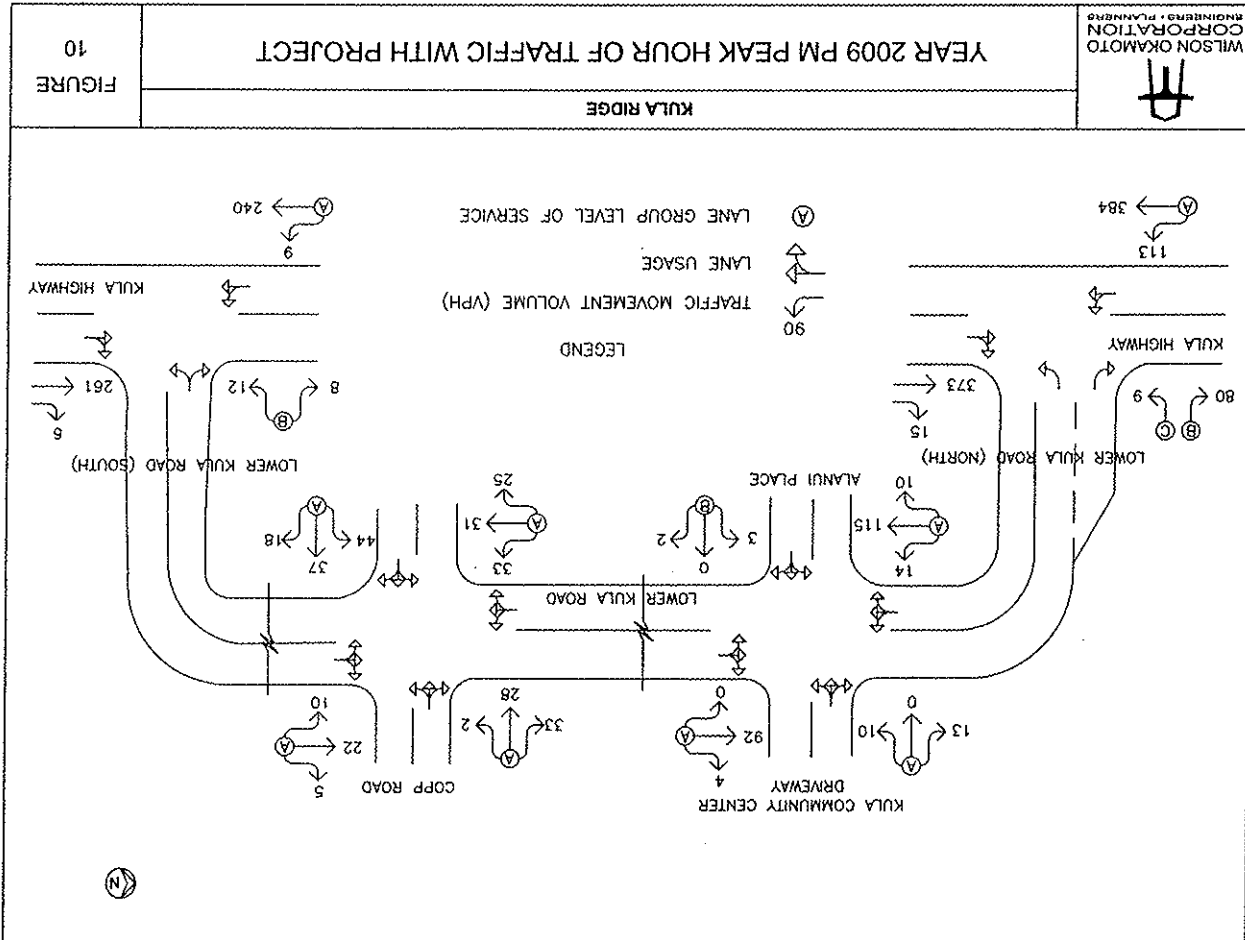
KULA RIDGE

Traffic operations in the vicinity of the proposed Kula Ridge development are expected, in general, to remain similar to existing and Year 2009 without project conditions despite the anticipated increases in traffic along the surrounding roadways due to the project. The critical movements at the intersection of Lower Kula Road with Alanui Place/Kula Community Center Driveway, Copp Road, and Kula Highway (South) are expected to operate at levels of service similar to Year 2009 without project conditions during both peak hours of traffic with the exception of the southbound approach of the intersection with Alanui Place/Kula Community Center driveway which is expected to deteriorate from LOS "A" to LOS "B" during the PM peak period. At the northern intersection of Lower Kula Road with Kula Highway, the westbound left-turn traffic movement is anticipated to operate at LOS "C" during both peak periods while the right-turn traffic movement is anticipated to operate at LOS "C" and LOS "B" during the AM and PM peak periods, respectively.

VI. RECOMMENDATIONS

Based on the analysis of the traffic data, the following are the recommendations of this study to be incorporated in the project design.

1. Maintain sufficient sight distance for motorists to safely enter and exit all project roadways.
2. Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.
3. Provide adequate turn-around area for service, delivery, and refuse collection vehicles to maneuver on the project site to avoid vehicle-reversing maneuvers onto public roadways.
4. Provide sufficient turning radii at all project roadways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
5. Provide exclusive left-turn and right-turn lanes on the westbound approach of Lower Kula Road at the northern intersection with Kula Highway to minimize the impact of left-turning vehicles on the higher volume of right-turning vehicles on that approach.



VII. CONCLUSION

The proposed Kula Ridge development is expected to include 42 residential lots, 70 affordable housing residential lots, 4 agricultural lots, and an approximately 3-acre park that will be dedicated to the County of Maui. With the implementation of the aforementioned recommendations, the proposed Kula Ridge development is not expected to have a significant impact on traffic operations in the vicinity of the project site. The critical movements at the study intersection along Lower Kula Road are expected continue operating at acceptable levels of service despite the addition of site-generated vehicles to the surrounding roadway network due to the provision of exclusive turning lanes at the northern intersection of Lower Kula Road with Kula Highway.

APPENDIX A EXISTING TRAFFIC COUNT DATA

Wilson Okamoto Coporation
1907 S. Beretania Street #400
Honolulu, HI 96826

Title: : Lower Kula Road
Date: 04/25/06

Time	AM	NB	PM	AM	SB	PM	AM	Combined	PM	Day
2:00										Tuesday
2:15										
2:30										
2:45										
3:00										
3:15										
3:30										
3:45										
4:00										
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10:00										
10:15										
10:30										
10:45										
11:00										
11:15										
11:30										
11:45										
Totals	0	336	0	409	0	745				
18%		45.1		54.9						
Day Totals	316			409		745				
Per Split	45.1			54.9						
Peak Hour	03:45			03:45		03:45				
Volume	73			86		159				
Avg	0.59			0.90		0.75				

Wilson Okamoto Coporation
1907 S. Beretania Street #400
Honolulu, HI 96826

Title: : Lower Kula Road
Date: 04/26/06

Time	AM	NB	PM	AM	SB	PM	AM	Combined	PM	Day
2:00										Wednesday
2:15										
2:30										
2:45										
3:00										
3:15										
3:30										
3:45										
4:00										
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10:15										
10:30										
10:45										
11:00										
11:15										
11:30										
11:45										
Totals	103	0	0	69	0	172				
18%	59.9			40.1						
Day Totals	103			69		172				
Per Split	59.9			40.1						
Peak Hour	06:45			07:00		07:00				
Volume	66			31		96				
Avg	0.75			0.55		0.83				

1907 S. Beretania Street #400
Honolulu, HI 96826

Site: 01
Date: 05/31/05

1907 S. Beretania Street #400
Honolulu, HI 96826

Site: 01
Date: 06/01/05

Time	SB		NB		Combined		Day
	AM	PM	AM	PM	AM	PM	
12:00							Tuesday
12:15							
12:30							
12:45							
01:00							
1:15							
1:30							
1:45							
2:00	18	211	3	180	26	391	
2:15	60		52		112		
2:30	67		58		125		
2:45	66		62		128		
3:00	43	272	56	277	99	549	
3:15	65		68		133		
3:30	81		73		154		
3:45	91		72		163		
4:00	86	316	75	293	161	609	
4:15	76		64		140		
4:30	83		64		147		
4:45	75		78		153		
5:00	80	301	50	243	130	544	
5:15	80		66		146		
5:30	63		70		133		
5:45	78		57		135		
6:00	66	224	62	195	128	429	
6:15	64		47		111		
6:30	63		54		117		
6:45	41		32		73		
7:00	53	187	30	135	83	322	
7:15	44		40		84		
7:30	52		39		91		
7:45	38		26		64		
8:00	35	128	26	66	61	194	
8:15	40		20		60		
8:30	32		14		46		
8:45	21		6		27		
9:00	44	122	16	49	60	171	
9:15	21		10		31		
9:30	26		12		38		
9:45	31		11		42		
10:00	29	81	10	19	39	100	
10:15	18		3		21		
10:30	15		4		19		
10:45	19		2		21		
11:00	16	48	6	21	22	69	
11:15	13		4		17		
11:30	16		7		23		
11:45	3		4		7		
12:00	0	1,900	0	1,478	0	3,378	
12:04	4	56.2	0	43.8	0	0	
Totals	1,900		1,478		3,378		
Spills	56.2		43.8				
Hour	09:45	09:30	09:30	09:30	09:30	09:30	
Time	332	304	304	626	626	626	
Motor	0.91	0.94	0.94	0.96	0.96	0.96	

1907 S. Beretania Street #400
Honolulu, HI 96826

Site: 01
Date: 06/01/05

1907 S. Beretania Street #400
Honolulu, HI 96826

Site: 01
Date: 06/01/05

Time	SB		NB		Combined		Day
	AM	PM	AM	PM	AM	PM	
12:00							Wednesday
12:15							
12:30							
12:45							
01:00							
1:15							
1:30							
1:45							
2:00	3	5	4	11	7	16	
2:15	0		4		4		
2:30	1		3		4		
2:45	1		0		1		
3:00	0	3	4	11	4	14	
3:15	1		2		3		
3:30	2		2		4		
3:45	0		3		3		
4:00	4	12	2	21	6	33	
4:15	4		4		8		
4:30	1		4		5		
4:45	3		11		14		
5:00	6	29	20	100	26	129	
5:15	5		19		24		
5:30	11		30		37		
5:45	11		42		31		
6:00	38	172	58	275	76	397	
6:15	25		63		88		
6:30	38		62		100		
6:45	41		92		133		
7:00	32	234	96	436	128	670	
7:15	49		124		173		
7:30	80		124		204		
7:45	73		92		165		
8:00	0		0		0		
8:15	0		0		0		
8:30	0		0		0		
8:45	0		0		0		
9:00	0		0		0		
9:15	0		0		0		
9:30	0		0		0		
9:45	0		0		0		
10:00	0		0		0		
10:15	0		0		0		
10:30	0		0		0		
10:45	0		0		0		
11:00	0		0		0		
11:15	0		0		0		
11:30	0		0		0		
11:45	0		0		0		
12:00	0	1,304	0	0	1,304	0	
12:04	441		863		66.2		
Totals	441		863		1,304		
Spills	33.8		66.2				
Hour	07:00	06:45	06:45	07:00	07:00	07:00	
Time	234	436	436	670	670	670	
Motor	0.73	0.88	0.88	0.82	0.82	0.82	

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) criteria are given in Table 1. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

APPENDIX B

LEVEL OF SERVICE DEFINITIONS

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. If the degree of saturation is greater than about 0.9, average control delay is significantly affected by the length of the analysis period.

Table 1: Level-of-Service Criteria for
Unsignalized Intersections

Level of Service	Average Control Delay (Sec/Veh)
A	≤ 10.0
B	>10.0 and ≤ 15.0
C	>15.0 and ≤ 25.0
D	>25.0 and ≤ 35.0
E	>35.0 and ≤ 50.0
F	>50.0

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: AM Peak Period
 Intersection: Alanui Dr/Lower Kula Rd
 Jurisdiction: City
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID: 7551-01 Kula Ridge
 East/West Street: Alanui Dr
 North/South Street: Lower Kula Rd
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
	L	T	R	L	T	R
Volume	1	64	0	1	32	1
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.50	0.50	0.50
Hourly Flow Rate, HFR	1	86	0	2	64	2
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR					
Upstream Signal?	No					

Minor Street: Approach

Movement	Westbound			Eastbound		
	L	T	R	L	T	R
Volume	0	0	0	12	0	0
Peak Hour Factor, PHF	1.00	1.00	1.00	0.60	0.60	0.60
Hourly Flow Rate, HFR	0	0	0	19	0	0
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)	0					
Flared Approach: Exists?/Storage	No /					
Lanes	0	1	0	0	1	0
Configuration	LTR					

Delay, Queue Length, and Level of Service

Approach	NE	SB	Westbound			Eastbound		
			LTR	L	T	R	LTR	L
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR
v (vph)	1	2	0	0	0	19	19	19
C(m) (vph)	1536	1510				808	808	808
v/c	0.00	0.00				0.02	0.02	0.02
95% queue length	0.00	0.00				0.07	0.07	0.07
Control Delay	7.3	7.4				9.6	9.6	9.6
LOS	A	A				A	A	A
Approach Delay						9.6	9.6	9.6
Approach LOS						A	A	A

APPENDIX C

CAPACITY ANALYSIS CALCULATIONS
 EXISTING PEAK PERIOD TRAFFIC ANALYSIS

HCS+: Unsignalized Intersections Release 5.1

TWO-WAY STOP CONTROL SUMMARY

Analyst: Wilson Okamoto Corporation
 Agency/Co.: 6/9/2006
 Date Performed: 6/9/2006
 Analysis Time Period: PM Peak Period
 Intersection: Alanui Dr/Lower Kula Rd
 Jurisdiction: City
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID: 7551-01 Kula Ridge
 East/West Street: Alanui Dr
 North/South Street: Lower Kula Rd
 Intersection Orientation: NS
 Study period (hrs): 1.00

Major Street:	Vehicle Volumes and Adjustments					
	Approach			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	72	3	14	77	10
Peak-Hour Factor, PHF	0.69	0.69	0.69	0.84	0.84	0.84
Hourly Flow Rate, HFR	0	103	4	16	91	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR					
Upstream Signal?	No					

Minor Street:	Vehicle Volumes and Adjustments					
	Approach			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	7	0	13	3	0	1
Peak Hour Factor, PHF	0.71	0.71	0.71	0.33	0.33	0.33
Hourly Flow Rate, HFR	9	0	18	9	0	3
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)	0	0	0	0	0	0
Flared Approach: Exists?/Storage	No /					
Lanes	0	1	0	0	1	0
Configuration	LTR					

Approach	Delay, Queue Length, and Level of Service					
	NB			SE		
Movement	1	4	7	8	9	10
Lane Config	LTR	LTR	LTR	LTR	LTR	LTR
v (vph)	0	16	27	12	12	12
C(m) (vph)	1490	1484	854	744	744	744
V/c	0.00	0.01	0.03	0.02	0.02	0.02
95% queue length	0.00	0.10	0.10	0.03	0.03	0.03
Control Delay	7.4	7.5	9.4	9.9	9.9	9.9
LOS	A	A	A	A	A	A
Approach Delay	9.4					
Approach LOS	A					

HCS+: Unsignalized Intersections Release 5.1

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (North)
 Jurisdiction: State
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID: 7551-01 Kula Ridge
 East/West Street: Lower Kula Rd (North)
 North/South Street: Kula Hwy
 Intersection Orientation: NS
 Study period (hrs):

Major Street:	Vehicle Volumes and Adjustments					
	Approach			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	504	9	78	344		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.77	0.77	0.77
Hourly Flow Rate, HFR	560	10	101	446		
Percent Heavy Vehicles	--	--	2	--	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	0	0	0	1	
Configuration	TR					
Upstream Signal?	No					

Minor Street:	Vehicle Volumes and Adjustments					
	Approach			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	13	84				
Peak Hour Factor, PHF	0.84	0.84				
Hourly Flow Rate, HFR	15	100				
Percent Heavy Vehicles	2	2				
Percent Grade (%)	0	0				
Flared Approach: Exists?/Storage	No /					
Lanes	0	0				
Configuration	LR					

Approach	Delay, Queue Length, and Level of Service					
	NB			SE		
Movement	1	4	7	8	9	10
Lane Config	LT	LR	LR	LR	LR	LR
v (vph)	101	115	115	420	420	420
C(m) (vph)	1002	1002	1002	0.10	0.27	0.27
V/c	0.10	0.10	0.10	0.34	1.10	1.10
95% queue length	0.34	0.34	0.34	9.0	16.8	16.8
Control Delay	9.0	9.0	9.0	16.8	16.8	16.8
LOS	A	A	A	C	C	C
Approach Delay	16.8					
Approach LOS	C					

HCS+: Unsignalized Intersections Release 5.1

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: PM Peak Period
 Analysis Time Period: Kula Hwy/Lower Kula Rd (North)
 Intersection: State
 Jurisdiction: U. S. Customary
 Units: Existing
 Project ID: 7551-01 Kula Ridge
 East/West Street: Lower Kula Rd (North)
 North/South Street: Kula Hwy
 Intersection Orientation: NS
 Study period (hrs): 1.00

Major Street: Approach Movement	Vehicle Volumes and Adjustments					
	Northbound			Southbound		
	L	T	R	L	T	R
Volume	335	10	79	346		
Peak-Hour Factor, PHF	0.86	0.86	0.90	0.90		
Hourly Flow Rate, HFR	389	11	87	384		
Percent Heavy Vehicles	--	--	2	--		--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	0	0	1	LT	NO
Configuration	TR					
Upstream Signal?	No					

Minor Street: Approach Movement	Delay, Queue Length, and Level of Service					
	Westbound			Eastbound		
	L	T	R	L	T	R
Volume	7	8	9	10	11	12
Peak Hour Factor, PHF	0.82			0.82		
Hourly Flow Rate, HFR	8	75	2			
Percent Heavy Vehicles	2					
Percent Grade (%)	0			No	/	/
Flared Approach: Exists?/Storage	0			0		
Lanes	LR					
Configuration						

Approach Movement	Delay, Queue Length, and Level of Service					
	NB		SB		Westbound	
	L/T	R	L/R	9	10	11
Lane Config	4	7	8	9	10	11
v (vph)	87					
C(m) (vph)	1159					
v/c	0.08					
95% queue length	0.24					
Control Delay	8.4					
LOS	A					
Approach Delay						
Approach LOS						

HCS+: Unsignalized Intersections Release 5.1

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

Phone: (808) 946-2277
 Fax: (808) 946-2253
 E-Mail:

ALL-WAY STOP CONTROL (AMSC) ANALYSIS

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: AM Peak Period
 Intersection: Copp Rd/Lower Kula Rd
 Jurisdiction: City
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID: 7551-01 Kula Ridge
 East/West Street: Copp Rd
 North/South Street: Lower Kula Rd

Worksheet 2 - Volume Adjustments and Site Characteristics

Volume & Thrus Left Lane	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
	29	21	5	5	78	19	14	11	2	8	9	21

Configuration	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	LTR	L1	L2	LTR	L1	L2	L1	L2	L1	L2
PHF	0.69			0.80			0.61					
Flow Rate	79			126			42					
& Heavy Veh	2			2			2					
No. Lanes	1			1			1					
Opposing-Lanes	1			1			1					
Conflicting-Lanes	1			1			1					
Geometry group	1			1			1					
Duration, T	1.00 hrs.											

Worksheet 3 - Saturation Headway Adjustment Worksheet

Flow Rates:	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	LTR	L1	L2	LTR	L1	L2	L1	L2	L1	L2
Total in Lane	79			126			42					
Left-Turn	42			6			22					
Right-Turn	7			23			3					
Prop. Left-Turns	0.5			0.0			0.5					
Prop. Right-Turns	0.1			0.2			0.1					
Prop. Heavy Vehicle	0.0			0.0			0.0					
Geometry Group	1			1			1					
Adjustments Exhibit 17-33:												
hLT-adj				0.2				0.2				0.2
hRT-adj				-0.6				-0.6				-0.6
hHV-adj				1.7				1.7				1.7
hadJ, computed				-0.1				0.1				-0.3

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	79		126		42		47	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.07		0.11		0.04		0.04	
hd, final value	4.32		4.12		4.50		4.15	
x, final value	0.09		0.14		0.05		0.05	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	2.3		2.1		2.5		2.1	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	79		126		42		47	
Service Time	2.3		2.1		2.5		2.1	
Utilization, x	0.09		0.14		0.05		0.05	
Dep. headway, hd	4.32		4.12		4.50		4.15	
Capacity	329		376		292		297	
Delay	7.77		7.81		7.75		7.33	
LOS	A		A		A		A	
Approach:								
Delay	7.77		7.81		7.75		7.38	
LOS	A		A		A		A	
Intersection Delay	7.72		Intersection LOS A					

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	28	37	18	2	28	21	10	14	5	23	22	18
% Thrus Left Lane												

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.94		0.85		0.91		0.75	
Flow Rate	87		58		31		83	
% Heavy Veh	2		2		2		2	
No. Lanes	1		1		1		1	
Opposing-Lanes	1		1		1		1	
Conflicting-Lanes	1		1		1		1	
Geometry group	1		1		1		1	
Duration, T	1.00 hrs.							

Flow Rates

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Total in Lane	87		58		31		83	
Left-Turn	29		2		11		30	
Right-Turn	19		24		5		24	
Prop. Left-Turns	0.3		0.0		0.4		0.4	
Prop. Right-Turns	0.2		0.4		0.2		0.3	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
Geometry Group	1		1		1		1	
Adjustments Exhibit 17-33:								
hlf-adj			0.2		0.2		0.2	
hrt-adj			-0.6		-0.6		-0.6	
hfv-adj			1.7		1.7		1.7	
hadj, computed			-0.2		0.0		-0.1	

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Wilson Okamoto Corporation
 1307 S. Beretania St., Suite 400
 Honolulu, HI 96826
 Phone: (808) 946-2277 Fax: (808) 946-2253
 E-Mail:

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: PM Peak Period
 Intersection: Copp Rd/Lower Kula Rd
 Jurisdiction: City
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID: 7551-01 Kula Ridge
 East/West Street: Copp Rd
 North/South Street: Lower Kula Rd

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	87		58		31		83	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.08		0.05		0.03		0.07	
hd, final value	4.18		4.04		4.31		4.18	
x, final value	0.10		0.07		0.04		0.10	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	2.2		2.0		2.3		2.2	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	87		58		31		83	
Service Time	2.2		2.0		2.3		2.2	
Utilization, x	0.10		0.07		0.04		0.10	
Dep. headway, hd	4.18		4.04		4.31		4.18	
Capacity	337		308		281		333	
Delay	7.65		7.32		7.48		7.63	
LOS	A		A		A		A	
Approach:								
Delay	7.65		7.32		7.48		7.63	
LOS	A		A		A		A	
Intersection LOS	A							
Intersection Delay	7.55							

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	87		58		31		83	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.08		0.05		0.03		0.07	
hd, final value	4.18		4.04		4.31		4.18	
x, final value	0.10		0.07		0.04		0.10	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	2.2		2.0		2.3		2.2	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	87		58		31		83	
Service Time	2.2		2.0		2.3		2.2	
Utilization, x	0.10		0.07		0.04		0.10	
Dep. headway, hd	4.18		4.04		4.31		4.18	
Capacity	337		308		281		333	
Delay	7.65		7.32		7.48		7.63	
LOS	A		A		A		A	
Approach:								
Delay	7.65		7.32		7.48		7.63	
LOS	A		A		A		A	
Intersection LOS	A							
Intersection Delay	7.55							

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TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (South)
 Jurisdiction: State
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID: 7551-01 Kula Ridge
 East/West Street: Lower Kula Rd (South)
 North/South Street: Kula Hwy
 Intersection Orientation: NS
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach		Northbound		Southbound	
	L	T	R	L	T	R
Volume	278	1	9	153		
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.66	0.66	
Hourly Flow Rate, HFR	334	1	13	231		
Percent Heavy Vehicles	--	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	0		0	1	
Configuration	TR					
Upstream Signal?	No					

Minor Street: Approach

Movement	Westbound			Eastbound		
	L	T	R	L	T	R
Volume	2	7	7	0	11	12
Peak Hour Factor, PHF	0.75	0.75	0.75			
Hourly Flow Rate, HFR	2	9	9			
Percent Heavy Vehicles	2	2	2			
Percent Grade (%)	0	No	/	0		
Flared Approach: Exists?/Storage	0	No	/	0		
Lanes	LR					
Configuration	LR					

Delay, Queue Length, and Level of Service

Approach	NB		SB		Westbound		Eastbound	
	L	T	R	L	T	R	L	T
Movement	1	4	7	8	9	10	11	12
Lane Config	Lf	Lf	Lf	Lf	Lf	Lf	Lf	Lf
v (vph)	13		11		11		11	
C(m) (vph)	1224		647		647		647	
v/c	0.01		0.01		0.02		0.02	
95% queue length	0.03		0.03		0.05		0.05	
Control Delay	8.0		8.0		10.7		10.7	
LOS	A		A		B		B	
Approach Delay	10.7							
Approach LOS	B							

HCS+: Unsignalized Intersections Release 5.1

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: PM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (South)
 Jurisdiction: State
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID: 7551-01 Kula Ridge
 East/West Street: Lower Kula Rd (South)
 North/South Street: Kula Hwy
 Intersection Orientation: NS

Study period (hrs): 1.00

APPENDIX D
 CAPACITY ANALYSIS CALCULATIONS
 PROJECTED YEAR 2009 PEAK PERIOD TRAFFIC
 ANALYSIS WITHOUT PROJECT

Major Street:	Vehicle Volumes and Adjustments					
	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R

Volume	234	4	9	9	211	
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.93	0.93	
Hourly Flow Rate, HFR	254	4	9	9	226	
Percent Heavy Vehicles	--	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	0		0	1	
Configuration	TR LT No					
Upstream Signal?	No					

Minor Street:	Westbound					
	Approach			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R

Volume	7	4				
Peak Hour Factor, PHF	0.61	0.61				
Hourly Flow Rate, HFR	11	6				
Percent Heavy Vehicles	2	2				
Percent Grade (%)	0					
Flared Approach: Exists?/Storage	No	/				
Lanes	0					
Configuration	LR					

Approach	Delay, Queue Length, and Level of Service					
	NB		SB		Eastbound	
Movement	1	4	7	8	9	10 11 12
Lane Config	LT	LR	LR	LR	LR	LR

v (vph)	9	17				
C(m) (vph)	1307	595				
v/c	0.01	0.03				
95% queue length	0.02	0.09				
Control Delay	7.8	11.2				
LOS	A	B				
Approach Delay		11.2				
Approach LOS		B				

TWO-WAY STOP CONTROL SUMMARY

Analyst: Wilson Okamoto Corporation
 Agency/Co.: 6/9/2006
 Date Performed: AM Peak Period
 Analysis Time Period: Alanui Dr/Lower Kula Rd
 Intersection: Alanui Dr
 Jurisdiction: City
 Units: U. S. Customary
 Analysis Year: 2009 Without Project
 Project ID: 7551-01 Kula Ridge
 East/West Street: Alanui Dr
 North/South Street: Lower Kula Rd
 Intersection Orientation: NS
 Study period (hrs): 1.00

Major Street: Approach Movement	Vehicle Volumes and Adjustments					
	Northbound		Southbound			
	L	T	R	L	T	R
Volume	1	64	0	1	33	1
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.50	0.50	0.50
Hourly Flow Rate, HFR	1	86	0	2	66	2
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR		LTR		No	
Upstream Signal?	No					

Minor Street: Approach Movement	Vehicle Volumes and Adjustments					
	Westbound		Eastbound			
	L	T	R	L	T	R
Volume	0	0	0	12	0	0
Peak Hour Factor, PHF	1.00	1.00	1.00	0.60	0.60	0.60
Hourly Flow Rate, HFR	0	0	0	19	0	0
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)	0					
Flared Approach: Exists?/Storage	0 / No /					
Lanes	0	1	0	0	1	0
Configuration	LTR		LTR		LPR	

Approach Movement	Delay, Queue Length, and Level of Service					
	NB		SB		Eastbound	
	L	T	R	L	T	R
Volume	1	1533	1510	0	19	0
C(m) (vph)	0.00	0.00	0.00	0.02	0.02	0.02
v/c	0.00	0.00	0.00	0.07	0.07	0.07
95% queue length	7.3	7.4	7.4	9.6	9.6	9.6
Control Delay	A					
LOS	A					
Approach Delay	9.6					
Approach LOS	A					

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: PM Peak Period
 Intersection: Alanui Dr/Lower Kula Rd
 Jurisdiction: City
 Units: U. S. Customary
 Analysis Year: 2009 Without Project
 Project ID: 7551-01 Kula Ridge
 East/West Street: Alanui Dr
 North/South Street: Lower Kula Rd
 Intersection Orientation: NS
 Study period (hrs): 1.00

Major Street: Approach Movement	Vehicle Volumes and Adjustments					
	Northbound			Southbound		
	L	T	R	L	T	R
Volume	0	72	3	14	78	10
Peak-Hour Factor, PHF	0.69	0.69	0.69	0.84	0.84	0.84
Hourly Flow Rate, HFR	0	104	4	16	92	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR		LTR		No	
Upstream Signal?	No					

Minor Street: Approach Movement	Vehicle Volumes and Adjustments					
	Westbound			Eastbound		
	L	T	R	L	T	R
Volume	7	0	13	3	0	1
Peak Hour Factor, PHF	0.71	0.71	0.71	0.33	0.33	0.33
Hourly Flow Rate, HFR	9	0	18	9	0	3
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)	0					
Flared Approach: Exists?/Storage	0 / No /					
Lanes	0	1	0	0	1	0
Configuration	LTR		LTR		LTR	

Approach Movement	Delay, Queue Length, and Level of Service					
	NB		SB		Eastbound	
	L	T	R	L	T	R
Volume	1	4	7	8	9	10
C(m) (vph)	0	16	27	27	12	12
v/c	0.00	0.00	0.01	0.03	0.03	0.02
95% queue length	0.00	0.00	0.03	0.10	0.10	0.05
Control Delay	7.4	7.5	9.4	9.4	9.9	9.9
LOS	A					
Approach Delay	9.4					
Approach LOS	A					

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (North)
 Jurisdiction: State
 Units: U. S. Customary
 Analysis Year: 2009 Without Project
 Project ID: 7551-01 Kula Ridge
 East/West Street: Lower Kula Rd (North)
 North/South Street: Kula Hwy
 Intersection Orientation: NS
 Study period (hrs): 0.25

Major Street:	Vehicle Volumes and Adjustments					
	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	560	9	79	382		
Peak-Hour Factor, PHF	0.90	0.90	0.77	0.77		
Hourly Flow Rate, HFR	622	10	102	496		
Percent Heavy Vehicles	--	--	2	--		
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	0	TR	0	1	
Configuration	LT					
Upstream Signal?	No					

Minor Street:	Vehicle Volumes and Adjustments					
	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	13		84			
Peak Hour Factor, PHF	0.84		0.84			
Hourly Flow Rate, HFR	15		100			
Percent Heavy Vehicles	2		2			
Percent Grade (%)	0		0			
Flared Approach: Exists?/Storage	0		No /			
Lanes	0		0			
Configuration	LR					

Approach	Delay, Queue Length, and Level of Service					
	Westbound			Eastbound		
Movement	1	4	7	8	9	10
	LT	LT	LT	LR	LR	LR
Lane Config						
v (vph)	102	115		377		
C(m) (vph)	951	377		0.31		
v/c	0.11	0.36		1.27		
95% queue length	9.2	18.7		C		
Control Delay	A	18.7		C		
LOS		18.7		C		
Approach Delay						
Approach LOS						

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/06
 Analysis Time Period: PM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (North)
 Jurisdiction: State
 Units: U. S. Customary
 Analysis Year: 2009 Without Project
 Project ID: 7551-01 Kula Ridge
 East/West Street: Lower Kula Rd (North)
 North/South Street: Kula Hwy
 Intersection Orientation: NS
 Study period (hrs): 1.00

Major Street:	Vehicle Volumes and Adjustments					
	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	373	11	80	384		
Peak-Hour Factor, PHF	0.86	0.86	0.90	0.90		
Hourly Flow Rate, HFR	433	12	88	426		
Percent Heavy Vehicles	--	--	2	--		
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	0	TR	0	1	
Configuration	LT					
Upstream Signal?	No					

Minor Street:	Vehicle Volumes and Adjustments					
	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	7		62			
Peak Hour Factor, PHF	0.82		0.82			
Hourly Flow Rate, HFR	8		75			
Percent Heavy Vehicles	2		2			
Percent Grade (%)	0		0			
Flared Approach: Exists?/Storage	0		No /			
Lanes	0		0			
Configuration	LR					

Approach	Delay, Queue Length, and Level of Service					
	Westbound			Eastbound		
Movement	1	4	7	8	9	10
	LT	LT	LT	LR	LR	LR
Lane Config						
v (vph)	88	83		534		
C(m) (vph)	1115	534		0.16		
v/c	0.08	0.26		0.55		
95% queue length	8.5	13.0		B		
Control Delay	A	13.0		B		
LOS		13.0		B		
Approach Delay						
Approach LOS						

HCS+: Unsignalized Intersections Release 5.2

Wilson Okamoto Corporation
1907 S. Beretania St., Suite 400
Honolulu, HI 96826

Phone: (808) 946-2277 Fax: (808) 946-2253
E-Mail:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: IW
Agency/Co.: Wilson Okamoto Corporation
Date Performed: 6/9/2006
Analysis Time Period: AM Peak Period
Intersection: Copp Rd/Lower Kula Rd
Jurisdiction: City
Units: U. S. Customary
Analysis Year: 2009 Without Project
Project ID: 7551-01 Kula Ridge
East/West Street: Copp Rd
North/South Street: Lower Kula Rd

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound		Westbound		Northbound		Southbound				
	L	R	L	R	L	R	L	R			
Volume	29	21	5	78	19	14	11	2	8	10	21
& Thrus Left Lane											

Configuration	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
PHF	0.69		0.80		0.61		0.79	
Flow Rate	79		126		43		48	
& Heavy Veh	2		2		2		2	
No. Lanes	1		1		1		1	
Opposing-Lanes	1		1		1		1	
Conflicting-lanes	1		1		1		1	
Geometry group	1		1		1		1	
Duration, T	1.00	hrs.						

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	79		126		43		48	
Left-Turn	42		6		22		10	
Right-Turn	7		23		3		26	
Prop. Left-Turns	0.5		0.0		0.5		0.2	
Prop. Right-Turns	0.1		0.2		0.1		0.5	

Prop. Heavy Vehicle 0.0 1 0.0 1 0.0 1 0.0 1

Geometry Group 1

Adjustments Exhibit 17-33:

hlf-adj 0.2 0.2 0.2 0.2

hft-adj -0.6 -0.6 -0.6 -0.6

hfv-adj 1.7 1.7 1.7 1.7

hadj, computed 0.1 -0.1 0.1 -0.2

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	79		126		43		48	
hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.07		0.11		0.04		0.04	
hd, final value	4.32		4.13		4.50		4.15	
x, final value	0.09		0.14		0.05		0.06	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	2.3		2.1		2.5		2.2	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	79		126		43		48	
Service Time	2.3		2.1		2.5		2.2	
Utilization, x	0.09		0.14		0.05		0.06	
Dep. headway, hd	4.32		4.13		4.50		4.15	
Capacity	329		376		293		298	
Delay	7.78		7.82		7.76		7.40	
LOS	A		A		A		A	
Approach:								
Delay	7.78		7.82		7.76		7.40	
LOS	A		A		A		A	
Intersection Delay	7.73				Intersection LOS		A	

HCS+: Unsignalized Intersections Release 5.2

Wilson Okamoto Corporation
1907 S. Beretania St., Suite 400
Honolulu, HI 96826

Phone: (808) 946-2277
E-Mail:

Fax: (808) 946-2253

ALL-WAY STOP CONTROL (AMSC) ANALYSIS

Analyst: IW
Agency/Co.: Wilson Okamoto Corporation
Date Performed: 6/9/2006
Analysis Time Period: PM Peak Period
Intersection: Copp Rd/Lower Kula Rd
Jurisdiction: City
Units: U. S. Customary
Analysis Year: 2009 Without Project
Project ID: 7551-01 Kula Ridge
East/West Street: Copp Rd
North/South Street: Lower Kula Rd

Worksheet 2 - Volume Adjustments and Site Characteristics

Volume & Thrus Left Lane	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
	28	37	18	2	28	21	10	14	5	24	23	18

Configuration	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
PHF	0.94			LTR	0.85		LTR	0.91		LTR	0.75	
Flow Rate	87			58			30			86		
& Heavy Veh	2			2			2			2		
No. Lanes	1			1			1			1		
Opposing-Lanes	1			1			1			1		
Conflicting-lanes	1			1			1			1		
Geometry group	1			1			1			1		
Duration, T	1.00 hrs.											

Worksheet 3 - Saturation Headway Adjustment Worksheet

Flow Rates:	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Total in Lane	87			58			30			86		
Left-Turn	29			2			10			32		
Right-Turn	19			24			5			24		
Prop. Left-Turns	0.3			0.0			0.3			0.4		
Prop. Right-Turns	0.2			0.4			0.2			0.3		

Prop. Heavy Vehicle 0.0
Geometry Group 1
Adjustments Exhibit 17-33:
hLT-adj 0.2
hRT-adj -0.6
hLV-adj 1.7
hadj, computed -0.0

	0.0			1			0.0			1		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Flow rate	87			58			30			86		
hd, initial value	3.20			3.20			3.20			3.20		
x, initial	0.08			0.05			0.03			0.08		
hd, final value	4.19			4.04			4.31			4.19		
x, final value	0.10			0.07			0.04			0.10		
Move-up time, m	2.2			2.0			2.3			2.2		

Worksheet 4 - Departure Headway and Service Time

	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Flow rate	87			58			30			86		
hd, initial value	3.20			3.20			3.20			3.20		
x, initial	0.08			0.05			0.03			0.08		
hd, final value	4.19			4.04			4.31			4.19		
x, final value	0.10			0.07			0.04			0.10		
Move-up time, m	2.2			2.0			2.3			2.2		

Worksheet 5 - Capacity and Level of Service

	Eastbound			Westbound			Northbound			Southbound		
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Flow Rate	87			58			30			86		
Service Time	2.2			2.0			2.3			2.2		
Utilization, x	0.10			0.07			0.04			0.10		
Dep. Headway, hd	4.19			4.04			4.31			4.19		
Capacity	337			308			280			336		
Delay	7.66			7.32			7.47			7.66		
LOS	A			A			A			A		
Approach:	A											
Delay	7.66			7.32			7.47			7.66		
LOS	A			A			A			A		
Intersection Delay	7.56			Intersection LOS			A			A		

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (South)
 Jurisdiction: State
 Units: U. S. Customary
 Analysis Year: 2009 Without Project
 Project ID: 7551-01 Kula Ridge
 East/West Street: Lower Kula Rd (South)
 North/South Street: Kula Hwy
 Intersection Orientation: NS
 Study period (hrs): 1.00

Major Street: Approach Movement	Vehicle Volumes and Adjustments					
	Northbound			Southbound		
	L	T	R	L	T	R
Volume	309	1	9	170		
Peak-Hour Factor, PHF	0.83	0.83	0.66	0.66		
Hourly Flow Rate, HFR	372	1	13	257		
Percent Heavy Vehicles	--	--	2	--	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	0		0	1	
Configuration	TR LT					
Upstream Signal?	No					

Minor Street: Approach Movement	Vehicle Volumes and Adjustments					
	Westbound			Eastbound		
	L	T	R	L	T	R
Volume	2		8	10	11	12
Peak Hour Factor, PHF	0.75		0.75			
Hourly Flow Rate, HFR	2		10			
Percent Heavy Vehicles	2		2			
Percent Grade (%)	0		0			
Flared Approach: Exists?/Storage	No /					
Lanes	0		0			
Configuration	LR					

Approach Movement	Delay, Queue Length, and Level of Service					
	Westbound			Eastbound		
	L	T	R	L	T	R
Delay (vph)	13		12			
C(m) (vph)	1185		614			
v/c	0.01		0.02			
95% queue length	0.03		0.06			
Control Delay	8.1		11.0			
LOS	A		B			
Approach Delay			11.0			
Approach LOS			B			

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: PM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (South)
 Jurisdiction: State
 Units: U. S. Customary
 Analysis Year: 2009 Without Project
 Project ID: 7551-01 Kula Ridge
 East/West Street: Lower Kula Rd (South)
 North/South Street: Kula Hwy
 Intersection Orientation: NS
 Study period (hrs): 1.00

Major Street: Approach Movement	Vehicle Volumes and Adjustments					
	Northbound			Southbound		
	L	T	R	L	T	R
Volume	261	4	9	234		
Peak-Hour Factor, PHF	0.92	0.92	0.93	0.93		
Hourly Flow Rate, HFR	283	4	9	251		
Percent Heavy Vehicles	--	--	2	--	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	0		0	1	
Configuration	TR LT					
Upstream Signal?	No					

Minor Street: Approach Movement	Vehicle Volumes and Adjustments					
	Westbound			Eastbound		
	L	T	R	L	T	R
Volume	7	8	9	10	11	12
Peak Hour Factor, PHF	0.61		0.61			
Hourly Flow Rate, HFR	11		8			
Percent Heavy Vehicles	2		2			
Percent Grade (%)	0		0			
Flared Approach: Exists?/Storage	No /					
Lanes	0		0			
Configuration	LR					

Approach Movement	Delay, Queue Length, and Level of Service					
	Westbound			Eastbound		
	L	T	R	L	T	R
Delay (vph)	9		19			
C(m) (vph)	1275		575			
v/c	0.01		0.03			
95% queue length	0.02		0.10			
Control Delay	7.8		11.5			
LOS	A		B			
Approach Delay			11.5			
Approach LOS			B			

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: AM Peak Period
 Intersection: Alanui Dr/Lower Kula Rd
 Jurisdiction: City
 Units: U. S. Customary
 Analysis Year: 2009 with Project
 Project ID: 7551-01 Kula Ridge
 East/West Street: Alanui Dr
 North/South Street: Lower Kula Rd
 Intersection Orientation: NS

Study period (hrs): 1.00

Major Street: Approach Movement	Vehicle Volumes and Adjustments					
	Northbound			Southbound		
	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	2	64	109	1	41	1
Peak-Hour Factor, PHF	0.74	0.74	0.74	0.50	0.50	0.50
Hourly Flow Rate, HFR	2	86	147	2	82	2
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR No					
Upstream Signal?	No					

Minor Street: Approach Movement	Westbound						Eastbound					
	Westbound			Eastbound			Westbound			Eastbound		
	7	8	9	10	11	12	1	2	3	4	5	6
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	0	0	0	12	0	33	0	0	0	0	0	33
Peak Hour Factor, PHF	1.00	1.00	1.00	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Hourly Flow Rate, HFR	0	0	0	19	0	54	0	0	0	0	0	54
Percent Heavy Vehicles	2	2	2	2	2	2	2	2	2	2	2	2
Percent Grade (%)	0											
Flared Approach: Exists?/Storage	0 No /											
Lanes	0	1	0	0	1	0	0	1	0	1	0	0
Configuration	LTR LTR											

Approach Movement	Delay, Queue Length, and Level of Service											
	Westbound			Eastbound			Westbound			Eastbound		
	4	7	8	9	10	11	12	1	2	3	4	5
	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR
Delay (s)	2	2	0	0	0	0	0	0	0	0	0	0
Queue Length (veh)	1513	1335	0	0	0	0	0	0	0	0	0	0
v/c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95% queue length	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Control Delay	7.4	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Delay	9.4	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Approach LOS	A	A	A	A	A	A	A	A	A	A	A	A

APPENDIX E
 CAPACITY ANALYSIS CALCULATIONS
 PROJECTED YEAR 2009 PEAK PERIOD TRAFFIC
 ANALYSIS WITH PROJECT

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: PM Peak Period
 Intersection: Alanui Dr/Lower Kula Rd
 Jurisdiction: City
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: 7551-01 Kula Ridge
 East/West Street: Alanui Dr
 North/South Street: Lower Kula Rd
 Intersection Orientation: NS
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Northbound			Southbound		
	1	2	3	4	5	6
Volume	0	92	4	14	115	10
Peak-Hour Factor, PHF	0.69	0.69	0.69	0.84	0.84	0.84
Hourly Flow Rate, HFR	2	133	5	16	136	11
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR					
Upstream Signal?	No					

Minor Street: Approach Movement

Westbound	Eastbound					
	7	8	9	10	11	12
Volume	10	0	13	3	0	2
Peak Hour Factor, PHF	0.71	0.71	0.71	0.33	0.33	0.33
Hourly Flow Rate, HFR	14	0	18	9	0	6
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)	0					
Flared Approach: Exists?/Storage	0 / No					
Lanes	0	1	0	0	1	0
Configuration	LTR					

Delay, Queue Length, and Level of Service

Approach Movement	NB LTR	SB LTR	Westbound			Eastbound		
			4	7	8	9	10	11
Lane Config	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR
V (vph)	0	16	32	15	15	15	15	15
C(m) (vph)	1435	1446	764	707	707	707	707	707
v/c	0.00	0.01	0.04	0.02	0.02	0.02	0.02	0.02
95% queue length	0.00	0.03	0.13	0.07	0.07	0.07	0.07	0.07
Control Delay	7.5	7.5	9.9	10.2	10.2	10.2	10.2	10.2
LOS	A	A	A	B	B	B	B	B
Approach Delay	9.9							
Approach LOS	A							

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (North)
 Jurisdiction: State
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: 7551-01 Kula Ridge
 East/West Street: Lower Kula Rd (North)
 North/South Street: Kula Hwy
 Intersection Orientation: NS
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Northbound			Southbound		
	1	2	3	4	5	6
Volume	560	10	86	382		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.77	0.77	0.77
Hourly Flow Rate, HFR	622	11	111	496		
Percent Heavy Vehicles	--	--	2	--	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	0	0	0	1	
Configuration	TR					
Upstream Signal?	No					

Minor Street: Approach Movement

Westbound	Eastbound					
	7	8	9	10	11	12
Volume	19	123	0.84	146		
Peak Hour Factor, PHF	0.84	0.84	0.84	0.84		
Hourly Flow Rate, HFR	22	146	2	2		
Percent Heavy Vehicles	2	2	2	2		
Percent Grade (%)	0					
Flared Approach: Exists?/Storage	1 /					
Lanes	1	1	1	1		
Configuration	L R					

Delay, Queue Length, and Level of Service

Approach Movement	NB LTR	SB LTR	Westbound			Eastbound		
			4	7	8	9	10	11
Lane Config	LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR
V (vph)	311	22	146	146				
C(m) (vph)	950	214	483	483				
v/c	0.12	0.10	0.30	0.30				
95% queue length	0.40	0.34	1.29	1.29				
Control Delay	9.3	23.7	15.7	15.7				
LOS	A	C	C	C				
Approach Delay	16.7							
Approach LOS	C							

HCS: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 5/9/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (South)
 Jurisdiction: State
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: 7551-01 Kula Ridge
 East/West Street: Lower Kula Rd (South)
 North/South Street: Kula Hwy
 Intersection Orientation: NS
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Northbound				Southbound			
	L	T	R	L	L	T	R	L
Volume	309	1	12	170				
Peak-Hour Factor, PHF	0.83	0.83	0.66	0.66				
Hourly Flow Rate, HFR	372	1	18	257				
Percent Heavy Vehicles	--	--	2	--				
Median Type/Storage	Undivided /							
RT Channelized?								
Lanes	1	0	0	1				
Configuration	TR							
Upstream Signal?	No							

Minor Street:	Westbound				Eastbound			
	L	T	R	L	L	T	R	L
Volume	3	12	12	12				
Peak Hour Factor, PHF	0.75	0.75	0.75	0.75				
Hourly Flow Rate, HFR	4	16	16	16				
Percent Heavy Vehicles	2	2	2	2				
Percent Grade (%)	0							
Flared Approach: Exists?/Storage	No /							
Lanes	0	0	0	0				
Configuration	LR							

Approach	Delay, Queue Length, and Level of Service			
	NB	SB	Westbound	Eastbound
Movement	1	4	7	10
Lane Config	LT	LR	LR	LR

v (vph)	18	20		
C(m) (vph)	1185	601		
V/c	0.02	0.03		
95% queue length	0.05	0.10		
Control Delay	8.1	11.2		
LOS	A	B		
Approach Delay		11.2		
Approach LOS		B		

Prop. Heavy Vehicle 0.0

Geometry Group	1			
	0.0	0.0	1	0.0
Adjustments Exhibit 17-33:				
hLT-adj	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6
hV-adj	1.7	1.7	1.7	1.7
hadj, computed	0.0	0.0	-0.1	-0.1

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	104	3.20	72	3.20	39	3.20	118	3.20
hd, initial value	0.09	0.06	4.10	0.03	0.03	0.10	0.10	0.10
hd, final value	0.13	0.08	0.08	0.05	0.05	0.14	0.14	0.14
Move-up time, m	2.3	2.0	2.1	2.0	2.4	2.0	2.3	2.0
Service Time								

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	104	72	72	39	39	118	118	118
Service Time	2.3	2.1	2.1	2.4	2.4	2.3	2.3	2.3
Utilization, x	0.13	0.08	0.08	0.05	0.05	0.14	0.14	0.14
Dep. headway, hd	4.35	4.10	4.10	4.43	4.43	4.28	4.28	4.28
Capacity	354	322	322	289	289	368	368	368
Delay	7.97	7.46	7.46	7.66	7.66	7.98	7.98	7.98
LOS	A	A	A	A	A	A	A	A
Approach:								
Delay	7.97	7.46	7.46	7.66	7.66	7.98	7.98	7.98
LOS	A	A	A	A	A	A	A	A
Intersection Delay	7.83							
Intersection LOS	A							

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: IW
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2006
 Analysis Time Period: PM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (South)
 Jurisdiction: State
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: 7551-01 Kula Ridge
 East/West Street: Lower Kula Rd (South)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Major Street: Approach Movement	Vehicle Volumes and Adjustments					
	Northbound			Southbound		
1	2	3	4	5	6	
L	T	R	L	T	R	

Volume 261 6 9 240
 Peak Hour Factor, PHF 0.92 0.92 0.93 0.93
 Hourly Flow Rate, HFR 283 6 9 258
 Percent Heavy Vehicles -- -- 2 --
 Median Type/Storage Undivided /
 RT Channelized?
 Lanes 1 0 0 1
 Configuration TR LT
 Upstream Signal? No No

Minor Street: Approach Movement	Vehicle Volumes and Adjustments					
	Westbound			Eastbound		
7	8	9	10	11	12	
L	T	R	L	T	R	

Volume 12 8
 Peak Hour Factor, PHF 0.61 0.61
 Hourly Flow Rate, HFR 19 13
 Percent Heavy Vehicles 2 2
 Percent Grade (%) 0 0
 Flared Approach: Exists?/Storage No /
 Lanes 0 0
 Configuration LR

Approach Movement	Delay, Queue Length, and Level of Service					
	NB		SB		Eastbound	
1	4	7	8	9	10	11 12
Lane Config	LT	LT	LR	LR	LR	LR
v (vph)	9	32				
C(m) (vph)	1273	567				
v/c	0.01	0.06				
95% queue length	0.02	0.18				
Control Delay	7.8	11.7				
LOS	A	B				
Approach Delay		11.7				
Approach LOS		B				

APPENDIX G-1.

Supplemental Traffic Assessment



7551-02
June 16, 2008

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808.946.2277
Fax: 808.946.2253
www.wilsonokamoto.com

Mr. Clayton Nishikawa
Kula Ridge, LLC
1849 Wili Pa Loop
Wailuku, HI 96793

Subject: Kula Ridge

Dear Mr. Nishikawa:

As requested, we assessed an alternate trip distribution scenario for the Kula Ridge project to address comments provided by DOT. The following is a summary of our findings.

Trip Distribution

In comments provided on April 22, 2008, DOT indicated that they did not agree with the trip distribution detailed in the Traffic Impact Report prepared for the Kula Ridge project dated July 2006. To address these comments, an alternate scenario was assessed in which all site-generated trips were assumed to travel from origins and to destinations to the north of the project site. It should be noted, however, that this trip distribution methodology assumes that all site-generated trips are work related and do not have any linked or pass-by destinations. As such, all entering vehicles were assumed to turn left from Kula Highway onto Lower Kula Road via the northern intersection of that roadway with the highway, and then utilized Lower Kula Road to access the project site. Similarly, all exiting vehicles were assumed to turn right onto Lower Kula Road and then right onto Kula Highway. Figure 1 shows the distribution of site-generated vehicles during the AM and PM peak periods for this alternate scenario.

Year 2009 With Project Conditions

The projected Year 2009 AM and PM peak period traffic volumes and operating conditions under the alternate scenario are shown in Figures 2 and 3, and summarized in Table 1. The projected Year 2009 operating conditions based upon the trip distribution included in the original TIAR are provided for comparison purposes. LOS calculations are included in the appendix.

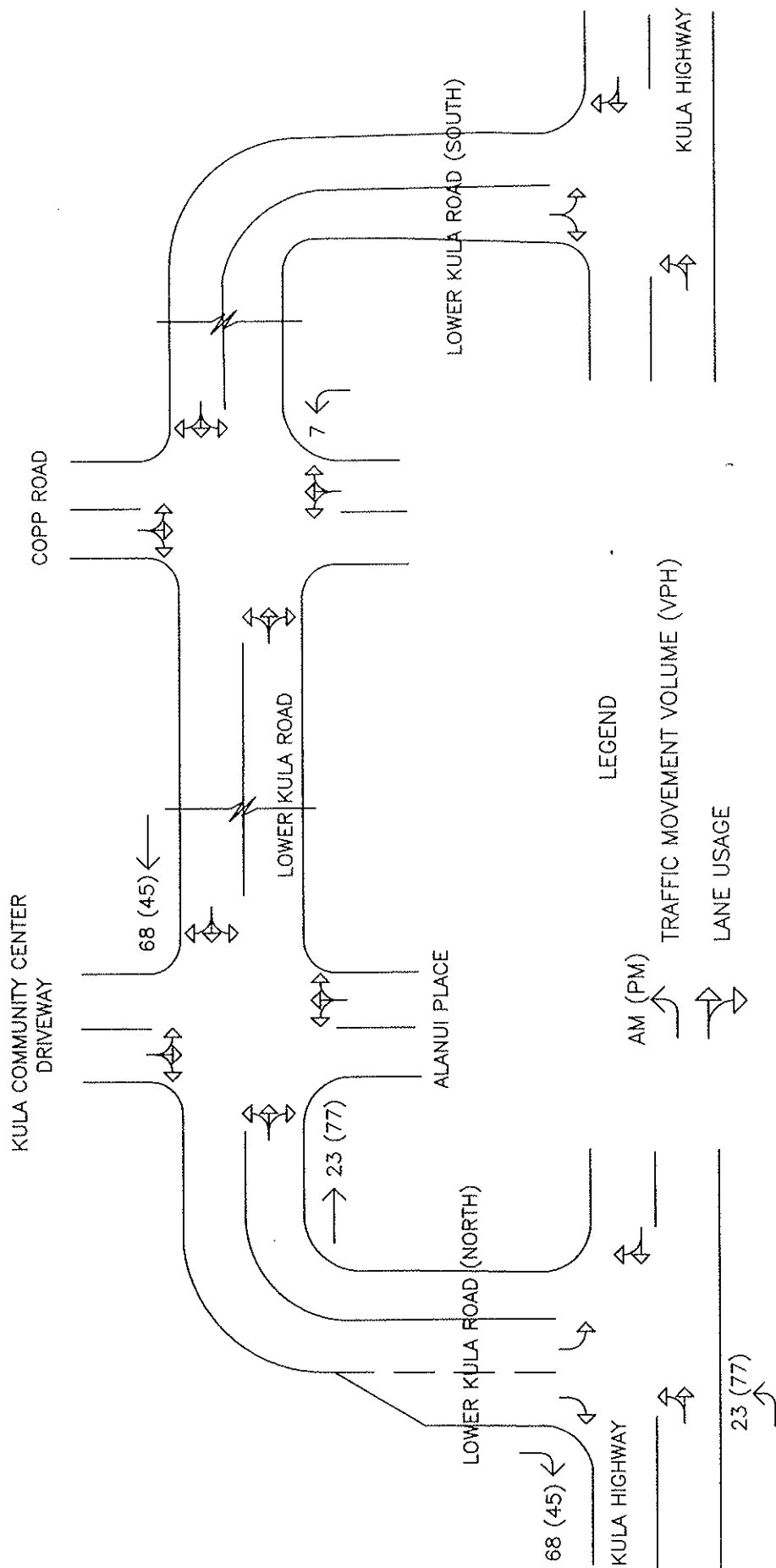


FIGURE
1

KULA RIDGE
DISTRIBUTION OF SITE-GENERATED TRAFFIC
ALTERNATE SCENARIO

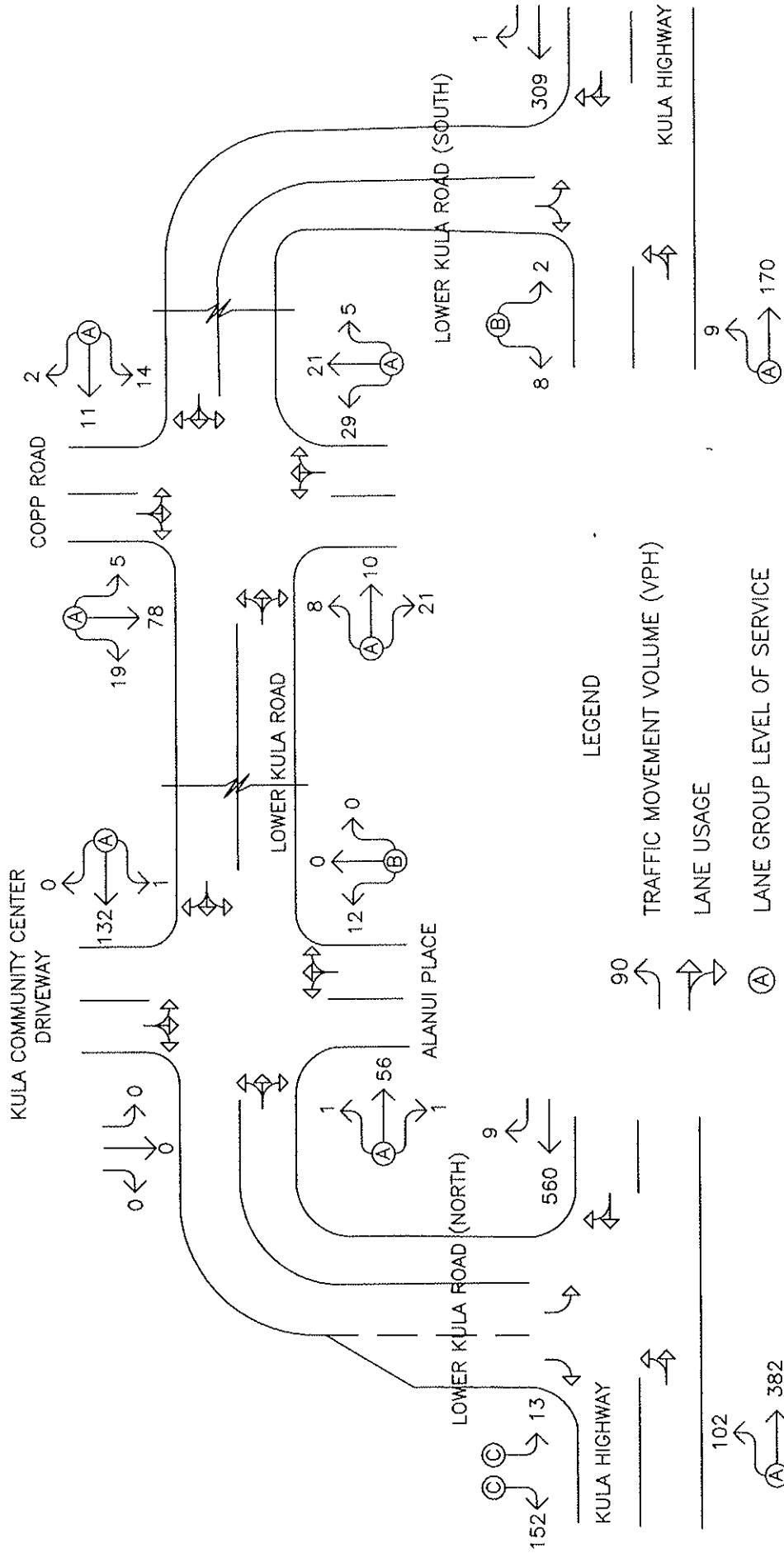


FIGURE 2

KULA RIDGE
YEAR 2009 AM PEAK HOUR OF TRAFFIC WITH PROJECT
ALTERNATE SCENARIO





7551-02

Letter to Mr. Clayton Nishikawa

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June 16, 2008

Lower Kula Road as suggested by the DOT is not required. However, the provision of an exclusive turning lane on this approach would minimize the impact of turning vehicles on through traffic along the highway.

Should you have any questions or require additional information, please contact Mr. Pete Pascua or myself at 946-2277.

Sincerely,

A handwritten signature in cursive script, which appears to read "Cathy Leong". The signature is written in black ink and is positioned above the printed name.

Cathy Leong, P.E.

**APPENDIX
CAPACITY ANALYSES CALCULATIONS
ALTERNATE SCENARIO**

TWO-WAY STOP CONTROL SUMMARY

Analyst: cl
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: AM Peak Period
 Intersection: Alanui Dr/Lower Kula Rd
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Alanui Dr
 North/South Street: Lower Kula Rd
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		1	132	0	1	56	1
Peak-Hour Factor, PHF		0.74	0.74	0.74	0.50	0.50	0.50
Hourly Flow Rate, HFR		1	178	0	2	112	2
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		0	0	0	12	0	0
Peak Hour Factor, PHF		1.00	1.00	1.00	0.60	0.60	0.60
Hourly Flow Rate, HFR		0	0	0	19	0	0
Percent Heavy Vehicles		2	2	2	2	2	2
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage		No			/		
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		

Delay, Queue Length, and Level of Service

Approach Movement	NB	SB	Westbound			Eastbound		
			7	8	9	10	11	12
Lane Config	LTR	LTR	LTR			LTR		
v (vph)	1	2	0			19		
C(m) (vph)	1475	1398				654		
v/c	0.00	0.00				0.03		
95% queue length	0.00	0.00				0.09		
Control Delay	7.4	7.6				10.7		
LOS	A	A				B		
Approach Delay						10.7		
Approach LOS						B		

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: PM Peak Period
 Intersection: Alanui Dr/Lower Kula Rd
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Alanui Dr
 North/South Street: Lower Kula Rd
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		0	117	3	14	156	10
Peak-Hour Factor, PHF		0.69	0.69	0.69	0.84	0.84	0.84
Hourly Flow Rate, HFR		0	169	4	16	185	11
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		7	0	13	3	0	1
Peak Hour Factor, PHF		0.71	0.71	0.71	0.33	0.33	0.33
Hourly Flow Rate, HFR		9	0	18	9	0	3
Percent Heavy Vehicles		2	2	2	2	2	2
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage		No			/		
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		

Delay, Queue Length, and Level of Service

Approach Movement	NB	SB	Westbound			Eastbound		
	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR	LTR			LTR		
v (vph)	0	16	27			12		
C(m) (vph)	1377	1404	734			596		
v/c	0.00	0.01	0.04			0.02		
95% queue length	0.00	0.03	0.11			0.06		
Control Delay	7.6	7.6	10.1			11.2		
LOS	A	A	B			B		
Approach Delay			10.1			11.2		
Approach LOS			B			B		

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: AM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (North)
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Lower Kula Rd (North)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		560	9		102	382	
Peak-Hour Factor, PHF		0.90	0.90		0.77	0.77	
Hourly Flow Rate, HFR		622	10		132	496	
Percent Heavy Vehicles		--	--		2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR		LT		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		13		152			
Peak Hour Factor, PHF		0.84		0.84			
Hourly Flow Rate, HFR		15		180			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		/
Lanes		1		1			
Configuration		L		R			

Delay, Queue Length, and Level of Service

Approach Movement Lane Config	NB 1	SB 4 LT	Westbound			Eastbound		
			7 L	8	9 R	10	11	12
v (vph)		132	15		180			
C(m) (vph)		951	200		484			
v/c		0.14	0.08		0.37			
95% queue length		0.48	0.24		1.76			
Control Delay		9.4	24.5		16.8			
LOS		A	C		C			
Approach Delay				17.4				
Approach LOS				C				

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: PM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (North)
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Lower Kula Rd (North)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		373	11		157	384	
Peak-Hour Factor, PHF		0.86	0.86		0.90	0.90	
Hourly Flow Rate, HFR		433	12		174	426	
Percent Heavy Vehicles		--	--		2	--	--
Median Type/Storage RT Channelized?		Undivided			/		
Lanes		1	0		0	1	
Configuration		TR			LT		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		7		107			
Peak Hour Factor, PHF		0.82		0.82			
Hourly Flow Rate, HFR		8		130			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage		/			/		
Lanes		1		1			
Configuration		L		R			

Delay, Queue Length, and Level of Service

Approach Movement	NB 1	SB 4	Westbound			Eastbound		
			7 LT	8 L	9 R	10	11	12
v (vph)		174	8		130			
C(m) (vph)		1115	237		618			
v/c		0.16	0.03		0.21			
95% queue length		0.55	0.10		0.80			
Control Delay		8.8	20.7		12.4			
LOS		A	C		B			
Approach Delay				12.9				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.21

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

Phone: (808) 946-2277
 E-Mail:

Fax: (808) 946-2253

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: AM Peak Period
 Intersection: Copp Rd/Lower Kula Rd
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year:
 Project ID: Alternate Scenario
 East/West Street: Copp Rd
 North/South Street: Lower Kula Rd

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	29	21	5	5	78	19	14	11	2	8	10	21
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.69		0.80		0.61		0.79	
Flow Rate	79		126		43		48	
% Heavy Veh	2		2		2		2	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	1.00 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	79		126		43		48	
Left-Turn	42		6		22		10	
Right-Turn	7		23		3		26	
Prop. Left-Turns	0.5		0.0		0.5		0.2	
Prop. Right-Turns	0.1		0.2		0.1		0.5	

HCS+: Unsignalized Intersections Release 5.21

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

Phone: (808) 946-2277
 E-Mail:

Fax: (808) 946-2253

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: PM Peak Period
 Intersection: Copp Rd/Lower Kula Rd
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Copp Rd
 North/South Street: Lower Kula Rd

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	28	37	18	2	28	21	10	14	5	24	23	18
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.94		0.85		0.91		0.75	
Flow Rate	87		58		30		86	
% Heavy Veh	2		2		2		2	
No. Lanes		1		1		1		1
Opposing-Lanes		1		1		1		1
Conflicting-lanes		1		1		1		1
Geometry group		1		1		1		1
Duration, T	1.00 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	87		58		30		86	
Left-Turn	29		2		10		32	
Right-Turn	19		24		5		24	
Prop. Left-Turns	0.3		0.0		0.3		0.4	
Prop. Right-Turns	0.2		0.4		0.2		0.3	

Prop. Heavy Vehicle	0.0	0.0	0.0	0.0
Geometry Group	1	1	1	1
Adjustments Exhibit 17-33:				
hLT-adj	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7
hadj, computed	-0.0	-0.2	0.0	-0.1

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	87		58		30		86	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.08		0.05		0.03		0.08	
hd, final value	4.19		4.04		4.31		4.19	
x, final value	0.10		0.07		0.04		0.10	
Move-up time, m		2.0		2.0		2.0		2.0
Service Time	2.2		2.0		2.3		2.2	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	87		58		30		86	
Service Time	2.2		2.0		2.3		2.2	
Utilization, x	0.10		0.07		0.04		0.10	
Dep. headway, hd	4.19		4.04		4.31		4.19	
Capacity	337		308		280		336	
Delay	7.66		7.32		7.47		7.66	
LOS	A		A		A		A	
Approach:								
Delay		7.66		7.32		7.47		7.66
LOS		A		A		A		A
Intersection Delay	7.56							
								Intersection LOS A

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: AM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (South)
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2009 With Project
 Project ID: Alternate Scenario
 East/West Street: Lower Kula Rd (South)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		309		1	9		170
Peak-Hour Factor, PHF		0.83		0.83	0.66		0.66
Hourly Flow Rate, HFR		372		1	13		257
Percent Heavy Vehicles		--		--	2		--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes			1	0		0	1
Configuration				TR		LT	
Upstream Signal?				No			No

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		2		8			
Peak Hour Factor, PHF		0.75		0.75			
Hourly Flow Rate, HFR		2		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	NB 1	SB 4	Westbound			Eastbound		
			7 LT	8 LR	9	10	11	12
Lane Config								
v (vph)		13		12				
C(m) (vph)		1185		614				
v/c		0.01		0.02				
95% queue length		0.03		0.06				
Control Delay		8.1		11.0				
LOS		A		B				
Approach Delay				11.0				
Approach LOS				B				

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.: Wilson Okamoto Corporation
 Date Performed: 6/9/2008
 Analysis Time Period: PM Peak Period
 Intersection: Kula Hwy/Lower Kula Rd (South)
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year:
 Project ID: Alternate Scenario
 East/West Street: Lower Kula Rd (South)
 North/South Street: Kula Hwy
 Intersection Orientation: NS Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		261	4	9	234		
Peak-Hour Factor, PHF		0.92	0.92	0.93	0.93		
Hourly Flow Rate, HFR		283	4	9	251		
Percent Heavy Vehicles		--	--	2	--	--	
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0	0	1		
Configuration		TR			LT		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		7	5				
Peak Hour Factor, PHF		0.61	0.61				
Hourly Flow Rate, HFR		11	8				
Percent Heavy Vehicles		2	2				
Percent Grade (%)		0	0		0		
Flared Approach: Exists?/Storage			No	/		/	
Lanes		0	0				
Configuration		LR					

Delay, Queue Length, and Level of Service

Approach Movement Lane Config	NB 1	SB 4 LT	Westbound			Eastbound		
			7 	8 LR	9 	10 	11 	12
v (vph)	9	19						
C(m) (vph)	1275	575						
v/c	0.01	0.03						
95% queue length	0.02	0.10						
Control Delay	7.8	11.5						
LOS	A	B						
Approach Delay		11.5						
Approach LOS		B						

APPENDIX H.

Preliminary Engineering and Drainage Reports, September 2006

**PRELIMINARY DRAINAGE REPORT
FOR**

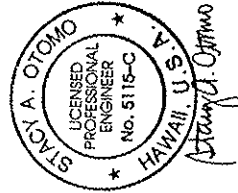
KULA RIDGE SUBDIVISION

Kula, Maui, Hawaii

T.M.K.: (2) 2-3-001: 174

Prepared for:

Kula Ridge, LLC
1849 Wili Pa Loop
Wailuku, Maui, Hawaii 96793



Prepared by:



CONSULTING CIVIL ENGINEERS
305 SOUTH WILHELM STREET, SUITE 102
WAILUKU, MAUI, HAWAII 96793
PHONE: (808) 242-0032
FAX: (808) 242-5779

September 2006

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- I. INTRODUCTION
- II. SITE LOCATION AND PROJECT DESCRIPTION
- III. EXISTING TOPOGRAPHY AND SOIL CONDITIONS
- IV. EXISTING DRAINAGE CONDITIONS
- V. FLOOD AND TSUNAMI ZONE
- VI. PROPOSED DRAINAGE PLAN
- VII. HYDROLOGIC CALCULATIONS
- VIII. CONCLUSION
- IX. REFERENCES

EXHIBITS

- 1 Location Map
- 2 Vicinity Map
- 3 Soil Survey Map

APPENDICES

- A Hydrologic and Hydraulic Calculations

**PRELIMINARY DRAINAGE REPORT
FOR
KULA RIDGE SUBDIVISION
Kula, Maui, Hawaii**

I. INTRODUCTION

The purpose of this report is to examine both the existing and proposed drainage conditions for the proposed project.

II. SITE LOCATION AND PROJECT DESCRIPTION

The subject property is identified as T.M.K.: (2) 2-3-001: 174, which encompasses an area of 48.117 acres. It is also Lot 2 of the G and R Von Tempisky Trust Subdivision. The project site is bordered by Keahuaiwi Gulch and Lot 1 of the G and R Von Tempisky Trust Subdivision to the north, Lot 1 of the G and R Von Tempisky Trust Subdivision to the east, and Lot 3 of the G and R Von Tempisky Trust Subdivision to the south.

The development plan includes approximately 112 residential lots, 4 agricultural lots, and a 5-acre park site which will be dedicated to the County. Associated improvements include grading, paved roadways, underground utilities and landscaping.

III. EXISTING TOPOGRAPHY AND SOIL CONDITIONS

The project site is presently undeveloped and used as an open pasture. The majority of the site is overgrown with weeds and various grasses.

The elevation on the site ranges from elevation 3,085 feet above sea level at the northeastern corner of the property to 2,700 feet above mean sea level at the northwesterly corner, averaging approximately 14.8%.

According to the "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii (August, 1972)," prepared by the United States Department of Agriculture Soil Conservation Service, the soil within the project site is classified as Kula cobbly loam, (Kxad). Kula cobbly loam is characterized as having moderately rapid permeability, medium runoff, and a moderate erosion hazard.

IV. EXISTING DRAINAGE CONDITIONS

Presently, the majority of the onsite runoff sheet flows across the project site in a northeast to southwest direction toward the adjacent properties. A portion of the runoff sheet flows directly into Keahuaiwi Gulch. The runoff eventually discharges into the ocean.

It is estimated that the existing 50-year storm runoff from the undeveloped project site is 55.66 cfs.

V. FLOOD AND TSUNAMI ZONE

According to Panel Number 150003 0001-0400 of the Flood Insurance Rate Map, dated March 16, 1995, prepared by the United States Federal Emergency Management Agency, it appears that the project site is situated in Flood Zone C. Flood Zone C represents areas of minimal flooding.

VI. PROPOSED DRAINAGE PLAN

After the development of the proposed project, it is estimated that the 50-year storm runoff will be 164.59 cfs, a net increase of 108.93 cfs. Onsite runoff will be intercepted by grated catch basins located within the grassed shoulder areas. The runoff will be conveyed to an onsite detention basin, which will be located in the northwestern corner of the project site.

Overflows from the detention basin will be allowed to sheet flow into Keahuaiwi Gulch at a rate less than the present condition. The detention basin will be designed and sized to accommodate the increase in surface runoff volume from a 50-year 1-hour storm generated from the proposed project.

The drainage design criteria will be to minimize any alterations to the natural pattern of the existing onsite surface runoff. This is in accordance with the drainage standards for the County of Maui.

VII. HYDROLOGIC CALCULATIONS

The hydrologic calculations are based on the "Rules for the Design of Storm Drainage Facilities in the County of Maui," and the "Rainfall Frequency Atlas of the Hawaiian Islands," Technical Paper No. 43, U.S. Department of Commerce, Weather Bureau.

Rational Formula Used: $Q = CIA$

Where Q = rate of flow (cfs)

C = rainfall coefficient

i = rainfall intensity for a duration equal to the time of concentration (inches/hour)

A = drainage area (Acres)

See Appendix A for Hydrologic Calculations

VIII. CONCLUSION

Onsite runoff will be intercepted by grated catch basins located within the grassed shoulder areas. The runoff will be conveyed to an onsite detention basin, which will be located in the northwestern corner of the project site. Overflows from the detention basin will be allowed to sheet flow into Keahualui Gulch at a rate less than the existing condition. The detention basin will be designed and sized to accommodate the increase in surface runoff volume from a 50-year 1-hour storm generated from the proposed project.

There will be no increase in runoff sheet flowing from the project site onto the adjoining or downstream properties. This is in accordance with Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui.

Therefore, it is our professional opinion that the proposed development will not have an adverse effect on the adjoining or downstream properties.

IX. REFERENCES

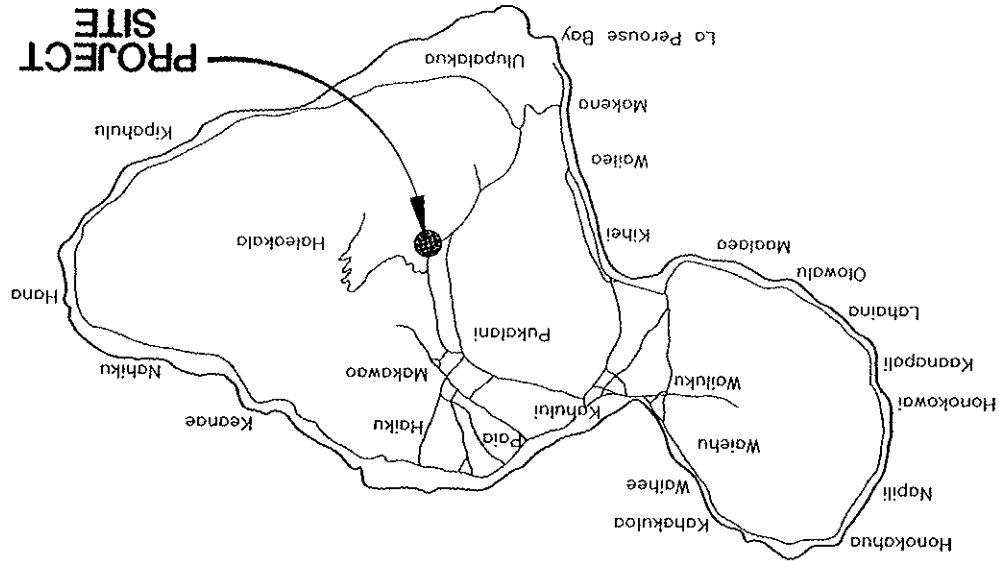
A. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, prepared by U.S. Department of Agriculture, Soil Conservation Service, August, 1972.

B. Rainfall-Frequency Atlas of the Hawaiian Islands, Technical Paper No. 43, U.S. Department of Commerce, Weather Bureau, 1962.

C. Flood Insurance Rate Maps of the County of Maui, March, 1995.

D. Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui, prepared by the Department of Public Works and Waste Management, County of Maui, 1995.

ISLAND OF MAUI
NOT TO SCALE



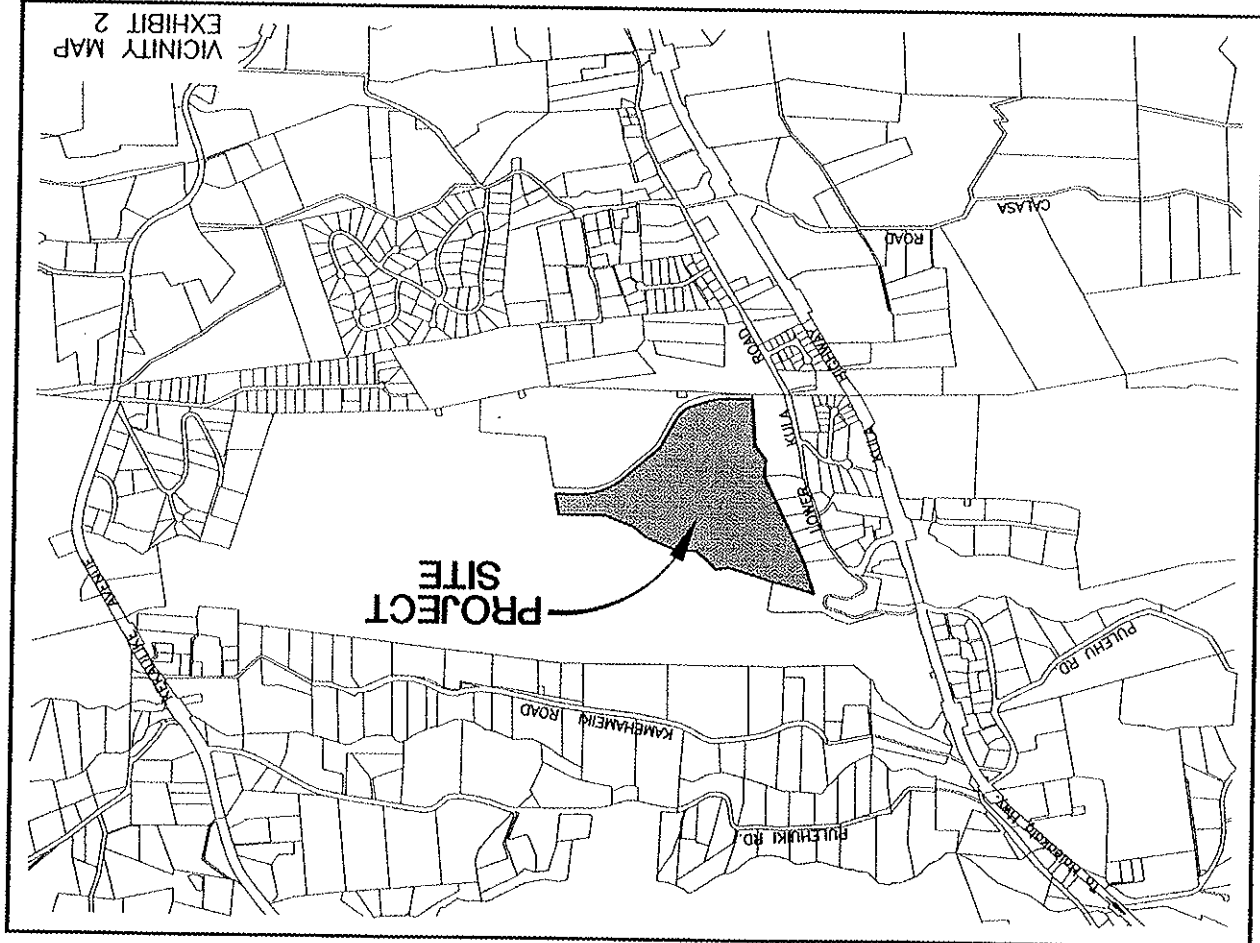
EXHIBITS

- 1 Location Map
- 2 Vicinity Map
- 3 Soil Survey Map

SOIL SURVEY MAP
EXHIBIT 3



VICINITY MAP
EXHIBIT 2



Hydrologic Calculations

Purpose: Determine the increase in surface runoff from the development of the proposed project based on a 50-year storm.

A. Determine the Runoff Coefficient (C):

EXISTING CONDITION:
Infiltration (Medium) = 0.07
Relief (Rolling) = 0.06
Vegetal Cover (Good) = 0.03
Development Type (Ag) = 0.15
C = 0.31

ROADWAY AREAS:
Infiltration (Negligible) = 0.20
Relief (Rolling) = 0.03
Vegetal Cover (None) = 0.07
Development Type (Pavement) = 0.55
C = 0.85

RESIDENTIAL AREAS:
Infiltration (Slow) = 0.14
Relief (Rolling) = 0.03
Vegetal Cover (Good) = 0.03
Development Type (Residential) = 0.40
C = 0.60

EXISTING CONDITION:

Area = 48.117 Acres
C = 0.31

DEVELOPED CONDITIONS:

Roadway Area = 1.20 Acres
Residential Area = 46.917 Acres
WEIGHTED C = 0.61

APPENDIX A

HYDROLOGIC CALCULATIONS

Hydrograph Plot

B. Determine the 50-year 1-hour rainfall:

$$i_{50} = 3.0 \text{ inches}$$

Adjust for time of concentration to compute Rainfall Intensity (I):

Existing Condition:

$$T_c = 40 \text{ minutes}$$

$$I = 3.73 \text{ inches/hour}$$

Developed Condition:

$$T_c = 16 \text{ minutes}$$

$$I = 5.61 \text{ inches/hour}$$

C. Drainage Area (A) = 48.117 Acres

D. Compute the 50-year storm runoff volume (Q):

$$Q = C/A$$

Existing Conditions:

$$Q = (0.31)(3.73)(48.117) = 55.66 \text{ cfs}$$

Developed Conditions:

$$Q = (0.61)(5.61)(48.117) = 164.59 \text{ cfs}$$

The increase in runoff due to the proposed development is $164.59 - 55.66 = 108.93 \text{ cfs}$.

English

Hyd. No. 1

Kula Ridge - Existing Condition

Hydrograph type = Rational

Storm frequency = 50 yrs

Drainage area = 48.1 ac

Intensity = 3.73 in

I-D-F Curve = 3-0-IDF

Peak discharge = 55.66 cfs

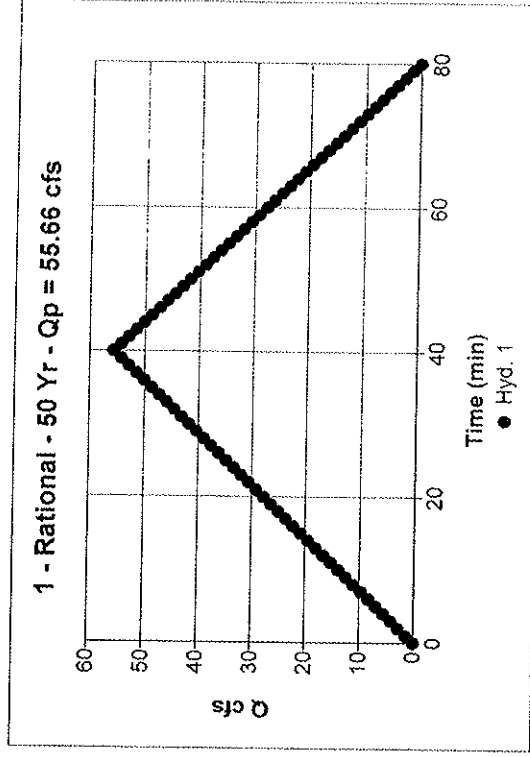
Time interval = 1 min

Runoff coeff. = 0.31

Time of conc. (T_c) = 40 min

Reced. limb factor = 1

Total Volume = 133,577 cft



Hydrograph Plot

English

Hyd. No. 2

Kula Ridge - Developed Conditions

Hydrograph type = Rational
Storm frequency = 50 yrs
Drainage area = 48.1 ac
Intensity = 5.61 in
I-D-F Curve = 3-0.IDF

Peak discharge = 164.59 cfs
Time interval = 1 min
Runoff coef. = 0.61
Time of conc. (Tc) = 16 min
Reced. limb factor = 1

Total Volume = 158,003 cuft

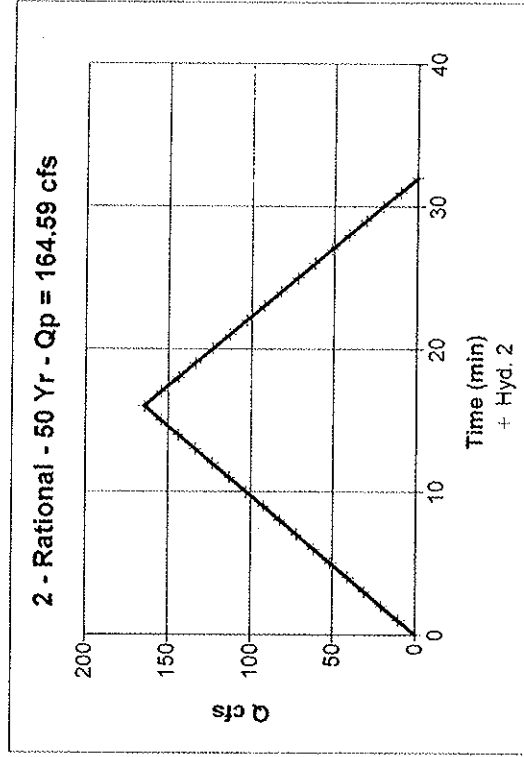


TABLE OF CONTENTS

**PRELIMINARY ENGINEERING REPORT
FOR**

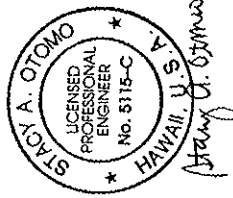
KULA RIDGE SUBDIVISION

Kula, Maui, Hawaii

T.M.K.: (2) 2-3-001: 174

Prepared for:

Kula Ridge, LLC
1849 Wili Pa Loop
Wailuku, Maui, Hawaii 96793



Prepared by:



CONSULTING CIVIL ENGINEERS
303 SOUTH HIGH STREET, SUITE 102
WAILUKU, MAUI, HAWAII 96793
PHONE: (808) 242-0032
FAX: (808) 242-5779

September 2006

1.0 INTRODUCTION

2.0 EXISTING INFRASTRUCTURE

- 2.1 ROADWAYS
- 2.2 DRAINAGE
- 2.3 SEWER
- 2.4 WATER
- 2.5 ELECTRIC, TELEPHONE AND CABLE TV

3.0 ANTICIPATED INFRASTRUCTURE IMPROVEMENTS

- 3.1 ROADWAYS
- 3.2 DRAINAGE
- 3.3 SEWER
- 3.4 WATER
- 3.5 ELECTRIC, TELEPHONE AND CABLE TV

**PRELIMINARY ENGINEERING REPORT
FOR
KULA RIDGE SUBDIVISION
T.M.K.: (2) 2-3-001: 174**

1.0 INTRODUCTION

The purpose of this report is to provide information on the existing infrastructure which will be servicing the proposed project. It will also evaluate the adequacy of the existing infrastructure and anticipated improvements which may be required for the proposed project.

The subject property is identified as T.M.K.: (2) 2-3-001: 174, which encompasses an area of 48.117 acres. It is also Lot 2 of the G and R Von Tempusky Trust Subdivision. The project site is bordered by Keahuaiwi Gulch and Lot 1 of the G and R Von Tempusky Trust Subdivision to the north, Lot 1 of the G and R Von Tempusky Trust Subdivision to the east, and Lot 3 of the G and R Von Tempusky Trust Subdivision to the south.

The development plan includes approximately 112 residential lots, 4 agricultural lots, and a 5-acre park site which will be dedicated to the County. Associated improvements include grading, paved roadways, underground utilities and landscaping.

2.0 EXISTING INFRASTRUCTURE

2.1 ROADWAYS

Lower Kula Road in the vicinity of the project site is a two-way, two-lane roadway oriented in the north-south direction. It intersects with Kula Highway several times along its alignment. Lower Kula Road intersects with Alanui Place and the Kula Community Center driveway. Alanui Place is a two-way, two-lane roadway that provides access to the adjacent residential area. The driveway for the Kula Community Center has one lane that serves all traffic movements at the westbound approach of this intersection.

Northwest of the Lower Kula Road-Alanui Place intersection, Lower Kula Road intersects with Kula Highway. At this unsignalized intersection, Lower Kula Road has one lane that serves left and right turn movements. The northbound approach of the highway has one lane that serves left and right turn traffic movements and the southbound approach has one lane that serves left-turn and through traffic movements.

South of its intersection with Alanui Place, Lower Kula Road intersects Copp Road. Copp Road is a two-way, two-lane roadway oriented in the east-west direction that provides access to the residential neighborhoods. Further southwest, Lower Kula Road intersects with Kula Highway.

2.2 DRAINAGE

The elevation on the site ranges from elevation 3,085 feet above sea level at the northeastern corner of the property to 2,700 feet above mean sea level at the northwesterly corner, averaging approximately 14.8%.

According to Panel Number 150003 0001-0400 of the Flood Insurance Rate Map, dated March 16, 1995, prepared by the United States Federal Emergency Management Agency, it appears that the project site is situated in Flood Zone C. Flood Zone C represents areas of minimal flooding.

It is estimated that the existing 50-year storm runoff from the project site is 55.66 cfs. Presently, the majority of the onsite runoff sheet flows across the project site in a northeast to southwest direction toward the adjacent properties. A portion of the runoff sheet flows directly into Keahuaiwi Gulch. The runoff eventually discharges into the ocean.

2.3 SEWER

There are no public sewer facilities in this part of Maui. Sewerage from residential and commercial developments is handled by individual wastewater systems.

2.4 WATER

Domestic water and fire flow will be provided by the County's water system. There is an existing 8-inch waterline along Lower Kula Road, in the vicinity of the Kula Community Center. There is an existing fire hydrant located near the Community Center.

Storage for the project area is provided by a 2.1 million-gallon steel tank, known as the Omaopio tank (elevation 3,890.0 feet). It is located above Haleakala Highway, approximately a 1,200 feet to the northeast of the project site.

2.5 ELECTRIC, TELEPHONE AND CABLE TV

The existing electrical and telephone distribution systems on Lower Kula Road are located overhead. These overhead facilities serve the developed properties in the area.

3.0 ANTICIPATED INFRASTRUCTURE IMPROVEMENTS

3.1 ROADWAYS

Access for the proposed project will be from Lower Kula Road via an existing utility and access Easement "B-1." Easement "B-1" is 56 feet wide and traverses along the southern boundary of the Kula Community Center to the southwestern corner of the subject parcel. The driveway pavement section will be 24-feet wide for ingress and egress.

In accordance with the requirements for a building permit, roadway improvements consisting of concrete curb, gutters and sidewalks will be constructed along the frontage of the property to Lower Kula Road.

The Traffic Impact Report prepared by Wilson Okamoto Corporation, dated June 2006, recommended and concluded the following:

- Maintain sufficient sight distance for motorists to safely enter and exit all project roadways.
- Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.
- Provide adequate turn-around area for service, delivery and refuse collection vehicles to maneuver on the project site to avoid vehicle-reversing maneuvers onto public roadways.
- Provide sufficient turning radii at all project roadways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
- Provide exclusive left-turn and right-turn lanes on the westbound approaches of Lower Kula Road at the northern intersection with Kula Highway to minimize the impact of left-turning vehicles on the higher volume of right-turning vehicles on that approach.

The proposed Kula Ridge development is expected to include 53 residential lots, 59 affordable housing residential lots, 4 agricultural lots, and an approximately 5-acre park that will be dedicated to the County of Maui. With the implementation of the aforementioned recommendations, the proposed Kula Ridge development is not expected to have a significant impact on

traffic operations in the vicinity of the project site. The critical movements at the study intersection along Lower Kula Road are expected to continue operating at acceptable levels of service despite the addition of site-generated vehicles to the surrounding roadway network due to the provision of exclusive turning lanes at the northern intersection of Lower Kula Road with Kula Highway."

3.2 DRAINAGE

After the development of the proposed project, it is estimated that the 50-year storm runoff will be 164.59 cfs, a net increase of 108.93 cfs. Onsite runoff will be intercepted by grated catch basins located within the grassed shoulder areas. The runoff will be conveyed to an onsite detention basin, which will be located in the northwestern corner of the project site. Overflows from the detention basin will be allowed to sheet flow into Keahuiwi Gulch at a rate less than the existing condition. The system will be designed and sized to accommodate the increase in surface runoff volume from a 50-year 1-hour storm generated from the proposed project.

The drainage design criteria will be to minimize any alterations to the natural pattern of the existing onsite surface runoff.

3.3 SEWER

The proposed 112-lot residential subdivision and 4-lot agricultural subdivision will generate approximately 40,600 gallons of wastewater daily. Each residence will connect to an aerobic individual wastewater system. The developer is working closely with a company to install and maintain these systems. This company is also working with the State Department of Health to allow the use of the aerobic systems for a development that has more than 50 homes.

3.4 WATER

In accordance with the Department of Water Supply's Domestic Consumption Guidelines for residential and agricultural development is approximately 175,709 gallons per day. Fire flow demand for residential development is 1,000 gallons per minute for a 2-hour duration and 500 gallons

per minute for a 2-hour duration for agriculture. Fire hydrants will be installed with a maximum spacing of 350 feet for residential areas and 500 feet in agriculture areas.

The developer is presently working with the Department of Water Supply and private landowners who are planning to develop wells in the Upcountry area. When completed, the wells will be dedicated to the County of Maui. The developer will pay a prorata share in the development of these wells for an allocation of the water source for the Kula Ridge Subdivision.

As part of the subdivision approval process, domestic water and fire flow calculations will be provided to determine the adequacy of the existing water system, in accordance with the rules of the Department of Water Supply.

3.5 ELECTRIC, TELEPHONE AND CABLE TV

The proposed electrical and telephone distribution systems in the subject development will be installed underground from Lower Kula Road. Interior project lighting will be provided as approved by the Department of Planning. All project lighting will be fully shielded.

APPENDIX H-1.

Preliminary Grading and Best Management Practices Plan

APPENDIX I.

**Department of Health,
Wastewater Branch
Individual Wastewater
Systems Variance Approval
Letter, IWS Project Plan, and
Findings of Fact and
Conclusions of Law**

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
JUL 09 2007

ANTHONY LERMAVA FUKING, M.D.
DIRECTOR OF HEALTH



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU HAWAII 96809-3378

In reply, please refer to:
File No.

WW 242 FINAL DEC CL

June 29, 2007

CERTIFIED MAIL 7005 1160 0001 8381 4502
RETURN RECEIPT REQUESTED

Mr. Clayton Nishikawa
Managing Member
Kula Ridge, LLC
1849 Wili Pa Loop
Wailuku, Hawaii 96793

Dear Mr. Nishikawa:

Subject: Variance Application No. WW 242 Docket No. 06-VWW-31
Proposed Development of 116 Units consisting of 59 Affordable Lots,
sizes 5,600 - 6,000 square feet, 53 Market Lots - sizes 6,000 - 21,000
square feet, and 4 agricultural lots - sizes 4 acres minimum
Lower Kula Road, Lot 2, Wailuku, Maui, TMK: (2) 2-3-001: 174

Please find enclosed the Department of Health's Decision and Order regarding the
above mentioned application for variance request which was **GRANTED** on
June 20, 2007 for five (5) years. We are enclosing for your information the Findings of
Fact and Conclusions of Law.

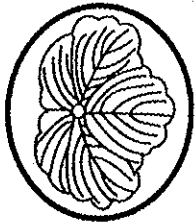
Please note the variance conditions and if there are any questions relative to the
variance, please do not hesitate to contact Mr. Harold Yee, Chief of the Wastewater
Branch at our direct toll free phone number 984-2400 ext 64294, fax (808) 586-4300.

Sincerely,

Thomas E. Arizumi
THOMAS E. ARIZUMI, P.E., CHIEF
Environmental Management Division

Enclosures: Final Decision and Order
Findings of Fact and Conclusions of Law

- C: Clean Water Branch
- Environmental Planning Office
- Safe Drinking Water Branch
- Wastewater Branch - Maui Staff Engineer
- Department of Water Supply - County of Maui
- District Health Office - Maui
- Mr. Harold Nagato, Best Industries USA



BEST INDUSTRIES USA, INC.
535 Ward Avenue, Suite 210
Honolulu, Hawaii 96814
Phone: 808-596-2378
Fax: 808-596-2063
bestindus001@hawaii.rr.com

INDIVIDUAL WASTEWATER SYSTEM

FOR

**Kula Ridge
Lower Kula Road, Lot 2**

IN

**Kula, Maui, Hawaii
TMK: (2) 2 - 3 - 01 : 174**

		DATE: 23 OCT 2006	
KULA RIDGE		SCALE	
SHEET NO.	DWG NO.	SHEET	C

Ross Tanimoto

THIS WORK WAS PROVIDED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF HAWAII. I AM NOT PROVIDING ANY GUARANTEE OR WARRANTY OF PERFORMANCE AND/OR FITNESS FOR ANY PARTICULAR PURPOSE.

LICENSE EXPIRES ON 31 APRIL 2008



STATE OF HAWAII
DEPARTMENT OF HEALTH
HAWAIIAN WATER WORKS

DEPARTMENT OF HEALTH - WASTEWATER BRANCH
INDIVIDUAL WASTEWATER SYSTEM (IWS) - SITE EVALUATION / PERCOLATION TEST

Date/Time: 9/30/06 Test Performed by: Harold Nagato
 Owner: Kula Ridge LLC TIME: (2) 2 . 3 . 01 : 174

Elevation: N/A feet
 Depth to Groundwater Table: N/A feet below grade
 Depth to Bedrock (if observed): Not Observed feet below grade
 Diameter of Hole: 6 inches
 Depth to Hole Bottom: 2 feet below grade
 Depth, inches below grade: 24
 Soil Profile (color, texture, other): Brown, fine-grained

PERCOLATION READINGS:
 Time 12 inches of water to seep away: 11 minutes
 Time 12 inches of water to seep away: 15 minutes

Check one:
 Percolation tests in sandy soils, recorded time intervals and water drops at least every 10 minutes for at least 1 hour.
 Percolation tests in non-sandy soils, pre-soaked the test hole for at least 4 hours. Recorded time intervals and water drops at least every 10 minutes for 1 hour of time for the first 6 inches to seep away in greater than 30 minutes record time intervals and water drops at least every 30 minutes for 4 hours or until 2 successive drops do not vary by more than 1/16 inch.



Time Interval	Drop in Inches	Time Interval	Drop in Inches
10 min	5.00 in.		
10 min	2.75 in.		
10 min	2.50 in.		
10 min	2.75 in.		
10 min	2.25 in.		
10 min	2.25 in.		

Percolation Rate (time/final water level drop): 4.5 minutes/inches

As the engineer responsible for gathering and providing site information and percolation test results, I attest to the fact that above site information is accurate and that the site evaluation was conducted in accordance with the provisions of Chapter 11-62, "Wastewater Systems" and the results were acceptable. I also attest that there are no suitable soil exist between the bottom of the soil absorption system and the groundwater table or any other limiting layer.

Ross S. Taniguchi
 Engineer's Signature/Stamp
 Date: 12/14/06

IWS Site Evaluation & Percolation Test, wpd BCI of January 8, 2003

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Percolation Test Data Sheet 1
 General Notes 2
 Design Criteria 3
 Vicinity Maps 4 & 5
 Site Plan 6
 Individual Wastewater System & Disposal System Profile 7
 Individual Wastewater System Specifications 8
 Distribution Box Details 9 - 19
 Inspection Pipe Detail 20
 Appendix

ROSS TANIGUCHI
 LICENSED PROFESSIONAL ENGINEER
 No. 10087-AS
 HAWAII, U.S.A.

Ross S. Taniguchi

KULA RIDGE


SIZE: _____ F.S.C.H. NO. _____ DWG. NO. _____ REV. _____

SCALE: _____ SHEET: **D**

DATE: 23 OCT 2006

GENERAL NOTES

1. All work shall conform to the Building Codes, Standards of Industry, Department of Health, Uniform Plumbing Codes, and other related items.
2. The installation indicates the overall Scope of Work and Intent, Contractor to provide verification at the job site for adjustment and to inform the engineer of change.
3. Gravel shall be #3 Coarse, no bigger than 3/4" in size with no fines or washed rock.
4. Engineer's drawing herewith does not indicate underground lines, and as such, Contractor shall inspect or tone the area for said underground lines.
5. All work shall be guaranteed for 1 year after completion by Contractor.
6. No trees or shrubs shall be planted within 5 feet of the Sewage Treatment Unit or Disposal System.
7. Sewage Treatment Unit and Disposal System shall be located in a Non-vehicular Traffic Area.
8. Depths of pipe inverts of the Sewage Treatment Unit and Disposal System are controlled by Topographic Features. The existing pipe invert may impact the depths shown on the drawings.
9. The Sewage Treatment Unit shall be at least 5 feet from the Disposal System.
10. The Sewage Treatment Unit or Disposal System shall be at least 5 feet from any wall line of any structure or building.
11. Disposal System shall be at least 5 feet from property line.
12. Sewage Treatment Unit shall be at least 5 feet from property line.
13. Seepage Pits shall be at least 12 feet from another Seepage Pit.



Ross S. Tamimoto
LICENSED PROFESSIONAL ENGINEER
LICENSED ENGINEER OF SURVEYORS

KULA RIDGE


SHEET DWG. NO.

SCALE SHEET **2**

DATE: 23 OCT 2006

DESIGN CRITERIA

1. Owner Name: Clayton Nishikawa
 Residential Zoning
 TMK: (2) 2 - 3 - 01 : 174
 Description: 48.117 Acres divided into
 (116) Lots consisting of a
 (1) 3-Bedroom Dwelling each
2. Flow: 600 gallons per day (gpd) per dwelling
3. IWS Selection: (1) ESIS 1700 per dwelling
 Max Flow: 1000 gpd
 Max Volume: 1700 gallons
4. Disposal System Design
 Disposal System Selection: (1) Absorption Bed per IWS
 Percolation Rate = 4.5 min/in.
 Required Absorption Area (Assume 5 min/in.)
 (600 gpd) x (125 sq. ft./200 gpd) = 375 sq. ft.
 Absorption Bed Dimensions: 16 ft. x 24 ft.
 Absorption Bed Area = 384 sq. ft.



Ross S. Tamimoto
LICENSED PROFESSIONAL ENGINEER
LICENSED ENGINEER OF SURVEYORS

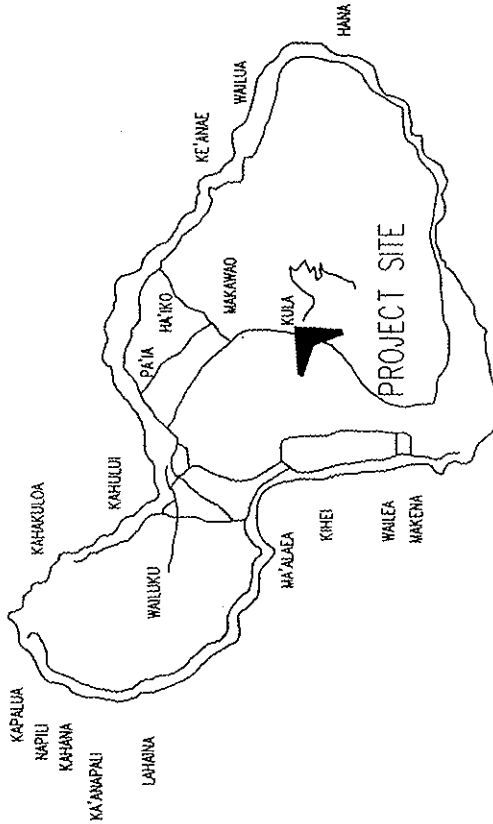
KULA RIDGE

SHEET DWG. NO.

SCALE SHEET **3**

DATE: 23 OCT 2006

MAP OF MAUI



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Reos Tanimoto
 LICENSE EXPIRES ON 30 APRIL 2008

KULA RIDGE

SIZE: FSCM NO. DWG NO. RE

SCALE: SHEET 4

DATE: 23 OCT 2006

REVISIONS		DESCRIPTION	DATE	APPROVED
ZONE	REV			

Street Map

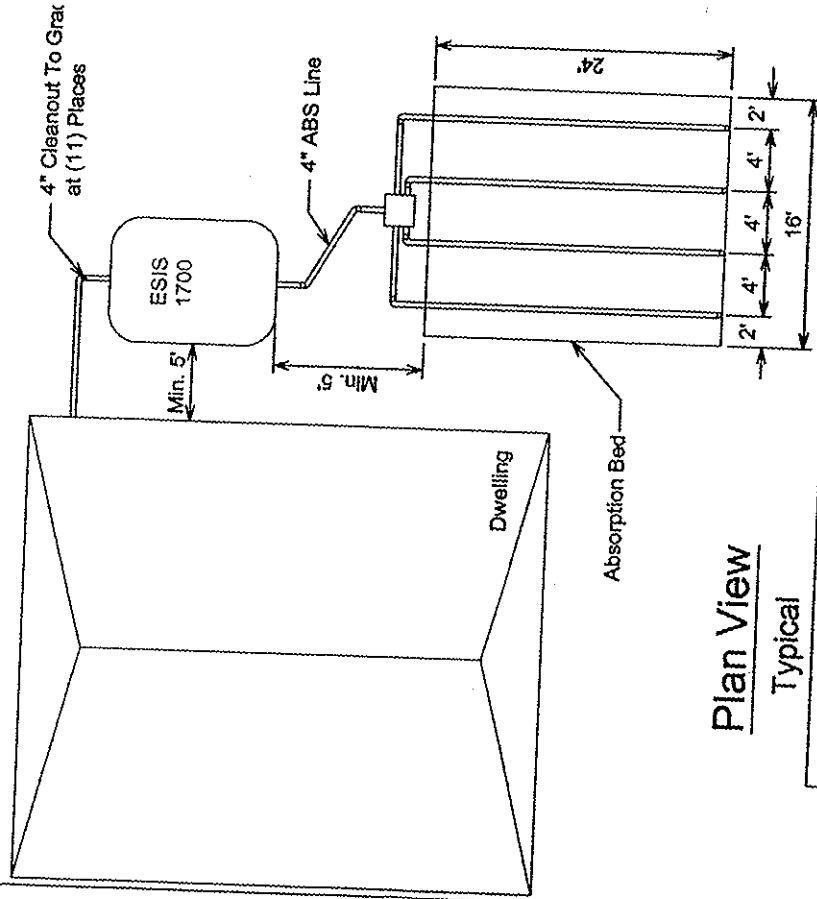
KULA RIDGE

SIZE: FSCM NO. DWG NO. REV

SCALE: NONE SHEET 5

DATE: 23 OCT 2006

REVISIONS		DATE	APPROVAL
ZONE	REV	DESCRIPTION	



Plan View
Typical

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ISSUE DATES OR IN 1/14/2006

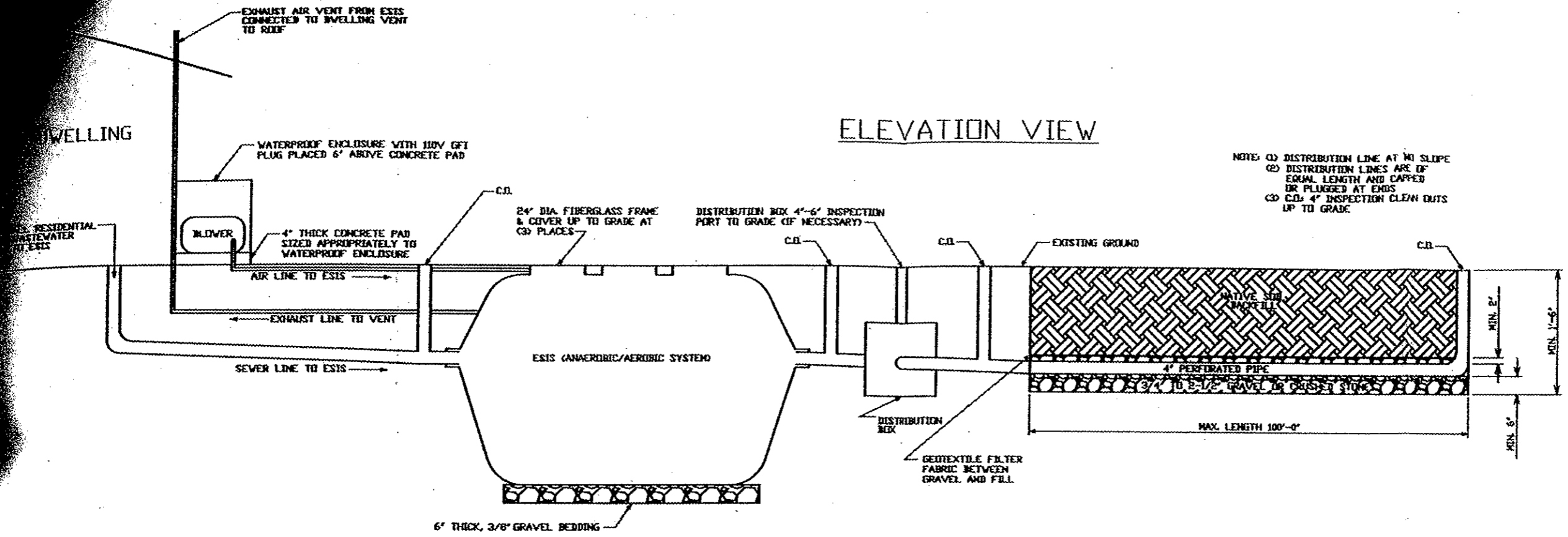
KULA RIDGE
 SIZE FROM NO. DWG NO. REV

DATE: 23 OCT 2006 SCALE NONE SHEET 6



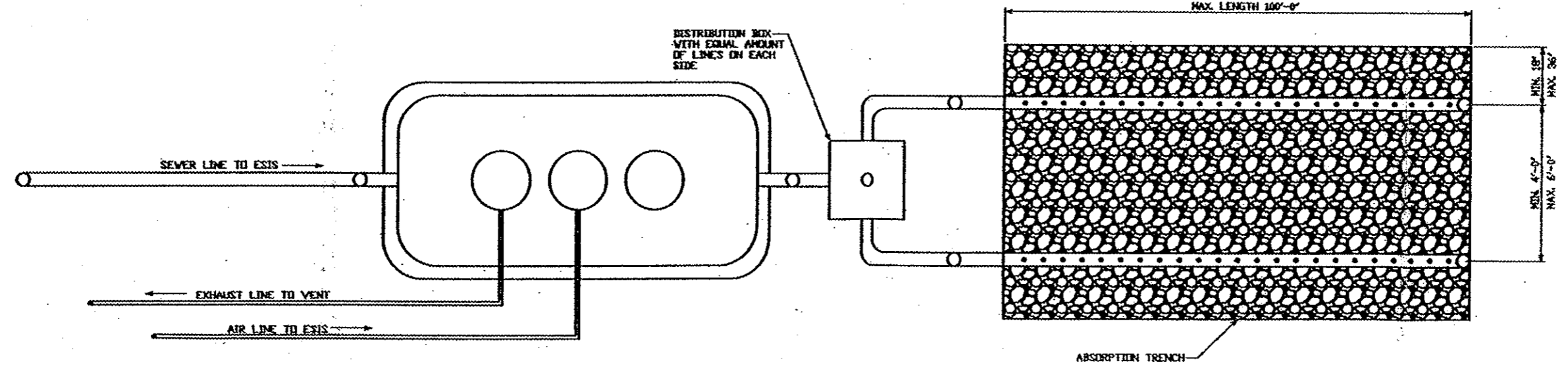
Kula S. J. J. J.

ELEVATION VIEW

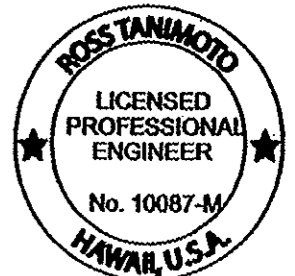


- NOTE: (1) DISTRIBUTION LINE AT 1% SLOPE
 (2) DISTRIBUTION LINES ARE OF EQUAL LENGTH AND CAPPED OR PLUGGED AT ENDS
 (3) C.I. 4" INSPECTION CLEAN OUTS UP TO GRADE

PLAN VIEW



ABSORPTION BED



LICENSE EXPIRES ON: 30 Apr 2008
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS OF THE STATE OF HAWAII.

B	UPDATE DESIGN INFO	MM/YY
A	UPDATE DESIGN INFO	MM/YY
No.	Revision/Issue	Date

Print Name and Address

Project Name and Address

Project	Sheet
Date	7
Scale	NONE

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

ESIS Model	External Dimensions		Dry Weight	Manhole Diameter
	Length	Width		
1000	10'-1"	5'-3"	750 lb	24"
1300	11'-1"	5'-9"	800 lb	24"
1700	11'-3"	7'-11"	925 lb	24"


ESIS Model	User Capacity	
	GPD	Bed Rm Gallons
1000	600	3
1300	800	4
1700	1000	5

ESIS Model	Excavation Dimensions		Excavated Soil Volumes
	Length	Depth	
1000	12'-0"	7'-6"	25.0 cu. yds.
1300	13'-0"	8'-0"	31.0 cu. yds.
1700	13'-6"	10'-0"	52.5 cu. yds.

Air Pump SL	Pump Dimensions		Watts	Outlet	Max PSI
	Length	Width			
56	8'	5'	50	3/4"	5.9

115V/60Hz with 6' Power Cord using GFI Outlet.
UL-Listed & CE-Approved.

IWS SPECIFICATIONS



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KULA RIDGE

DATE: 23 OCT 2006	SCALE: NONE	DWG NO.	SHEET: 8
-------------------	-------------	---------	----------

STATE OF HAWAII

DEPARTMENT OF HEALTH

In the Matter of the Application) Docket No. 06-VWW-31
Variance Application No. WW 242)
for Individual Wastewater System)
)
Proposed Development of 116 Units of)
Which 59 Affordable Lots - Sizes)
5,600 - 6,000 SF, Approximately 53)
Market Lots - Sizes 6,000 - 21,000 SF)
and 4 Agricultural Lots - Sizes 4 acres)
Minimum, Lower Kula Road, Lot 2)
Wailuku, Maui TMK: (2) 2-3-001: 174)
_____)

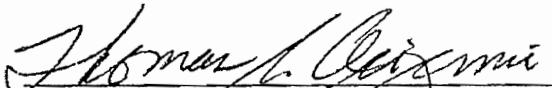
DECISION AND ORDER

Pursuant to Chapter 342D, Hawaii Revised Statutes, and Chapter 62 of Title 11, Administrative Rules and based upon the application and staff review, the Variance Request from the provisions of Chapter 11-62, Section 11-62-31.1(a)(1) is hereby **GRANTED** under the following conditions:

- 1 The draft Operation and Maintenance Service Contract provided to the Department between Kula Ridge, LLC (“developers”) and Best Industries shall be executed and recorded once the 116 unit subdivision is approved by the County of Maui.
- 2 The developer shall also execute and record deed restrictions/covenants onto each of the 116 lots binding the property owner to the applicable provisions in the Operation and Maintenance Service Contract. The deed restrictions/covenants shall also require the property owner(s) to utilize the wastewater system specified in the Operation and Maintenance Service Contract.
- 3 The developer and/or the Association of Lot Owners must advise buyers/homeowners to avoid discharging hazardous chemicals to drains and toilets, and to utilize low-flow fixtures and devices on faucets, showerheads, urinals, water closets and hose bibs to minimize the amount of water flowing in the IWS. Information on Low-flow fixtures and devices are available, at no cost to DWS customer at the Water Resources & Planning Division, located at 59 Kanoa Street, Wailuku.
- 4 An engineer shall design a wastewater system (IWS plan) consistent with the Operation and Maintenance Service Contract for each lot and at the time of building permit application for the construction of homes, the IWS plan shall be submitted to the Department for review and approval. Seepage pits and injection wells shall not be used to dispose of effluent from the aerobic units and to the maximum extent possible, all effluent disposal systems shall be as shallow as possible.

5. The variance shall be null and void if the developers are unable to obtain the necessary County of Maui subdivision approvals such that the project can proceed
6. The variance is valid for a period not to exceed five (5) years after which, the developer or the Association of Lot Owners must apply for a variance renewal
7. The developer and subsequent lot owners agree that no further subdivision of the lots will be undertaken.
8. Provisions should be made for system operation in the event of a power outage. The developer and/or the Association of Lot Owners must advise homeowners to minimize usage of water during power outage. Homeowners may also wish to connect the blowers and/or pumps of the aerobic unit to a standby power source
9. The O&M service provider shall provide an annual report to the Department of Health. The annual report shall at a minimum contain a summary of the service inspections and maintenance visits conducted, summary of major replacement or repairs undertaken at each site and summary of sludge/scum/solids removed from each unit

DATED: Honolulu, Hawaii, June 20, 2007


THOMAS E. ARIZUMI, P.E., CHIEF
Environmental Management Division

STATE OF HAWAII
DEPARTMENT OF HEALTH

In the Matter of the Application) Variance Application No WW 242) for Individual Wastewater System)) Proposed Development of 116 Units) Consisting of 59 Affordable Lots - Sizes) 5,600 - 6,000 SF, 53) Market Lots - Sizes 6,000 - 21,000 SF) and 4 Agricultural Lots - Sizes 4 acres) Minimum, Lower Kula Road, Lot 2) Wailuku, Maui TMK: (2) 2-3-001: 174) <hr style="width: 80%; margin-left: 0;"/>	Docket No. 06-VWW-31
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FINDINGS OF FACT AND CONCLUSIONS OF LAW

An application from Kula Ridge, LLC, Wailuku, Maui, Hawaii for a five (5) year variance from Hawaii Administrative Rules, Chapter 62 of Title 11, Section 11-62-31.1(a)(1) was reviewed by the Department of Health staff. A public notice of the application was printed in the January 22, 1007 issue of the Honolulu Star Bulletin and the January 22, 2007 issue of The Maui News publications. Seven (7) comments pertaining to the application were received during the 30 days following the publication of the public notice.

Findings of Fact

Mr. Clayton Nishikawa, Managing Member of Kula Ridge, LLC, has applied for a five (5) year variance from Hawaii Administrative Rules (HAR), Section 11-62-31.1(a)(1) General requirements for individual wastewater systems which states, "(a) Individual wastewater systems maybe be used as a temporary on-site means of wastewater disposal in lieu of wastewater treatment works under the following conditions: . . ."

The applicant is proposing a development located in the vicinity of Lower Kula road, Lot 2, Kula, Maui, consisting of 116 units. The development will consist of approximately 59 Affordable Lots - sizes 5,600 - 6,000 square feet in area, approximately 53 Market Lots - sizes 6,000 - 21,000 square feet in area, and 4 agricultural lots - sizes 4 acres minimum. There are no existing cesspools and no centralized sewer system in the area or planned for the near future. Well locations should not be an issue based on the location of the existing wells. Current rules prohibit individual wastewater systems (IWSs) on properties less than 10,000 square feet and above the CWDA; however, variances could be issued.

The Critical Wastewater Disposal Area (CWDA) issue and the minimum lot size pose regulatory obstacles. Insofar as treatment is concerned, the recommendation, consistent with EPA's decentralization approach, is to propose aerobic units (NSF 40 approved) with chlorine disinfection (i.e., Individual Wastewater Systems), in lieu of septic tanks. Because of the treatment level and

disinfection, impacts to the existing ground water, assuming it exists, will be reduced. Presently the DOH allows approved NSF 40 Class I aerobic systems to be used within 1,000 feet of drinking wells. Disposal of treated effluent is proposed through absorption beds which again is consistent with DOH guidelines. The purpose of this approach is to develop the maximum distance between the existing ground water and grade. Also associated with this proposal is a mandatory maintenance program. The maintenance provider will submit an annual report to DOH, copy the owner, and cite the maintenance activities completed in the applicable year. To further the reliability of the proposed IWS, the mandatory maintenance program will be included in all individual property deeds as covenants. The project is located on Lower Kula Road, Lot 2, Wailuku, Maui TMK: (2) 2-3-001: 174.

The applicant has made the following comments

- 1 This application is for a variance from Section 11-62-31 1(a)(1) of the Hawaii Administrative Rules (HAR).
- 2 The aerobic individual wastewater system (IWS) to be constructed shall comply with the wastewater rules at the time the fee simple owner applies for building permit
- 3 The volume of treated R-2 wastewater generated on each lot shall not exceed a design flow of 1,000 gallons per day
- 4 The aerobic IWS unit meets the requirements of Hawaii Administrative Rule (HAR), Title 11-62, Section 33 1 (b)(2) and thus can be used in the State of Hawaii as an aerobic unit.
- 5 Wastewater Management Policies (WMP2) "Only one (1) IWS shall be allowed per lot of record. The IWS shall consist of a minimum of an aerobic unit, chlorinator and horizontal soil absorption system or surface disposal systems such as evapotranspiration system. The IWS shall be located as far from the well as possible and down gradient of the well if possible."
- 6 Department of Health, Amendments and Compliance of Chapter 11-62, Hawaii Administrative Rules: (SS11-62-33.1) indicated specific requirements for new and proposed treatment units (b) Household aerobic units. (5) In areas below (makai of) the Underground Injection Control Line established pursuant to chapter 11-23, a household aerobic unit may discharge its effluent directly into the groundwater provided the effluent is disinfected.
- 7 As indicated in the State of Hawaii Chapter 62, Best USA's ESIS unit has met all the rules. In fact, the ESIS can be used within 1,000 feet of a drinking well, which the above development has no drinking wells within a 1,000 feet.
- 8 Letter from State of Hawaii, Department of Health, Mr. Dennis Tulang, P.E., Chief, Wastewater Branch, dated December 7, 1999, states "our recommendation is based in part on both aerobic and anaerobic processes to achieve Class I effluent criteria "
- 9 Best USA is proposing to use its tested aerobic system ESIS which can treat effluent on each property with a low profile leach bed.

10. Each ESIS unit will have an operation and maintenance (O&M) program to keep this system always performing well. This O&M program will be written into each deed as a covenant that this system must always be maintained and a report of its quality sent to DOH annually. As stated in the State of Hawaii Chapter 62, all of these systems must be maintenance by one entity
11. Best USA and the ESIS unit have been tested by the University of Hawaii in 1999 and have successfully installed and maintained over 100 units throughout the State of Hawaii.
12. This development presently has no central sewer facilities now or in the near future, and the properties in the surrounding area are currently using old cesspools and septic tanks with minimal treatment.
13. This proposed development, see Figure 1, located in the vicinity of Lower Kula Road, Lot 2; Kula, Maui consisting of 116 units (60% affordable). Of these, approximately 59 Affordable Lots - sizes 5,600 - 6,000 square feet and approximately 53 market lots - sizes 6,000 - 21,000 square feet and 4 agricultural lots - sizes 4 acres minimum. There are no existing cesspools and no centralized sewer system in the area or planned for the near future. Well locations should be not be an issue based on the location of the existing wells.
14. The proposed development will use aerobic systems to dispose R-2 treated effluent into the existing cleaned cesspools, in accordance with the USEPA, Office of Water & Office of Wastewater Management, EPA 832-R97-001B, "Response to Congress on Use of Decentralized Wastewater Treatment Systems WWBKG93".
15. The above report by the USEPA supports and gives guidelines to the exact way that we are planning this project with proven NSF 40 tested equipment and long term operations and maintenance programs.
16. Best USA has a long term proven record of installed and maintained systems in the State of Hawaii.
17. In compliance with HRS 342D-6 (4), the public interest shall be served in a method that will prove to be safer, and have minimal health impact on the environment. The use of an approved aerobic Individual Wastewater Systems (IWSs) as the means of wastewater treatment and disposal for each lot is deemed prudent because the system is NSF 40 approved with effluent quality of R-2 and allowed by "Title 11 Department of Health - Chapter 62 Wastewater Systems" to be used within a mere 1,000 feet of a drinking well, it's only appropriate is to allow the ESIS to be used on this project, which has no drinking wells within 1,000 feet and will not harm the safety and welfare of the public. Furthermore, the costs associated with the alternative of designing and constructing a secondary wastewater treatment facility and effluent disposal system, including sewer transmission mains and sewer laterals for 116 lots, would be prohibitive. The use of an ESIS 1700 unit will bring a long-term higher and safer wastewater treatment to this property.
18. All of the new homes will have the same treatment standards to its wastewater in the present and future.

19. The treated effluent will help to safely recharge the water supply as reported in USEPA report to congress
20. As indicated in the State of Hawaii Chapter 62, Best USA's ESIS unit has met all the rules. In fact, the ESIS can be used within 1,000 feet of a drinking well, which the above development has no drinking wells within 1,000 feet.
21. Therefore, if the ESIS system complies with "Title 11, Department of Health, Chapter 62, Wastewater Systems" to be used within a mere 1,000 feet of a drinking well, it is only appropriate to allow the ESIS to be used on this project, which has no drinking wells within 1,000 feet and will not harm the safety and welfare of the public
22. Allowance of the requested variance to use a proven aerobic treatment system with a continuous maintenance service program will definitely have a positive and greater health and environmental benefit to the public because it will not be detrimental to the public
23. The maximum time period of five (5) years is requested for this request. Requests for future renewals will be made at five (5) year intervals until a municipal sewer system becomes available in the project vicinity

The following items were submitted with the variance application but can not be shown here: EPA response to Congress on use of decentralized Wastewater Treatment Systems; NSF 40 testing report; DOH chapter on 1000 feet ruling; and map of well location.

The following agencies submitted the following comments:

1. The Clean Water Branch submitted the following comment:
Recommend to deny this variance application.
2. The Environmental Planning Office:
 - A. These are some of the issues which needs to be addressed:
 - (1) Are we moving away from a private sewage treatment plant for residential developments greater than 50 lots (i.e. usage of individual wastewater systems for a large development)?
 - (2) Will we be creating problems of magnitude by allowing IWSs of such number to be built with absorption beds in an area of less than 10,000 square feet? The 59 Affordable lots (5,600 - 6,000) plus some of the 53 Market Lots (6,000 - 21,000) will be less than 10,000 square feet in size.
 - B. I am not sure if this is the trend for developments to address affordable housing, however, form the contrarian perspective, this is what should be considered:

- (1) Aerobic units are run by electricity which can be turned off by the owner. If that happens, I understand that the system becomes a conduit to the absorption field. Also, over a period of time, these electrical systems will ultimately fail. The same situation as stated above will happen. Once the absorption field is compromised, I hope that the solution will not revert to digging seepage pits. We know that aerobic units with seepage pits become essentially cesspools if the electricity is not working. These were all issues of the past when the decision to use the non-electric septic tank system was made in the 1980's.
- (2) I like the concept of a single maintenance point of contact. However, if that concept fails as times goes on, then the scenario described above happens.
- (3) I am just remembering why we made some of those decisions in Chapter 11-62 back in the 1980's.

Thank you for allowing EPO the opportunity to comment.

3. The Safe Drinking Water Branch submitted the following comments:
 - A. The project site is situated "mauka" or above the Underground Injection Control (UIC) line;
 - B. Land areas above the UIC line overlie or recharge existing or potential underground sources of drinking water. Construction of any new injection well for sewage effluent or industrial wastewater disposal is prohibited; and
 - C. We have no objection to this variance application.

Please contact Mr. Jamie Rimando at telephone (808)586-4258 if you have any questions.
4. The District Health Office - Maui Branch has the following to offer:

We have no objection to the granting of this variance application provided all of the conditions set forth in the application are complied with.
5. The County of Maui, Department of Water Supply submitted the following comments:
 - A. The proposed development is located in Kula and not in Wailuku as is stated in the Subject heading of your May 29, 2007 letter to the Department of Water Supply.
 - B. The Department of Water Supply (DWS) acknowledges that the proposed aerobic treatment systems will reduce the introduction of pathogens into groundwater resources as compared to cesspools or septic systems

However, we are concerned about the continuing increase in density of communities where facilities are not available to protect underlying aquifers from nitrogen and chemical pollutants that would otherwise be carried away by sewer systems

- C. DWS highly recommends that the applicant advise buyers to avoid discharging hazardous chemicals to drains and toilets, and to utilize low-flow fixtures and devices on faucets, showerheads, urinals, water closets and hose bibs to minimize the amount of water flowing into the IWS. Low-flow fixtures and devices are available, at no cost to DWS customers, at our Water Resources & Planning Division, located at 59 Kanoa Street, Wailuku.
- D. Some provision should be made for system operation in the event of power failure. According to comments presented in the Findings of Fact by the Environmental Planning Office, if the unit is powered off by the owner, the aerobic unit will become a conduit to the absorption field; this will ultimately compromise the system. Although it is unlikely that the owner would turn off the power, it is highly likely that the Kula area will experience occasional power failures. Some provision should be made for system operation in the event of such a power outage.

Should you have any questions, please contact our Water Resources & Planning Division at 244-8550

Sincerely,
Jeffrey K. Eng, Director

- 6. The Wastewater Branch Maui Staff Engineer recommends a granting this variance application with the following provision:

The ESIS aerobic unit or individual treatment unit must be operated and maintained by the ESIS manufacturer and with supervision of the consulting engineer based on the O&M "Operation & Maintenance" manual.

- 7. The Wastewater Branch states that there is no existing sewer service system available in the area. Public benefit is that 59 of the 116 lots are to be marketed as affordable units. One wastewater solution is to use a centralized system. Another is to utilize individual wastewater systems (IWSs) that are properly operated and maintained by a utility like organization.

Please contact the Planning & Design Section of the Wastewater Branch at (808) 586-4294 if you have any questions.

Conclusions of Law

Chapter 342D, Hawaii Revised Statutes, Section 342D-7(c), states that no variance shall be granted by the Department unless the application and supporting information clearly show that:

- 1 The granting of the variance is in the public interest as defined in the Hawaii Revised Statutes, Section 342D-6(c)(4).
- 2 The granting of this variance will not substantially endanger human health or safety
3. Compliance with the rules, regulations or standards from which the variance is sought would produce serious hardship without equal or greater benefits to the public

Based upon the foregoing findings of fact, it is concluded that the above requirements have been met

Comment and Recommendation

Based upon the foregoing findings of fact and conclusions of law, it is my recommendation that the variance request be **GRANTED** under the following conditions:

- 1 The draft Operation and Maintenance Service Contract provided to the Department between Kula Ridge, LLC ("developers") and Best Industries shall be executed and recorded once the 116 unit subdivision is approved by the County of Maui.
- 2 The developer shall also execute and record deed restrictions/covenants onto each of the 116 lots binding the property owner to the applicable provisions in the Operation and Maintenance Service Contract. The deed restrictions/covenants shall also require the property owner(s) to utilize the wastewater system specified in the Operation and Maintenance Service Contract.
3. The developer and/or the Association of Lot Owners must advise buyers/homeowners to avoid discharging hazardous chemicals to drains and toilets, and to utilize low-flow fixtures and devices on faucets, showerheads, urinals, water closets and hose bibs to minimize the amount of water flowing in the IWS. Information on Low-flow fixtures and devices are available, at no cost to DWS customer at the Water Resources & Planning Division, located at 59 Kanoa Street, Wailuku.
- 4 An engineer shall design a wastewater system (IWS plan) consistent with the Operation and Maintenance Service Contract for each lot and at the time of building permit application for the construction of homes, the IWS plan shall be submitted to the Department for review and approval. Seepage pits and injection wells shall not be used to dispose of effluent from the aerobic units and to the maximum extent possible, all effluent disposal systems shall be as shallow as possible.

- 5 The variance shall be null and void if the developers are unable to obtain the necessary County of Maui subdivision approvals such that the project can proceed.
- 6 The variance is valid for a period not to exceed five (5) years after which, the developer or the Association of Lot Owners must apply for a variance renewal.
- 7 The developer and subsequent lot owners agree that no further subdivision of the lots will be undertaken.
- 8 Provisions should be made for system operation in the event of a power outage. The developer and/or the Association of Lot Owners must advise homeowners to minimize usage of water during power outage. Homeowners may also wish to connect the blowers and/or pumps of the aerobic unit to a standby power source.
- 9 The O&M service provider shall provide an annual report to the Department of Health. The annual report shall at a minimum contain a summary of the service inspections and maintenance visits conducted, summary of major replacement or repairs undertaken at each site and summary of sludge/scum/solids removed from each unit.

DATED: Honolulu, Hawaii, June 20, 2007.



Thomas E. Arizumi, P.E.
Chief, Environmental Management Division

The foregoing findings of fact and conclusions of law are hereby adopted.

APPENDIX J.

Meeting Minutes With Residents Dated July 13, 2006



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

KARLYNN KAWAHARA

November 20, 2006

MEETING MEMORANDUM

Date of Meeting: July 13, 2006

From: Rowena Dagdag, Planner

Subject: Kula Ridge Affordable Housing Subdivision

Participants: Clayton Nishikawa, (*Architectural Design & Construction, Inc.*)
Stacy Otomo, (*Otomo Engineering, Inc.*)
Michael Munekiyo, (*Munekiyo & Hiraga, Inc.*)
Rowena Dagdag, (*Munekiyo & Hiraga, Inc.*)
Community Participants, (*See Attached*)

The purpose of the meeting was to introduce the proposed Kula Ridge Subdivision project to residents and community members living in proximity to the proposed project site. The project would require a district boundary amendment and seek exemptions from the community plan amendment and change in zoning process through the Section 201G-118, Hawaii Revised Statutes (HRS) application process.

1. C. Nishikawa provided a brief summary of the project's description and displayed the proposed house plan designs. He noted that the project will involve the development of 116 improved lots, with 70 (60 percent) affordable house/lot packages and 46 (40 percent) market lots.
2. A rendering of what the affordable units would look like using a private access easement for 6 of the lots was displayed. C. Nishikawa stated that one of his reasons for developing affordable housing was to provide well designed affordable homes for Maui residents and their children.
3. The project is moving ahead to obtain the proper sequence of approvals. C. Nishikawa has already met with the Kula Community Association, the Maui County Council members, and with the Mayor. All had recommended that he meet with the residents living near the proposed project to answer any questions or address any concerns that they have regarding the project.

4. M. Munekiyo explained that the project was in its preliminary stages in terms of the environmental assessment and Land Use Commission process. He further explained that the environmental assessment process would help identify areas that would be impacted and suggest improvements that need to be made to mitigate or minimize project impacts.
5. M. Munekiyo stated that the project will need to go through the State Land Use Commission for a district boundary amendment to reclassify the land use from Agricultural to Rural and Urban. Exemptions from the community plan amendment and change in zoning process will be requested as part of the Section 201G-118, HRS application process.
6. The project is to be processed as a Section 201G, HRS application, which allows an affordable housing project to be expedited through exemptions. The regular process would take approximately 3 to 4 years. During the application process, there will be formal opportunities for the public to comment and provide feedback.
7. A resident expressed her concern over water rights and asked if the project would receive water before others who have been waiting for a water meter. M. Munekiyo replied that although the Section 201G, HRS process allows for certain exemptions, it would not permit exemptions relating to the provision of water source and water infrastructure.
8. C. Nishikawa stated that he recently met with the Water Director, who suggested that he find his own water. C. Nishikawa is currently negotiating with Maui Land and Pineapple Company and A&B who are drilling wells in the Upcountry area. The water from these wells could service the project site. He further indicated that he would pay for a percentage of the well being drilled by the companies.
9. The well would eventually be connected to the County water system.
10. D. Mayer stated that the Kula Community Association board members met with C. Nishikawa about two (2) months ago and reviewed the project with him. The association has provided C. Nishikawa with comments and concerns regarding the project. D. Mayer indicated that he was not satisfied with the update regarding the water situation, but was willing to be of help to resolve the issues.
11. A septic tank system will be installed in the homes. C. Nishikawa stated the benefits of a septic system and pointed out the disadvantages of a larger single wastewater system. C. Nishikawa is coordinating with the Department of Health to obtain permission to utilize individual wastewater systems as being proposed.
12. A resident asked if the homes could be expanded to accommodate growing families. C. Nishikawa stated that there would be enough room on the individual lots for expansion. He noted that there would be no need for a larger water meter,

but that the homes may need a larger septic system. Homes would have a 5/8-inch meter.

13. A question was raised regarding the community plan designation, and if there was any mention of density to the area. Residents were concerned that the 116 improved lots would result in increased traffic. They were concerned about the safety of the roads and a large number of cars in the subdivision.
14. C. Nishikawa indicated that the smaller homes would be able to accommodate two (2) cars off-street, with the larger homes accommodating up to four (4) cars off-street. Parking on the access driveway would not be allowed for the affordable homes with a private access driveway.
15. The larger density (116 improved lots) is required to keep the affordable housing cost lower.
16. Ohana units will not be allowed on the individual lots.
17. A resident raised concern about the four (4) large lots on the eastern boundary of the property. Residents are concerned about it becoming a "gentlemen" ranch. M. Munekiyo stated that the current state land use designation will be kept as agricultural or rural.
18. A resident raised concern over the sidewalk along Lower Kula Road and suggested improvements to it. Residents also felt that Lower Kula Road was too narrow to accommodate traffic leading up to the 116 lot subdivision. M. Munekiyo stated that a traffic impact analysis was being done to identify improvements and mitigation measures that need to be made before approval of the subdivision.
19. A resident raised a concern over outdoor lights and its negative impact on the Haleakala Observatory. He suggested that we contact the University of Hawaii Institute For Astronomy for their comments.
20. C. Nishikawa noted that the Maui Police Department would like to see adequate lighting in the new neighborhood to address safety concerns. Residents felt that the police officers would be able to continue their work safely with low lighting.
21. A resident commented that some years ago, the Carden Academy proposed to build a school on Lower Kula Road but was denied approval by the Maui Planning Commission due to traffic impact reasons.
22. A resident felt that the project should be located somewhere else where there is less impact to the surrounding neighborhood. An affordable housing project could be done somewhere else.

23. M. Munekiyo stated that there will be several meetings where residents will be able to testify and provide comments over the project. The public will be able to give testimony before the State Land Use Commission during meetings regarding the environmental assessment. After a draft of the environmental assessment has been published, a 30-day comment period will be held for residents to provide feedback. The applicant will review and address the comments received during the draft environmental assessment comment period.
24. M. Munekiyo noted that residents living within 500 feet of the proposed project site were invited to the meeting, but welcomed others in the Kula area to attend. He added that more meetings could be held to update residents on the status of the project and to gather more comments.
25. A resident noted that 6:00 p.m. may be too early in the evening to hold a meeting. A better time would be at 7:00 p.m.
26. Residents asked D. Mayer if the Kula Community Association could act as the spearhead for upcoming meetings. They want to be informed of any meetings or hearings regarding the projects that impact the entire Kula Community. D. Mayer responded that a website is available at www.kulamaui.org. The website includes information that residents would find useful.
27. C. Nishikawa stated that water and roadway infrastructure are very important issues that need to be addressed and resolved. He is willing to work with residents and the Kula Community Association on these issues.

In closing the meeting, M. Munekiyo stated that the applicant would like to come back to the community to provide updates and receive comments as the project progresses.



Rowena M. Dagdag, Planner

RMD:yp

Attachment

cc: Clayton Nishikawa, Architectural Design & Construction, Inc. (w/attachment)
Stacy Otomo, Otomo Engineering, Inc. (w/out attachment)
Dick Mayer, Kula Community Association (w/attachment)

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