Kauhale ʻŌiwi ʻO Puʻukapu –
A Cultural and Community Educational Center
By KANU O KA ʻĀINA LEARNING ʻOHANA

TMK: (3) 6-4-4:09 (por.)
Waimea, Island of Hawaiʻi

Final Environmental Assessment

Applicant:

Kanu O Ka ʻĀina Learning ʻOhana
P.O. Box 6511
Kamuela, Hawaiʻi 96743

Approving Agency:
State of Hawaiʻi Department of Hawaiian Home Lands
Honolulu, Hawaiʻi

Prepared By:

Group 70 International, Inc.
Architecture • Planning • Interior Design • Environmental Services
Honolulu, Hawaiʻi

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This environmental document is prepared in accordance with the requirements of Chapter 343, HRS and Hawaiʻi Administrative Rules, Title 11, Department of Health.

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Applicant
Kanu O Ka ʻĀina Learning ʻOhana

7/18/05
Date

Approving Agency:
State of Hawaiʻi Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawaiʻi 96805

Prepared By:
Group 70 International, Inc.
Architecture • Planning • Interior Design • Environmental Services
925 Bethel Street, 5th Floor
Honolulu, Hawaiʻi 96813
808-523-5866

July 2005

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To facilitate the readers' ability to distinguish the revisions made from the Draft EA to the Final EA, substantive changes and additions are highlighted. Text that has been deleted is indicated by a ~~strikethrough~~. New, revised and deleted sections, figures and appendices are noted.

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Section 1.0
Introduction

1.0 INTRODUCTION

This Final Environmental Assessment (EA) has been prepared in accordance with the requirements of Chapter 343, HRS and Hawaiʻi Administrative Rules, Title 11, Department of Health. The proposed action involves the use of public lands owned by the State of Hawaiʻi Department of Hawaiian Home Lands.

1.1 PROJECT INFORMATION SUMMARY

Type of Application:	Environmental Assessment (EA)
Applicant:	Kanu O Ka ʻĀina Learning ʻOhana P.O. Box 6511 Kamuela, Hawaiʻi 96743 Contact: Stephen G. Bess (808) 887-8144, Fax: (808) 887-8146
Agent:	Group 70 International, Inc. 925 Bethel Street, 5th Floor Honolulu, Hawaiʻi 96813 Contact: Kawika McKeague (808) 523-5866, Ext. 149
Accepting Authority:	State of Hawaiʻi, Dept. of Hawaiian Home Lands
Name of Action:	Kanu O Ka ʻĀina Learning ʻOhana
Class of Action:	Use of State Land (DHHL property).
Project Location:	Lot 23-C of Puʻukapu Pasture, Waimea, South Kohala, Hawaiʻi
Tax Map Key:	TMK: (3) 6-4-4:09 (por.)
Land Area:	15 acres
Existing Use:	Agricultural
Landowner:	State of Hawaiʻi Department of Hawaiian Home Lands P.O. Box 1879 Honolulu, Hawaiʻi 96805
State Land Use District:	Agricultural

Hawaiʻi County General Plan:	Intensive Agriculture
Hawaiʻi County Zoning:	A-40a
Special Designations:	No Special Designations
SMA:	Not in SMA
Flood Zone:	FIRM Zone X (outside the 500-year flood plain)
Tsunami Zone:	Outside of the Tsunami Inundation Zone
Other Permits Required:	Plan, Building Plan, Building, Electrical, Plumbing, Outdoor Lighting, Sewer, County Roads, Grubbing and Grading, Sidewalk and Driveway.
Anticipated Determination:	Finding of No Significant Impact (FONSI)

1.2 OVERVIEW OF PROPOSED PROJECT

The Kanu O Ka ʻĀina Learning ʻOhana (KALO) is a non-profit 501(c)3 organization proposing to build Kauhale ʻŌiwi ʻO Puʻukapu, a cultural and community educational center in Waimea on the Island of Hawaiʻi. KALO was established in 1998 in Waimea, Hawaiʻi. This intergenerational community center will provide womb-to-tomb, Hawaiian-focused education and serve as a community resource for Hawaiian cultural practices and values. During the last five years, KALO has successfully ~~has~~ been awarded over $5.7 million dollars in grant funds from federal and private organizations. Today KALO manages a budget that exceeds $2 million dollars. Among its significant accomplishments over the past 3 years, KALO has functioned as fiscal agent of Kanu O Ka ʻĀina New Century Public Charter School (KANU), Mālamapōkiʻi: Early Childhood Program, Hālau Wānana: Center for Higher Learning, and Nā Lei Naʻauao – Native Hawaiian Charter School Alliance consisting of Kanu O Ka ʻĀina New Century Public Charter School and eleven other Hawaiian charter schools. Since its inception, KALO has committed itself to serving the community's needs and has been particularly successful in garnering sizeable grants from federal and private funding resources to support the programs of KALO.

The development of Kauhale is projected to include a Multi-Media Lab and Community Information Center, Preschool and Grades K-12 Program, Center for Higher Learning, Community Center and Cafeteria, Gym/Performance Center, Administration Offices, and a KALO Bookstore/Gift Shop. The proposed project includes a large cultural park area and open gardens with *makahiki* (festival) grounds; a *pā hula* (a traditional dance platform), an *ʻahu* (altar) to be used for ceremonial purposes, and a central open space and recreational facilities. Surrounding the proposed buildings, open space will be preserved for outdoor classroom activities and trail access. This proposed project will require additional infrastructure improvements, including the development of parking spaces to accommodate public and

employee vehicles, driveways and accessibility, and use of utilities. Additional landscaping will also be installed to minimize paved areas and enhance the overall appearance of the proposed center. KALO has also committed itself to utilizing green architecture wherever possible.

1.3 PROJECT SITE

The Kauhale ʻŌiwi ʻO Puʻukapu project site consists of 15 acres of Puʻukapu Homestead Farm Lots of Waimea in South Kohala on the Island of Hawaiʻi. The site is located near the Waimea-Kohala Airport *(Figure 1-1)*. The site is identified as a portion of Tax Map Key (3) 6-4-4-:09 (*Figure 1-2)*. The State Department of Hawaiian Home Lands is the owner of the proposed site and has granted KALO with a permitted use of the property.

1.4 REASONS FOR PREPARING THIS ENVIRONMENTAL ASSESSMENT

The State Department of Hawaiian Home Lands has granted KALO with a permitted use of the proposed property. This Environmental Assessment is required pursuant to Chapter 343, Hawaiʻi Revised Statutes (HRS), and the Environmental Impact Statement Rules, Title 11, Chapter 200 of the Hawaiʻi Administrative Rules (HAR). This EA provides written evaluation of the technical, environmental, social and economic aspects of the proposed project. This EA identifies the possible impacts of the proposed project and their significance. Strategies to mitigate those potential impacts and possible alternatives to the proposed project are also identified. This EA then compares all aspects and impacts against 13 significance criteria listed in §11-200-12 to provide determination as to whether an Environmental Impact Statement shall be required or not.

1.5 AGENCIES AND PUBLIC CONTACTED IN PRE-CONSULTATION AND DRAFT EA REVIEW PERIODS

As part of KALO's commitment to intricately involve the community in the planning and creation of Kauhale ʻŌiwi ʻO Puʻukapu, KALO received a grant of $10,000 from the Richard Smart Fund to assist in determining what Hawaiians and other community members want to see be established at Kauhale. Using this funding, KALO conducted a number of "Envisioning the Future" meetings to obtain community input. Special efforts were made to obtain the *manaʻo* (knowledge) of their *kūpuna* (elder teachers of Hawaiian ways and culture). KALO also requested input from families that support KALO and its mission.

Additional meetings were then conducted to gather specific input on the programs/facilities according to their potential benefit to the community and their ability to contribute to the self-sustainability of Kauhale. KALO also consulted with the Waimea Homestead Association in the planning of Kauhale. KALO provided notice to Hawaiian Homestead owners advising them of KALO's intentions by engaging in a door-to-door campaign in order to measure the community's support of the proposed project and gather ideas from the community.

~~Listed below are the agencies and other parties contacted regarding the proposed project prior to the publication of the Draft EA.~~

The agencies and other parties contacted regarding the proposed project during the pre-consultation period include:

State of Hawaiʻi Agencies
State of Hawaiʻi Department of Hawaiian Home Lands
State of Hawaiʻi Department of Health
State of Hawaiʻi Department of Land and Natural Resources
State of Hawaiʻi Department of Land and Natural Resources, Historic Preservation Division
State of Hawaiʻi Office of Environmental Quality Control
State of Hawaiʻi Office of Hawaiian Affairs
State of Hawaiʻi Department of Business, Economic Development & Tourism, Planning Office

County of Hawaiʻi Agencies
County of Hawaiʻi Department of Parks and Recreation
County of Hawaiʻi Department of Public Works
County of Hawaiʻi Department of Water Supply
County of Hawaiʻi Planning Department
County of Hawaiʻi Council District 9, Councilman Pete Hoffmann

Other Parties and Associations
Waimea Homestead Association Board
Waimea Community Association
Waimea Hawaiian Civic Club

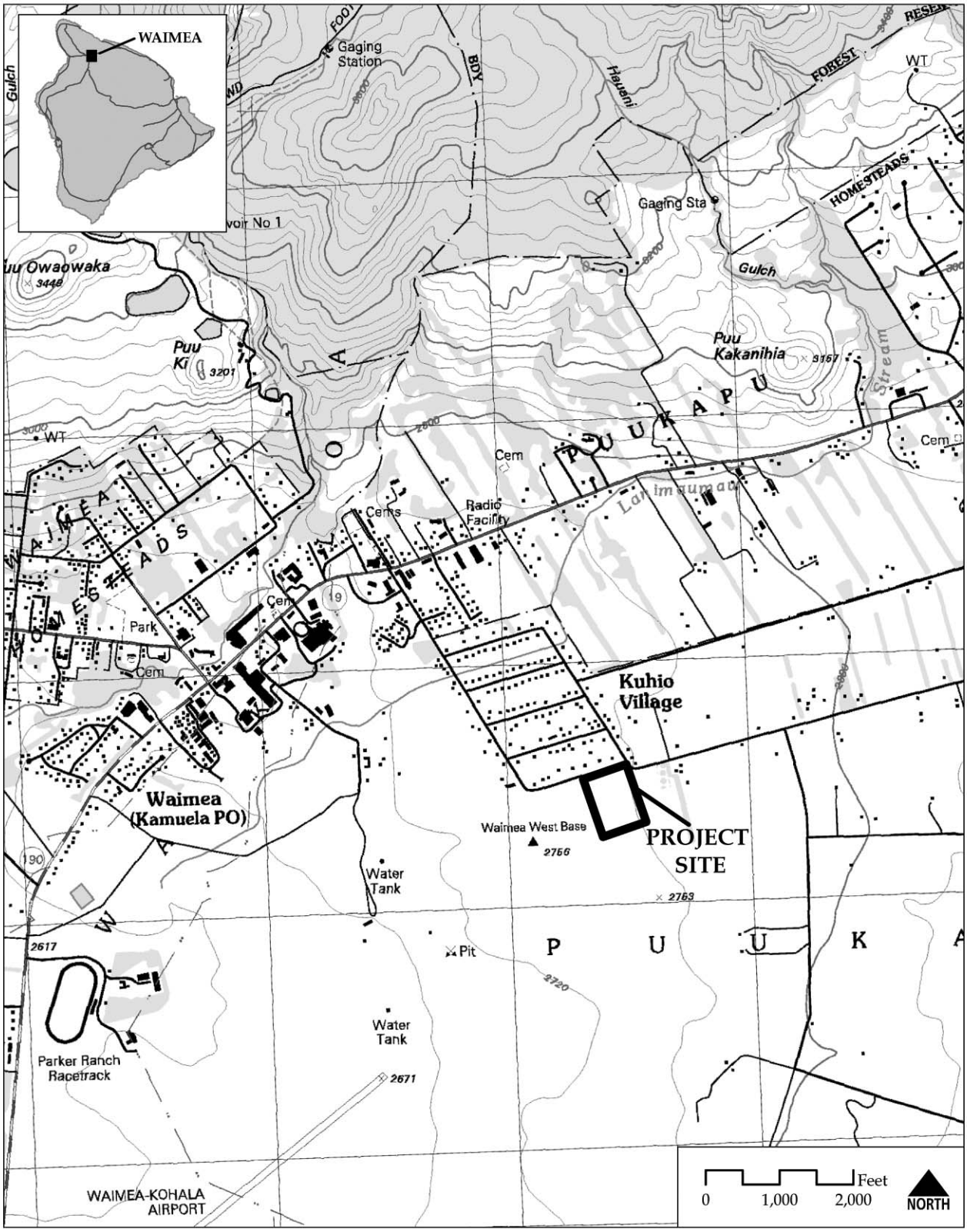
Following the completion of the Draft EA, all those listed below were provided with copies of the Draft EA and were requested to provide comments. Those parties that provided written comments are indicated with an asterisk [*]. Copies of the comments and response letters are provided in Appendix G.

Federal Agencies
U.S. Federal Aviation Administration, Western-Pacific Regional Office

State of Hawaiʻi Agencies
State of Hawaiʻi Department of Hawaiian Home Lands
State of Hawaiʻi Department of Health*
State of Hawaiʻi Department of Land and Natural Resources
State of Hawaiʻi Department of Land and Natural Resources, Historic Preservation Division
State of Hawaiʻi Office of Environmental Quality Control*
State of Hawaiʻi Office of Hawaiian Affairs*
State of Hawaiʻi Department of Business, Economic Development & Tourism, Planning Office*
State of Hawaiʻi Department of Transportation
State of Hawaiʻi Department of Agriculture
State of Hawaiʻi Department of Education

County of Hawaiʻi Agencies
County of Hawaiʻi Department of Parks and Recreation
County of Hawaiʻi Department of Public Works
County of Hawaiʻi Department of Water Supply
County of Hawaiʻi Planning Department
County of Hawaiʻi Council District 9, Councilman Pete Hoffmann
County of Hawaiʻi Police Department*
County of Hawaiʻi Fire Department

Other Parties and Associations
Waimea Homestead Association Board
Waimea Community Association
Waimea Hawaiian Civic Club
Thelma Park Memorial Public & School Library
Hawaiʻi State Library



Source: USGS Quad Map, Kamuela, HI, 1995

Figure 1-1: Project Location

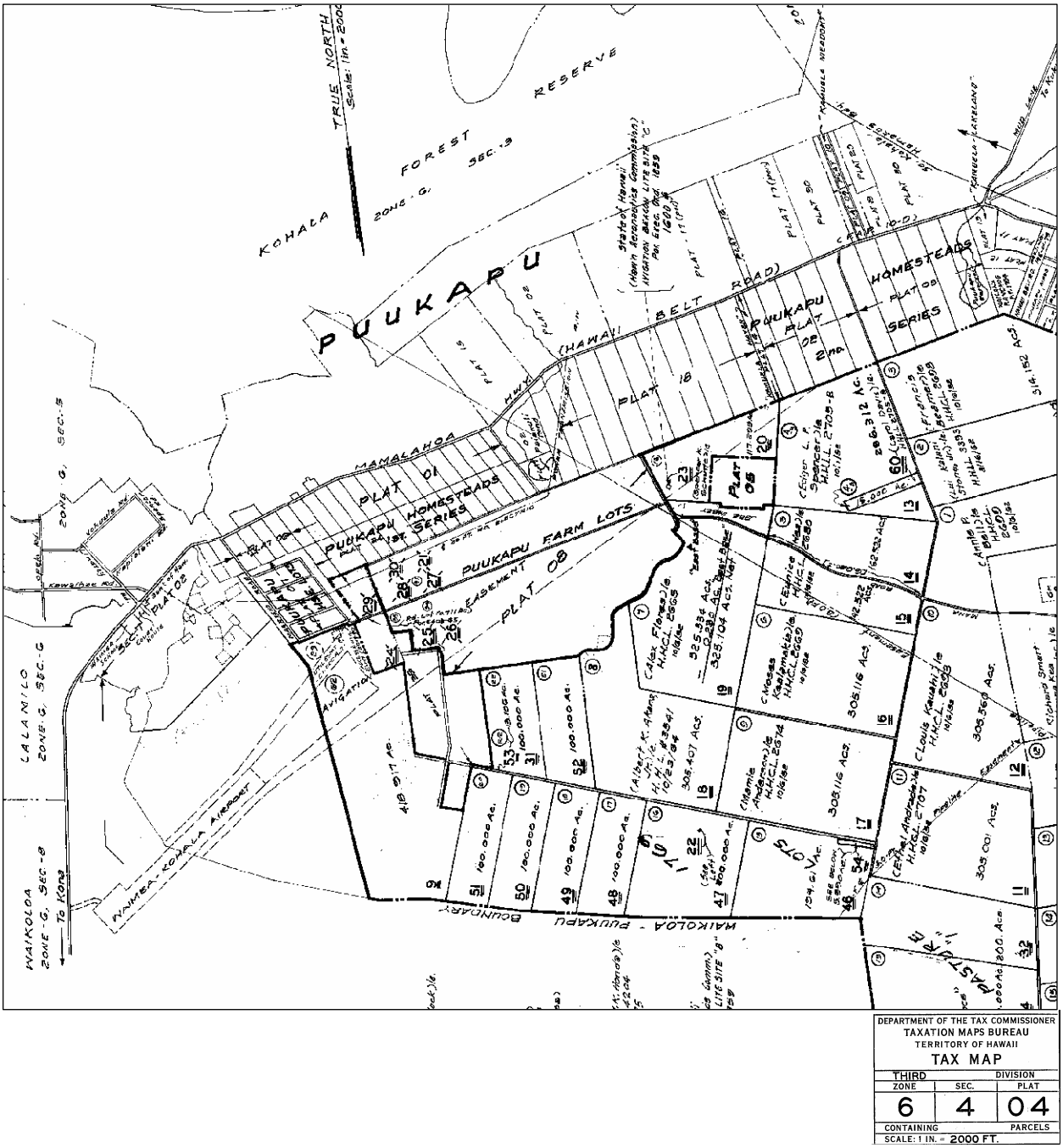


Figure 1-2: Tax Map Key (3) 6-4-4: 09 (por.)

Section 2.0
Project Description

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND SITE CHARACTERISTICS

The project site being reviewed in this Environmental Assessment is located in the southwestern portion of Waimea, known as the Puʻukapu Tract, in South Kohala on the Island of Hawaiʻi. The project site is part of a larger agricultural-zoned parcel identified as Tax Map Key (3) 6-4-4-: 09, Lot 23C and consists of approximately 15 acres. The parcel is part of the Puʻukapu Pasture Lots, which is owned by the Department of Hawaiian Home Lands. The adjacent lot to the east is part of the Puʻukapu Farm Lot subdivision and Hiʻiaka Street borders the north of the project. Hiʻiaka Street was created as part of the Puʻukapu Village House Lots subdivision *(Figure 1-1)*.

There is a small in-holding within the site, located directly off of Hiʻiaka Street on which a fiber-optic relay facility has been constructed. The project site gently slopes from east to west, from an elevation of 841 meters above mean sea level (MSL), at Hale Aliʻi Street, down to 838 meters MSL at the western edge of the site (USGS 1996). The terrain is composed of a mix of *ʻaʻa* and *pāhoehoe* lava flows disgorged from Mauna Kea between 65,000 and 250,000 years ago during the Pleistocene Age (Wolfe and Morris 1996). The site is presently unoccupied and the habitat present within the site is pasture. The Waimea-Kohala Airport resides approximately one mile away to the southwest of the project site. The majority of the project site falls within easement "A-1" which is for Aviation Purposes. The easement is in accordance with the Federal Aviation Regulations Part 77 *(See Sections 3.0 and 5.0 for further discussion)*. Urban areas, in proximity to the site, include the commercial district of Waimea, located approximately one mile to the north, and the residential communities of Waimea, Kūhio Village, and Waiaka.

2.2 ORGANIZATIONAL & CONCEPT OVERVIEW

The Kanu O Ka ʻĀina Learning ʻOhana (KALO) is a non-profit 501(3) organization whose primary purpose is to assist in the establishment of sustainable Hawaiian communities, particularly in the rural areas of the Hawaiian archipelago. The KALO mission states that, "As a Hawaiian organization, KALO recognizes the need to provide native Hawaiians, of all ages, with educational opportunities and resources to perpetuate and enhance our rich cultural heritage, while providing tools necessary to live productive and fulfilling lives in an increasingly interconnected world."

KALO was established in 1998 in Waimea, Hawaiʻi. During the last two years, KALO has successfully received and managed over 3 million dollars in grant funds from federal and private organizations. Among its significant accomplishments over the past 3 years, KALO has functioned as fiscal agent of Kanu O Ka ʻĀina New Century Public Charter School (KANU), Mālamapōkiʻi: Early Childhood Program, Hālau Wānana: Center for Higher Learning, and Nā Lei Naʻauao – Native Hawaiian Charter School Alliance. According to KALO, "the focus of this alliance, which includes KANU and 11 other native charter schools located in communities with high concentrations of native Hawaiians, is to empower Hawaiian communities to implement

innovative models of education that are tailored to the unique resources available in each community and make it possible for Hawaiʻi's native student population to thrive as Hawaiians and as empowered citizens in a world that is becoming increasingly complex."

While charter schools are not currently awarded any funding for facilities, as a public school, KANU brings a long-term commitment to sizeable amounts of funding to implement its educational programs. In addition, KALO has been particularly successful in garnering sizeable grants from federal and private funding resources to support the programs of KANU and adjacent programs such as Mālamapōkiʻi.

Since its inception, KALO has committed itself to serving the community's needs as articulated by its constituents. Prior to the beginning of KANU, the founders of KALO engaged in a series of community meetings to determine whether the proposed educational programs envisioned would meet the needs of Hawaiians in North Hawaiʻi. Since KANU opened in August of 2000 the school has operated in accordance with community wishes and input. The fact that 90 percent of KANU's parents actively participate in the life of school and that KANU students had the highest attendance record of all public schools in the State of Hawaiʻi during school year 2000-2001 are two of the many indices that demonstrate KANU's claim to legitimacy as a school reflecting the needs of its constituents.

2.3 OVERVIEW OF NEED

According to KALO's community surveys, there is currently no place in Waimea, where people can learn Hawaiian language, culture, and traditions in a culturally-appropriate setting. Moreover, facilities and opportunities for Hawaiians to engage in continuing educational programs in the community are notably absent. While Kūhio Hale Hawaiian Homes Hall provides a general meeting place for Waimea's Hawaiian families, the hall is not conducive for smaller meetings, classes, or cultural activities. In addition, no culturally appropriate facilities or grounds exist in Waimea where Hawaiians can practice traditional protocol and ceremonies and greet visitors to the "rains of Kīpuʻupuʻu" in a culturally appropriate way.

With drug traffic and use (especially ice) – accompanied by the breakdown of the family – on the increase among all ethnic groups, including Hawaiians, it is essential that safe, drug and alcohol free areas be created, where families can learn and practice Hawaiian culture and traditions together. Kauhale ʻŌiwi ʻO Puʻukapu, will be such a place: a place where people can learn about and practice the native Hawaiian culture, and where people of all ages can grow intellectually, culturally, physically, emotionally, and spiritually. According to KALO, "Kauhale ʻŌiwi ʻO Puʻukapu will be a place of refuge, a place of peace, where people feel safe and protected; a place for personal and collective healing; a place where community can gather and congregate." As a comprehensive cultural learning center that will serve stakeholders from the cradle to the grave, Kauhale ʻŌiwi ʻO Puʻukapu will directly and systemically benefit hundreds of community members residing in the Waimea area.

Currently no community facilities exist where children residing in Kūhio Village and Puʻukapu Farmlots can learn and play. This project will establish a cultural learning center, along with recreational facilities and after-school education and care programs within walking distance to

these homestead areas. In addition to providing benefits for Hawaiian Homesteaders residing in Puʻupūlehu, Kawaihae and other Hawaiian Home areas, the centralized Kauhale will provide a necessary resource to anchor the well-being of one-Hawaiians who reside in Hawaiʻi or two-visit the Island of Hawaiʻi.

2.4 DESCRIPTION OF THE PROPOSED PROJECT

The State Department of Hawaiian Home Lands has granted KALO with a permitted use of 15 acres of the Puʻukapu Homestead Tract of Waimea. With the land, Kanu O Ka ʻĀina Learning ʻOhana (KALO), is proposing to develop Kauhale ʻŌiwi ʻO Puʻukapu, a cultural and community educational center for native Hawaiians and other members of the island community. This proposed project seeks to establish the primary goals of KALO, which includes assisting with the establishment of sustainable Hawaiian communities and recognizing the need to provide native Hawaiians, of all ages, with educational opportunities and resources.

The proposed project consists of the construction of a Multi-Media Lab and Community Information Center, Community Center, Cafeteria, Performance Center and Gym, Preschool and Grades K-12 Program, Higher Learning Education Facilities, Administration Offices, and KALO Bookstore/Gift Shop. The proposed project design includes a cultural interpretation of the site. The buildings are proposed to share a central open space, depicted in *Figure 2-1* as the Piko. The project includes a large cultural park area and open gardens with *makahiki* (festival) grounds; a *pā hula* (a traditional dance platform), an *ʻahu* (altar) to be used for ceremonial purposes, and a central open space and recreational facilities. In addition, areas for agriculture, forestry, and animal husbandry research and learning, culturally appropriate entrepreneurial establishments including wood, music and art shops, video and recording studios, and a certified kitchen will contribute to the self-sustainability of Kauhale. Surrounding the proposed buildings, open space will be preserved for outdoor classroom activities and trail access.

School hours would be held from 8:00 AM to 3:00 PM, Monday thru Friday. Adult classes would be held in the evenings and on Saturdays. This proposed project will require additional infrastructure improvements, including the development of parking spaces to accommodate public and employee vehicles, driveways and accessibility, and use of utilities. Additional landscaping will also be installed to minimize paved areas and enhance the overall appearance of the proposed center. KALO has also committed itself to utilizing green architecture wherever possible. Construction is planned to begin in 2006 and the school is expected to reach its design enrollments by the Year 2012 *(Table 2-1)*.

Table 2-1 Projected Student Enrollments

Grades	Existing	Design
Pre-School	10	24
K-5	60	132
6-8	25	63
9-12	34	81
Totals	129	300

The following is a brief description of the proposed functional plan for ~~the KALO cultural and community educational center~~ Kauhale following a counter-clockwise pattern, as described by *Figures 2-1 and 2-2:*

Multi-Media Lab: The Multi-Media Lab is proposed to be located in the front of the site near the drop-off area. The Multi-Media Lab design concept includes a technology lab, technology break-out rooms, video lab, and distance learning rooms. The Multi-Media Lab will also consist of a MAC Computer Lab for 40 students, PC Computer Lab for 20 students, Multi-media Production Lab, Video Conferencing Room, and Restrooms.

The center will serve as a Hawaiian Operated Center for Higher Learning, referred to as Hālau Wānana. The Multi-Media Lab of Kauhale ʻŌiwi ʻO Puʻukapu will support the current Hālau Wānana and its culturally-driven teacher training in partnership with KANU and other Nā Lei Naʻauao Schools. Hālau Wānana will be able to provide adult and college educational courses, including technology classes, which will utilize the Multi-Media Lab.

Community Information Center: The Community Information Center is proposed to be a community library providing various resources for the Kauhale ʻŌiwi ʻO Puʻukapu programs and the community. The Community Information Center design concept includes readers accommodations for 60 people, book collections, service desks and catalogue, periodicals display area, staff facilities for 10 people, special facilities (assembly room, audiovisual facilities, seminars), meeting room for 60 people, four Learning Classrooms for 20 people each, two large group workrooms, and four small group workrooms.

Community Center: The Community Center is proposed to be located adjacent to the Community Information Center. The Community Center plan includes a large multi-purpose room, community kitchen, breakout rooms, and an outdoor function area. The multi-purpose room will be designed to be used as either an enclosed large group meeting space, community activity, or performance space. The community kitchen design will serve the KALO programs and activities, as well as becoming a facility to be used for the entrepreneur incubator program.

Cafeteria: The Cafeteria is proposed to connect to the Community Center and share the common kitchen space. The kitchen will be designed to serve multiple functions. The Cafeteria will include indoor/outdoor eating areas, dining facilities, and restrooms.

Gym/Performance Center: The Gym/Performance Center will be located adjacent to the Cafeteria. The Gym/Performance Center design concept consists of a multi-functional facility for sport and performance activities. The Center will include a stage, one main competitive court with two practice cross courts and bleachers. Additional facilities will include locker rooms, restrooms, shower facilities and storage areas. The Center will also include office facilities for the Physical Education Director and First Aid Room.

K-12 Classrooms: The K-12 classrooms are proposed to be located in the southern corner of the site. The classroom design concept proposes twelve small individual classroom building buildings. Each grouping of the classrooms, as described by *Figure 2-2*, will have common restroom facilities. Each classroom plan includes a deck, a sink area and learning facilities.

Figure 2-1: Kanu O Ka ʻĀina Learning ʻOhana - Conceptual Design Scheme

Figure 2-2: Kanu O Ka ʻAina Learning ʻOhana - Functional Plan

Currently, KANU has an enrollment of 180 students and thirty staff, nearly 90 percent of whom are of Hawaiian ancestry, many residing on Hawaiian Home Lands. With the proposed Kauhale ʻŌiwi ʻO Puʻukapu, KANU plans to expand to no more than 250 students and about 50 staff. As a principal user of the site, KANU intends to utilize Kauhale ʻŌiwi ʻO Puʻukapu from 7:30 am to 3:30 pm daily on school days.

Mālamapōkiʻi: Mālamapōkiʻi is an Infant-Early Childhood program providing children with quality pre-kindergarten education and care. Mālamapōkiʻi will be located next to the Classrooms on the western edge of the center. The Mālamapōkiʻi building will be built to meet the space and program requirements of an early-education facility. The building will be one-level and incorporate access to playground and nature walks. Mālamapōkiʻi currently has 12 students and 5 staff members and has a project enrollment of no more than 50 students ages 0-5, serviced by 12 staff. This program, which is currently funded via a federal grant received by KALO, also includes a parent education program, as well as a pre-natal education component. Mālamapōkiʻi, which constitutes KANU's primary feeder school, provides daily childcare from 7:30 am – 4:30 pm. Mālamapōkiʻi also functions as an early childhood learning lab for KANU students.

Administration/KALO Offices and KALO Store: A separate building will be constructed to house the administration offices of KANU and KALO. As an umbrella organization under which programs such as Mālamapōkiʻi and Hālau Wānana are funded and administered, it is imperative that KALO has office space in order to maintain all official records and administrative staff. In order to effectively manage these programs KALO needs to be housed in close proximity.

The administration offices of KANU are proposed to be located in the front of the site at the pick-up and drop-off driveway area. The Administration Offices will also include space for KALO Offices to provide facilities for the non-profit organization and KALO employees and volunteers.

The KALO Store is proposed to be located adjacent to the Administration Offices, as described by *Figure 2-2*. The KALO Store will be part of a student-run entrepreneurial program, which has developed a local market, selling various authentic Hawaiian products created by students. Goods that are being produced include bi-lingual (Hawaiian/English) children's books, interactive Hawaiian language CD or DVD, hula implements and art work. The KALO Store will offer students an education in cultural mastery and creation of marketable commodities and will teach them how to incorporate and blend ancient Hawaiian talents with modern business skills. A portion of the profit will be utilized to pay for space, equipment and utilities.

2.5 PHYSICAL CHARACTERISTICS OF THE PROJECT

Lot Characteristics: The proposed site is a portion of Lot 23C of the Tax Map Key (3) 6-4-4-: 09. The proposed site consists of 15 acres and is part of the Puʻukapu Farm Lots in Waimea. The site is approximately 740 feet wide (along Hiʻiaka Street) and 880 feet deep. The project site gently slopes from east to west, from an elevation of 841 meters above mean sea level (MSL), at Hale Aliʻi Street, down to 838 meters MSL at the western edge of the site (USGS 1996).

Floor Plans: As described by *Figures 2-1 and 2-2* the floor plan design of the buildings surround a central open space, referred to as the Piko. The buildings are proposed to follow a cultural layout in perspective to the surrounding natural landscape. The proposed floor plans encourage multiple-use functionality of the buildings. *Table 2-2* provides a summary of the proposed floor plan for each program space, including a summary for Phase I.

The following is the estimated square footage for the Multimedia lab/Community Information Center:

Multimedia Lab

- MAC Computer Lab for 40 students ..... 1,600 sq. ft.
- PC Computer Lab for 20 students ..... 800 sq. ft.
- Multimedia Production Lab ..... 1,500 sq. ft.
- Video Conferencing Room ..... 600 sq. ft.
- Restrooms ..... 500 sq. ft.

Multimedia Lab Total Area ..... 5,000 sq. ft.

Community Information Center

- Readers accommodations for 60 people ..... 2,100 sq. ft.
- Book collections ..... 2,000 sq. ft.
- Space around services desks, catalogue, periodicals display area, library services to readers ..... 1,000 sq. ft.
- Staff facilities for 10 people ..... 1,500 sq. ft.
- Special facilities (assembly room, photographic department, audiovisual facilities, seminars) ..... 2,000 sq. ft.
- Architectural space (i.e. stairs,corridor, toilets, building maintenance rooms) = 40% of total of the five previous categories ..... 3,440 sq. ft.
- Meeting room for 60 people ..... 2,500 sq. ft.
- 4 Learning Centers/Classrooms for 20 people each ..... 6,400 sq. ft.
- Two Large Group Workrooms ..... 800 sq. ft.
- 4 Small Group Workrooms ..... 800 sq. ft.

Community Information Center Total Area ..... 22,540 sq. ft.

The following is the estimated square footage for Mālamapokiʻi:

Indoors 35 sq. ft. per child ..... 1750 sq. ft. for 50 children
Outdoors 75 sq. ft. per child ..... 3750 sq. ft. for 50 children
Mālamapokiʻi Total Area ..... 5,500 sq. ft.

The following is the estimated square footage for the K-12 classrooms:

Indoors 1000 sq. ft. per classroom ..... 12000 sq. ft. for 12 classrooms
K-12 Classrooms Total Area ..... 12,000 sq. ft.

The Community Center will include a large multi-purpose room, community kitchen on the first floor and breakout rooms, locker room, restroom and shower facilities on the second floor. The multi-purpose room can be used as a cafeteria, enclosed large group meeting space, community activity and performance space. The community kitchen will serve the Kauhale ʻŌiwi ʻO Puʻukapu programs and activities as well as becoming a facility to use for the entrepreneur incubator program.

The following is the estimated square footage for the Community Center:

Multipurpose Room..... 4,000 sq. ft.
Community Kitchen ..... 2,000 sq. ft.
4 Breakout Rooms ..... 6,400 sq. ft.
Restrooms and Showers..... 700 sq. ft.
Community Center Total Area .....13,100 sq. ft.

Additional estimated square footage for the remaining proposed buildings are summarized by *Table 2-2*, including the Gym/Performance Center, Cafeteria, School and KALO Offices, and the KALO Store.

Table 2-2: Program Space Summary

Program Spaces	#	Size	Total (SF)	Phase I (SF)
Multi-Media Lab			5000	5000
Community Information Center			22,450	22,540
Mālamapōkiʻi			5500	
Community Center			13100	
Gym/Performance Center			13000	
Cafeteria			3200	
Offices School/KALO			6800	
KALO Store			1200	
Classrooms (12)	12	1000	12000	
Total			**82250**	**27540**

Building Height: The building height for the project will follow zoning regulations in respect to building height standards in the area. According to Hawaiʻi County Regulations, the height limits in Agricultural districts shall be forty-five feet. *Figure 2-3* provides a rendering of the proposed building height and entry view. Building heights will conform to Federal Aviation Administration aviation easement regulations if necessary *(see Sections 3.0 and 5.0).*

2.6 INFRASTRUCTURE

Infrastructure facilities to support the proposed development include access and driveway networks; parking areas; a potable water supply; a wastewater treatment and disposal system; utilities to provide electricity and communication services; drainage improvements; and landscaping. KALO has also committed itself to utilizing green architecture wherever possible.

Parking and Access: Access into the site will include two major points, the main gate entry, which will lead to a drop-off area for easy vehicle access to the facility, and a driveway located to the east, which will lead to the main parking area. The driveway off of Hiʻiaka Street will be designed as a gateway to the learning center. When motorists and pedestrians approach the learning center from Hiʻiaka Street, the Multi-Media Lab and Community Information Center will be the most visible structures and, as such, it can be the landmark for the community. The drop-off area and the parking lots, which will front Hiʻiaka Street, will be landscaped appropriately to provide an attractive streetscape *(Figure 2-3)*.

Parking will be concentrated on the perimeter of the site with 200 parking spaces designated for the learning center. All parking lots will be landscaped to enhance their appearance and blend them with the tree-lined walkways and open areas. To minimize the paved areas, the lots will be landscaped with trees and grass areas, incorporating green architecture design as much as feasible. During off-hours, the drop-off area and parking lots will be closed. KALO signage will also be developed.

Figure 2-3: Kanu O Ka ʻĀina Learning ʻOhana - Proposed Entry View

Grading: The project does not propose major grading of the site. The existing topography will be altered only to the extent necessary for construction of the proposed improvements. It is anticipated that grading will occur on a localized scale and that cut and fill quantities will generally balance as construction progresses.

Erosion Control: During all phases of construction on the proposed project, erosion control practices will comply with both State and County regulations. National Pollutant Discharge Elimination System (NPDES) permits will be obtained from the Hawaiʻi Department of Health for stormwater discharges from construction activities. Best Management Practice plans to control erosion during construction will be a component of the NPDES permits.

Storm Drainage System: Stormwater runoff from impervious areas will be collected by a proposed drainage system. The proposed drainage system will manage moderate storms (10-year intensity) thru the use of drywells. The flow pattern of excess rain runoff will need to be controlled to prevent flood damage. Off-site flows will need to be determined and managed by either accepting the flows or diverting it around the site (Akinaka & Associates, Ltd, 2005).

Best Management Practices (BMPs) will be included during project design and in the project's overall storm water operation and maintenance program. Landscape buffer strips along roads and common areas will be designed to filter pollutants and silt through sand and gravel layers. Vegetated retention basins will also provided some biological uptake of nutrients in stormwater. KALO has also committed itself to utilizing green architecture wherever possible.

Water System: The proposed community and learning center will include use of the County's 6-inch waterline in Hiʻiaka Street, fronting the project site. The correct meter connection size will be determined by the anticipated maximum daily water usage and peak-hour flow as recommended by an engineer, registered in the State of Hawaiʻi. Incorporation of green architecture will be applied as much as feasible, including the design of catchment systems, the use of water-efficient appliances, water-efficient landscaping and increased pervious surfaces.

Sewer System: The proposed sewer system will consist of Individual Wastewater Systems distributed thru out the proposed project site as needed. The IWS is an aerobic system which requires underground tanks and an open field to discharge the effluent (discharge done underground). The system will have a maximum allotted flow. KALO has committed itself to utilizing green architecture wherever possible.

Solid Waste: Solid wastes generated on site will be collected and disposed at approved County solid waste disposal facilities. A solid waste management plan will be developed to reduce the volume generated during construction. A recycling program will be encouraged throughout the project. Composting of green waste will be encouraged and landscape maintenance will recycle as much as feasible. The mission of KALO emphasizes self-sufficiency and is committed to sustainability and green architecture wherever possible.

The impact of short-term construction activities are addressed in *Section 3.0* of this document.

2.7 DEVELOPMENT SCHEDULE AND SUMMARY OF PROJECTED COSTS

Project development and implementation is scheduled to begin immediately following approvals of necessary land use permits and available funding. The scope of the project requires coordination with State and County agencies. Of the 15 acre site, approximately 46,140 square feet will be developed. The balance of the remaining acres will be open space, parking, and preservation easements.

The proposed project will be developed over a seven year period from 2005-2012. Phasing will be dependant upon funding and infrastructure installation. The proposed project is projected to be developed in three phases and anticipated to commence in 2005. The initial phase, Phase I, is proposed to include construction of the Multi-Media Lab and Community Information Center. Phase II will include construction of Mālamapōkiʻi, Community Center, K-12 classrooms, School Offices and KALO Store. Phase III will include construction of the Gym/Performance Center. Enrollment for the school operations is projected for 2012. The intent is to set an overall theme which will guide incremental additions over time.

The proposed project will have a project cost/investment of just over $20 million over a ten-year period (2005-2012). Of these costs, the major items are building design consultants, furnishings and equipment, site design consultants, infrastructure and utilities. The most critical cost impact of the proposed project will be the lack of existing utilities within the area, including sewer and sufficient water lines. All of the project costs will be funded through the grants and funding of the non-profit Kanu O Ka ʻĀina Learning ʻOhana organization. All of the programs that would immediately be housed in Kauhale ʻŌiwi ʻO Puʻukapu are funded either by the State of Hawaiʻi Department of Education, US Department of Education, US Department of Health and Human Services Administration for Native Americans, and Hawaiʻi Community Foundation.

2.8 REQUIRED APPROVALS AND PERMITS

County of Hawaiʻi will require the following permits: Plan Approval; Building Plan Approval (Fire); Electrical Permit; Plumbing Permit; Outdoor Lighting; Grubbing & Grading and Construct Driveway.

2.9 SUSTAINABILITY

KALO has committed itself to utilizing green architecture and sustainable design wherever possible. Over the past year, KALO has aggressively built a fund development strategy in order to increase the ability to be self-sustaining. Within this funding support, various solicitation methods, major gift programs, and planning giving programs have been developed. In addition to creating a sufficient basis for funding KALO has defined specific self-sufficient goals for the facilities and design of Kauhale ʻŌiwi ʻO Puʻukapu. ~~KALO has committed itself to utilizing green architecture and sustainable design wherever possible.~~

Section 3.0
Affected Environment

3.0 AFFECTED ENVIRONMENT

This section of the Final EA identifies the possible impacts of the proposed project. Strategies to mitigate those potential impacts are also identified.

3.1 CLIMATE

Existing Conditions – The weather in Waimea may be described as cool, with frequent drizzle and fog. The average maximum daily temperature is approximately 75 degrees F, with an average minimum of 65 degrees F. Annual rainfall averages approximately 30 to 40 inches per year, with most rainfall occurring between December and April. Winds are dominated by northeast trades, which funnel through the saddle between the Kohala Mountains and Mauna Kea. Light and variable westerly "kona" winds occasionally replace this pattern, most often in the winter. Cloudbanks often form along the higher elevation slopes during the day. Typical wind velocities range from 3 to 14 knots.

Impacts and Mitigation – The proposed project will have no effect on climatic conditions, therefore, no mitigation measures are required.

3.2 GEOLOGY AND TOPOGRAPHY

Existing Conditions – The proposed project site is located in the saddle of the Mauna Kea and the Kohala Mountains at about 2,700 feet above sea level. Geologically, the terrain is composed of a mix of *ʻaʻa* and *pāhoehoe* lava flows disgorged from Mauna Kea between 65,000 and 250,000 years ago during the Pleistocene Age (Wolfe and Morris 1996).

The general terrain of the site is relatively flat (0.5%) with elevations ranging from 2,765 feet at the southern end to 2,762 feet at the northern end. The western edge of the site is below the remainder of the site with elevations ranging from 2,745 feet to 2,750 feet with a rising ridge in the middle (elevation 2,760 feet) *(Figure 3-1)*. The surface has weathered through time to produce deep, well-drained soils. See *Section 3.3* for a further discussion on soils.

There are no significant landforms on the proposed site and very little earth movement will be required in order to implement the plan.

Impacts and Mitigation – Of the 15 acre site, approximately 46,140 square feet will be developed. The balance of the remaining acres will be open space, parking, and preservation easements. The proposed project intends to take advantage of existing terrain, and design buildings and landscape in such a way that will take advantage of existing natural conditions. Therefore, the proposed project will not substantially alter the overall existing topography of the project site. The proposed facility and parking areas will be flattened and smoothed along with the area for the playground and walkways. No substantial fill or excavation is being proposed for the project. The geology and topography of the area will not be significantly affected. Mitigation measures related to soils are described in the following section.

3.3 SOILS AND GRADING

Existing Conditions – According to *Soil Survey of the Island of Hawaiʻi* (USDA, 1972), soils at Waimea belong primarily to the KfA (Kikoni very fine sandy loam, 0 to 3 percent slopes), KXC (Kikoni very fine sandy loam, 3 to 12 percent slopes), and WMC (Waimea very fine sandy loam, 6 to 12 percent slopes) soil classifications. The Kikoni and Waimea series, found on the leeward side of Mauna Kea on the Waimea plains, both consist of well-drained very fine sandy loams that formed in volcanic ash. In a representative profile the surface layer is very dark brown very fine sandy loam. The subsoil consists of dark-brown and dark-reddish brown very fine sandy loam and silt loam. The substratum is fragmental *ʻaʻa* lava. The depth of the bedrock ranges from 36 to 55 inches. Permeability is moderately rapid, runoff is slow, and the erosion hazard is slight. Roots can penetrate to a depth of 30 inches or more and in places the surfaces is extremely stony.

Impacts and Mitigation – Soils at the site will be covered by paving and other infrastructure on the site. Paving over the proposed area will reduce permeability and increase runoff velocity. The sheet flow will need to be routed through an engineered drainage system.

All grading operations will be conducted in compliance with Chapter 10, Erosion and Sediment Control, of the Hawaiʻi County Code. Best Management Practices such as sediment basins, filter fences, diversion swales, and bio-filtration swales will also be used to minimize the amount of erosion and transport of sediment. The impact of construction activities will be mitigated by practicing strict erosion control and dust control measures, particularly those specified in the following:

- County of Hawaiʻi Grading Ordinance
- State of Hawaiʻi, Department of Health, Water Quality Standards, Chapter 37-A (1968)
- State of Hawaiʻi, Department of Health, Total Maximum Daily Loads (TMDLs)
- USDA Soil Conservation Service, Hawaiʻi Erosion and Sediment Control Guide (1981).

The long-term landscape management plan will include proper management of fertilizers and pesticides. Site design will minimize runoff and collection through on-site dispersal and filtering methods. Increased surface runoff from newly paved parking and pedestrian areas will be minimized through these methods.

3.4 SURFACE WATER AND DRAINAGE

Existing Conditions – In general, the State of Hawaiʻi has excellent surface water quality. However, stream waters are vulnerable to point-source pollution (i.e., from a discrete or distinct source) and nonpoint source pollution (i.e., from a diffuse or widely spread, scattered, unconcentrated source) (COFP 2002). There are no existing sources of surface water located on the proposed site. The nearest surface water source, in proximity to the proposed site, is Lanimaumau Stream, which is located about 0.5 miles northwest of the site. Lanimaumau Stream originates in the Kohala Mountains and formerly drained into the Waimea plains, but has been modified for purposes of flood control.

There is no existing drainage system on the site. For the most part, existing permeability on the site is moderately rapid and runoff is slow. The on-site flows, naturally drain north and west towards Hiʻiaka Street (Akinaka & Associates, Ltd, 2005). There does not appear to be any existing sump conditions within the site.

Impacts and Mitigation – Construction of the facilities and parking areas will change the velocities, directions and quantities of the water drainage. The drainage system will be engineered to direct water flow to the proposed drainage system. The proposed drainage system will manage moderate storms (10-year intensity) thru the use of drywells. The flow pattern of excess rain runoff will need to be controlled to prevent flood damage. Off-site flows will need to be determined and managed by either accepting the flows or diverting it around the site (Akinaka & Associates, Ltd, 2005).

The proposed development will comply with *Chapter 11-55, Water Pollution Control, Hawaiʻi Administrative Rules, Department of Health*, which requires an NPDES permit for certain construction activities. An application for a National Pollutant Discharge Elimination System (NPDES) general coverage permit will be submitted for the anticipated construction activities associated with the proposed project. A Notice of Intent (NOI) will be submitted according to the 30-day requirement stipulated in the applicable section of *Hawaiʻi Administrative Rules (HAR), Title 11, Chapter 55-4(a)(5), Application for NPDES Permit*. Under provisions of the NPDES permit, quantities, constituents and velocities of drainage water must not exceed pre-development levels. Mitigation measures include using drywells, oil-water separators, landscaping, and hollow pavers for the parking area, where appropriate. Best Management Practices such as silt fencing, hay bales and other siltation-reducing devices will be utilized to mitigate impacts during construction.

No significant impact to groundwater underlying the project site is anticipated during the construction and operation of the proposed learning center. Construction of the proposed facility is unlikely to introduce or release any substance into the soil that could adversely affect groundwater quality.

3.5 FLOOD AND GEOLOGIC HAZARDS

Existing Conditions – The Federal Emergency Management Agency's *Flood Insurance Rate Map (FIRM)*, Panel No. 155166-0168E, specifies flood hazards for the area by the 100-year flood with base flood elevations determined. The proposed project site is within the Zone X designation of the Special Flood Hazard areas, which is described as areas outside of the 500-year flood plain. Zone X includes areas of minimal hazard from the principal source of flood in the area. The Flood Insurance Program does not have any regulations for development within this district.

The entire Island of Hawaiʻi is subject to geologic hazards, especially lava flows and earthquakes. The project area's location on the margin of the extinct Kohala Volcano and the dormant Mauna Kea Volcano leads to a low risk level: Lava Flow Hazard Zone 8 (on a scale of ascending risk 9 to 1). Zone 8 areas have been free of lava flows for the last 750 years and have had only a few percent covered during the last 10,000 years.

In terms of seismic risk, the entire Island of Hawaiʻi is rated Zone 4 Seismic Probability Rating (*Uniform Building Code*, Appendix Chapter 25, Section 2518). Zone 4 areas are at risk from major earthquake damage, especially to poorly designed and/or built structures.

Impacts and Mitigation – In general, geologic and flood conditions impose no major constraints on the project. As required, all of the buildings will be constructed in compliance with Federal Building Ordinance Regulations and meet County Building Code under the *Uniform Building Code* appropriate to the Zone 4 Seismic Probability Rating. No mitigation measures are required in response to potential flooding or lava flows.

3.6 FLORA

Existing Conditions – The natural vegetation of the project area was formerly a Koa/ʻŌhiʻa Montane Mesic Forest (Gagne and Cuddihy 1990). According to *A Survey of Avian and Terrestrial Mammalian Species on the Kanu O Ka ʻĀina Learning ʻOhana Proposed Site*, by Rana Productions, Ltd. (2005), these original communities, however, have been destroyed or heavily degraded throughout much of the study area and the surrounding region by centuries of agriculture, deforestation and grazing. The current vegetation of the project site consists of pasture grasses associated with ranching, cultivated crops, roadside weeds and ornamental vegetation. According to the survey, the dominant plant within the site is Kikuya grass (*pennisetum clandestinum*), which is an introduced African grass favored by many cattlemen in Hawaiʻi. The Kikuyu grass forms such a dense mat on this site that the only other plants present are found along the fence lines and the cleared area located off Hiʻiaka Street, these include; castor bean (*ricinus communis*), (yellow-flowered) firewood (*sencio madagascarenis*), white clover (*trifolim repens*) and vervain (*verbena litoralis*). There are also a number of recently planted ti (*cordyline fruiticosa*) plants just inside the eastern fence line. The vegetation on the site is typical of that found on pastureland in the vicinity of Kamuela (Rana Productions, Ltd., 2005).

Based on the long history of human land use in the area, the study area represents relatively unsuitable habitat for threatened or endangered plant species. There is no federally designated or proposed Critical Habitat for plants within or near the study area.

Impacts and Mitigation – According to the survey, the vegetation present on the site is almost completely alien and is typical of highly disturbed grazing lands in the Kamuela area. The development and operation of the proposed learning center is not expected to result in any adverse impacts to native plant species. From a botanical perspective there is nothing to suggest that the proposed development should not go forward as envisioned (Rana Productions Ltd., 2005).

Improvements to the project site will provide new landscaped areas, trees, and plantings that may serve as habitat for area wildlife. The landscaping scheme will incorporate native trees and plants and other non-invasive, drought-tolerant species using xeriscaping design to minimize irrigation requirements and water needs.

3.7 FAUNA

Existing Conditions – The habitat present within the study site is pasture. With the exception of the endangered Hawaiian hoary bat (*lasiurus cinereus semotus*), or *ʻōpeʻapeʻa* as it is known locally, all terrestrial mammals currently found on the Island of Hawaiʻi are alien species. Most are ubiquitous. An ornithological and mammalian survey was conducted by Rana Productions, Ltd. at the proposed site to determine if there were any avian or mammalian species currently listed as endangered, threatened or proposed for listing under either the federal or the State of Hawaiʻi's endangered species programs on, or within the immediate vicinity of the proposed project site (Rana Productions, Ltd., 2005).

According to the study, the proposed site is mainly vacant of mammal species with the exception of occasional domestic cattle (*bos taurus*) and horses (*equus c. caballus*) found grazing and resting in the grasses, nearby dogs (*canis f. familiaris*), cats (*felis cattus*) and mongoose (*herpesters a. auropunctatus*). Hawaiʻi's sole endemic terrestrial mammalian species, the endangered Hawaiian hoary bat, was not detected during the survey. It is likely that Hawaiian hoary bats forage within the general project area, at least occasionally, as they have been seen in areas both mauka and makai of the proposed project site on a seasonal basis (Jacobs 1994, R. David unpublished field notes 1985-2004). According to the study, it is also likely that roof rats (*rattus r. rattus*), Norway rats (*rattus norvegicus*), European house mice (*mus domesticus*) and possibly Polynesian rats (*rattus exulans hawaiiensis*), use resources within the general project area. All of these introduced rodents are deleterious to native ecosystems and the native faunal species that are dependent on them.

A total of 28 birds, of six different species, representing five separate families were recorded during station counts. All of the avian species recorded are considered to be alien to the Hawaiian Islands. No species currently listed as endangered, threatened or proposed for listing under either the federal or the State of Hawaiʻi's endangered species programs were detected on the site. The most common avian species recorded was the Sky Lark (*alauda arvensis*). Overall, few bird species were detected on the site, pasture land, especially which has deep grass and no trees, has little to offer perching birds (Rana Productions, Ltd., 2005).

The habitat currently found within the project area and within the alien species dominated pasture land in the Kamuela area is not conducive to supporting forest birds, with the possible exception of Short-eared Owls (*asio flammeus sandwichesis*), the Hawaiian endemic sub-species of this cosmopolitan diurnal owl. Although not detected during the survey, this species has been recorded on several occasions immediately adjacent to the subject property (Rana Productions, Ltd., 2005).

Although not detected during the survey, it is possible that small numbers of the endangered endemic Hawaiian Petrel (*pterodroma sandwichensis*), and the threatened Newell's Shearwater (*puffinus auricularis newelli*), over fly the project area between the months of May and November (Banko 1980a, Day et al. 2003, Harrison 1990). Both of these pelagic species nest high on the slopes of Mauna Loa and in the saddle area between Mauna Loa and Mauna Kea (Henshaw 1902), as well as at the mid to high elevations of Mount Hualālai. The primary cause of mortality in both these species is thought to be predation by alien mammalian species at the nesting colonies. Collision with man-made structures is considered to be the second most

significant cause of mortality of these seabird species in Hawaiʻi. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds often collide with manmade structures, and if they are not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals. There is no suitable nesting habitat within or close to the proposed project site for either of these pelagic seabird species.

Impacts and Mitigation – The cattle and horses currently allowed to graze at the site will be moved to the adjoining property. Fencing and medium-height shrubbery will be utilized as a buffer to keep cattle from the surrounding properties out of the project area.

The construction and operation of the proposed project is not expected to result in any adverse impacts to the endangered Hawaiian hoary bat, the only listed terrestrial mammalian species present in Hawaiʻi (Rana Productions, Ltd., 2005).

According to the survey, the principal potential impact that the construction and operation of the proposed learning center poses to Hawaiian Petrels and Newell's Shearwaters is the increased threat that birds will be downed after becoming disoriented by exterior lighting that may be required in conjunction with the construction and operation of the learning facility.

To reduce the potential for interactions between nocturnally flying Hawaiian Petrels and Newell's Shearwaters with external lights and man-made structures, it is recommended that any external lighting planned to be used during construction or being proposed as permanent street lights be shielded (Reed et al. 1985, Telfer et al., 1987). This mitigation would serve the dual purpose of minimizing the threat of disorientation and downing of Hawaiian Petrels and Newell's Shearwaters, while at the same time complying with the Hawaiʻi County Code § 14-50 *et seq.* which requires the shielding of exterior lights, so as to lower the ambient glare caused by unshielded lighting to the astronomical observations located on Mauna Kea (Rana Productions, Ltd., 2005).

3.8 AIR QUALITY

Existing Conditions - Although the State of Hawaiʻi operates a network of air quality monitoring stations around the state, systematic data are not available for South Kohala. The closest air quality monitoring station is located 33 miles to the south at the Kona International Airport at Keāhole. In the State of Hawaiʻi, both federal and state environmental health standards pertaining to outdoor air quality are generally met due to prevalent trade winds and the absence of major stationary sources of pollutant emissions. However, the Hawaiʻi carbon monoxide criteria, which are more stringent than the federal standards, may be exceeded on occasion near high-volume intersections during periods when traffic congestion and poor dispersion conditions coincide. It is also possible that some areas near volcanic sources do not comply with air quality standards at times.

Volcanic emissions of sulfur dioxide (SO2) from Kīlauea Volcano covert into particulate sulfate, forming a volcanic haze, locally called vog. Vog becomes trapped in the atmosphere of Kona (to the south of the study area) because of the diurnal wind reversal, which creates a largely closed

airshed system. South Kohala receives small quantities of vog from winds blowing north from Kona, although in general it is kept away by dominant trade winds. A residential character and the relative absence of stationary pollutant sources in the area presumably keep air quality in the project area at levels considered good (i.e., well within the air quality standards). Fugitive dust from human activities and emissions from vehicular traffic represent the only sources potentially impacting the air quality at the subject property.

Impacts and Mitigation – The proposed project will have no long-term impact on air quality. There will be short-term impacts during the construction period in the form of exhaust from increased traffic and fugitive dust from construction activity.

A dust control management plan will be developed which identifies and addresses activities that have a potential to generate fugitive dust. The short-term effects on air quality during construction will be mitigated by compliance with provisions of Hawaiʻi Administrative Rules, Section 11-60.1-33 on Fugitive Dust. Potential control measures to reduce fugitive dust include:

- Planning the different phases of construction, focusing on minimizing the amount of dust generating materials and activities, centralizing on-site vehicular traffic routes, and locating dusty equipment in areas of the least impact;
- Providing an adequate water sources at the site prior to the start up of construction activities;
- Landscaping and rapid coverage of bare areas, including slopes, starting from the initial grading phase;
- Controlling of dust from shoulders and access roads;
- Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
- Controlling of dust from debris being hauled away from the project site.

3.9 LAND USE

Existing Conditions – The surrounding region has historically been used for agriculture and grazing. The proposed project site is currently unoccupied and is a part of the agricultural pastureland of the Puʻukapu Farm Lot subdivision, State of Hawaiʻi Department of Hawaiian Home Lands (DHHL). The project site is bordered by a developed urban residential neighborhood, Kūhio Village, and pastureland.

Development patterns on the Island of Hawaiʻi are set by State Land Use District designations, by the County of Hawaiʻi General Plan, and zoning district designations. The principal function of these plans and regulations is to specify where land uses such as commercial, residential, industrial, agricultural, open and public areas are permitted. The existing land use designations are briefly summarized below.

<u>State Land Use Designation</u> - The proposed site is situated within the State Land Use Agricultural District *(Figure 3-2)*. According to the Land Study Bureau Detailed Land Classifications, the area has been classified for "Agricultural" type uses.

County of Hawaiʻi General Plan - The Hawaiʻi County General Plan Land Use Pattern Allocation Guide (LUPAG) Map designates the project area as Intensive Agricultural Use *(Figure 3-3)*. Land uses surrounding the project area include residential, agricultural, and the Waimea-Kohala Airport. Urban areas in proximity to the site include the commercial district of Waimea, which is located approximately one-mile to the north, and the residential communities of Waimea, Puʻukapu, and Kūhio Village.

County of Hawaiʻi Zoning - The Hawaiʻi County Zoning Code (Chapter 25, Hawaiʻi County Code) designates the proposed project area as A-40a *(Figure 3-4)*.

Coastal Zone Management Program - The parcel is not located in the Special Management Area established to administer the Coastal Zone Management (CZM) Program.

According to the DHHL Hawaiʻi Island Plan Final Report (2002), the proposed site has been recommended by the plan to be re-designated from Agricultural to Community Use.

Impacts and Mitigation – Of the 15 acre site, approximately 46,140 square feet will be developed. The balance of the remaining acres will be open space, parking, and preservation easements. Surrounding the proposed buildings, open space will be preserved for outdoor classroom activities and trail access. In addition, areas for agriculture, forestry, and animal husbandry research and learning will contribute to the self-sustainability of Kauhale.

State Land Use Designation – The State of Hawaiʻi DHHL has granted KALO a permitted use of the site for the proposed project allowing for a permitted use of agricultural lands for urban activities.

County of Hawaiʻi General Plan – The subject property is owned by DHHL. In previous discussions with DHHL, DHHL has authority to designate its lands for the intended purposes and the County of Hawaiʻi will likely honor the decision of the DHHL to create this use of their lands without requiring KALO to engage in a Special Use Permit process that would otherwise be required of persons developing lands not owned by DHHL. A portion of the subject parcel is located within easements for aviation purposes; refer to *Section 3.16* for a further discussion.

County of Hawaiʻi Zoning – The subject property is owned by DHHL. As previously mentioned, KALO is assuming that the County of Hawaiʻi will honor the decision of the DHHL to create this use of their lands without requiring KALO to engage in a Special Use Permit process that would otherwise be required of persons developing lands not owned by DHHL.

3.10 AGRICULTURE

Existing Conditions – Most of the land in this area is identified by the U.S. Natural Resources Conservation Service (USNRCS) as Prime, Unique, or Other Important Lands in the *Agricultural Lands of Importance to the State of Hawaiʻi* (ALISH) map series (Baker, 1976).

The agricultural land on the proposed project site has been designated as "other agricultural lands" *(Figure 3-5)*. Other Agricultural Lands are defined by the State of Hawaiʻi Classification System as land other than Prime or Unique Agricultural Land that is of state-wide or local importance for the production of food, feed, fiber, and forage crops. According to the State Classification System, "the lands in this classification are important to agriculture in Hawaiʻi, yet they exhibit properties such as seasonal wetness, erodibility, limited rooting zone, slope, flooding, or droughtiness, that exclude them from the Prime or Unique Agricultural Land classifications." Further relationship to land use policies and plans is described in *Section 5.0*.

Impacts and Mitigation – The project will result in the immediate loss of 15 acres of State and County designated agricultural land. Of the 15 acre site, approximately only 46,140 square feet will be developed. The balance of the remaining acres will be open space, parking, and preservation easements for outdoor classroom activities and trail access, agriculture, forestry, and animal husbandry research and learning.

The land, previously used for ranching will no longer be available for such agricultural use. Given the marginal productivity of the land, the cost of grading, providing irrigation water, the project site is not suitable for commercial agriculture.

3.11 ADJACENT LAND USES

Existing Conditions – Land uses of adjacent and nearby areas consist of residential to the north (Kūhio Village), pastureland and agricultural land to the west, south, and east.

Specifically, properties surrounding the proposed project parcel include the following:

- To the north is the Puʻukapu Homesteads residential subdivision community developed by the State of Hawaiʻi Department of Hawaiian Home Lands.

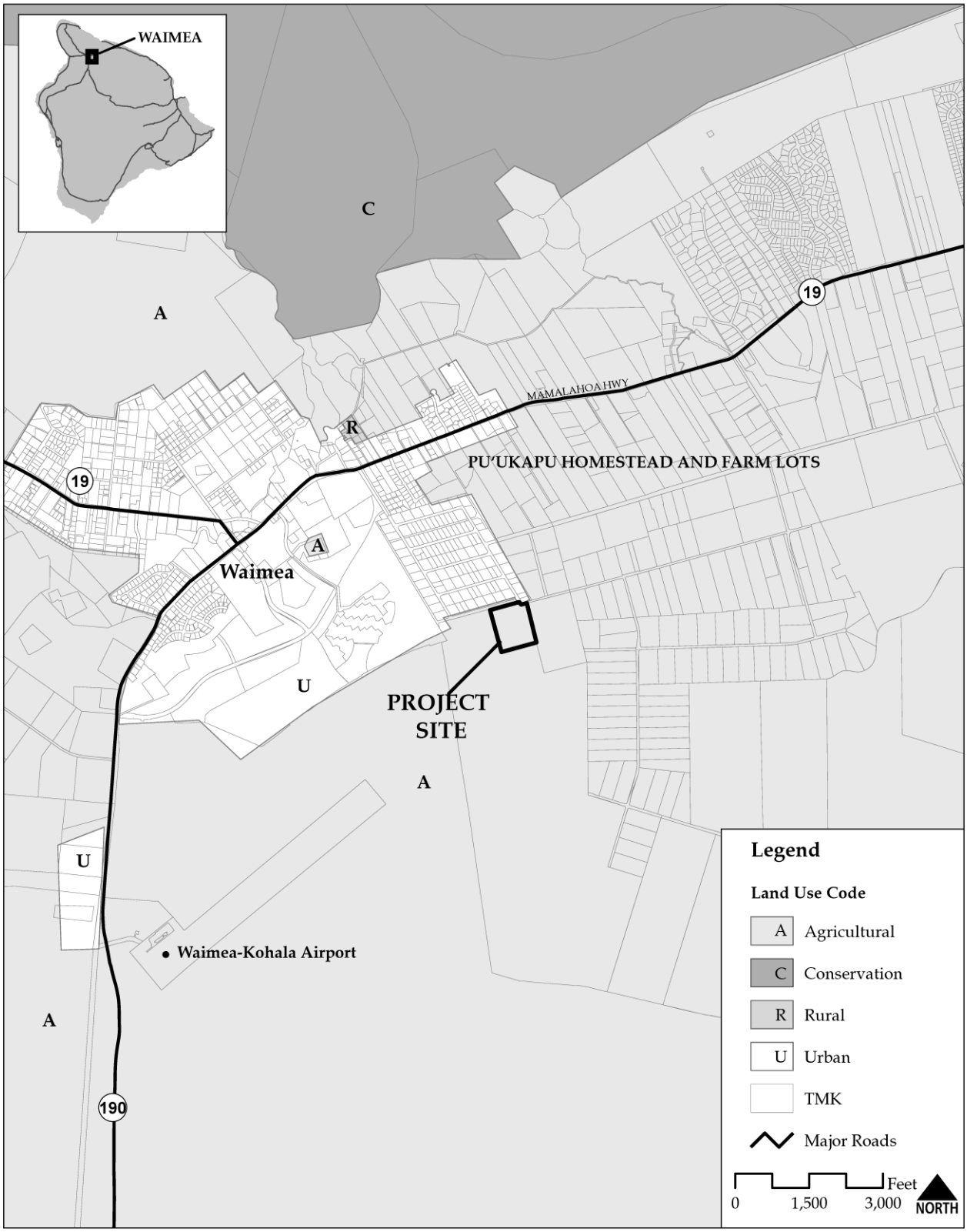
- To the east is a 30-acre farm lot leased to a small farmer, owned by the State of Hawaiʻi Department of Hawaiian Home Lands. The land is designated as Agricultural by the *State and County Allocated Land Use Guide*.

- To the south and west is a large parcel of undeveloped private land designated as Agricultural by the *State and County Allocated Land Use Guide* and owned by Parker Ranch.

- To the south-west is the Waimea-Kohala Airport.

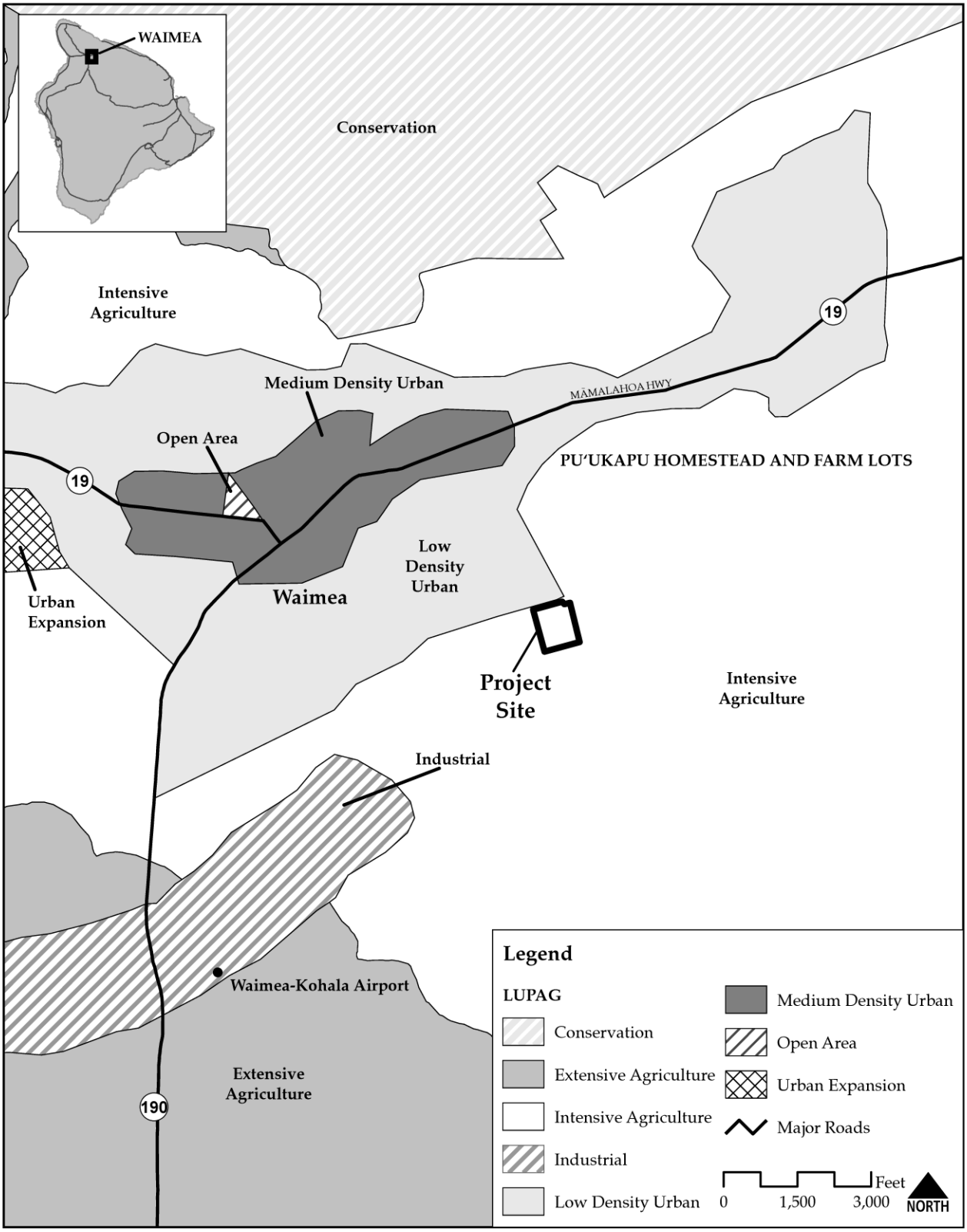
Source: State of Hawaiʻi GIS Data

Figure 3-1: Topography



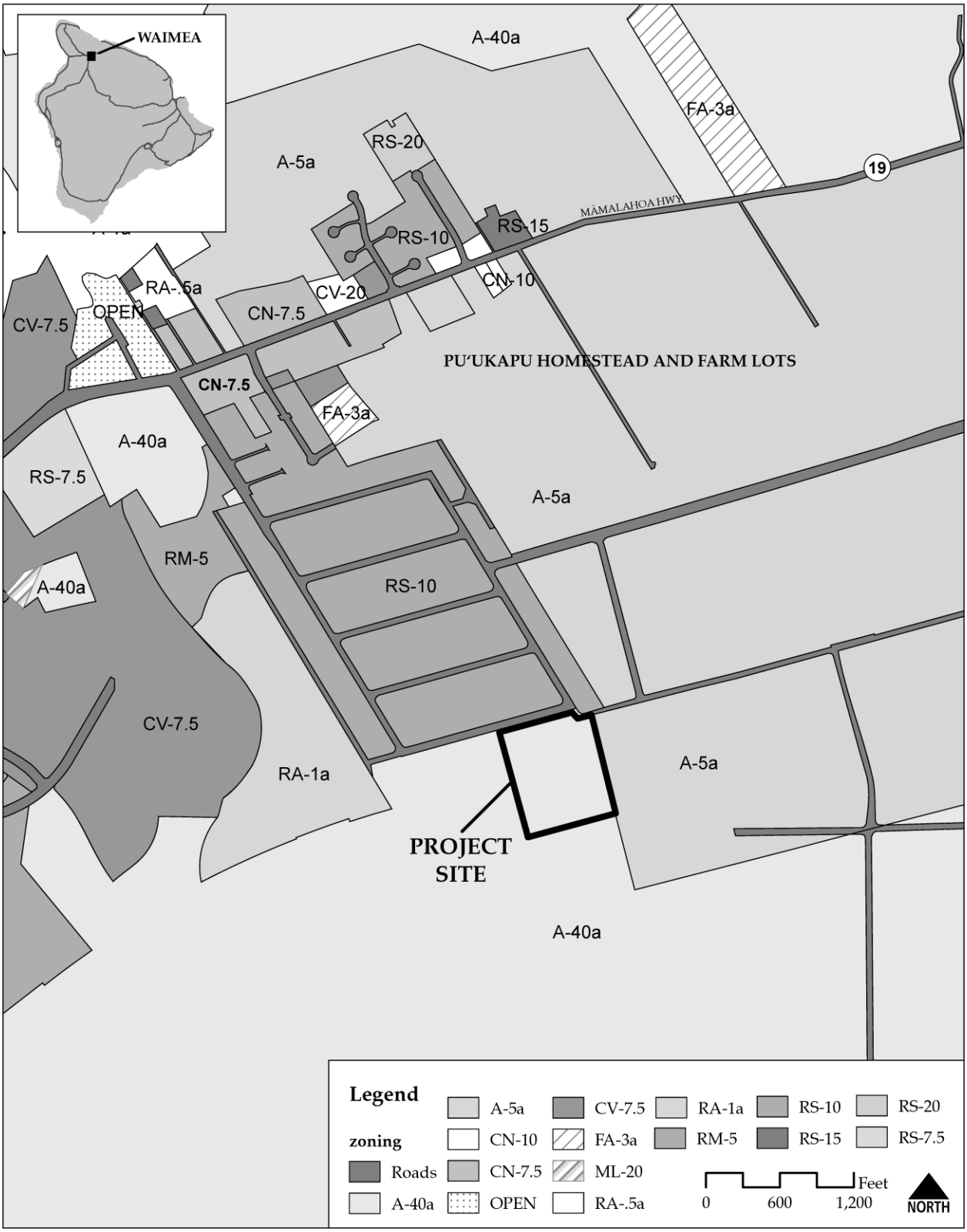
Source: State of Hawaiʻi GIS Data

Figure 3-2: State of Hawaiʻi Land Use Classifications



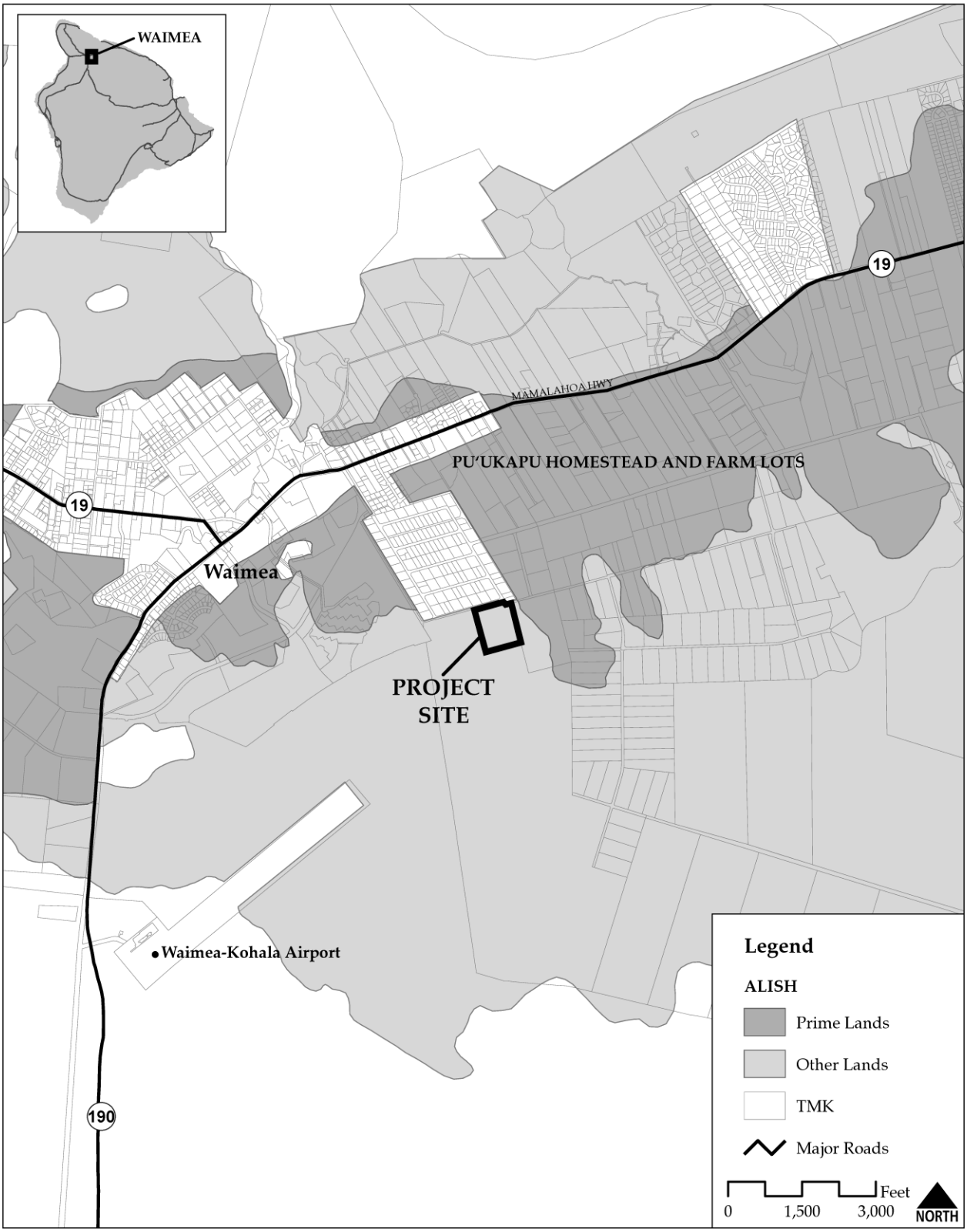
Source: State of Hawaiʻi GIS Data

Figure 3-3: County of Hawaiʻi Land Use Pattern Allocation Guide



Source: State of Hawaiʻi GIS Data

Figure 3-4: County of Hawaiʻi Zoning



Source: State of Hawaiʻi GIS Data

Figure 3-5: Agricultural Lands of Importance to the State of Hawaiʻi

The Hawaiʻi Right-to-Farm Act (Chapter 165, HRS) protects agricultural activities from restrictions sought by new non-farming neighbors.

Impacts and Mitigation – The community of Kūhio Village will experience through traffic to Māmalahoa Highway along Hiʻiaka Street, Hale Aliʻi Street, and Kamāmalu Street.

The location of the cultural and learning center with young children between the existing farm lots and pasturage leases poses a potential concern. The Hawaiʻi Right-to-Farm Act (Chapter 165, HRS) protects agricultural activities from restrictions sought by new non-farming neighbors.

Mitigation measures would most likely need to be implemented to protect both agriculture and young students. Mitigation measures would most likely need to include protection of students from odors, dust, insects and potential agricultural chemical use. An easement will most likely be landscaped to provide a buffer zone with trees between the adjacent farming neighbor and the community learning center. In the long-term, this project will add to the urbanization of Waimea.

3.12 ARCHAEOLOGICAL RESOURCES

Existing Conditions – An archaeological assessment of the proposed project site was conducted by Jeffrey Pantaleo Consultants, LLC, of Honolulu. The survey was conducted to determine the presence/absence, nature, and extent of archaeological resources in the project area and evaluate their significance, and ensure compliance with the National Historic Preservation Act of 1966, as amended, Chapter 6E of the Hawaiʻi Revised Statutes (HRS), and in accordance with the guidelines established by the State Historic Preservation Division (SHPD), State Department of Land and Natural Resources (DLNR). No previous archaeological studies have been conducted in the current project area.

For the study, archaeological and historical literature and documents research was undertaken at the State Historic Preservation Division (SHPD) library. A surface survey was conducted by walking systematic transects spaced at 1-5 meter intervals throughout the project area. Results of the surface survey revealed no surface cultural manifestations. The parcel exhibited extensive disturbances from previous cattle grazing and construction activities. A total of 5 trenches were excavated for the purpose of sampling the subsurface conditions of the parcel. A stratigraphic profile of a representative column on a trench sidewall was recorded for each trench. A color photographic record on APS format was obtained for each trench and soil colors were described in reference to Munsell color designations No cultural remains, either prehistoric or historic, were encountered in any of the trenches (Panteleo, 2005).

Impacts and Mitigation – The results of the archaeological assessment indicated that the subject project area was most likely not intensively utilized for habitation during prehistoric and early historic periods. The results of the background data search also supported this conclusion. Due to the absence of cultural remains in the project area, and extensive previous disturbances from cattle grazing and construction activities, no negative impacts are anticipated. The proposed developments will have "no effect" on significant historic sites.

It should be noted that subsurface properties associated with former traditional Hawaiian activities in the project area, such as artifacts, cultural layers, and burials may be present despite the decades of modern activities, such as pasture use. As a precautionary measure, personnel involved in the project should be informed of the possibility of inadvertent cultural finds and should be made aware of the appropriate notification measures to follow.

In the event that any previously unidentified sites or remains are encountered during site work and construction, work in the immediate area shall cease. An archaeologist from the State Historic Preservation District shall be notified and work in the area will be suspended until further recommendations are made for appropriate treatment of archaeological and/or cultural materials.

3.13 HISTORICAL AND CULTURAL RESOURCES

As part of this project, a cultural assessment was completed of the project area by Stephen G. Bess of Kanu O Ka ʻĀina Learning ʻOhana. This assessment consisted of examination of historical documents, a review of existing cultural information, oral interviews and preparation of the actual summary report. The complete report is included as Appendix D of this report. Through recent history, this area of Waimea has been a part of the grazing lands of Parker Ranch.

The current project area is located in the *ʻili* of Puʻukapu in the *ahupuaʻa* of Waimea. The literal meaning of Puʻukapu is "sacred hill", and the literal meaning of Waimea is "reddish water", from the erosion of red soil. Puʻukapu is known as a place where chiefs and commoners met to discuss important matters (Pukui et al. 1974:199). Waimea, traditionally known for its strong gusty winds and chilly rain, was highly valued by the *aliʻi* for its rich soil used to support the warriors.

3.13.1 Historical Background

Legendary accounts of Waimea are scarce. Waimea is referred to as a place where famous historical battles were fought. It is the place where the Maui Chief, Kamalawalu, after invading Hawaiʻi Island, fought Kohala chiefs. Kamalawalu was eventually driven from Waimea to the coast where he was killed above Puakō (Kamakau 1961:58-60). Other Maui chiefs sought to conquer Kohala and Kona as well. Alapaʻinuiakauiaua (Alapaʻi) became ruler of Kohala and Kona and was successful in defending his domain by defeating another ruler of Maui, Kekaulike (Kamakau 1961:77). Toward the end of his reign, Alapaʻi lived first in Waimea and then moved to Kikiakoi in Kawaihae (ibid.). It has been speculated that during the times of Alapaʻinui, Waimea was cultivated and the cultivation was expanded to supply the chief's needs while the Chief resided in Kawaihae (Clark and Kirch 1983:26). During the time when Kamehameha I sought to conquer all of the islands of Hawaiʻi, he spent much time in Waimea and Kawaihae. One time was in 1791 and 1792 when he ordered the *heiau* at Kawaihae, Puʻukoholā, to be built. Another time was in 1794 and 1795 when he was preparing his Peleleu fleet, which carried his wars to Maui and Oʻahu (ibid: 27). The upland Waimea plain was believed to be important in supplying agricultural produce to Kamehameha at Kawaihae where the Kamehameha Dynasty held court from the 1790's through the 1820's.

The earliest historic account of Waimea was by Captain George Vancouver in 1794:

> *…the plains of Whymea…are reputed to be very rich and productive, occupying a space of several miles in extent, and winding at the foot of these lofty mountains far into the country. In this valley is a great tract of luxuriant natural pasture, whither all the cattle and sheep imported by me are to be driven, there to roam unrestrained, to increase and multiply (Vancouver 1801:5,107).*

By 1794, Vancouver had left seven cows, three bulls, five ewes, and five rams on Hawaiʻi Island as gifts to Kamehameha. A *kapu* (prohibition) on the cattle was imposed by Kamehameha to insure that the stock would multiply. By the 1820s, it was estimated that there were over 1600 cattle in the Waimea area. Kamehameha hired John Parker as a bullock hunter to shoot them, salt the meat in the mountains, and bring it down to the shore for provisioning the native vessels (Kamakau 1961:301). Parker later founded the Parker Ranch.

Between 1812 and 1844, the Island of Hawaiʻi was under the control of Kuakini, also known as Governor Adams. During his reign, sugarcane and cattle ranching was introduced to Waimea. During the late 1820s, two Chinese men, Lau Ki and Aiko, established a sugar mill at Lihue. In 1843, the mill was sold to Abraham Fayerweather with the sugar provided by Kuakini. Although unsuccessful, sugarcane continued to be cultivated in Waimea after Macy and Louzada purchased the mill in 1853. Macy and Louzada leased a large portion of Puʻukapu in 1857 for growing sugarcane. However, cultivation of sugarcane in Puʻukapu was abandoned by 1877.

The cattle industry initially began in the early 1800s with bullock hunting, which was controlled by the chiefs, and later developed into an industry based on meat, hides, and tallow. By the 1830s, the cattle industry was developed in Waimea by Kuakini, who moved his residence to Waimea in 1828. Kuakini hired *paniolos*, Spanish-Americans, to capture wild cattle for market. By 1846, approximately two-thirds of Waimea was converted to pasture for cattle, sheep, and horses (Lyons 1846, 1847). The government was selling salted beef to traders and whalers who stopped in Hawaiʻi. Parker Ranch began acquiring large tracts of land in the 1850s, and by the early 1900s controlled over 100,000 acres of land for cattle pasture.

In 1819, the arrival of whalers created a demand for fresh produce including vegetables, meat, and fruit. The increase in the number of whaling ships after 1840 caused an increase in demand for fresh produce (Kuykendall 1968:313). Although, at first only sweet potatoes were available, but by the mid-1830s, Irish potatoes were being cultivated.

The Irish potato blight and the California Gold Rush of 1849 started a potato "boom" and an annual yield of 20,000 barrels of commercial Irish potatoes was estimated in the years between 1847 and 1854. The Gold Rush also created a market for potatoes, other vegetables such as taro and beans, and sugar, molasses and coffee. In 1858, Lyons (1858) stated that 56 whaling ships stopped at Kawaihae over a two to three month period and purchased nearly 6,000 bushels of potatoes. However, by 1865 potato cultivation in the upland areas was few and poor.

Puʻukapu was given by Kamehameha I to Kalanimoku, his *kālaimoku* or prime minister. It was later inherited by Kalanimoku's niece, Kehauonohi, who relinquished it in the Mahele of 1848. During the Mahele, Puʻukapu was reverted to Kamehameha and became Crown Land.

However, nine house lots within Puʻukapu were awarded to individuals. None of these awards occur within the current project area.

With the Mahele of 1848, all of Hawaiʻi's lands were placed in one of three categories: Crown Lands (for the occupant of the throne), Government Lands, and Konohiki Lands, "all subject to the rights of native tenants" (Laws of Hawaiʻi 1848:22) (Kalima, in Thompson 1992: 8). The current project area is a part of Hawaiian Homes Lands that was dedicated for the use of Hawaiians by the Hawaiian Homes Commission Act of 1920. The primary goal of this Act is to afford native Hawaiians (defined for the purposes of the Act as those with 50% or more blood) with the opportunity to lease these lands and eventually develop into self-sufficient Hawaiian communities. The Department of Hawaiian Homes Land has over 117,000 acres on the Island of Hawaiʻi. Puʻukapu is the largest subdivision of the homesteads with over 11,000 acres (DHHL 2004:12). Native Hawaiians began receiving awards in Waimea in 1949 and the Puʻukapu subdivision was established in 1962. The Hawaiian Homes Commission Act made it possible for native Hawaiians to utilize these lands for agriculture and pasture. The project area is currently open to cattle pasture and has been continuously used by the Department of Hawaiian Home Lands for a community pasture. Moreover, much of the land surrounding the project area has and is being used by native Hawaiians for cattle ranching and other agricultural uses.

In 1941, the U.S. military opened Camp Tarawa in Waimea as one of the main training camps, home to 30,000 U.S. Marines. Parker Ranch became a major supplier of beef to the Army. Following WWII, the U.S. Engineering Department restored the area to its original condition.

3.13.2 Cultural Background for KALO

In the face of increasingly rapid changes and the apprehension of becoming an "anywhere USA town," Kauhale ʻŌiwi O Puʻukapu is viewed as a place to provide the educational and cultural tools necessary to deal with change and bring balance to Waimea's community. The establishment of Kauhale seeks to provide for the perpetuation and revitalization of the Native Hawaiian culture, language and heritage as a means of empowering Hawaiʻi's indigenous people as well as providing a necessary resource to anchor the well-being of non-Hawaiians who reside in Hawaiʻi or visit our island. KALO is committed to creating a place for the people of the world to come and experience the Hawaiian culture, and contributing to the community of Waimea, the island and the State of Hawaiʻi, and the world.

In order to determine the kinds of programs and facilities that meet the educational and cultural needs of Waimea, extensive efforts have been and will continue to be made to obtain the counsel and input from *kūpuna*, parents, students, extended family, and community members. Prior to selecting the proposed site, KALO actively sought the input of community members to determine whether the site was culturally and spiritually suitable for the development of Kauhale ʻŌiwi O Puʻukapu. KALO also received a grant from the Richard Smart Foundation to engage in a series of community meetings that would allow it to determine how culturally appropriate it would be for KALO to use the site and the types of programs that would best serve the community. KALO is deeply committed to honoring its *kūpuna* and their sense of history and connection to the land. Special efforts were made to meet with all of the *kūpuna* in the community to determine the extent to which matters of cultural importance were present on

site and in the immediate vicinity. Among the many *kūpuna* who were consulted were: Sarah Ruis, Maile Zsupnik, Dee Dee Bertelmann, Kanani Kapuniai, Ala Pajimola, Elaine Loo, Margie Spencer, Mabel Tolentino, Lorna Akima, Clayton Bertelmann, Lei Howard-Lee, and Maxine Kehaulelio. Special meetings were also held with the Waimea Hawaiian Civic Club and the Waimea Homesteaders Association. Informal interviews with Hawaiians living in the area (all Hawaiian homestead lessees in the Puʻukapu area were individually noticed and given the opportunity to provide input) did not reveal any significant cultural and historical properties in the current project area. However, given the commitment to preserving and enhancing the history and culture of Hawaiians and the larger community of Waimea, KALO intends to not only preserve, but celebrate any unanticipated archaeological finds during the course of the development of Kauhale.

Impacts and Mitigation – Based on the documentary research, there were no previously identified historic properties located within the project area. No specific documentation was found regarding, *iwi* (ancestral remains) in the project area. However, the cultural and historical setting of the project area indicates that there may be possible discovery of archaeological sites related to native Hawaiian cultural practices associated with settlement as well as historic sites related to the cattle ranching industry during the course of development. The establishment of the burial laws (specifically the State of Hawaiʻi burial laws (1990)), has helped to facilitate a process that provides a guideline for agencies and communities to derive an appropriate plan of action in the preparation and preservation of ancestral remains. The following interim procedures have been adopted:

a. It is recommended that in regards to *iwi kūpuna*, KALO will adopt established protocols that clearly define procedural guidelines in the event that ancestral remains are inadvertently discovered. These protocols shall include but not be limited to activities that involve the properly handling and safeguarding of *iwi*, consultation with appropriate organizations, families, and individuals and the final disposition of the *iwi kūpuna*. It is stressed that utmost sensitivity, caring and understanding be employed when dealing with burial issues and *iwi kūpuna*.
b. In the event of an inadvertent discovery of ancestral remains, the applicable processes outlined in existing State regulations, specifically those provided in the Hawaiʻi Administrative Rules, Title 13, Chapter 300, Section 40 and Section 33, will be employed.
c. If, for some reason, *iwi* must be moved or touched, it is highly recommended that an identified cultural monitor, a lineal respected kupuna/cultural descendant or someone of Hawaiian ancestry, conduct this task. It is highly recommended that KALO coordinate the selection of cultural monitor with known and potential lineal and cultural descendants with the Hawaiʻi Island Burial Council (HIBC), as well as other appropriate cultural entities or organizations.
d. Notify and consult with known and potential lineal and cultural descendants as it relates to any ~~burial relocation or~~ inadvertent discovery. The recommended preferential treatment of *iwi kūpuna* that are inadvertently discovered is to have them "preserved" in-place. However, if it is decided upon that burial relocation is necessary, a reburial site ~~should~~ will be designated with consultation of recognized lineal/cultural descendant. The physical sighting, ~~and~~ procedures and protocols for any potential reburial will be coordinated with the appropriate agencies, organizations and identified lineal and cultural descendents.

e. Consult with the appropriate agencies and organizations including: State Department of Land and Natural Resources, Historic Preservation Division (DLNR/SHPD), SHPD Burial staff, the HIBC, the Office of Hawaiian Affairs (OHA), Hui Mālama I Nā Kupuna o Hawaiʻi Nei and other interested Hawaiian organizations.
f. Prepare and implement a Burial Treatment Plan to be developed in consultation with the above agencies, as well as the appropriate organizations ~~and parties wishing to be consulted~~, including lineal and/or cultural descendents.

Due to the absence of cultural remains in the project area, and extensive previous disturbances from cattle grazing and construction activities, no negative impacts are anticipated. The proposed developments will likely have "no effect" on significant cultural resources. However, known archaeological and historical sites have been sited in the general vicinity of the project site. Despite extensive efforts to obtain input from the Waimea community regarding the presence of any such sites in the project area, no members of the community reported having any knowledge of such sites.

3.14 SOCIO-ECONOMIC CHARACTERISTICS

Existing Conditions – Waimea has been an important settlement for over a thousand years and headquarters for Parker Ranch for over a century and a half, and thus has a rich history to go along with its dramatic setting in the misty uplands. A substantial area of Hawaiian Home Lands supporting farms and ranches is also present. Twenty years of rapid growth have added thousands of homes for transplanted mainlanders and South Kohala resort workers to the charming cattle town.

According to the 2000 U.S. Census Data, the population in South Kohala has grown from 4,607 in 1980 to 13,131 in 2000, and more than 7,000 people now reside in Waimea alone. A mix of activities employs South Kohala District residents ranging from service industries, wholesale and retail trade, government, ranching, diversified agriculture, manufacturing and construction. Overall, Waimea exhibits a higher proportion of service occupations, particularly those involving food, accommodation and entertainment, reflecting the importance of the visitor industry. In addition, management and professional positions are more numerous in Waimea, that in the Island as a whole. With continued growth projected for the Hawaiʻi County, as forecasted by the Department of Business Economic Development and Tourism, demands for education facilities within the South Kohala District will likely grow.

Although Waimea and the Island as a whole exhibit many socioeconomic similarities, there are some important differences. According to the U.S. Census 2000, Waimea has a substantially larger Hawaiian population, and a somewhat smaller Asian population. In addition, it has fewer elderly and more children, and a lower median age. In comparison, it is also more prosperous, with greater average household incomes, greater households with incomes between $35,000 and $100,000, and fewer residents living below the poverty level.

Major public facilities located within proximity of the proposed site include Waimea Elementary and Intermediate School, Thelma Parker Memorial Public Library, Waimea Police and Fire Station, North Hawaiʻi Community Hospital, and Waimea Landfill. Other private educational facilities located in Waimea include Parker School.

Impacts and Mitigation – The project will create short-term benefits as a result of design and construction employment. The project will create jobs for local construction personnel. Local material suppliers and retail businesses can also be expected to benefit through a multiplier effect from the increased construction activities.

The principal socio-economic impact of the proposed project will be the creation of a community learning center which will provide educational services such as daycare, higher learning, and community facilities. Long-term benefits of the proposed project will also include jobs for education instruction and administration. In addition to the creation of jobs, the State of Hawaiʻi and County of Hawaiʻi will receive excise tax revenues on finished development and building materials, conveyance taxes, and income taxes on wages. The socio-economic impacts will be positive for the local community, as well as the City and State. No specific socio-economic mitigation actions are recommended.

3.15 VISUAL RESOURCES

Existing Conditions – The project site is located on the edge of a developed urban residential neighborhood on vacant agricultural land. The existing views consist of the surrounding open space, the Kohala mountains, and the slopes of Mauna Kea *(Figures 3-6, 3-7, 3-8, and 3-9)*.

The Hawaiʻi County General Plan characterizes the scenic beauty of various areas and identifies sites and vistas of natural beauty. According to the proposed revision to the General Plan:

> *"The Waimea region lies in a plateau between the Kohala Mountains and Mauna Kea. The Kohala Mountains provide a backdrop of rolling hills and volcanic cones covered with pastures kept green by fog, fine mist, and rain. Mauna Kea provides a distant but dramatic mass as it rises steeply above the plateau. Viewed at a distance, Waimea town lies nestled at the base of the Kohala Mountains…The pastures and puʻu immediately above Waimea Town have been identified as a vista of exceptional natural beauty."*

Impacts and Mitigation – Although, the project scale and design will not significantly impact area views, views of the open agricultural land will be lost to development of the proposed project of the bordering residential neighborhood located across the street. Landscaping will be used to improve the visual character of the project site, along with building design incorporated with the surrounding environment including natural tones and features.

Figure 3-6: Existing Views to the South

Figure 3-7: Existing Views to the West

Figure 3-8: Existing Views of Across the Street from the Project Site

Figure 3-9: Existing Views of Adjacent Lands to the East

3.16 UTILITIES

Water System: The Waimea area is served by the Hawaiʻi County Department of Water Supply. Presently, the site has ~~not~~ no water use. However, the parcel that the site is part of has four existing water meters in service. The Puʻukapu Pasture Lot is serviced by the 4.0 mg Clearwater reservoir at the water treatment plant which has a spillway elevation of 3,052 feet. The existing 6-inch water line in Hiʻiaka Street is part of a looped water system within the Puʻukapu Pasture Lots subdivision. The subdivision is fed by an existing 8-inch waterline along Kamāmalu Street from Māmalahoa Highway *(Figure 3-10)*

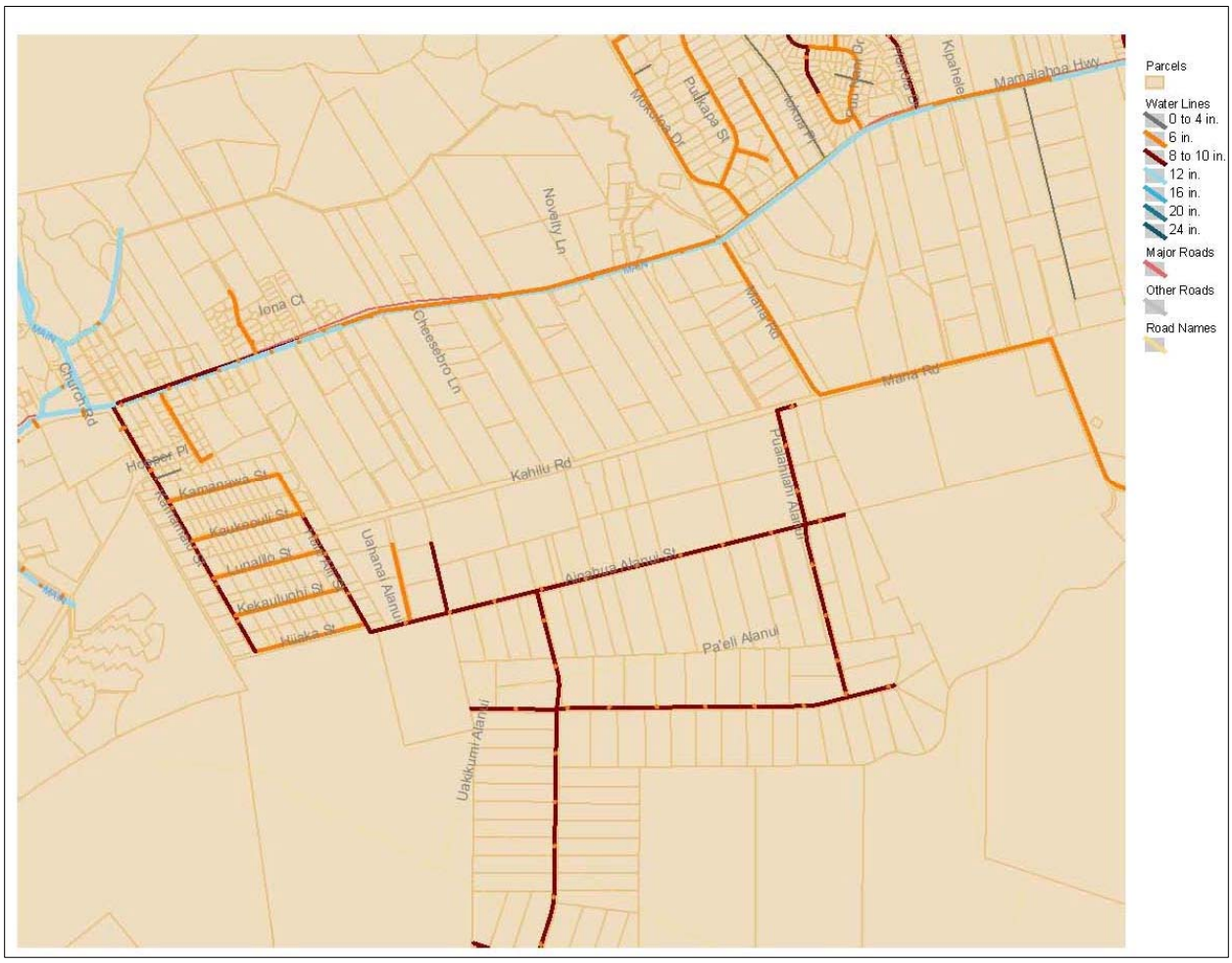


Figure 3-10: Existing Water System Map

Impacts and Mitigation – The development of the proposed project will require County Department of Water Supply (DWS) service and will generate an increased demand for potable water and irrigation water. Some of the potable water demand will likely be accommodated by a catchment system. The proposed water demand concluded that an average daily demand for 46,140 square feet at 4,000 gallon per acre would require 4,237 gallons per day. The maximum daily demand averaged at 6,355 gallons per day. This water demand would likely be revised as fixture units counts become available. In order to meet proposed water demands the proposed

water system for the project would likely install a water lateral from Hiʻiaka Street and utilize a 1.5-inch water meter to produce the proposed 11 water units. A County approved backflow assembly will be required following the meter. Piping distribution would be as necessary to service the various structures within the project.

Preliminary research indicates that the existing water system within the area can provide adequate service for domestic use. However, water service may be inadequate in providing standard fire protection (fire hydrants). The fire flow requirement was calculated at 2,000 gallons per minute with a minimum residual pressure of 20 psi. The 6-inch waterline along Hiʻiaka Street has a theoretical fire-flow capacity of 1,500 gallons per minute (gpm) that does not meet the 2,000-gpm requirement for the proposed use. The nearest fire hydrant is approximately 500 feet east of the subject property. A water system calculation must be performed to determine if the standard flow rate (2,000 gallons per day) can be achieved based on the existing piping system. The civil engineer, due diligence report offers alternatives to be applied if the calculations indicate that the system is inadequate *(Appendix B)*. The Fire Department should be consulted regarding any additional fire protection requirements due to the lack of fire flow.

The proposed project will comply with the Hawaiʻi Administrative Rules (HAR), Title 11, Chapter 20. If it is determined, an application for an UIC permit will be submitted at least 180 days prior to the initiation of the proposed activities. This project will likely use water efficient utilities incorporating water efficient technology and design, and appropriate vegetation and landscaping to moderate water irrigation demands. Buildings will consider sustainable building design in its project to increase pervious surface and water catchment opportunities in the surrounding landscape.

Sewer: The majority of residences in Waimea rely on individual cesspools and septic tanks. There is no existing sewer system near to the project site. All wastewater flows produced from the project will need to be handled thru an Individual Wastewater System (IWS).

Impacts and Mitigation – The proposed individual wastewater system for the project is a White Water Sewage Treatment System. The Whitewater Sewage Treatment System is a modular (package plant) system which utilizes aeration technology to maintain an aerobic condition in the digestion chamber of the treatment plant. This technology ensures optimum conditions for the micro-organisms to digest the nutrients. ~~The proposed sewer system will consist of Individual Wastewater Systems (IWS) distributed thru out the project site as needed. The IWS is an aerobic system which requires underground tanks and an open field to discharge the effluent (discharge done underground). The system will have a maximum allotted flow.~~

The Whitewater System produces a high quality effluent having a low BOD5 (Biochemical Oxygen Demand over a 5 day period) and TSS (Total Suspended Solids) content, while being high in DO (Dissolved Oxygen), which in return keeps the leaching field healthy and longer lasting. The Whitewater Sewage Treatment Plant can be referred to as an activated sludge process in conjunction with an extended aeration process. New incoming sewage is digested (absorbed) by activated sludge micro-organisms. As ammonia from urine converts to Nitrite then to Nitrate, the activated sludge return process passes Nitrate through an anoxic state allowing for the conversion to nitrogen gas that is then vented out of the system. This creates

the reduction of the Nitrate level from the typical septic tank effluent of 35 mg/l (or ppm), and from the typical secondary sewage treatment plant of 25 mg/l (or ppm) to the Whitewater tertiary level of **less than 5 mg/l (or ppm)**. No hydrogen sulfide or methane gases are produced. The proposed sewer flows, based on City and County of Honolulu standards, were determined to have an average flow of 6,300 gallons per day. Infiltration flows were determined for dry weather to be at a low rate of 5 gpcd and for wet weather at a rate of 1,250 gallons per acre per day.

There are no submerged sewage pumps, no filters, and no moving parts inside to be removed, replaced, or cleaned. Solids in suspension in the Whitewater tank will need to be removed approximately once every year. Gages and monitors can be installed to detect an abnormal operation in the sewer system. An alarm system can also be installed to notify the operator of the abnormality. The operator will have the capability to pump-out any of the chambers if needed.

The Whitewater system is presently being used on the Island of Hawaiʻi (Puakō Subdivision). It has been approved by the County's Planning Department, the Department of Water Supply, and the State of Hawaiʻi Department of Health.

All wastewater plans will conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems," and to the Department's guidelines for the treatment and installation of wastewater systems.

Gas: Gasco, Inc. distributes propane gas on the Island of Hawaiʻi. Gasco has metered gas available in limited areas of Waimea.

Impacts and Mitigation – The proposed project will have no significant impact or demand on existing utilities. No mitigation measures are required.

Electrical and Telephone: Electrical power on the Island of Hawaiʻi is provided by Hawaiian Electric Light Company (HELCO), a privately owned utility company regulated by the State Public Utilities Commission. Existing power lines are available.

Hawaiian Telecom and Sandwich Isles Communications, Inc., provide telephone and telecommunications services.

Impacts and Mitigation – Additional voltage will be required from HELCO to serve the anticipated project loads. The load requirements will not significantly impact existing utilities and services of HELCO. HELCO's total system generating capacity is 233,700 kW and the system peak load was 177,900 kW, which occurred on December 30, 2002. The current generation reserve margin of 31.4% is adequate to serve the proposed project.

Since the project site is currently undeveloped, utilities will need to be brought on site. This project will likely use green/climate appropriate architecture incorporating energy efficient technology and design, and appropriate vegetation and landscaping to moderate climatic effects. Buildings will consider sustainable building design in its project. Solar and co-generation opportunities in the development will also be considered.

Solid Waste: Solid waste generated in West Hawaiʻi disposed of at the West Hawaiʻi Landfill, a 300-acre facility that is situated approximately 18 miles from the project area in Puʻuanahulu, North Kona. This landfill is expected to be able to serve the County's needs well into the future. Recycling facilities are currently limited in the Waimea area, but the County Department of Environmental Management is planning substantial enhancement in the Waimea region with the next five years that will include facilities to deal with green waste and a variety of other materials.

Impacts and Mitigation – Solid wastes from construction activities are anticipated to have no significant short-term impacts on the existing solid waste collection and disposal system or the environment. There will be no demolition waste, as the property is currently undeveloped. The majority of pre-construction waste will be green waste from site clearing. Green waste will be recycled. The nature of the waste that will be generated by the construction of the proposed community and learning center will be minimized by emphasizing full use of materials and recycling, and proper disposal of all solid waste will be specified.

After build out, solid waste generated by operation activities on site will be collected and disposed at approved County solid waste disposal facilities. Recycling of solid wastes will be accommodated and implemented to the extent practicable. Composting of green waste will be encouraged and landscape maintenance will recycle as much as possible. Solid waste systems will be designed to comply with the applicable DOH and County requirements.

Drainage: The County storm drainage system serving the Waimea area consists of a network of storm drainage pipes and culverts. Storm runoff collected by these pipes and culverts is either disposed of in sumps, drywells, or injection wells. In general, the porous overlying soil in the Waimea area facilitates percolation of rainwater into the ground. The existing site is unoccupied and has no drainage system. Existing on-site flows sheet flow to the west and north. The existing topography indicates that there may be off-site flows onto the site. There does not appear to be any existing sump conditions within the site.

Impacts and Mitigation – As previously discussed in *Section 3.4*, construction of the facilities and parking areas will change the velocities, directions and quantities of the water drainage. The proposed drainage system will manage moderate storms (10-year intensity) thru the use of drywells. The flow pattern of excess rain runoff will need to be controlled to prevent flood damage. Off-site flows will need to be determined and managed by either accepting the flows or diverting it around the site (Akinaka & Associates, Ltd, 2005). Pending the proposed alignment of the roadways, the grading of the roadways may become a critical cost impact to provide adequate slopes to promote the desired flow patterns of excess rain runoff.

This project will incorporate efficient design to moderate stormwater runoff such as increased pervious surfaces, use of pavers, and landscaping to absorb water runoff. Buildings will consider sustainable building design in its project to increase pervious surface and water catchment opportunities in the surrounding landscape in order to decrease stormwater runoff.

3.17 ROADWAYS AND TRAFFIC

Existing Conditions – As part of this project, a traffic impact analysis was completed by Traffic Management Consultant, Inc. This traffic analysis evaluated existing traffic operations, trip generation characteristics of the proposed project, analysis of the Year 2012 traffic conditions without the proposed project, identification and analysis of traffic impacts resulting from the proposed project, and recommendations.

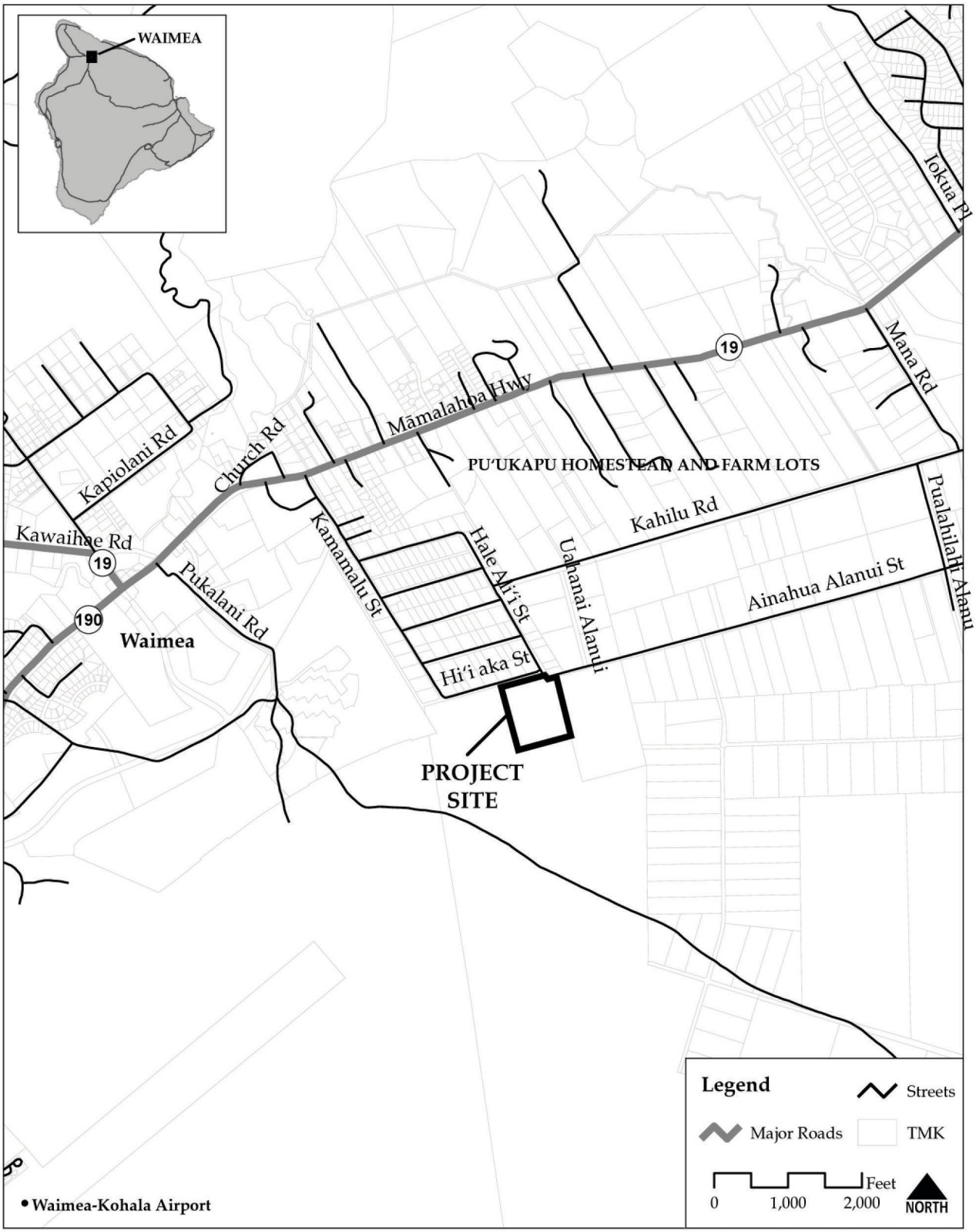
Primary access into the Puʻukapu House Lots Subdivision is thru Kamāmalu Street (Maertens Road) from Māmalahoa Highway. Kamāmalu Street is a two-way, two-lane collector street, which intersects Māmalahoa Highway at a signalized intersection. At Kamāmalu Street, Māmalahoa Highway is a two-lane highway with exclusive left-turn storage lanes in both directions. Māmalahoa Highway becomes a four-lane highway through Waimea Town, with median left-turn lanes at major intersections.

Access to the project site is via Hiʻiaka Street *(Figure 3-11)*. Hiʻiaka Street is accessible from Kamāmalu Street or Hale Aliʻi Street. Hiʻiaka Street is a 16-18 foot wide paved roadway with grassed shoulders. The pavement surface appears to be in fairly good condition *(Figure 3-8)*. Within the project site, the roadway system will primarily involve roadways to the two separate parking spaces on the east and west ends of the site *(Figure 2-2)*.

Future roadway improvements in the area include improvements to Saddle Road, an existing roadway between East and West Hawaiʻi, and the realignment of the Hawaiʻi Belt Road (Route 19) in Waimea, between Mud Lane and Kamuela Race Track. The proposed Bypass Highway was not taken into account in the traffic impact analysis.

Impacts and Mitigation – As part of this project, a traffic impact analysis was completed by Traffic Management Consultant. On average, traffic in the region is generally expected to increase by 2.88 percent per year to the Year 2012 without the proposed project. A portion of the growth in traffic between East and West Hawaiʻi is expected to be diverted from Māmalahoa Highway to proposed Saddle Road. The construction of the Waimea Bypass Highway is scheduled to open to traffic in the Year 2013, one year after the proposed school is expected to reach full enrollment.

The report concludes that the proposed learning center is not expected to have a significant impact on traffic operations in the project vicinity. Traffic operations along Māmalahoa Highway and the critical traffic movements at the project driveways are expected to operate at acceptable levels of service during both peak hours of traffic. The anticipated increases in the total traffic volumes along the highway are in the range of daily volume fluctuations and represent a minimal increase in the overall traffic volumes. During the AM peak hour of traffic, the proposed project is expected to generate a total of 144 vehicles per hour (vph) entering the site and 61 vph exiting the site. The proposed project is expected to generate a total of 143 vph – 57 vph entering the site and 86 vph exiting the site, during the PM peak hour of traffic.



Source: State of Hawai'i GIS Data

Figure 3-11: Roadways

According to the study, the AM peak hour traffic for the surrounding area is not expected to be significantly affected by the development of the proposed project. The intersection can be expected to be affected by the development of the proposed project, during the PM peak hour of traffic. The Kamāmalu Street approach to Māmalahoa Highway is expected to worsen from LOS "D" to LOS "E", during the PM peak hour of traffic with the proposed project. Retiming the traffic signal system would mitigate the traffic impacts of the proposed project without significantly affecting the other traffic movements at the intersection. Over the long term, the Waimea Bypass is expected to reduce traffic on Māmalahoa Highway by diverting through traffic around Waimea Town.

Traffic study recommendations may include improvements needed at the Kamāmalu Street and Māmalahoa Highway intersection. The improvements may include additional turning lanes coming out of or into Kamāmalu Street. The addition of turning lanes may also require improvements to the exiting traffic signal system.

As for traffic impacts due to use of school buses and/or large vehicles, Kanu O Ka ʻĀina does not have any school buses nor do they currently utilize school buses for the transportation of their students to and from school. They estimate that at least for the next 3 years, there will be little, if any, bus service to the site. For at least the next three years, improvements to the Kauhale site will consist of a double wide trailer that will house the Mālamapōki'i program and the media information center. No more than an estimated 50 infants and preschoolers will be utilizing the double wide trailer. No school bus service will be provided for these children. Any transportation that may be provided for these children during the day will be provided by school vans that have a maximum capacity of 15 students. The vans have a dimension of 6 feet and 6 inches wide by 19 feet and a half inch long. This type of vehicle does not require a Commercial Drivers License. In conclusion, these vans will not adversely impact traffic movement on Hiʻiaka Street.

Regarding the media information center, we do not anticipate using any school buses for the transportation of our students to and from this center. The media center will be viewed as one of four integrated campus within the school. School vans having a maximum capacity of 15 students will be utilized to transport students between the media center and other campuses. When the Kauhale site is utilized as the main location of the school (rather than as a satellite site as contemplated for at least the next three years), some school bus activity on Hiʻiaka Street may occur. Until such time, there should be no requirement imposed on KALO to widen the existing road.

3.18 AIRPORT TRANSPORTATION

Existing Conditions – A portion of the subject parcel is within the aviation easement for the Waimea-Kohala Airport. The aviation easements boundaries for the Waimea-Kohala Airport located on the site are shown by *Figure 3-12.* According to the Waimea-Kohala Airport Master Plan, the runway is 5,197 feet long. According to the USGS Kamuela Quad Map, the elevation of the proposed site is 2,760 ft.

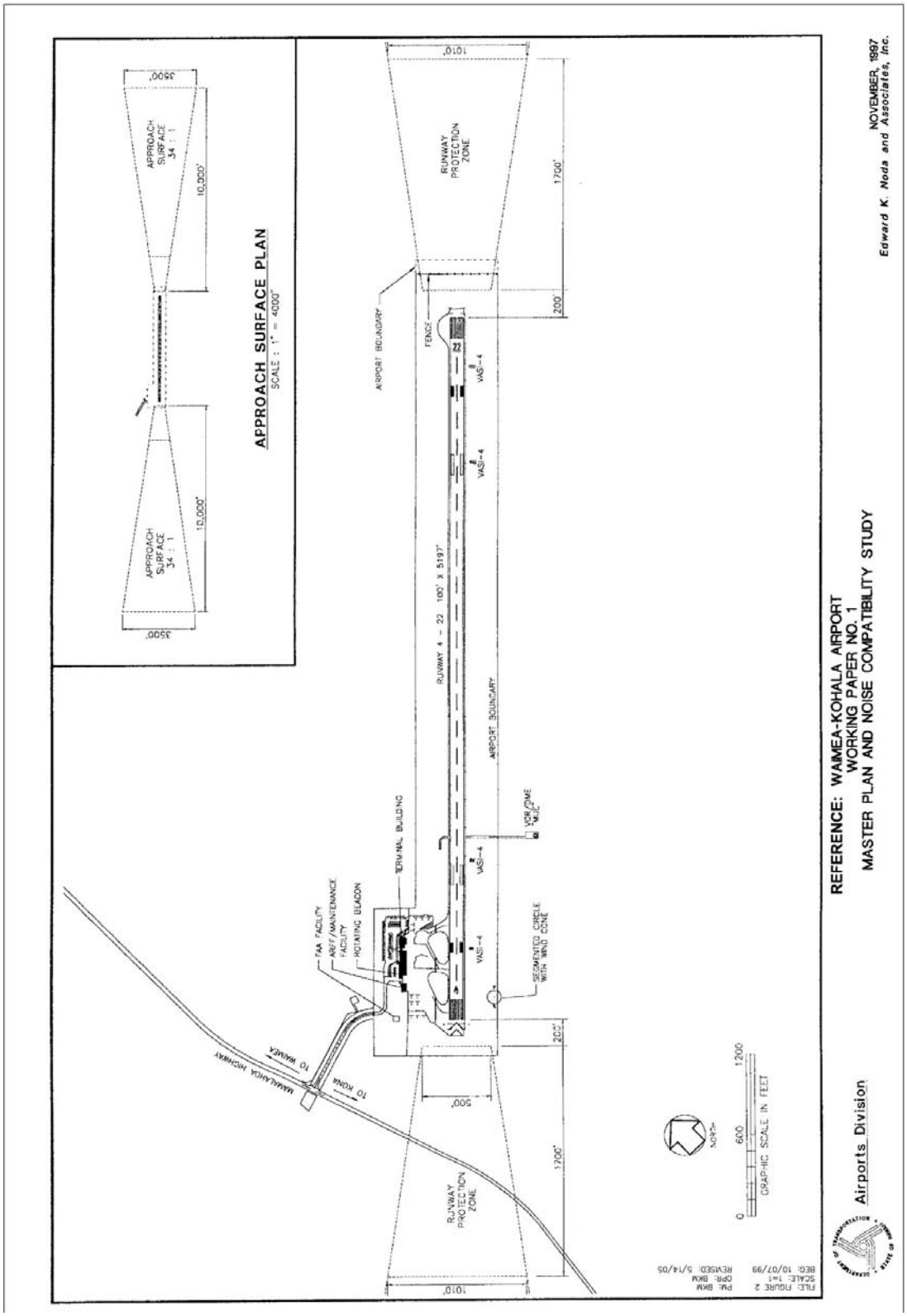


Figure 3-12: Waimea-Kohala Airport Approach Area

The building height limitation in the aviation easement is dependent upon the proposed site elevation in relation to the distance from the runway. In accordance with the Department of Transportation, height limitations as described by Hawaiʻi Administrative Rules, Title 19, Chapter 12, Section 7 the building height limitation for the proposed site would potentially be 52 feet.

The Federal Aviation Administration has published criteria under 14 CFR, Part 150 for use in analyzing land use compatibility in and around the vicinity of airports and heliports. The Waimea-Kohala Airport (MUE) Noise Compatibility Program (NCP) describes the current and future non-compatible land uses based upon the parameters as established in Federal Aviation Regulation (FAR) Part 150, *Airport Noise Compatibility Planning*. The Part 150 process ultimately results in the development of noise footprints that represents a line of exposure commonly referred to as a noise exposure contour. According to the 1997 and 2002 Noise Exposure Maps (NEM), the proposed site is located outside of the incompatible noise level contour of 55 Yearly Day-Night Average Sound Level (DNL).

Impacts and Mitigation – Initial consultation with the Federal Aviation Administration (FAA) indicated that the proposed community and learning center will not interfere with aviation operations at the Waimea-Kohala Airport. The proposed building heights would not be affected by aviation easement requirements. In addition, flight navigation operations, such as runway approach and/or flight paths will not be impacted by proposed building heights for the project. According to the Hawaiʻi Administrative Rules, Title 19, Chapter 12, a Department of Transportation permit must be approved to construct or use land located within the flight aviation easement. In addition, the FAA requires a Notice of Proposed Construction or Alteration approval as required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. The location of the proposed project in proximity to the Waimea-Kohala Airport will not require mitigation measures for noise exposure. However, if the a project is determined to be in an area with aircraft noise impacts between 60 and 65 DNL, noise mitigation measures are necessary. Refer to *Section 5.0* for further discussion on the Waimea-Kohala Airport Noise Compatibility Program (NCP) and the on-airport recommended noise mitigation and abatement measures to reduce impacts on surrounding land uses *(Figure 3-13)*.

3.19 NOISE

Existing Conditions – The primary noise sources in the area of the project site are related to traffic and urban activities. Māmalahoa Highway is the most significant source of noise in the project area. The site and surrounding area are generally quiet due to the rural uses for residential and agricultural activities.

The primary noise receptors in the area are farm dwellings and residences in the Puʻukapu Hawaiian Home Lands and urban uses contained within Waimea. Most of the uses at the proposed community and learning center will not generate extended unacceptable levels of noise. The performance area will be equipped with a sound system for performances. Outdoor performances and events, such as community events, which draw large crowds, could also generate noise in the area.

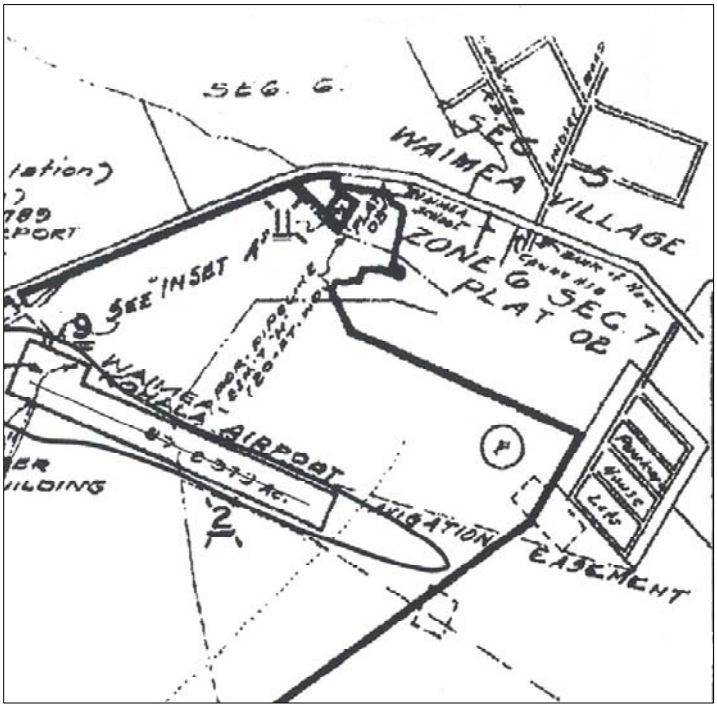


Figure 3-13: Waimea-Kohala Airport FAR Part 150, Noise Exposure Map

Impacts and Mitigation – Construction work at the project site will involve activities that may generate an increase in noise levels. However, such exposures will be only a short-term condition, occurring during specific daylight hours.

Construction vehicles and activities must comply with State Department of Health Administrative Rules. The State of Hawaiʻi Department of Health's noise control regulation requires a permit for construction activities that emit noise in excess of 95 decibels. Mitigation measures to minimize construction noise will include the use of mufflers to suppress loud equipment and limitations on the hours of heavy equipment operation.

Project activities will comply with the Administrative Rules of the Department of Health, Chapter 11-39 on Air Conditioning and Ventilating, and Chapter 11-46 on Community Noise Control. Administrative controls will be implemented to control noise at the performance area and during outdoor festivals. These controls could include limiting performances and festivals to certain hours of the day.

Section 4.0
Alternatives to the Proposed Project

4.0 ALTERNATIVES TO THE PROPOSED PROJECT

This Final Environmental Assessment evaluates four alternatives to the proposed project described in *Section 2.0*. The alternatives include:

- No Action
- Residential Development
- Commercial Development
- Industrial Development

4.1 NO-ACTION ALTERNATIVE

The "no-action" alternative would result in the continued use of the land for agricultural animal grazing and would remain as open space. The site could be developed for agricultural uses such as installation of animal stables for animal husbandry or other agricultural and ranching activities, which could result in increased environmental impacts, such as noise or nonpoint source pollution.

The no-action alternative would result in the continued shortage of native Hawaiian educational facilities and services. The no-action alternative does not meet the needs or address the problems of the current situation and would force the organization to pursue perhaps more costly site alternatives or solutions. While the no-action alternative would have no adverse environmental impacts, it cannot be considered a reasonable solution to the existing and future shortfalls facing the native Hawaiian community in Waimea or on the Island of Hawaiʻi.

In this alternative, construction of the Kauhale ʻŌiwi ʻO Puʻukapu would not occur and the anticipated new community services would be negated. Although this alternative would have limited adverse environmental impacts, the positive community benefits for Waimea and the Island of Hawaiʻi associated with the learning center would not be available.

4.2 RESIDENTIAL DEVELOPMENT

A second alternative to the proposed project would be the development of the site as a residential development without the proposed learning center. The available building area would be approximately 15-acres. Assuming R-5 zoning (5,000 square feet lots) and making allowances for roadways, the R-5 residential development alternative could create approximately 90 to 105 lots for the proposed 15-acre site.

This residential development alternative would be compatible with the surrounding residential neighborhood. However, this alternative would create several environmental impacts including an increase in noise, traffic, water quality, etc. (when compared to current conditions). The resulting increase in population would also increase usage of public facilities including schools. In addition, under this alternative, the community would not benefit from the Kauhale ʻŌiwi ʻO Puʻukapu proposed under the Kanu O Ka ʻĀina Learning ʻOhana.

4.3 COMMERCIAL DEVELOPMENT

This alternative to the proposed project would be to develop the site as a shopping center with approximately 15-acres of commercial real estate space including approximately 300-500 parking stalls. This alternative would require that the area be rezoned B-1 Neighborhood Business.

The creation of commercial development on the property would create additional traffic entering and exiting the shopping center development. In addition, the large commercial development would be in close proximity to the residential area and would cause the disruption of existing residential community. While the shopping center could provide retail opportunities for the community, there are several other shopping centers nearby, such as the Parking Ranch Shopping Center, Parker Square, and Waimea Shopping Center, which provide many retail services. In addition, under this alternative, the community would not benefit from the addition of a cultural and community educational center.

4.4 INDUSTRIAL DEVELOPMENT

This option to the proposed project would require a change of zoning to develop the site for industrial use. The types of uses which could be developed under I-2 (Intensive Industrial) could result in a variety of uses including: automobile service stations, broadcasting stations, car washing facilities, catering establishments, storage facilities, bars, nightclubs, taverns, food manufacturing and processing, eating establishments, home improvement centers, manufacturing, as well as steel storage facilities. This is just a partial identification of permitted uses under the I-2 zoning, which may be viable for the project site and could be a viable alternative with the location of the site being in such close proximity to the Waimea-Kohala Airport.

Depending on the type of industrial development, the environmental impacts of uses in this alternative could be significant and would definitely be greater than the proposed learning center. For example, noise from traffic and industrial activities would be incompatible with the residential setting. Furthermore, industrial uses could negatively impact air quality and visual resources in the area.

Under the industrial development alternative, the community would benefit from the creation of jobs but would suffer from the potential adverse impacts and the lack of cultural and educational community center.

4.5 EVALUATION OF ALTERNATIVES

To evaluate the alternatives it is necessary to consider the impacts each alternative would have on the physical environment (visual, traffic, noise, and air quality, etc). In addition, it is important to weigh these effects against the benefits each alternative would bring to the surrounding community in terms of community services and jobs.

The "no-action" alternative would have the least impact on the environment, noise level, and view planes. However, while open space agricultural land can be an important neighborhood amenity for view planes, the proposed 15-acre project will not greatly impact the visual resources, in this case, because the Puʻukapu Farm Lots and open space buffer required by the Waimea-Kohala Airport are surrounding the site, thus leaving the surrounding area mainly undeveloped and preserving those view planes.

The residential development would be compatible with the surrounding neighborhood but it would increase the population in the area as well as the use of public facilities. While housing is an important community resource, a housing shortage in Waimea has not been identified. The residential development would generate less traffic and noise than the proposed learning center.

While a shopping facility would create jobs and retail opportunities, it would generate substantial traffic, noise, and visual impacts. In addition, three shopping centers already provide retail functions in the area.

The benefits of industrial development such as job creation would be outweighed by the negative consequences of industrial development within a residential neighborhood.

The Kauhale ʻŌiwi ʻO Puʻukapu alternative, on the other hand, would not have significant negative impacts on the physical environment and it does provide benefits for the community. The cultural and community educational center alternative would preserve a substantial amount of open space for public enjoyment and the architecture and design of the center would enhance the visual resources in the area. In addition, of the 15-acre site, approximately only 46,140 square feet will be developed. Open space will be preserved for outdoor classroom activities, trail access, agriculture, forestry, and animal husbandry research and learning. Other benefits would be derived from the services located at the center including the daycare center, educational facilities, library, meeting spaces, and performance center.

Seeing that the subject property is owned by the Department of Hawaiian Home Lands the possible alternatives would lie within the sole discretion of the DHHL Commission. At the present time, DHHL has determined that the Kauhale ʻŌiwi ʻO Puʻukapu alternative is the best use of the land and will benefit all Hawaiian Homesteaders.

Section 5.0
Plans and Policies

5.0 PLANS AND POLICIES

5.1 OVERVIEW

An important consideration in evaluating the potential impacts of a proposed action on the environment is how it may conform or conflict with approved or proposed land use plans, policies and controls for the affected area. In addition to the State of Hawaiʻi policies and controls, the Final EA addresses applicable Federal regulations, including aviation regulation. This chapter of the Final EA will discuss the consistency of the project with respect to the County of Hawaiʻi General Plan, County of Hawaiʻi Zoning Ordnance, and West Hawaiʻi Regional Plan.

5.2 FEDERAL AVIATION ACT OF 1958

The Federal Aviation Act of 1958 established the Federal Aviation Administration (FAA), which has the sole responsibility for the management of air navigation and air traffic control in the United States. As stated in Part 77 of Federal Aviation Regulations, the Administrator of the FAA is to be notified as to any proposed construction or alteration of an object that extends outward and upward at a slope of 25:1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of an airport, which could affect navigable air space, including approach and departure surfaces of airfields. The Federal Aviation Regulations Part 77 requires a clear zone approach slope of 34:1 within a designated boundary. *(Figure 3-12)*.

In addition, the FAA has published criteria under 14 CFR, Part 150 for use in analyzing land use compatibility in and around the vicinity of airports and heliports. The Waimea-Kohala Airport (MUE) Noise Compatibility Program (NCP) describes the current and future non-compatible land uses based upon the parameters as established in Federal Aviation Regulation (FAR) Part 150, *Airport Noise Compatibility Planning*. The Part 150 process ultimately results in the development of noise footprints that represents a line of exposure commonly referred to as a noise exposure contour. These noise exposure contours are calculated by using a 24 hour averaged Day-Night Sound Level (DNL) which is expressed in decibels (dB). The DOT, HUD, DOD and EPA have determined that a 65 DNL dB is the threshold of significance for determining compatible land uses. The program recommends a total of seven measures to prevent the introduction of additional non-compatible land uses and to reduce the effect of the noise generated at the airport.

Measures described by the Waimea-Kohala Airport Noise Compatibility Program, which are relevant to the proposed KALO project, include the following:

1. COMPREHENSIVE PLANNING AND ZONING. (Page 7-2, Sec. 7.2.2)

Description of element: Use comprehensive planning and zoning to maintain compatible land use. Prohibit zoning changes which will change a compatible land use into an incompatible land use. However, if the community determines that there is a need for new housing in an area exposed to noise levels of 60 to 65 DNL, then the County of Hawaiʻi, and the State of Hawaiʻi - Land Use Commission, should require an avigation easement to the State Department of Transportation, Airports Division (DOT-A) and acoustical treatment to maintain an interior value of 45 DNL. DOT-A should request that new residential developments have lesser densities (i.e. larger size lots), since visual flight rules (VFR) aircraft flight tracks can vary greatly and overflights may be more common. In addition, the DOT-A should pursue an "Airport zone" within the airport environs to address height restrictions, noise and other DOT-A and FAA concerns.

FAA Action: APPROVED: This measure is considered to be within the authority of the State of Hawaiʻi and the County of Hawaiʻi. FAA prefers that no non-compatible development take place within the noise exposure map contours. Remedial noise mitigation for new construction that takes place after October 1, 1998, would not be approved under Part 150.

2. AVIGATION EASEMENTS. (Page 7-3, Sec. 7.2.2)

Description of element: Acquiring avigation easements from landowners that presently have compatible land but may become incompatible due to future development. The acquisition of avigation easements will maintain the operational characteristics of the Airport. The key areas are those lands directly under the aircraft flight tracks.

FAA Action: APPROVED. This approval does not constitute a commitment by the FAA to provide federal financial assistance for this project. FAA prefers that no non-compatible development take place within the noise exposure map contours.

As a requirement of the Part 150 program, two Noise Exposure Maps must be produced. The first map indicates the existing conditions and the second map is based upon a 5-year projection of the airports operations. These maps are recommended to be updated every five years or if the operation of the airport would create a change of 1.5 DNL or greater in any land area which was formerly compatible and now would be rendered non-compatible. Typical examples of this might be the use of a noisier aircraft at the airport, change in runway usage, change in flight paths, or an increase in nighttime operations. This 1.5 DNL increase, or greater, is the benchmark also used by the Airports Division to trigger environmental actions requiring (at least) an Environmental Assessment for airport development projects *(Figure 3-13).*

Discussion: The Waimea-Kohala Airport resides approximately one mile away to the south-west of the project site (approximately 4,500 feet from the edge of the runway). The majority of the proposed project falls within easement "A-1" which is for Aviation Purposes. The easement is in accordance with the Federal Aviation Regulations Part 77. The boundary is 500 feet wide at the runway and 3,500 feet wide at the beginning of the approach 10,000 feet away. With an approximate elevation of 2,700 feet at the edge of the runway, the proposed project's maximum

ground elevation of 2,772 feet poses no risk of violating the approach slope with the "A-1" easement. As required, notification will be provided to the FAA administrator during the time of review.

The proposed project, Kauhale ʻŌiwi ʻO Puʻukapu, is not located within the noise threshold of significance and is therefore determined to be a compatible land use located in proximity to the Waimea-Kohala Airport.

5.3 AMERICAN WITH DISABILITIES ACT OF 1991

In 1991, the Federal government enacted the American with Disabilities Act to provide equal accessibility for persons with disabilities. Part of this statue is having building design consider the needs of persons with disabilities. Chapter 103-50 of the HRS states, "…all plans and specifications for the construction of public buildings, facilities, and sites shall be prepared so that the buildings, facilities, and sites are accessible to and usable by persons with disabilities." The disability and communication access board shall adopt rules for the design of buildings, facilities, and site, by or on behalf of the State and counties.

Discussion: The intent of the Kauhale ʻŌiwi ʻO Puʻukapu is to serve as a public facility, and provide ADA accessibility and facilities as much as feasible for visitors, students, and employees. The proposed project, Kauhale, will comply with ADA requirements as much as feasible.

5.4 HAWAIʻI STATE PLAN

The Hawaiʻi State Plan establishes a statewide planning system that provides goals, objectives, and policies which detail property directions and concerns of the State of Hawaiʻi. Priority guidelines relating to the economy, housing, population growth, facility systems, and the physical environment will be discussed as they relate to the proposed Kauhale ʻŌiwi ʻO Puʻukapu project.

It is the goal of the State, under the Hawaiʻi State Planning Act (Chapter 226, HRS), to achieve the following:

- A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawaiʻi 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 Hawaiʻi, that nourishes a sense of community responsibility, of caring, and of participation in community life (Chapter 226-4, HRS).

The objectives and policies of the State Plan that are relevant to the proposed KALO project are discussed below:

Economy: The objectives for planning the State's economy include increasing and diversifying employment opportunities to provide a better economic quality of life for Hawaiʻi's people. It is also the objective of the State to create a diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands. It is the policy of the State to:

- Expand existing markets and penetrate new markets for Hawai'i's products and services (Chapter 226-6, HRS).

Discussion: The mission of KALO for Kauhale ʻŌiwi ʻO Puʻukapu supports the State's economic goals by providing an attractive market for Hawaiʻi's services. Funding of the Kauhale brings in outside dollars that add to the economy and diversifies own services. Cultural activities and services may also provide new products that could expand our exports as a specified cultural-based learning center.

Education: Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations. It is the policy of the State to:

- Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.
- Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.
- Promote educational programs which enhance understanding of Hawaiʻi's cultural heritage.
- Provide higher educational opportunities that enable Hawaiʻi's people to adapt to changing employment demands.
- Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.
- Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.

Discussion: The mission of KALO for Kauhale ʻŌiwi ʻO Puʻukapu strives to promote educational opportunities and programs for the State of Hawaiʻi. The Kauhale promotes the goals of the State of Hawaiʻi by providing educational programs, research and training, and cultural education opportunities. The Kauhale will provide relevant cultural, place based education for infant-toddler programs through Mālamapokiʻi, Kanu O Ka ʻĀina New Century Public Charter School (K-12), Hālau Wānana (teacher education training for adults), and other adult community programs.

Culture: Planning for the State's socio- cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawaiʻi's people. It is the policy of the State to:

- Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawaiʻi's people and which are sensitive and responsive to family and community needs.

Discussion: The Kauhale ʻŌiwi ʻO Puʻukapu promotes the goals of Hawaiʻiʻs State Plan by providing cultural educational opportunities and activities, which promote cultural values, customs, and arts that enrich the lifestyles of Hawaiʻiʻs people. The Kauhale is proposed to provide cultural and community facilities that including, a state-of-the-art computer laboratory; a large cultural park area and open gardens with *makahiki* (festival) grounds; a *pā hula* (traditional dance platform), as well as an *ahu* (alter) to be used for ceremonial purposes; an amphitheater and outdoor performance area to practice cultural arts; a group home for children in need; a counseling center; and a community hall and meeting places for community business mentoring. In addition, areas for agriculture, forestry, and animal husbandry research and learning, culturally appropriate entrepreneurial establishments including wood, music and art shops, video and recording studios and a certified kitchen will contribute to the self-sustainability of the Kauhale.

Kauhale ʻŌiwi ʻO Puʻukapu is dedicated to having a lasting positive cultural impact on the landscape of Waimea and its community members. The site selection, planning, design, development and programs are dedicated to preserving the educational and cultural needs of the Waimea community and beyond in accordance with Hawaiian values.

5.5 HAWAIʻI STATE FUNCTIONAL PLANS

The State Functional Plans implement the Goals, Objectives, Policies and Priority Guidelines of the Hawaiʻi State Plan. The Functional Plans provide the connection between State programs and State policy. Twelve functional plans have been adopted by the State Legislative which include the areas of Agriculture, Conservation Lands, Education, Energy, Health, Higher Education, Historic Preservation, Housing, Recreation, Tourism, Transportation and Water Resources. The Functional Plans are designed to address issues pertaining to physical resource needs and development. The construction of a facility, such as the proposed KALO project, is required to be in conformance with these functional plans.

5.6 HAWAIʻI STATE LAND USE DISTRICT BOUNDARIES

The State of Hawaiʻi Land Use Law regulates the classification and uses of lands in the State to accommodate growth and development, and to retain the natural resources in the area. All State lands are classified by the State Land Use Commission, with consideration given to the General Plan of the County, as either Urban, Rural, Agricultural, or Conservation.

Discussion: As discussed in *Section 3.0*, implementation of the project involves a permitted use of the proposed site. The proposed project site includes lands within the designated Agricultural District. KALO has been granted a permitted use for the site by the State Department of Hawaiian Home Lands (DHHL). The surrounding area is located within the Urban and Agricultural District. Refer to the Land Use Map *(Figure 3-2)*.

5.7 HAWAIʻI COUNTY GENERAL PLAN

Adopted by Ordinance in 1989, the General Plan for the County of Hawaiʻi sets forth long-range objectives for the general welfare and prosperity of the people of Hawaiʻi and broad policies to attain those objectives. The General Plan provides policies and courses of action intended to guide and coordinate growth patterns through the designation and preservation of lands for specified uses. One element of this coordination is the Zoning Code, which is the legal instrument that regulates land use within the County. As shown in *Figure 3-3*, the General Plan Land Use Pattern Allocation Guide (LUPAG) map illustrates the general location and relationships of various land uses to each other.

The development of the proposed KALO project advocates the following goals and policies of the County of Hawaiʻi General Plan:

Economic:
Goal: Economic development and improvement shall be in balance with the physical and social environments of the island of Hawaiʻi. The County of Hawaiʻi strives for diversification of its economy by strengthening existing industries and attracting new endeavors.

Policies: The County shall support all levels of educational opportunities and institutions for its residents.

Public Facilities:
Goal: Encourage the provision of public facilities that effectively service community needs and seek ways of improving public service through better and more functional facilities which are in keeping with the environmental and aesthetic concerns of the community.

Policies:

1. The County shall coordinate with appropriate State agencies for the provision of public facilities to serve the needs of the community.
2. The County shall encourage continuous joint pre-planning of schools with the Department of Education and the University of Hawaiʻi to ensure coordination with roads, water, and other support facilities and considerations such as traffic and safety, and access for vehicle, bicycle, and pedestrian. Encourage master planning of present and proposed public and private institutions.
3. The County shall encourage the joining of school yards with county parks and the availability of school facilities for after school use by the community for recreational, cultural, and other compatible uses.
4. The County shall encourage joint community-school library facilities, where a separate

community library may not be feasible, in proximity to other community facilities, affording both pedestrian and vehicular access.

5. The County shall encourage implementation of the Department of Education's 'Educational Specifications and Standards for Facilities.'

Applicable courses of action for the South Kohala District:

1. Encourage the expansion of the public school and library facilities as needs arise.
2. Encourage joint use of facilities.
3. Encourage the installation of walkways to and around schools and street crossing facilities for pedestrian safety.
4. Encourage the development of State and private higher educational facilities in West Hawaiʻi.

Public Utilities:

Goals: Provide a transportation system whereby people and goods can move efficiently, safely, comfortably and economically.

Applicable courses of action for the South Kohala District:
(b) Airports: The State Department of Transportation should continue the use of the Waimea-Kohala airport as an inter-island facility serving North and South Kohala and Hamakua and should improve existing facilities to handle inter-island aircraft at maximum load capacity.

Discussion: The Kauhale ʻŌiwi ʻO Puʻukapu promotes the objectives of the County General Plan by serving as a center for educational activities, community events, and cultural practices. The Kauhale will provide relevant cultural, place based education for infant-toddler programs through Mālamapokiʻi, Kanu O Ka ʻĀina New Century Public Charter School (K-12), Hālau Wānana (teacher education training for adults), and other adult community programs. The Kauhale is proposed to provide cultural and community facilities that including, a state-of-the-art computer laboratory; a large cultural park area and open gardens with *makahiki* (festival) grounds; a *pā hula* (traditional dance platform), as well as an *ahu* (alter) to be used for ceremonial purposes; an amphitheater and outdoor performance area to practice cultural arts; a group home for children in need; a counseling center; and a community hall and meeting places for community business mentoring. In addition, areas for agriculture, forestry, and animal husbandry research and learning, culturally appropriate entrepreneurial establishments including wood, music and art shops, video and recording studios and a certified kitchen will contribute to the self-sustainability of the Kauhale.

Kauhale ʻŌiwi ʻO Puʻukapu of Kanu O Ka ʻĀina Learning ʻOhana is dedicated to having a lasting positive cultural impact on the landscape of Waimea and its community members. The site selection, planning, design, development and programs are dedicated to preserving the educational and cultural needs of the Waimea community and beyond in accordance with Hawaiian values.

5.8 HAWAIʻI COUNTY ZONING DISTRICTS

Adopted in 1967, the purpose of the Comprehensive Zoning Ordinance (CZO) for the County of Hawaiʻi is to implement the General Plan and its policies for growth and development. As illustrated in *Figure 3-4*, the lands that comprise the proposed KALO project site are zoned as Agricultural (A-40), with surrounding adjacent lands designated as Agricultural (A-5a) and Residential District (RS-10).

Discussion: A permitted use from the Planning Commission may be required to implement the proposed project. The subject property is owned by DHHL. As previously mentioned, KALO is assuming that the County of Hawaiʻi will honor the decision of the DHHL to create this use of their lands without requiring KALO to engage in a Special Use Permit process that would otherwise be required of persons developing lands not owned by DHHL.

5.9 WEST HAWAIʻI REGIONAL PLAN

The West Hawaiʻi Regional Plan (WHRP) was developed by the Office of State Planning in November of 1989. The WHRP is intended to compliment the County of Hawaiʻi's General Plan and Community Development Plan and was developed to address the regional issues arising from rapid development in the West Hawaiʻi area.

The following goals define the focus and direction of the WHRP as it relates to the proposed KALO project. This plan is expressed in terms of a Vision for West Hawaiʻi, which includes the need to:

- Optimize the use of State owned lands.
- Promote a diversified economic base which maximizes job choice and opportunities.
- Ensure that existing and proposed developments can be adequately accommodated.
- Develop only within infrastructure capacities and constraints.
- Maintain the diversity of the region's natural and cultural assets.
- Maintain the diversity and character of existing communities.
- Ensure that the development does not lead to deterioration in quality of life.
- Maintain opportunities for community participation during plan implementation.

The way in which these goals manifest themselves into land use patterns, public funding, and implementation, is the heart of this plan. The plan attempts to have balance among economic development and urban growth, community development, and environmental concerns.

Lower Education:
It is the strategy of the WHRP to anticipate and provide primary and secondary educational opportunities and develop timely methods of responding to the demand for school facilities and aligning the school development schedule with private housing development schedule.

Library Services:
It is the strategy of the WHRP to support the expansion of library programs and facilities in conjunction with community development.

Higher Education:
It is the strategy of the WHRP to support an increase in residents by better coordinating and increasing linkages between the high schools, the University system, State departments, and the private sector and providing for the increased higher education and employment training needs.

Discussion: The Kauhale ʻŌiwi ʻO Puʻukapu promotes the objectives of the West Hawaiʻi Regional Plan by providing educational programs, research and training, and cultural education opportunities. The Kauhale will provide relevant cultural, place-based education for infant-toddler programs through Mālamapokiʻi, Kanu O Ka ʻĀina New Century Public Charter School (K-12), Hālau Wānana (teacher education training for adults), and other adult community programs. The Kauhale is proposed to provide cultural and community facilities that including, a state-of-the-art computer laboratory; a large cultural park area and open gardens with *makahiki* (festival) grounds; a *pā hula* (traditional dance platform), as well as an *ahu* (alter) to be used for ceremonial purposes; an amphitheater and outdoor performance area to practice cultural arts; a group home for children in need; a counseling center; and a community hall and meeting places for community business mentoring. In addition, areas for agriculture, forestry, and animal husbandry research and learning, culturally appropriate entrepreneurial establishments including wood, music and art shops, video and recording studios and a certified kitchen will contribute to the self-sustainability of the Kauhale.

5.10 HAWAIʻI RIGHT-TO-FARM ACT

The State of Hawaiʻi Right-to-Farm Act protects agricultural activities from restrictions sought by new non-farming neighbors under the Hawaiʻi Revised Statutes, Chapter 165.

Discussion: The location of the cultural and learning center between the existing farm lots and pasturage leases poses a potential concern. As discussed in *Section 3.0*, mitigation measures have been proposed and planned for to protect students from odors, dust, insects and potential agricultural chemical use. In addition, mitigation measures have been addressed to protect neighboring agricultural pasture lots from impositions by the proposed project.

5.11 AIRPORT ZONING, HAWAIʻI REVISED STATUTES, CHAPTER 262

Under HRS, Chapter 262, airport zoning regulations adopted by the State Department of Transportation, Airports Division (DOT-A) require that a permit be obtained when a new structure, tree, or use may be constructed, planted, or established or an existing use, tree, or structure may be substantially changed, replanted, altered, or repaired in an identified airport hazard zone. The overall authorization of a permit is a duty of the DOT-A director, who is responsible for ensuring that a proposed structure, tree, or use does not establish, maintain, or create an airport hazard.

As stated in the Hawaiʻi Administrative Rules, Title 19, Section 12-12, the application for a permit needs to provide sufficient details that help determine whether or not a proposed structure or tree conforms to height limitations established within section 12-7 or whether or not a pending use violates use restrictions established in Section 12-10. However, there is nothing prohibiting the construction, erection, maintenance, or alteration of a structure, or the growth of a tree, to a height up to 35 feet above the surface of the land.

Discussion: Section 12-7 of the HAR defines the approach surface of an airport facility as having a horizontal surface that extends five thousand feet from the end of the runway's primary surface at a slope of 20:1 for all utility and visual runways. The boundary is 500 feet wide at the runway and 3,500 feet wide at the beginning of the approach 10,000 feet away. With an approximate elevation of 2,700 feet at the edge of the runway, the proposed project's maximum ground elevation of 2,772 feet poses no risk of violating the approach slope with the "A-1" easement. Construction of proposed facilities will need to be reviewed for their conformance to the applicable aviation regulations and if it is determined necessary, an application for a permit will be filed at that time.

Section 6.0
Findings Supporting Anticipated Determination

6.0 FINDINGS SUPPORTING ANTICIPATED DETERMINATION

6.1 ANTICIPATED DETERMINATION

After reviewing the significance criteria outlined in Chapter 343, Hawaiʻi Revised Statutes (HRS), and Section 11-200-12, State Administrative Rules, Contents of Environmental Assessment, ~~it is anticipated that~~ the proposed action ~~will~~ has been determined to not result in significant adverse effects on the natural or human environment. A Finding of No Significant Impact (FONSI) has been made for this project.

6.2 REASONS SUPPORTING THE ANTICIPATED DETERMINATION

The potential impacts of the development and future use after construction of the proposed Kauhale ʻŌiwi ʻO Puʻukapu by Kanu O Ka ʻĀina Learning ʻOhana have been fully examined and discussed in this Final Environmental Assessment. As stated earlier, there are no significant environmental impacts expected to result from the proposed action. This determination is based on the following assessments:

(1) Involve an irrevocable loss or destruction of any natural or cultural resources.

The proposed project does not involve any known destruction of existing natural or cultural resources. The subject lands are undeveloped agricultural lands with no significant natural resources. As previously noted, no significant archaeological or historical sites are known to exist within the project site. If during the course of construction any cultural or archaeological remnants are unearthed, the Historic Preservation Division (SHPD) of the State Department of Land and Natural Resources will immediately be notified, and their treatment will be conducted in strict compliance with SHPD requirements.

(2) Curtail the range of beneficial uses of the environment.

The proposed development of Kauhale ʻŌiwi ʻO Puʻukapu will allow the area to be used to benefit the community. Surrounding the proposed buildings, open space will be preserved for outdoor classroom activities and trail access. In addition, areas for agriculture, forestry, and animal husbandry research and learning will contribute to the self-sustainability of the Kauhale. The development will not curtail the range of beneficial uses of the environment.

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

The proposed project does not conflict with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders. Any construction-related impacts of noise, dust, and emissions will be mitigated by compliance with the State Department of Health Administrative Rules.

(4) Substantially affects the economic or social welfare of the community or State.

As a result of these continuing efforts, the Kauhale will provide relevant cultural, place based education for infant-toddler programs through Mālamapōkiʻi, Kanu O Ka ʻĀina New Century Public Charter School (K-12), Hālau Wānana (teacher education training for adults), and other adult community education programs. Plans embraced by the community also include the following facilities that can be accessed by the community: a state-of-the-art computer laboratory; a large cultural park area and open gardens with *makahiki* (festival) grounds; a *pā hula* (traditional dance platform), as well as an *ʻahu* (altar) to be used for ceremonial purposes; an amphitheater and outdoor performance area to practice cultural arts; a group home for children in need; a counseling center; and a community hall and meeting places for community business mentoring. In addition, areas for agriculture, forestry, and animal husbandry research and learning, culturally appropriate entrepreneurial establishments including wood, music and art shops, video and recording studios and a certified kitchen will contribute to the self-sustainability of the Kauhale.

Design and construction work will generate indirect and induced employment opportunities and multiplier effects, but not at a level that would generate any significant expansion. The short-term employment impacts will be beneficial to the local economy.

The socio-economic benefit of the proposed project will be the creation of a community learning center which will provide educational services such as daycare, higher learning, and community facilities. Long-term benefits of the proposed project will also include jobs for education instruction and administration, including employment generation for teachers, staff and other employment. In addition to the creation of jobs, the State of Hawaiʻi and County of Hawaiʻi will receive excise tax revenues on finished development and building materials, conveyance taxes, and income taxes on wages. The socio-economic impacts will be positive for the local community, as well as the City and State.

(5) Substantially affects public health.

The project does not substantially affect health. However, community health screenings and other outreach could be conducted in the meeting rooms and community center at the cultural and community educational center. Health education curriculum as part of the planned programs at Kauhale will also provide benefits to public health. In addition, the proposed

counseling programs would benefit public health. The long-term benefits associated with the project outweigh the temporary impacts to air and noise levels.

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

The Kauhale ʻŌiwi ʻO Puʻukapu will be a public facility that will add much needed community services. The Kauhale will provide relevant cultural, place based education for infant-toddler programs through Mālamapōkiʻi, Kanu O Ka ʻĀina New Century Public Charter School (K-12), Hālau Wānana (teacher education training for adults), and other adult community education programs. Additional public facilities proposed for the Kauhale include the following: a state-of-the-art computer laboratory; a large cultural park area and open gardens with *makahiki* (festival) grounds; a *pā hula* (traditional dance platform), as well as an *ʻahu* (altar) to be used for ceremonial purposes; an amphitheater and outdoor performance area to practice cultural arts; a group home for children in need; a counseling center; and a community hall and meeting places for community business mentoring. ~~There will be no significant increase in~~ The development of Kauhale will not increase population in the area. Therefore, the project will not affect public facilities.

(7) Involves a substantial degradation of environmental quality.

Over the past year, KALO has aggressively built a fund development strategy in order to increase the ability to be self-sustaining. Within this funding support, various solicitation methods, major gift programs, and planning giving programs have been developed. In addition to creating a sufficient basis for funding KALO has defined specific self-sufficient goals for the facilities and design of Kauhale ʻŌiwi ʻO Puʻukapu. KALO has committed itself to utilizing green architecture and sustainable design wherever possible. The design of the Kauhale ʻŌiwi ʻO Puʻukapu as well as the landscaping will improve the environmental quality of the area.

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

No other development is planned in the area.

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

There are no endangered plants or animal species located within the project site.

(10) Detrimentally affects air or water quality or ambient noise levels.

Short-term effects on air, water quality or ambient noise levels during construction will be mitigated by compliance with County of Hawaiʻi and State Department of Health rules which regulate construction-related activities.

After construction, the impacts on air and water quality should be minimal. Noise levels will be increased moderately with the addition of the community services. Noise levels may slightly increase when open air community events such as performances are held at the site. However, the noise levels should not increase above appropriate levels.

KALO has committed itself to utilizing green architecture and sustainable design wherever possible. In the design of the Kauhale water efficient appliances and environmentally conscious design efforts will be utilized as much as feasible to reduce minimal impacts on air or water quality.

No detrimental effects to air or water quality or ambient noise levels are anticipated to result with the development of Kauhale.

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

The project site is not 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.

(12) Substantially affects scenic vistas and view-planes identified in county or state plans or studies.

The project site is currently undeveloped and the improvements will enhance the appearance of the area. The architecture will be designed to fit in with the character of the natural landscape by incorporating preservation and conservation principles. The landscape and design will include the use of indigenous and native plantings, and will incorporate Polynesian character. Landscaping will also be used to improve the visual character of the area.

(13) Require substantial energy consumption.

Construction of the project will not require substantial energy consumption relative to other similar projects. After the project is completed, energy will be conserved by using modern energy efficient appliances and fixtures and green design concepts as much as feasible.

6.3 SUMMARY

Based on the above findings, further consideration of the project's impacts through the preparation of an Environmental Impact Statement is not warranted. A Finding of No Significant Impact (FONSI) ~~is anticipated~~ has been made for this project. The Kauhale ʻŌiwi ʻO Puʻukapu will provide great public benefits while resulting in minimal impacts on the surrounding environment.

Section 7.0
List of References

7.0 LIST OF REFERENCES

7.1 REFERENCES

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Section 8.0
Agencies, Organizations and Individuals Receiving Copies of the EA

8.0 AGENCIES, ORGANIZATIONS AND INDIVIDUALS RECEIVING COPIES OF THE EA

Respondents and Distribution	Received Pre-Consultation Notice	Comments Received	Received Draft EA	Comments Received
Federal Agencies				
U.S. Federal Aviation Administration, Western-Pacific Regional Office			x	
State of Hawaiʻi Agencies				
State of Hawaiʻi Department of Hawaiian Home Lands	x		x	
State of Hawaiʻi Department of Health	x	x	x	x
State of Hawaiʻi Department of Land and Natural Resources	x	x	x	
State of Hawaiʻi Department of Land and Natural Resources, Historic Preservation Division	x		x	
State of Hawaiʻi Office of Environmental Quality Control	x		x	x
State of Hawaiʻi Office of Hawaiian Affairs	x	x	x	x
State of Hawaiʻi Department of Business, Economic Development & Tourism, Planning Office	x	x	x	x
State of Hawaiʻi Department of Transportation			x	

State of Hawaiʻi Department of Agriculture			x	
State of Hawaiʻi Department of Education			x	
County of Hawaiʻi Agencies				
County of Hawaiʻi Department of Parks and Recreation	x		x	
County of Hawaiʻi Department of Public Works	x	x	x	
County of Hawaiʻi Department of Water Supply	x	x	x	
County of Hawaiʻi Planning Department	x	x	x	
County of Hawaiʻi Council District 9, Councilman Pete Hoffmann	x		x	
County of Hawaiʻi Police Department			x	x
County of Hawaiʻi Fire Department			x	
Other Parties and Associations				
Waimea Homestead Association Board	x		x	
Waimea Community Association	x		x	
Waimea Hawaiian Civic Club	x		x	
Thelma Parker Memorial Public & School Library			x	
Hawaiʻi State Library			x	

Appendix A
Flora and Fauna Assessment Report

A Survey of Avian and Terrestrial Mammalian Species, on the Proposed Kanu o ka ʻĀina Learning ʻOhana Site, South Kohala District, Island of Hawaiʻi.

Prepared by:

Reginald E. David
Rana Productions, Ltd.
P.O. Box 1371
Kailua-Kona, Hawaiʻi 96745

Prepared for:

Kanu o ka ʻĀina Learning ʻOhana
P. O. Box 6511
Kamuela, Hawaiʻi 96743

April 20, 2005

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Table 1. Avian Species Detected Within the Kanu o ka 'Āina Learning 'Ohana Site 6

Introduction

This report summarizes the findings of an ornithological and mammalian survey conducted within an approximately 15 acre portion of TMK 6-6-4 (Figure 1). The site is bound to the north by Hale Hiaka Street and to the east by Hale Ali‘i Street, and to the south and west by pastureland. The site and surrounding lands are owned by the State of Hawai‘i, Department of Hawaiian Home Lands (DHHL). The Kanu o ka ‘Āina Learning ‘Ohana is proposing to develop a community education center on this site. Fieldwork was conducted on April 4th and 5th 2005.

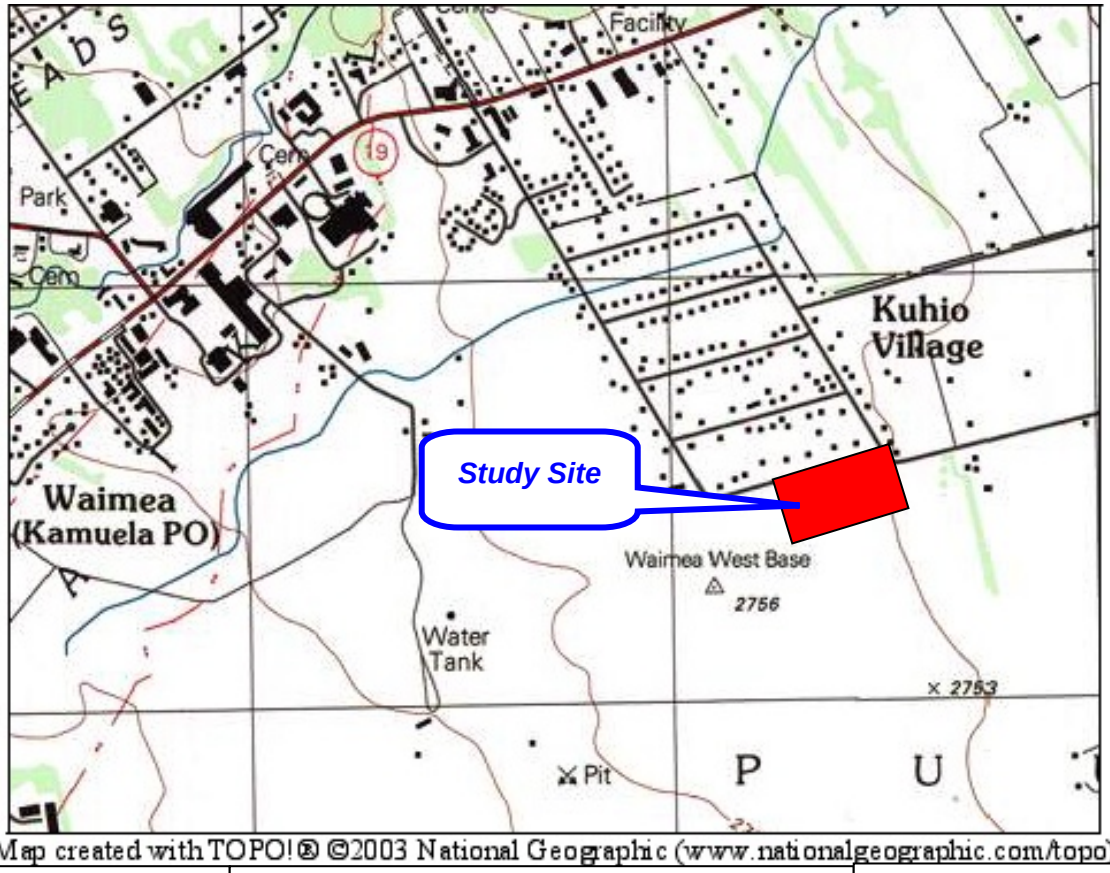
The primary purpose of the survey was to determine if there were any avian or mammalian species currently listed as endangered, threatened or proposed for listing under either the federal or the State of Hawai‘i’s endangered species programs on, or within in the immediate vicinity of the proposed project site. Federal and State of Hawai‘i listed species status follows species identified in the following referenced documents (DLNR, 1998, Federal Register, 1999a, 1999b, 2001, 2002, 2004).

Avian phylogenetic order and nomenclature follows *The American Ornithologists’ Union Checklist of North American Birds 7th Edition* (American Ornithologists’ Union 1998), and the 42nd through the 45th supplements to *Check-list of North American Birds* (American Ornithologists’ Union 2000; Banks et al. 2002, 2003, 2004). Mammal scientific names follow *Mammals in Hawaii* (Tomich 1986). Plant names follow *Manual of the Flowering Plants of Hawai‘i* (Wagner et al. 1990, Wagner and Herbst, 1999). Place names follow *Place Names of Hawaii* (Pukui et al. 1974).

Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document, which may be unfamiliar to the reader, are included at the end of the narrative text on (Page 10).

General Site Description

The approximately 12 acre site is bound to the north by Hale Hiaka Street and to the east by Hale Ali‘i Street (Figure 1). The southern and western boundaries are pastureland. There is a small in-holding within the site, located directly off of Hale Hiaka Street on which a fiber-optic relay facility has been constructed. The project site gently slopes from east to west, from an elevation of ~ 841-meters above mean sea level (MSL), at Hale Ali‘i Street, down to ~ 838-meters MSL at the western edge of the site (USGS 1996). The terrain is composed of a mix of ‘a‘a and pāhoehoe lava flows disgorged from Mauna Kea between 65,000 and 250,000 years ago during the Pleistocene Age (Wolfe and Morris 1996).



N	**Figure 1** **Kanu o Ka ʻıina Learning ʻOhana** **Study Site**	SCALE 500 METERS

The habitat present within the study site is pasture. The dominant plant within the site is Kikuyu grass (*Pennisetum clandestinum*), which is an introduced African grass favored by many cattlemen in Hawaiʻi. The Kikuyu grass forms such a dense mat on this site that the only other plants present are found along the fence lines and the cleared area located off Hiaka Street, these include; castor bean (*Ricinus communis*), (yellow-flowered) fireweed (*Senecio madagascarenis*), white clover (*Trifolium repens*) and vervain (*Verbena litoralis*). There are also a number of recently planted *ti* (*Cordyline fruiticosa*) plants just inside the eastern fence line. The vegetation on the site is typical of that found on pastureland in the vicinity of Kamuela.

Mammalian Survey Methods

With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or *ʻŌpeʻapeʻa* as it is known locally, all terrestrial mammals currently found on the Island of Hawaiʻi are alien species. Most are ubiquitous. No trapping program was proposed or undertaken to quantify the use of the property by alien mammalian species. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed and heard within the project area. Visual and electronic scans, using a Broadband AnaBat II® ultrasonic bat detector were made for bats during crepuscular periods on the evening of April 4th and on the morning of April 5th, 2005.

Avian Survey Methods

A single avian count station was located in the center of the site. Two six-minute variable circular plot counts were made one-hour apart at the count station. Field observations were made with the aid of Leitz 10 X 42 binoculars and by listening for vocalizations. Counts were concentrated between 07:30 a.m. and 9:30 a.m., the peak of daily bird activity. An additional two hours were spent within the project area on the evening of April 4th 2005 and on the morning of April 5th , 2005, in an attempt to detect nocturnally flying seabirds and owls over-flying the project area. Time not spent counting was used to search the project area for species and habitats that were not detected during count sessions.

Mammalian Survey Results

No mammals were detected on the site; however, we recorded five alien mammalian species immediately adjacent to the study site. Numerous dogs (*Canis f. familiaris*) were heard barking from within Kūhio Village. Additionally two cats (*Felis cattus*) were seen walking along Hale Aliʻi Street as was one small Indian mongoose (*Herpestes a. auropunctatus*). Pastures to the south and west of the site contained domestic cattle (*Bos taurus*) and several horses (*Equus c. caballus*).

Hawaiʻiʻs sole endemic terrestrial mammalian species, the endangered Hawaiian hoary bat, was not detected during this survey. All of the alien mammalian species recorded during this survey are deleterious to avian and floristic components of the remaining native ecosystems present on the Island.

Avian Survey Results

A total of 28 birds, of six different species, representing five separate families were recorded during station counts (Table 1). All of the avian species recorded are considered to be alien to the Hawaiian Islands. No species currently listed as endangered, threatened

or proposed for listing under either the federal or the State of Hawai‘i’s endangered species programs was detected on the site (DLNR 1998, Federal Register 1999a, 1999b, 2001, 2002, 2004).

Avian diversity and densities were extremely low. The most common avian species recorded was the Sky Lark (*Alauda arvensis*), which accounted for 40% of the total number of individual birds recorded. An average of 14 birds were detected per station count.

Table 1

Avian Species Detected Within the Kanu o ka ‘Āina Learning ‘Ohana Site

Common Name	***Scientific Name***	***ST***	***RA***
	GALLIFORMES		
	PHASIANIDAE - PHEASANTS & PARTRIDGES		
	Phasianinae - Pheasants & Allies		
Black Francolin	*Francolinus francolinus*	A	1.50
Ring-necked Pheasant	*Phasianus colchicus*	A	2.50
	COLUMBIFORMES		
	COLUMBIDAE - PIGEONS & DOVES		
Rock Pigeon	*Columba livia*	A	1.00
	PASSERIFORMES		
	ALAUDIDAE - LARKS		
Sky Lark	*Alauda arvensis*	A	5.50
	STURNIDAE - STARLINGS		
Common Myna	*Acridotheres tristis*	A	1.00
	CARDINALIDAE - CARDINALS SALTORS & ALLIES		
	Carduelinae - Carduline Finches		
House Finch	*Carpodacus mexicanus*	A	2.50

KEY TO TABLE 1

ST Status
A Alien Species
RA Relative Abundance: Number of birds detected divided by the number of count stations (2)

Discussion

A one-time survey can not provide a total picture of the wildlife utilizing any given area. Certain species will not be detected for one reason or another. Seasonal variations in populations coupled with seasonal usage and availability of resources will cause different usage patterns throughout a year or, in fact, over a number of years.

The findings of the mammalian survey are consistent with other surveys conducted in the South Kohala District within the recent past (David 1996a, 1996b, 1999, 2000a, 2000b, 2002a, 2002b, 2002c, 2004). It is likely that Hawaiian hoary bats forage within the general project area, at least occasionally, as they have been seen in areas both *mauka* and *makai* of the proposed project site on a seasonal basis (Jacobs 1994, R. David unpublished field notes 1985-2004).

It should be noted that current survey techniques available for gathering information on the distribution, abundance and usage of resources within a given area by Hawaiian hoary bats are inadequate and/or time and cost prohibitive. Data gathered by these methods only indicate whether bats are present or not in any given area. The two main methods currently being used to monitor lasiurine bats are; heterodyne echolocation detector surveys and mist netting. Scientists currently have no understanding of detection probabilities associated with either method (Carter et al., 2000). It may be impossible to standardize detection probabilities among surveyors, studies, or over time (O'Shea and Bogen, 2000). The inability to estimate detection probability, limits the usefulness of data collected using un-calibrated indices produced by either mist netting or echolocation surveys.

Unlike nocturnally flying seabirds, which often collide with man-made structures, bats are uniquely adapted to avoid collision with obstacles, man-made or natural. They navigate and locate their prey primarily by using ultrasonic echolocation, which is sensitive enough to allow them to locate and capture small volant insects at night.

Although no live rodents were detected during the course of this survey, it is likely that roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*), European house mice (*Mus domesticus*) and possibly Polynesian rats (*Rattus exulans hawaiiensis*) use resources within the general project area. Without conducting a trapping program, it is difficult to assess the population densities of these often hard-to-see mammals. All of these introduced rodents are deleterious to native ecosystems and the native faunal species that are dependant on them.

The relatively low diversity of avian species detected during this survey was in keeping with the results of several other surveys conducted in the South Kohala District in recent years (David 1996a, 1996b, 1999, 2000a, 2000b, 2002a, 2002b, 2002c, 2004). Pasture land, especially that which has deep grass and no trees, has little to offer perching birds so it was not surprising that so few species were detected on the site. Habitat present around the houses and small farms to the north and east of the subject property provides habitat for numerous alien passerines. I recorded another six species of commonly occurring alien avian species while transiting through portions of Kūhio Village. It can be expected that following clearing of the lot and construction of the learning center facilities and the installation of landscaping that all of these species will start to use resources on the project site.

The habitat currently found within the project area and within the alien species dominated pasture land in the Kamuela area is not conducive to supporting forest birds, with the possible exception of Short-eared Owls (*Asio flammeus sandwichesis*) the Hawaiian endemic sub-species of this cosmopolitan diurnal owl. Although not detected on this survey I have recorded this species on several occasions immediately adjacent to the subject property (David 2004, R. David, unpublished Field notes 1995-2005).

Although not detected during this survey it is possible that small numbers of the endangered endemic Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened Newell's Shearwater (*Puffinus auricularis newelli*), over fly the project area between the months of May and November (Banko 1980a, 1980b, Day et al. 2003, Harrison 1990).

Hawaiian Petrels were formerly common on the Island of Hawai'i (Wilson and Evans 1890–1899). This pelagic seabird reportedly nested in large numbers on the slopes of Mauna Loa and in the saddle area between Mauna Loa and Mauna Kea (Henshaw 1902), as well as at the mid to high elevations of Mount HualÅlai. It has, within recent historic times, been reduced to relict breeding colonies located at high elevations on Mauna Loa and, possibly, Mount Hualailai (Banko 1980a, Banko et al. 2001, Cooper and David 1995, Cooper et al. 1995, Day et al. 2003, Harrison 1990, Hue et al. 2001, Simons and Hodges 1998).

Newell's Shearwaters were formerly common on the Island of Hawai'i (Wilson and Evans 1890–1899). This species breeds on Kaua'i, Hawai'i and Moloka'i in extremely small numbers. Newell's Shearwater populations have dropped precipitously since the 1880s (Banko 1980b, Day et al., 2003). This pelagic species nests high in the mountains in burrows excavated under thick vegetation, especially *uluhe* fern.

The primary cause of mortality in both these species is thought to be predation by alien mammalian species at the nesting colonies (Ainley et al. 2001, Cooper and Day 1995, 1998, Day and Cooper 1997, Hue et al. 2001). Collision with man-made structures is considered to be the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds often collide with manmade structures, and if they are not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals (Ainley et al. 1995, 1997, 2001, Cooper and Day 1995, 1998, Day and Cooper 1997). There is no suitable nesting habitat within or close to the proposed project site for either of these pelagic seabird species.

The vegetation present on the site is almost completely alien and is typical of highly disturbed grazing lands in the Kamuela area. The development and operation of the proposed learning center is not expected to result in any adverse impacts to native plant species. From a botanical perspective there is nothing to suggest that the proposed development should not go forward as envisioned.

Potential Impacts to Protected Vertebrate Species

Hawaiian hoary bat

The construction and operation of the proposed Kanu o ka ‘Āina Learning Center is not expected to result in any adverse impacts to the endangered Hawaiian hoary bat, the only listed terrestrial mammalian species present in Hawai‘i.

Hawaiian Petrel and Newell’s Shearwater

The principal potential impact that the construction and operation of the proposed learning center poses to Hawaiian Petrels and Newell’s Shearwaters is the increased threat that birds will be downed after becoming disoriented by exterior lighting that may be required in conjunction with the construction and operation of the learning facility.

Recommendations

To reduce the potential for interactions between nocturnally flying Hawaiian Petrels and Newell’s Shearwaters with external lights and man-made structures, it is recommended that any external lighting planned to be used during construction or being proposed as permanent street lights be shielded (Reed et al. 1985, Telfer et al., 1987). This mitigation would serve the dual purpose of minimizing the threat of disorientation and downing of Hawaiian Petrels and Newell’s Shearwaters, while at the same time complying with the Hawaii County Code § 14 – 50 *et seq.* which requires the shielding of exterior lights, so as to lower the ambient glare caused by unshielded lighting to the astronomical observatories located on Mauna Kea.

Glossary:

Alien - Introduced to Hawai‘i by humans.
Commensal – Animals that share humans food such as rats and mice.
Crepuscular – Twilight hours.
Diurnal – Daytime
Domesticated – Feral species, not considered established in the wild on the Island of Hawai‘i.
Endangered – Listed and protected under the ESA as an endangered species.
Endemic – Native and unique to the Hawaiian Islands.
Indigenous - Native to the Hawaiian Islands, but also found elsewhere naturally.
Mauka – Upslope, towards the mountains
Makai – Down-slope, towards the ocean.
Nocturnal – Night-time, after dark.
Threatened - Listed and protected under the ESA as a threatened species.
Volant – Flying, capable of flight - as in flying insect.

DLNR – Hawaii State Department of Land & Natural resources.
ESA - Federal Endangered Species Act of 1973, as amended.
MSL – Above mean sea level

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Appendix B
Civil Engineering Assessment Report

DUE DILIGENCE REPORT

FOR

KANU O KA' AINA LEARNING CENTER

WAIMEA, KAMUELA, HAWAII

TAX MAP KEY: 3RD Div. 6-4-4: POR. 9

PREPARED FOR:
KANU O KA' AINA LEARNING OHANA

KAMUELA, HAWAII

PREPARED BY:

AKINAKA & ASSOCIATES, LTD.
CONSULTING ENGINEERS
3049 UALENA STREET, SUITE 500
HONOLULU, HAWAII 96819

MAY 2005

DUE DILIGENCE REPORT– KANU O KA' AINA LEARNING CENTER

1.0 SITE ANALYSIS

1.1 EXISTING SITE USE

The site where the proposed Kanu O Ka' Aina Learning Center project (herein referred to as the "Project") resides on is a 15 acre parcel (TMK: 6-4-4:09, por.) located in Waimea on the island of Hawaii (See **Figure 1 – Location Map**). The site is approximately 740-ft. wide (along Hiiaka Street) and 880-ft. deep.

The parcel is part of the Puukapu Pasture Lots which is owned by the Department of Hawaiian Home Lands (see **Figure 2 – Site Map**). The adjacent lot to the east is part of the Puukapu Farm Lot subdivision (1964) and Hiiaka Street borders the north of the project. Hiiaka Street was created as part of the Puukapu Village House Lots subdivision (1952).

1.2 EXISTING SITE CONDITIONS

The site is presently pasture land covered with native grass.

The general terrain of the site is relatively flat (0.5%) with elevations ranging from 2765 ft at the southern end to 2762 ft at the northern end. The western edge of the site is below the remainder of the site with elevations ranging from 2745 ft to 2750 ft with a rising ridge in the middle (elevation 2760 ft). See **Figure 3 – Topographic Map**.

The Waimea-Kohala airport resides approximately one mile away to the south-west of the project site (approximately 4,500-feet from the edge of the runway). The majority of the Project falls within easement "A-1" which is for Aviation Purposes. The easement is in accordance with the Federal Aviation Regulations Part 77 with requires a clear zone approach slope of 34:1 within a designated boundary. The boundary is 500-feet wide at the runway and 3,500-feet wide at the beginning of the approach 10,000-feet away (see **Figure 4 – Waimea-Kohala Airport Approach Area**). With an approximate elevation of 2700 ft at the edge of the runway, the Projects maximum ground elevation of 2772 ft poses no risk of violating the approach slope with the "A-1" easement.

1.3 EXISTING SOILS CONDITIONS

Three soil types were identified within the Waimea area. Kikoni very fine sandy loam (KfA, 0 to 3 percent slopes, and KXC, 3 to 12 percent slopes), and Waimea very fine sandy loam (WMC, 6 to 12 percent slopes). These soils have moderately rapid permeability, and thus, runoff is slow which results in only a slight erosion hazard.

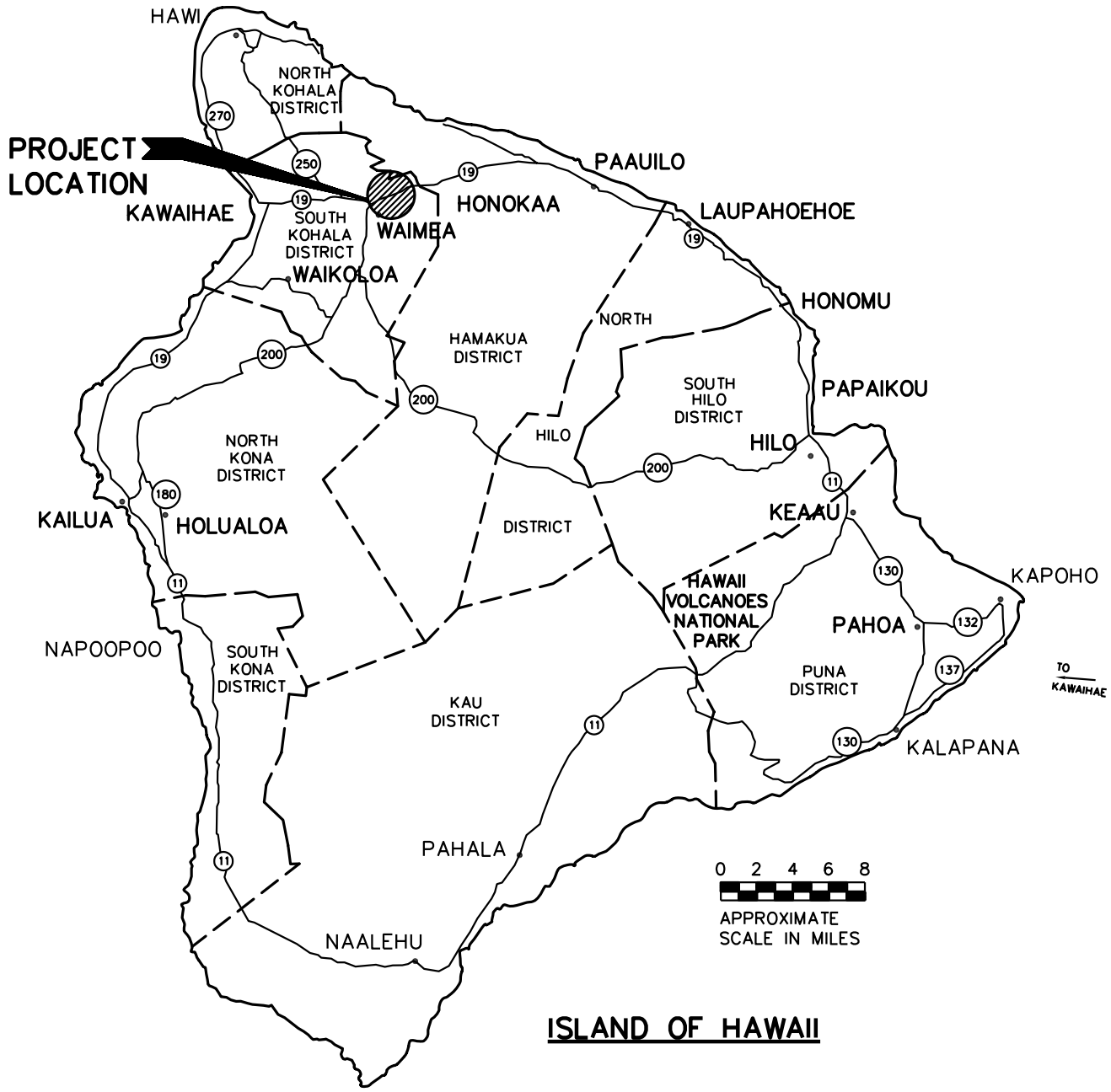
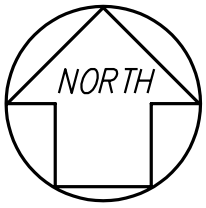


FIGURE 1



KANU O KA' AINA LEARNING CENTER
DUE DILIGENCE REPORT

LOCATION MAP

AKINAKA & ASSOCIATES, LTD.

SCALE: AS SHOWN

MAY 2005

FILE: FIGURE 1 PM: BKM
SCALE: 1=1 OPR: BKM
BEG: 10/07/99 REVISED: 5/14/05

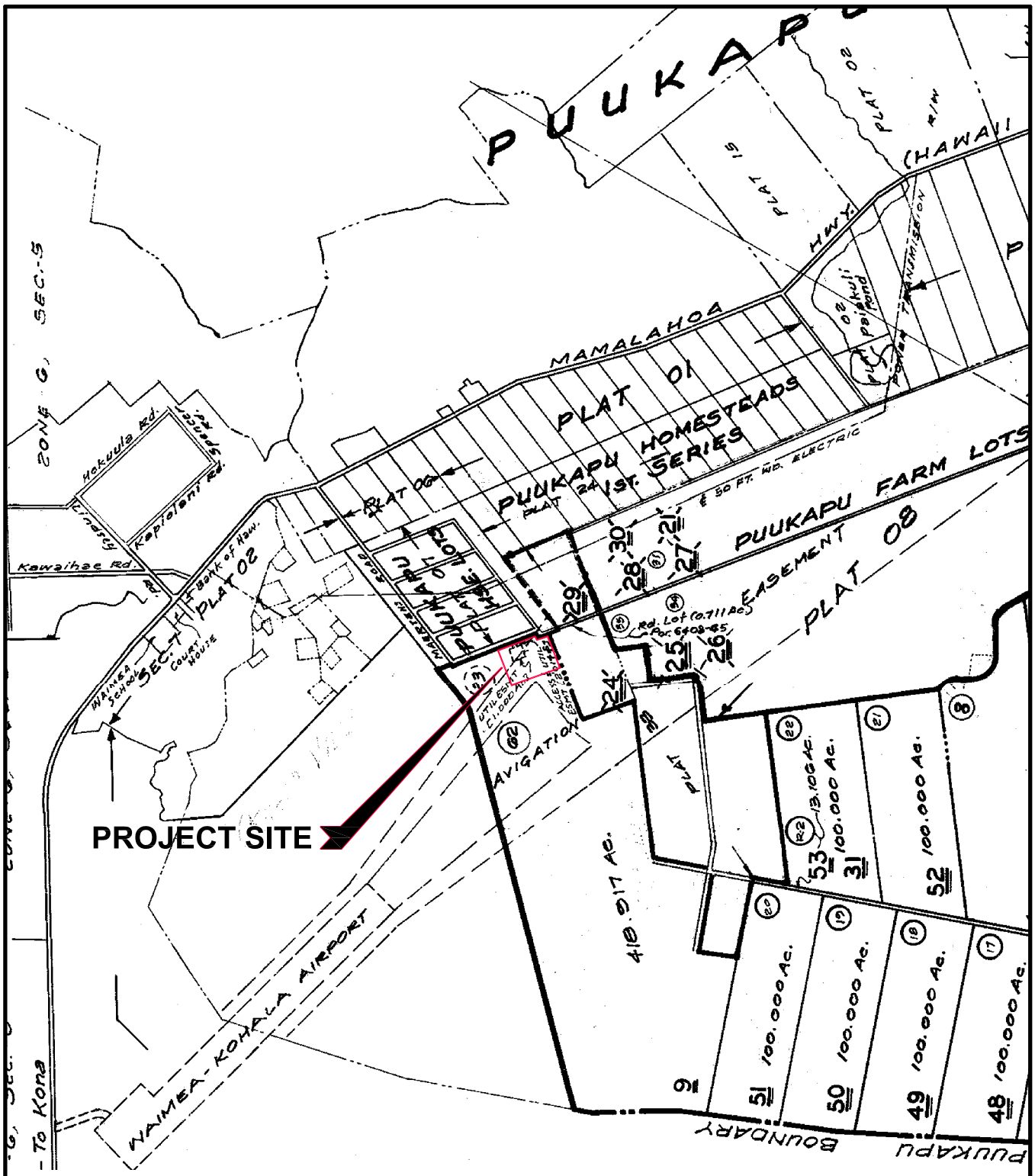


FIGURE 2

KANU O KA' AINA LEARNING CENTER
DUE DILIGENCE REPORT

SITE MAP

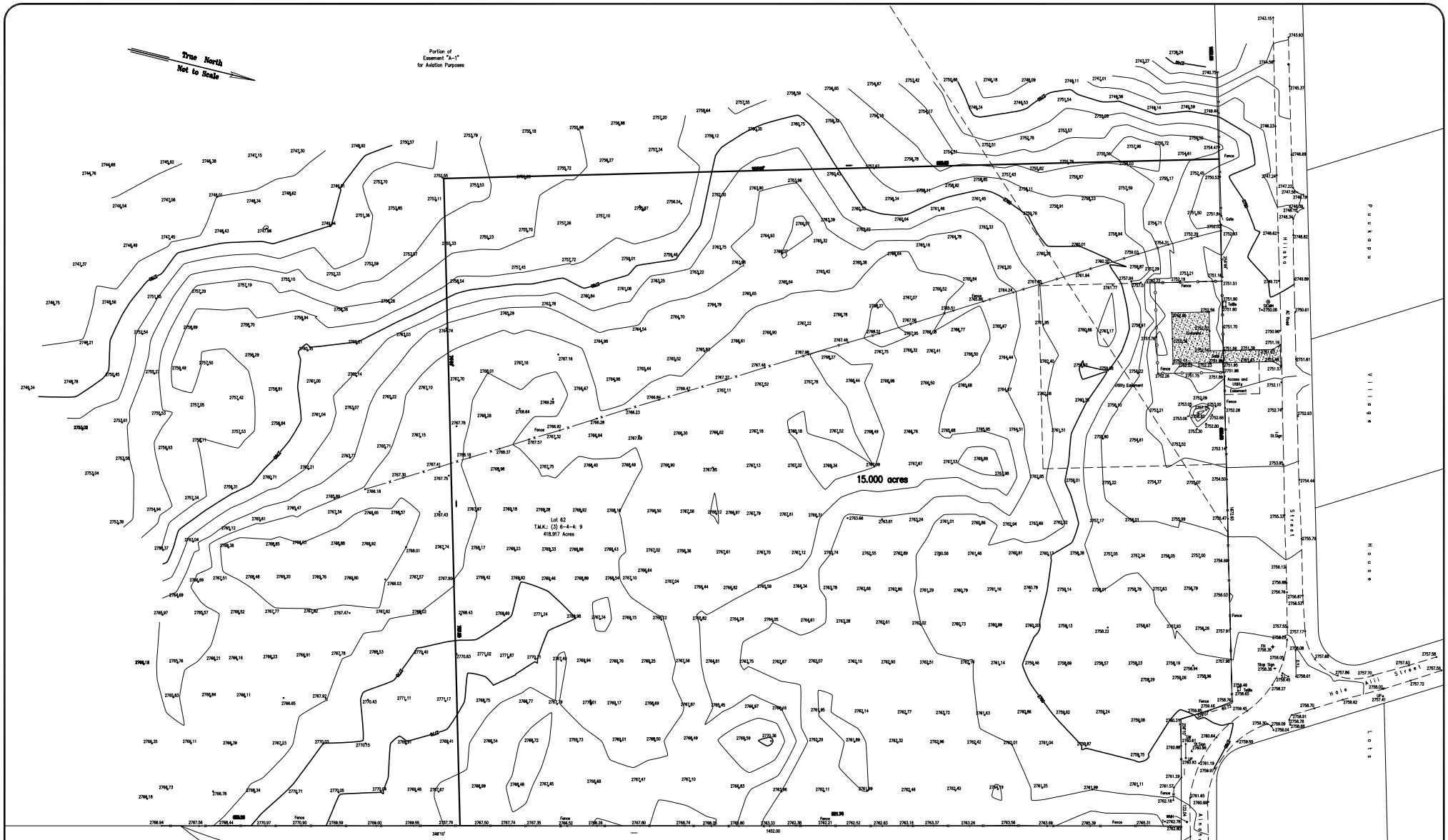
AKINAKA & ASSOCIATES, LTD.

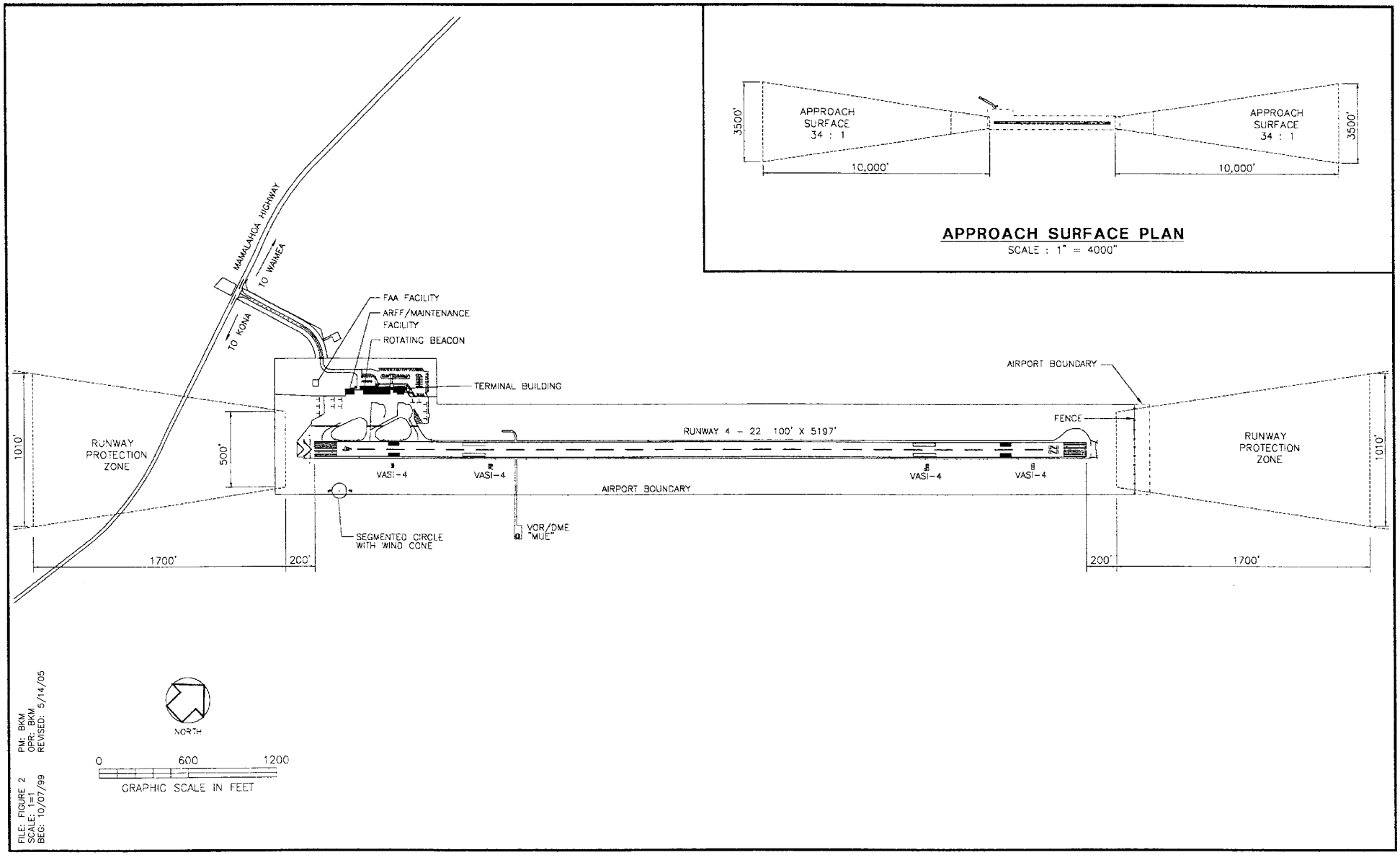
NOT TO SCALE

MAY 2005

FILE: FIGURE 2
SCALE: 1=1
BEG: 10/07/99

PM: BKM
OPR: BKM
REVISED: 5/14/05


True North
Not to Scale
Portion of
Easement "A-1"
for Aviation Purposes
15.000 acres
Lot 62
T.M.K.: (3) 6-4-4: 9
418.917 Acres
Lot 36
T.M.K.: (3) 6-4-33: 39
Owners: Hawaiian Home Land
Jeanett Alani & Bernard SR
Bench Mark
"TR Post"
Spike in Fence Post
Elev.= 2768.36
Puukapu
Village
Hawaiian Homes
Lots
Hole
Alii Street
Hilo Road
Kuhio Avenue
Fence
Gate
Utility Easement
Access and Utility Easement
Sign
Stop Sign
Telephone Pole
Fire Hydrant
Water Valve
Cleanout
Manhole
Drain Inlet
Catch Basin
Tree
Bush
Rock
Pond
Concrete
Asphalt
Gravel
Dirt
Grass
Water
Wall
Building
Shed
Pole
Post
Sign
Mailbox
Bollard
Curb
Edge of Pavement
Top of Bank
Toe of Slope
Ridge
Valley
Spot Elevation
Contour
Boundary
Property Line
Easement
Road
Driveway
Path
Trail
Stream
Ditch
Culvert
Bridge
Tank
Pump
Meter
Antenna
Flagpole
Light
Power Line
Telephone Line
Cable
Guy Wire
Anchor
Hydrant
Valve
Tee
Elbow
Reducer
Cap
Plug
Flange
Joint
Coupling
Nipple
Tap
Meter Box
Cleanout Box
Drain Box
Catch Basin Box
Manhole Cover
Grate
Frame
Lid
Cover
Ring
Base
Footing
Foundation
Slab
Floor
Wall
Roof
Ceiling
Window
Door
Threshold
Sill
Header
Jamb
Stud
Joist
Rafter
Truss
Beam
Column
Post
Pier



Airports Division

REFERENCE: WAIMEA-KOHALA AIRPORT
WORKING PAPER NO. 1
MASTER PLAN AND NOISE COMPATIBILITY STUDY

NOVEMBER, 1997
Edward K. Noda and Associates, Inc.

FIGURE 4
WAIMEA-KOHALA AIRPORT
APPROACH AREA

1.4 CLIMATE

The Waimea area has an average annual rainfall of about 30 to 40 inches per year. Diurnal wind patterns produce westerly trades in the morning and early afternoon which then switches easterly in the late afternoon and evening. Average annual temperatures range from 55°F to 80°F, with relative humidity ranging between 71 and 77 percent all year round.

1.5 PROPOSED SITE DEVELOPMENT

The Project proposes to utilize the 46,160 square foot site to include:

a. Multimedia lab and Community Information Center
b. Community Center
c. Cafeteria
d. Performance Center and Gym
e. Preschool and Grades K-12 Learning Facilities
f. Administration Offices
g. KALO Store (arts and crafts created by students)

1.6 CRITICAL COST IMPACTS OF SITE CONDITIONS

The most critical cost impact of the site will be the lack of existing utilities within the area.

There is no public sewer system within the Waimea area. An Individual Wastewater System (IWS) will be needed for the Project.

There are existing water lines within the area. However, inadequate pipe sizing to produce standard fire protection may result in having to improve the piping system.

The grading of the area may become a critical cost impact to facilitate that flow pattern.

2.0 SITE ROADWAY SYSTEM

2.1 EXISTING ROADWAY SYSTEM

Primary access into the Puukapu House Lots Subdivision is thru Kamamalu Street (Maertens Road) from Mamalahoa Highway.

Access to the Project is via Hiiaka Street. Hiiaka Street is accessible from Kamamalu Street or Hale Alii Street.

Hiiaka Street is a 16-ft. wide paved roadway with grassed shoulders. The pavement surface appears to be in fairly good condition.

2.2 PROPOSED ROADWAY SYSTEM

Within the Project, the roadway system will primarily involve roadways to the two separate parking spaces on the east and west ends of the site.

2.3 CRITICAL COST IMPACTS OF ROADWAY SYSTEMS

Pending the proposed alignment of the roadways, the grading of the roadways may become a critical cost impact to provide adequate slopes to promote the desired flow patterns of excess rain runoff.

A potential cost impact may arise if a Traffic Impact Analysis Report (TIAR) is prepared to analyze the traffic impact associated with the project. The TIAR may indicate that improvements are needed at the Kamamalu Street and Mamalahoa Highway intersection. The improvements may include additional turning lanes coming out of or into Kamamalu Street. The addition of turning lanes may also require improvements to the existing traffic signal system.

3.0 SITE UTILITY SYSTEMS

3.1 WATER SYSTEM

3.1.1 OVERVIEW

Preliminary research indicates that the existing water system within the area can provide adequate service for domestic use. However, water service may be inadequate in providing standard fire protection (fire hydrants).

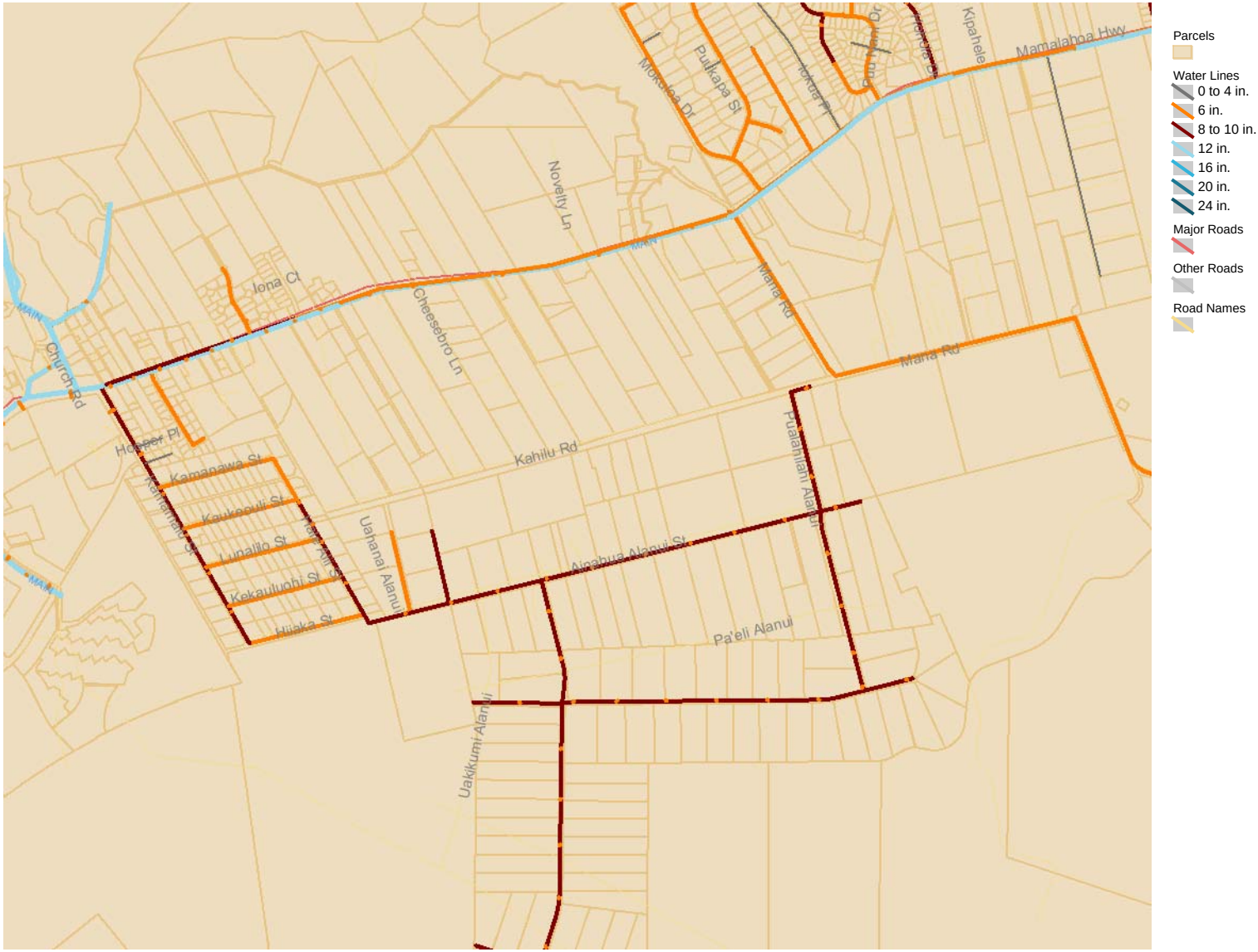
3.1.2 EXISTING WATER DEMANDS

Presently, the site has no water use. However, the parcel that the site is part of has four existing water meters in service.

3.1.3 EXISTING WATER SYSTEM

The Puukapu Pasture Lots is serviced by the 4.0 mg clearwater reservoir at the water treatment plant which has a spillway elevation of 3052-ft.

The existing 6-in. water line in Hiiaka Street is part of a looped water system within the Puukapu Pasture Lots subdivision. The subdivision is fed by an existing 8" waterline along Kamamalu Street from Mamalahoa Highway (see **Figure 5 – Existing Water System Map**).



Water Map

FIGURE 5
EXISTING WATER SYSTEM MAP

3.1.4 PROPOSED WATER DEMAND

The following criteria were used in determining the proposed water demand:

- Average Daily Demand
  - 1.06 acres (46,140 square feet) @ 4000 gal/acre = 4,237 gpd
- Maximum Daily Demand
  - 1.5 x average = 6,355 gpd
- Proposed Units (@ 600 gpd per unit)
  - 6,355 / 600 = 11 proposed units
- Fire flow of 2,000 gpm minimum with a minimum residual pressure of 20 psi.

The water demand will be revised as fixture unit counts become available.

3.1.5 PROPOSED WATER SYSTEM

The proposed water system for the Project will install a water lateral from Hiiaka Street and utilize a 1½" water meter to produce the proposed 11 water units. A County approved backflow assembly will be required following the meter. Piping distribution would be as necessary to service the various structures within the Project.

3.1.6 WATER SYSTEM DEFICIENCIES

Preliminary research indicates that the existing water system within the area may not be able to provide adequate flows for standard fire protection (fire hydrants).

A water system calculation must be performed to determine if the standard flow rate (2000 gpd) can be achieved based on the existing piping system. Should the calculations indicate that the system is inadequate, the following alternates are offered:

<u>ALTERNATE 1</u>

- Run the calculations to see if the system can provide flows for 1500 gpd (sprinkler system with dry stand pipe).
- If the system can provide 1500 gpd, an inquiry can be made with the County Fire Department to allow the 1500 gpd flow for a sprinkler and stand pipe alternative for a Charter School.
- If the system cannot provide 1500 gpd, improvements must be made to the existing piping system. Improvements may include installing new waterlines to interconnect the system or replacing smaller waterlines to

increase the flow. It is suggested that the improvements should result in obtaining the 2000 gpd.

ALTERNATE 2

- Connect the existing 8-in. water line on Kahilu Road to the 6-in. water line on Mana Road.
- Run the calculations to determine if the 2000 gpd requirement can be obtained.

3.2 SEWER SYSTEM

3.2.1 OVERVIEW

There is no existing sewer system near to the project site. All wastewater flows produced from the Project will need to be handled thru an Individual Wastewater System (IWS).

3.2.2 EXISTING SEWAGE FLOWS

The existing site is unoccupied and has no flows.

3.2.3 EXISTING SEWERAGE SYSTEM

There is no existing sewer system near to the project site.

3.2.4 PROPOSED SEWAGE FLOWS

The following criteria were used in determining the proposed sewer flows:

- 250 Students
- Average flow rate of 25 gpcd
- Average flow = 6300 gpd
- Dry weather infiltration flow rate of 5 gpcd
- Wet weather infiltration/inflow rate of 1250 gallons per acre per day
- Contribution area for wet weather infiltration/inflow of 46,140 square feet

Criteria based on the City and County of Honolulu standards.

3.2.5 PROPOSED SEWERAGE SYSTEM

The proposed sewer system will consist of Individual Wastewater Systems distributed thru out the Project as needed. The IWS is an aerobic system which requires underground tanks and an open filed to discharge the effluent (discharge done underground).

3.2.6 SEWERAGE SYSTEM DEFICIENCIES

The Individual Wastewater System will require periodical maintenance. The system will have a maximum allotted flow. Additional flows will require an additional IWS.

3.3 DRAINAGE SYSTEM

3.3.1 OVERVIEW

The existing topography indicates that there may be off-site flows onto the site. On-site flows will flow towards the west and north. There does not appear to be any existing sump conditions within the site.

3.3.2 EXISTING DRAINAGE SYSTEM

The existing site is unoccupied and has no drainage system. Existing on-site flows sheet flow to the west and north.

3.3.3 PROPOSED DRAINAGE SYSTEM

The proposed drainage system will manage moderate storms (10-yr intensity) thru the use of drywells. The flow pattern of excess rain runoff will need to be controlled to prevent flood damage.

Off-site flows will need to be determined and managed by either accepting the flows or diverting it around the site. The original flow pattern must not be altered unless a drainage impact analysis is performed to show there will be no negative impact.

4.0 DESIGN STANDARDS & REFERENCES

4.1 Rules Relating to soil Erosion Standards and Guidelines, Department of Planning and Permitting, City and County of Honolulu, April 1999.

4.2 Rules Relating to Storm Drainage Standards, Department of Planning and Permitting, City and County of Honolulu, January 2000.

4.3 Design Standards of the Department of Wastewater Management, Department of Wastewater Management, City and County of Honolulu, State of Hawaii, July 1993.

4.4 Water system Standards, Board of Water Supply, City and County of Honolulu, State of Hawaii, 2002.

4.5 Waimea-Kohala Airport Master Plan and Noise Compatibility Program, Master Plan, Summary of Existing Conditions, Limitations, Opportunities, and Concerns, Department of transportation, Airports Division, State of Hawaii, January 1998.

Appendix C
Archeological Assessment Report

ARCHAEOLOGICAL ASSESSMENT
FOR THE KANU O' KA'AINA LEARNING OHANA
PU'UKAPU, WAIMEA *AHUPUA'A*, SOUTH KOHALA DISTRICT
HAWAII ISLAND
TMK 6-4-04:por. 09

by
Jeffrey Pantaleo, M.A.

for
Group 70 International, Inc.
925 Bethel St., 5th Floor
Honolulu, Hawaii 96813

May 2005

Jeffrey Pantaleo Consulting, LLC
3075 Ala Poha Place #1206
Honolulu, Hawaii 96818

ABSTRACT

Jeffrey Pantaleo Consultants, LLC, of Honolulu, conducted an archaeological assessment of a 15-acre parcel of land proposed for the Kanu O Ka'aina Learning Center in Pu'ukapu, Waimea *ahupua'a*, South Kohala District, Hawaii Island. The current study was conducted to determine the presence/absence, nature, and extent of archaeological resources in the project area and evaluate their significance.

Historical and archaeological background research was conducted to enhance site predictability and interpretation. A surface survey of the parcel revealed an absence of cultural remains or isolated artifacts and extensive previous disturbances from cattle grazing and construction activities. Due to the absence of surface cultural remains, subsurface testing by backhoe was concentrated in the 5-acre portion of the parcel proposed for development of the Kanu O Ka'aina Learning Center. A total of 5 backhoe trenches were excavated. No cultural remains or deposits were encountered in all of the trenches. Generally, two to three stratigraphic layers were exposed during trenching. The surface of the parcel consisted of recent silt accumulation and grasses. Underlying the overburden was Layer I, silty clay, present only in T1. Layer II, silt loam, was identified in all trenches, and Layer III, cindery clayey silt, was exposed in T3-5. Layer IV, silt loam, was present in T3 and 4.

Due to the negative results of backhoe testing, together with the previous disturbances, no further archaeological work is recommended. In the event subsurface cultural remains are exposed during construction activities, all work in the immediate vicinity shall be halted, and SHPD shall be notified.

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INTRODUCTION

At the request of Group 70 International, Inc., Jeffrey Pantaleo Consultants, LLC, of Honolulu, conducted an archaeological assessment for the proposed Kanu O Ka'aina Learning Ohana in Pu'ukapu, Waimea *ahupua'a*, South Kohala District, Hawaii Island. The survey was conducted to determine the presence/absence, nature, and extent of archaeological resources in the project area and evaluate their significance, and ensure compliance with the National Historic Preservation Act of 1966, as amended, Chapter 6E of the Hawaii Revised Statutes (HRS), and in accordance with the guidelines established by the State Historic Preservation Division (SHPD), State Department of Land and Natural Resources (DLNR).

PROJECT AREA

The project area (TMK 6-4-4:por. 09) is situated within the '*ili* of Pu'ukapu, Waimea *ahupua'a*, South Kohala District, Hawaii Island (Fig. 1). The 15-acre rectangular parcel, of which only 5-acres is proposed for development of the Kanu O Ka'aina Learning Center, is bounded by Hiiaka Road to the north, the Waimea-Kohala Airport to the west, and open land to the east and south (Fig. 2).

ENVIRONMENT

The project area is located on the Waimea Plain, which was created by lava and ash from the Kohala and Mauna Kea volcanoes. Topography of the project area is relatively level and slopes slightly to the north (Fig. 3). Elevation ranges between 2720 and 2780 feet above mean sea level. Rainfall averages 1,900 mm (75 inches) a year, with most of the precipitation occurring during the winter months between November and February (Armstrong 1983). Vegetation is limited to secondary growth including *kikuyu* grass (*Pennisetum clandestinum*) and various weeds. A soil berm from construction of Hiiaka Road defines the northern boundary of the parcel, and the entrance to the parcel is a gravel surface (Fig. 3).

Soil in the project area includes Waimea very fine sandy loam (Foote et al. 1972). This soil includes a surface layer of dark brown sandy loam overlying a dark brown silt loam. Underlying the loam is weathered basalt. Permeability is rapid, runoff is slow, and the erosion hazard is slight. This soil is commonly used for pasture.

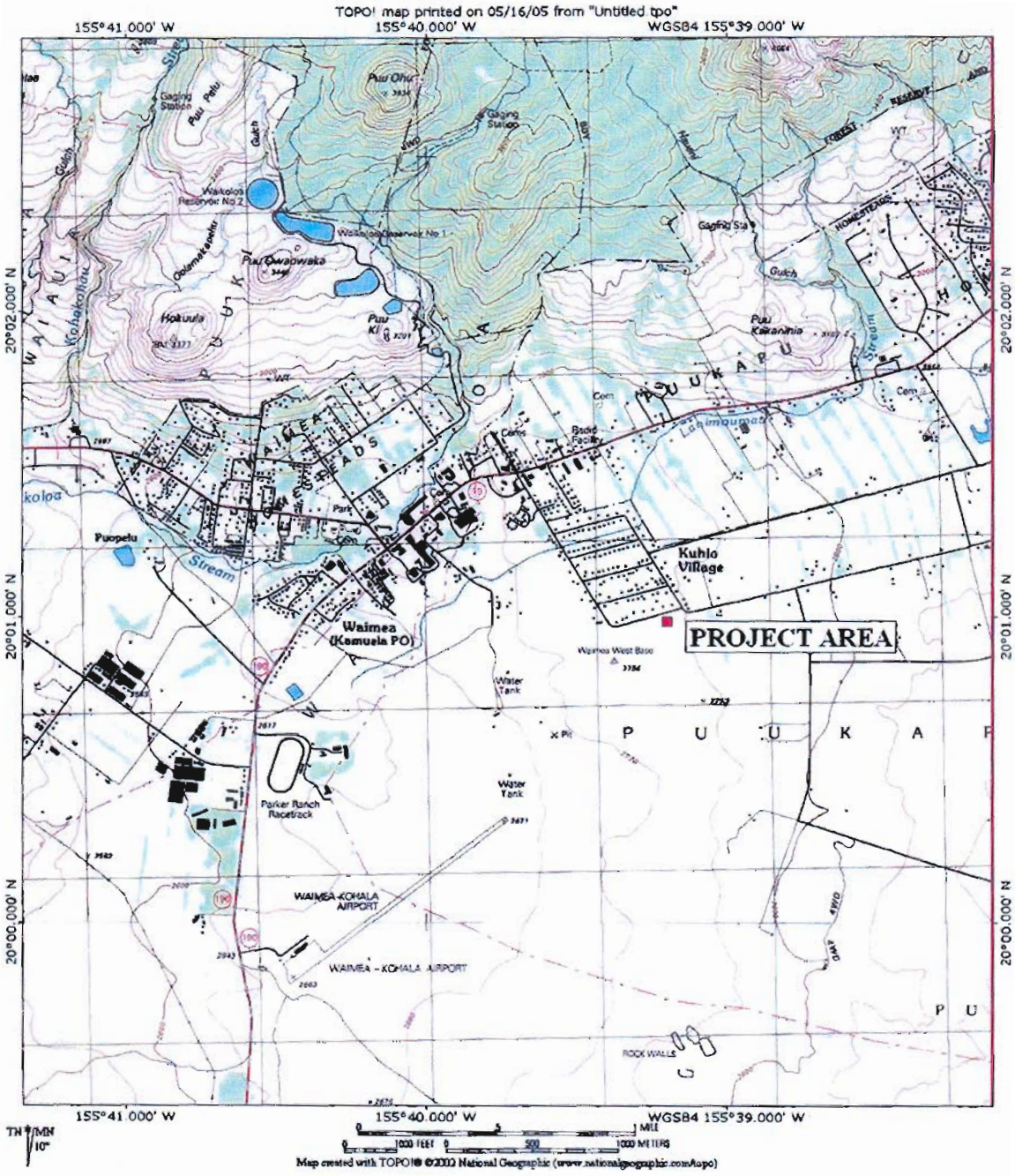

Figure 1. Location of Project Area on USGS Kamuela Quadrangle

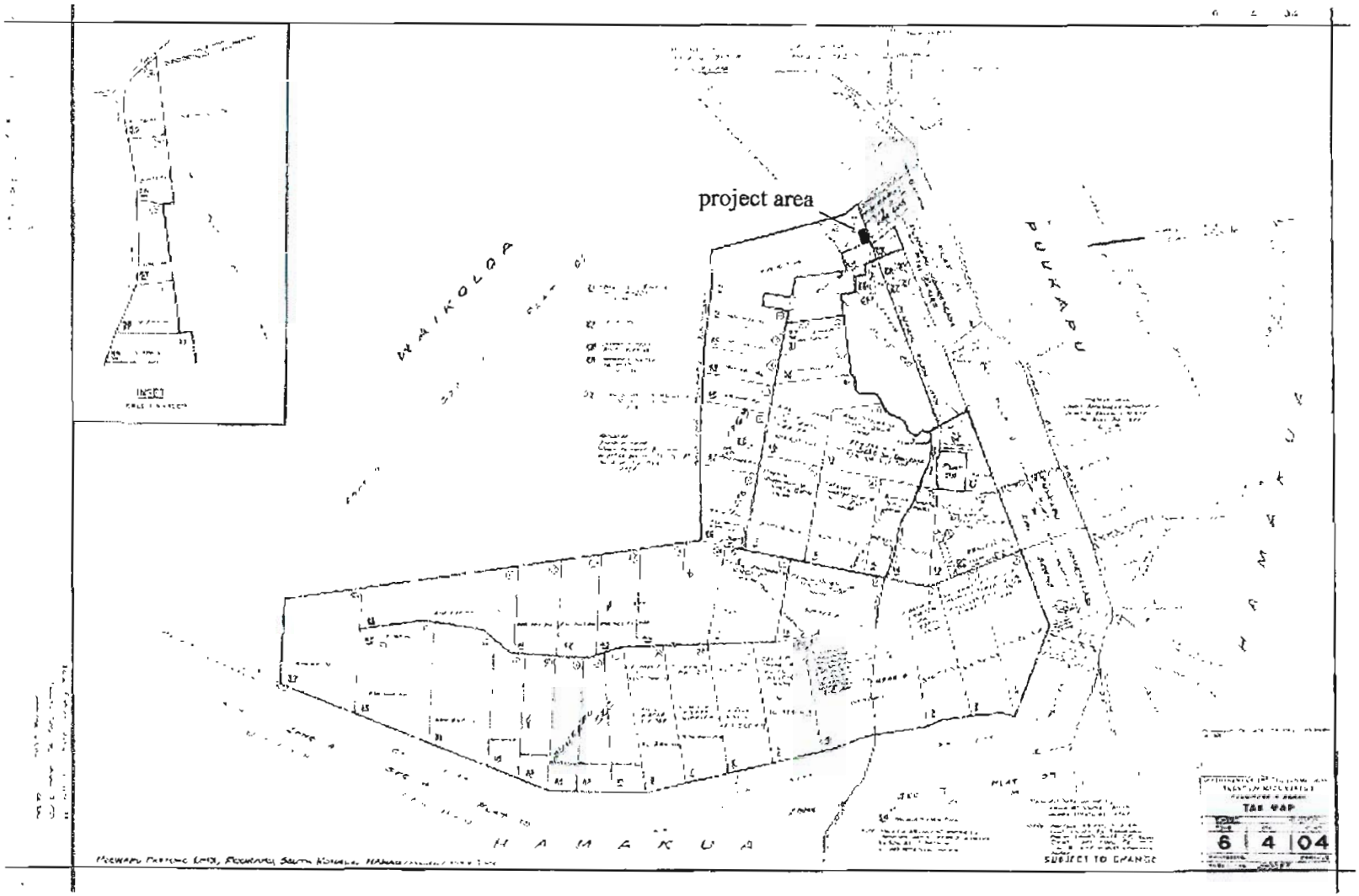

Figure 2. Project Area on TMK 6-4-04 Map

Figure 3. Top: Overview of Project Area, View to North.
Bottom: Entrance to Parcel, View to South.

HISTORY

Background information regarding Waimea *ahupua'a* and the South Kohala District was summarized in Erkelens (1998), Haun et al. (2003), and Thompson et al. (1992). Only a brief summary of these studies will be included here.

The current project area is located in the *'ili* of Pu'ukapu in the *ahupua'a* of Waimea. The literal meaning of Pu'ukapu is "sacred hill" (Pukui et al. 1974:198), and the literal meaning of Waimea is "reddish water", from the erosion of red soil (Pukui et al. 1974:226). Pu'ukapu is known as a place where chiefs and commoners met to discuss important matters (Pukui et al. 1974:199). Waimea, traditionally known for its strong gusty winds and chilly rain, was highly valued by the *ali'i* for its rich soil used to support the warriors.

Legendary accounts of Waimea are scarce. Kamakau mentioned Kawaihae in South Kohala was where Maui chiefs beached their canoes to do battle against Kohala chiefs. Waimea was also a training ground for young chiefly warriors. One of the local Waimea chiefs, Hina'i, was well known for leaping cliffs, a difficult skill that the saved lives of many warriors in battle (Kamakau 1961:111-112).

Kamehameha stayed in Waimea and Kawaihae for extended periods of time during his campaign. In 1791 and 1792, Kamehameha built a *heiau* at Pu'ukohola, which required the assistance of many workers. In 1794 and 1795, Kamehameha prepared his Peleleu fleet to carry out war against Maui and O'ahu (Clark and Kirch 1983:27).

The earliest historic account of Waimea was by Captain George Vancouver in 1794:

> …the plains of Whymea…are reputed to be very rich and productive, occupying a space of several miles in extent, and winding at the foot of these lofty mountains far into the country. In this valley is a great tract of luxuriant natural pasture, whither all the cattle and sheep imported by me are to be driven, there to roam unrestrained, to increase and multiply (Vancouver 1801:5,107)

By 1794, Vancouver had left seven cows, three bulls, five ewes, and five rams on Hawaii Island as gifts to Kamehameha. A *kapu* (prohibition) on the cattle was imposed by Kamehameha to insure that the stock would multiply. By the 1820s, it was estimated that there were over 1600 cattle in the Waimea area. Kamehameha hired John Parker as a bullock hunter to shoot them, salt the meat in the mountains, and bring it down to the shore for provisioning the native vessels (Kamakau 1961:301). Parker later founded the Parker Ranch.

Between 1812 and 1844, the island of Hawaii was under the control of Kuakini, also known as Governor Adams. During his reign, sugarcane and cattle ranching was introduced to Waimea. During the late 1820s, two Chinese men, Lau Ki and ‘Aiko, established a sugar mill at Lihue. In 1843, the mill was sold to Abraham Fayerweather with the sugar provided by Kuakini. Although unsuccessful, sugarcane continued to be cultivated in Waimea after Macy and Louzada purchased the mill in 1853. Macy and Louzada leased a large portion of Pu’ukapu in 1857 for growing sugarcane. However, cultivation of sugarcane in Pu’ukapu was abandoned by 1877.

The cattle industry initially began in the early 1800s with bullock hunting, which was controlled by the chiefs, and later developed into an industry based on meat, hides, and tallow. By the 1830s, the cattle industry was developed in Waimea by Kuakini, who moved his residence to Waimea in 1828. Kuakini hired *paniolos*, Spanish-Americans, to capture wild cattle for market. By 1846, approximately two-thirds of Waimea was converted to pasture for cattle, sheep, and horses (Lyons 1846, 1847). The government was selling salted beef to traders and whalers who stopped in Hawaii. Parker Ranch began acquiring large tracts of land in the 1850s, and by the early 1900s controlled over 100,000 acres of land for cattle pasture.

In 1819, the arrival of whalers created a demand for fresh produce including vegetables, meat, and fruit. The increase in the number of whaling ships after 1840 caused an increase in demand for fresh produce (Kuykendall 1968:313). Although, at first only sweet potatoes were available, but by the mid-1830s, Irish potatoes were being cultivated.

The Irish potato blight and the California gold rush of 1849 started a potato “boom” and an annual yield of 20,000 barrels of commercial Irish potatoes was estimated in the years between 1847 and 1854. The gold rush also created a market for potatoes, other vegetables such as taro and beans, and sugar, molasses, and coffee. In 1858, Lyons (1858) stated that 56 whaling ships stopped at Kawaihae over a two to three month period and purchased nearly 6,000 bushels of potatoes. However, by 1865 potato cultivation in the upland areas was few and poor.

Pu’ukapu was given by Kamehameha I to Kalanimoku, his *kalaimoku* or prime minister. It was later inherited by Kalanimoku’s niece, Kekau’onohi, who relinquished it in the Mahele of 1848. During the Mahele, Pu’ukapu was reverted to Kamehameha and became Crown Land. However, nine houselots within Pu’ukapu were awarded to individuals (Table 1). None of these awards occur within the current project area.

Table 1. Land Commission Records for Pu'ukapu, Waimea, Hawaii Island
(from Erkelens 1998:14)

LCA	Book: page	Patent✣	Book: page	Awardee	Date claimed	Testimony*	Description
236-O	6:242	RP#7293	27:151	Maika McDiermid*	9/16/48	NT 4:330	houselot in Paulama, 2 houses, enclosed
987	3.99	LP#8444	--	Hughes, W.	10/14/47 10/18/48	FR 2:125-126 NT 4:45	houselot, enclosed by a stone wall, purchased 7/5/44, 3 grass houses
988	3.98	RP#7542	28:145	Collis, J.	10/12/47 10/16/48	FR 2:130 NT 4:43-44	houselot, not completely enclosed by a stone wall, 3 grass houses built there; called Waluohia, in Paulama, received from Kuakini
2271	3:57	RP#5561	20:223	Oili (Mrs. Simmons)	10/7/48	NT 4:145-146	houselot (no house)
3682	4:228	LP#6787	--	Mahu (McDurmid*)	1/12/48 10/16/48	NR 8:43 NT 4:33	not fenced equally, 3 houses and 4 families, "thinking of fencing it;" houselot and a stone wall at Nohoaina; 4 houses
4026	5:50	RP#6253	23:673	Thomas, J.	2/5/51	NT 14:41 NR 5:55	houselot in Paulama, 2 houses for Milikaa. Received in 1846 and constructed a partial enclosure
4037	3:116	none	--	Allen, A	02/14/47	NT 14:41 FR 3:1 FR 5:67	houselot in Paulama, stone wall on west side of lot, enclosure, 2 houses, received in 1844
4129	5:51	none	--	Kaimu	1/13/48	NR 8:64 NT 4:37-38 NR 5:51	sugar-cane land, 1 taro garden, enclosed by a stone wall, and 1 banana plantation, 2 houses, a new government enclosure, received after the battle at Kuamoo (ca. 1820)
4198	5:51	none	--	Kaaunahi	1/7/48 9/16/48	NR 8:57 NT 4:33-34 NR 5:51	houselot at Pukaalani, Alaohia, not fenced in 1848 but considering doing so, 4 houses and 5 families; houselot at Nohoaina received in 1845
4233	--	LP#8448	--	Kahuinu, E.	9/18/48	NT 4:28	houselot in Paulama, an *'auwai*, 6 houses
8321-	--	5671	--	Hueu, G. (Davis)		none	a large part of Waikoloa

✣ RP = Royal Patent; LP = Land Patent

* NT = Native Testimony; NR = Native Register; FT = Foreign Testimony; FR = Foreign Register; followed by the volume: page

* The two spellings of "McDiermid" and "McDurmid" are taken from the respective legal documents; they may refer to the same family.

In 1941, the U.S. military opened Camp Tarawa in Waimea as one of the main training camps, home to 30,000 U.S. marines. Parker Ranch became a major supplier of beef to the army. Following WWII, the U.S. engineering department restored to area to its original condition.

PREVIOUS ARCHAEOLOGY

No previous archaeological studies have been conducted in the current project area; however, several studies have been completed in the vicinity (Erkelens 1998, Haun et al. 2003, Magnuson et al. 2001, Thompson et al. 1992). The reader is referred to these studies for detailed information. Only a brief summary of these investigations will be included here.

International Archaeological Research Institute, Inc. (Erkelens 1998) conducted an archaeological survey of the Kuleana Lots at Pukalani, Waimea Town Center Project Area, Waimea, Hawaii Island (TMK 3-7-02), located northwest of the current project area. The investigation included a background literature review, collection of oral accounts, a systematic pedestrian survey, and subsurface testing, concentrating at previously identified Site 50-10-06-8812, three 19th century houselots (Clark 1981). Results of the survey identified Site 19416, the Duncan-Lanakila Cemetery, Site 19417, Pukalani stables and blacksmith shop, Site 19418, veterinary office, and Site 19419, breaking corral. Skeletal remains of two individuals encountered during subsurface testing were recommended for reburial adjacent to the Duncan-Lanakila cemetery. Site 8812 was assessed significant under Criteria A and D; Site 19416 was assessed under Criteria D and E; and Site 19417, 19418, and 19419 were assessed under Criteria A, B, C, and D. No further work was recommended at Site 8812, preservation was recommended at Site 19416, and rehabilitation was recommended at Sites 19417-19419.

Haun and Associates (Haun et al. 2003) conducted an archaeological inventory survey of a 266.4-acre parcel slated for DHHL residential development at Lalamilo, South Kohala District, Hawaii Island (TMK 6-6-01:10, 54, 77; 6-6-04:12-17). A total of 76 sites comprised of 819 features were identified. Types of features included terraces, mounds, enclosures, field boundaries, walls, irrigation ditches, platforms, walled terraces, C-shapes, U-shapes, L-shapes, modified outcrops, surface hearths, cairns, pond fields, and miscellaneous types. Subsurface testing was conducted at 33 features at 24 sites. Results of radiocarbon dating at Sites 22614, 22599, 22600, and 22622 indicated initial settlement during the 1500s and continued into the 1800s. All 76 sites were assessed significant under Criteria D, with nine of those sites assessed under Criteria E since burials may be present, ten sites assessed under Criteria C, and one site assessed under Criteria A.

The nine burial sites and six well-preserved examples of site types were recommended for preservation, two clusters of Site 22632 were recommended for preservation and the remaining portion of the site was recommended for data recovery, and the remaining sites were recommended for mitigation.

International Archaeological Research Institute, Inc. (Magnuson et al. 2001) conducted archaeological burial testing and monitoring of the Pukalani Road extension in Waimea, Hawaii Island, located northwest of the current project area. Three trenches were excavated along the proposed road alignment near Site 50-10-06-21850, the Bright/Spencer Cemetery, to determine if unmarked burials extend outside the cemetery. Construction of two dry wells and a waterline trench were also monitored. No unmarked gravesites or cultural deposits were encountered during fieldwork.

Paul H. Rosendahl, Ph.D., Inc. (Thompson et al. 1992) conducted an archaeological inventory survey of potential seven sites for the North Hawaii Community Hospital, Waikoloa, Pu'ukapu, and Lalamilo, South Kohala District, Hawaii Island. Parcels 1-4 are located north of the current project area. Site 16095, an *'auwai* complex, was identified in Parcels 1, 3, and 4, and Site 18054, an agricultural field complex, was identified in Parcel 7. Sites 16095 and 18054 were assessed under Criteria D, and data recovery was recommended for both sites. No further work was recommended for Parcels 5 and 6.

SETTLEMENT PATTERN

General settlement patterns for Waimea *ahupua'a* can be inferred from information obtained from historical and archaeological studies (Haun et al. 2003, Erkelens 1998, Kalima in Thompson et al. 1992). Pre-contact settlement in Waimea *ahupua'a* probably initially occurred along streams and on the Waimea Plain. Settlements consisted of a fairly continuous distribution of houses and agricultural fields. Taro was the dominant crop with sweet potato, sugarcane, and bananas also grown. An increase in agricultural production occurred, probably in response to the presence of chiefs frequently visiting Waimea, including Kamehameha during the periods between 1791 and 1792, and 1794 and 1795.

Due to the decrease in population and conversion of land from residential/agriculture to pasture, historic settlement in Waimea shifted from the earlier dispersed pattern to a nucleated settlement centered around the cattle industry.

SITE EXPECTABILITY

Based on the results of previous archaeological investigations in the vicinity of the current project area, together with historical documentation, prehistoric sites associated with temporary habitation, seasonal agriculture, and trails are expected in low densities. Types of sites may include terraces, rock mounds, modified outcrops, and trail markers. Historic sites associated with cattle ranching including walls and corrals, and WWII military features also may be encountered. However, due to extensive previous disturbances, the probability of encountering cultural remains is low.

METHODS

Archaeological and historical literature and documents research was undertaken, not only to gain some insight into the prehistoric and historic background of the project area, but also to enhance the predictability of the nature and extent of potential cultural resources in the subject area. This research was conducted at the State Historic Preservation Division (SHPD) library of the Department of Land and Natural Resources (DLNR) in Kapolei, and the Bureau of Conveyances and Land Management Branch of DLNR.

The surface survey was conducted by walking systematic transects spaced at 1-5 meter intervals throughout the project area. Results of the surface survey revealed no surface cultural manifestations. The ensuing subsurface testing employed a wheeled backhoe with a 24” bucket. Five backhoe trenches were placed in selected localities to allow representative sampling of the entire project area. The location of each trench was plotted onto the project area map. A stratigraphic profile of a representative column on a trench sidewall was recorded for each trench. A color photographic record on APS format was obtained for each trench and soil colors were described in reference to Munsell color designations. Project area overviews were also photographically recorded. Aki Sinoto, B.S., and Jeffrey Pantaleo, M.A., conducted the fieldwork on March 14, 2005.

All procedures followed generally accepted archaeological methods and standards. All field notes, maps, and photographs generated in connection with the current project will be curated at Jeffrey Pantaleo Consultants, LLC, in Honolulu.

RESULTS OF SURVEY

No cultural remains were encountered during the surface survey. The parcel exhibited extensive disturbances from previous cattle grazing and construction activities (Fig. 4). A total of 5 trenches were excavated in the 5-acre portion of the parcel slated for development of the Kanu O Ka'aina Learning Center for the purpose of sampling the subsurface conditions of the parcel (Fig. 5). No cultural remains, either prehistoric or historic, were encountered in any of the trenches.

Table 2 presents the dimensions and stratigraphic information for each of the 5 trenches. Representative stratigraphic columns for T1 through T5 are depicted on Figure 6. Figures 7-11 present photographic overviews of each trench.

Generally, two to three stratigraphic layers were exposed in the trenches. The surface of the project area consists of recent accumulation of silt and grass. Underlying the overburden is Layer I, present only in T1, consisting of silty clay with abundant rootlets and rocks. Layer II, exposed in all the trenches, was silt loam with basalt cobbles/pebbles. Layer III in T3-5 was cindery clayey silt. Layer IV in T3 and 4 was silt loam. The stratigraphic components of T1-T5 are as follows:

> Layer I (T1) was very dark brown (7.5YR 2.5/3), very fine, powdery, loose, moist, silty clay with abundant rootlets and moderate amounts of basalt cobbles/pebbles; slightly sticky, non-plastic; non-cultural.
>
> Layer II (T1-5) was dark brown (7.5YR 3/3), fine, powdery, silt loam with moderate amounts of rootlets and rocks; non-sticky, non-plastic; non-cultural.
>
> Layer III (T3-5) was dark reddish-brown to grayish-brown (5YR 2.5/2 – 10YR 3/2), cindery clayey silt; coarse, fine to medium grain, loose, moist, gravelly, non-sticky, non-plastic; non-cultural.
>
> Layer IV (T3-4) was dark brown (7.5YR 3/2), loose, fine, silt loam with rock inclusions.

Figure 4. Top: Overview of Project Area Showing Soil Berm along Northern Boundary.
Bottom: Project Area Showing Fenceline near Western Boundary

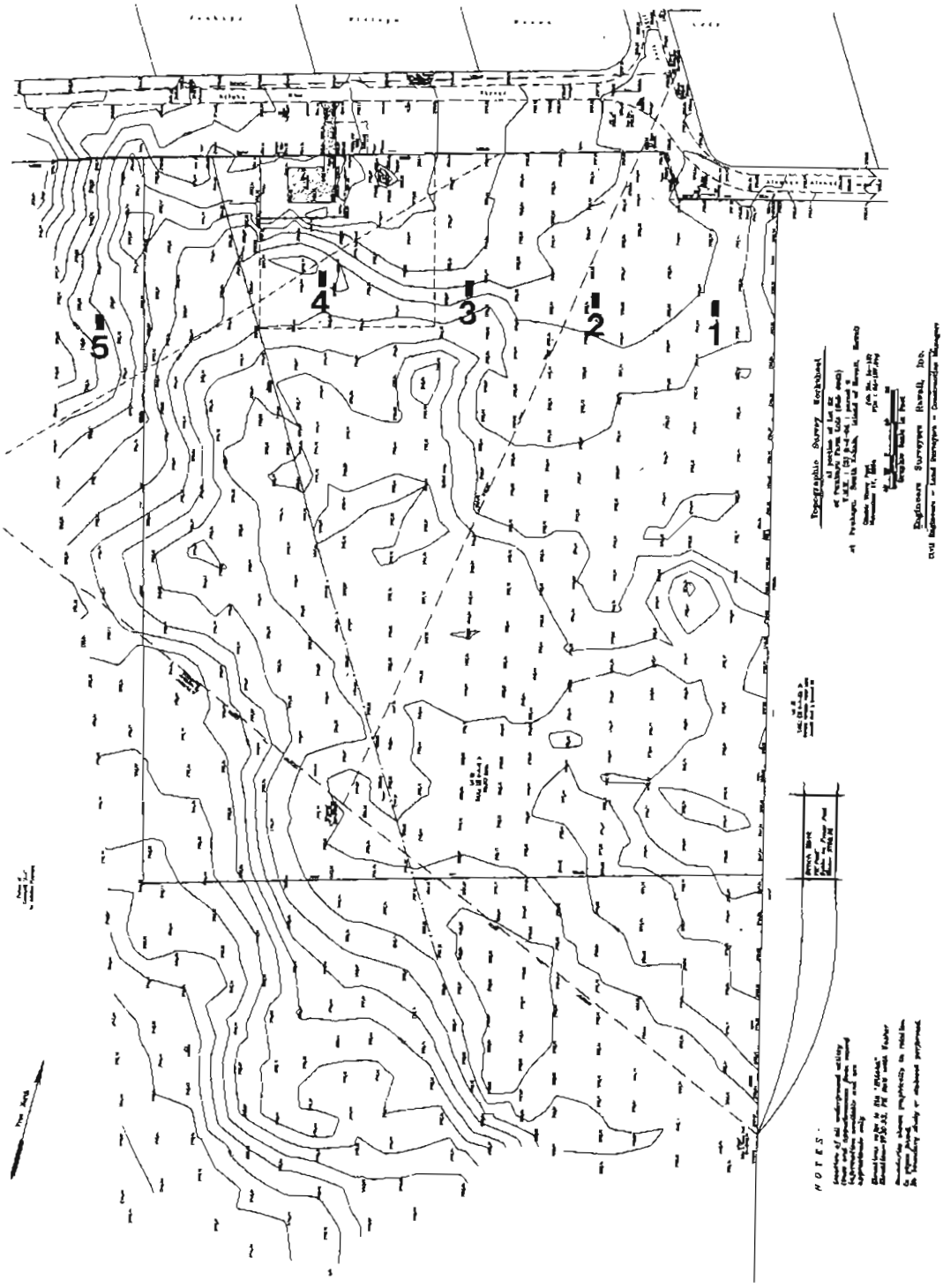

Figure 5. Project Area Showing Location of Trenches 1-5

Table 2. Dimension and Stratigraphic Information for T1-5

T-	Length	Width	Depth	Orient.	Layer I	Layer II	Layer III	Layer IV	Cultural
1	6.0m	0.8m	1.2m	340	silty clay	silt loam			None
2	6.0m	0.8m	1.2m	340	silty clay	silt loam			None
3	6.0m	0.8m	1.3m	340		silt loam	cinder	silt loam	None
4	6.0m	0.8m	1.3m	340		silt loam	cinder	silt loam	None
5	6.0m	0.8m	1.3m	340		silt loam	cinder		None

Figure 6. Representative Stratigraphic Columns for T1-5

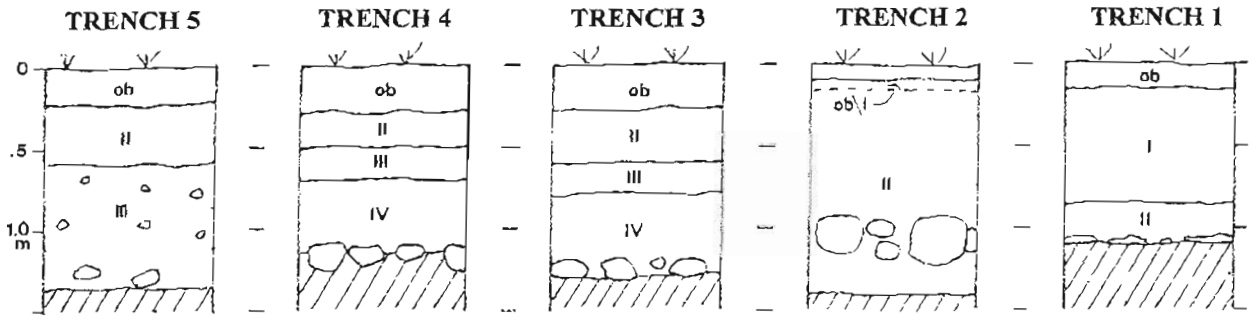

Figure 7. Overview of T1, View to South

Figure 8. Overview of T2, View to South

Figure 9. Overview of T3, View to North

Figure 10. Overview of T4, View to South

Figure 11. Overview of T5, View to North

DISCUSSION

The results of the current archaeological assessment indicated that the subject project area was most likely not intensively utilized for habitation during the prehistoric and early historic periods. The results of the background data search also supported this conclusion. However, the adverse effects of extensive land clearing may have effectively impacted and destroyed any remains that may have once existed.

The information obtained through backhoe testing showed that subsurface cultural remains were absent in all areas tested. In all of the test trenches, the exposed layers were all culturally sterile. Stratigraphic analysis revealed two to three stratigraphic layers. The surface of the parcel consisted of recent silt accumulation and grasses. Underlying the overburden was Layer I, silty clay, present only in T1. Layer II, silt loam, was identified in all trenches, and Layer III, cindery clayey silt, was exposed in T3-5. Layer IV, silt loam, was present in T3 and 4.

RECOMMENDATIONS

Due to the absence of cultural remains in the project area, and extensive previous disturbances from cattle grazing and construction activities, no further archaeological work is recommended. However, in the event cultural remains are encountered during construction activities, all work in the immediate vicinity shall be halted, and SHPD shall be notified.

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Appendix D
Cultural Assessment Report

Cultural Assessment:
Kauhale ʻŌiwi O Puʻukapu

by
Kanu O Ka ʻĀina Learning Ohana
Stephen G. Bess

for
Group 70 International, Inc.
925 Bethel Street
5th Floor
Honolulu, Hawaii 96813

MAY 2005

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INTRODUCTION

The project is situated in the Waimea ahupua'a, North Kohala District (Fig. 1). Waimea is often thought of as being the town of Waimea although it is also viewed as a large division of land stretching from the coast to the uplands and encompassing several subdivisions. It is also viewed by some as being only the upland area of that division that includes the entire plain between Kohala and Mauna Kea mountains. Some, however, limit the area to that part of the aforementioned plain that is used intensively for agricultural and residential purposes. For the purposes of this assessment, we will utilize the last mentioned perception.

In the Hawaiian Dictionary of Puku'i and Elbert (1971), Waimea literally means reddish water (as from erosion of red soil). The cool climate and rains that chill the body (*kīpu'upu'u*) are often celebrated today in song and dance and are noted in the ancient proverbs and sayings, *'Ōlelo No'eau* (Puku'i 1983):

> *Ke īipu'upu'u ho-anu 'ili o Waimea*
>
> The Kīpu'upu'u rain of Waimea that chills the skin of the people (1748)
>
> *Hele po'ala i ka anu o Waimea*
>
> Said of a person who goes in circles and gets nowhere. Waimea, Hawai'i is a cold place and when foggy, it is easy for one unfamiliar with the place to lose his way. (757)

Waimea is referred to as a place where famous historical battles were fought. It is the place where the Maui Chief, Kamalawalu, after invading Hawai'i Island, fought Kohala chiefs. Kamalawalu was eventually driven from Waimea to the coast where he was killed above Puako. (Kamakau 1961:58-60). Other Maui chiefs sought to conquer Kohala and Kona as well. Alapa'inuiakauaua (Alapa'i) became ruler of Kohala and Kona and was successful in defending his domain by defeating another ruler of Maui, Kekaulike. (Kamakau 1961:77). Toward the end of his reign, Alapa'i lived first in Waimea and then moved to Kikiako'i in Kawaihae (ibid.). It has been speculated that during the times of Alapa'inui, Waimea was cultivated and the

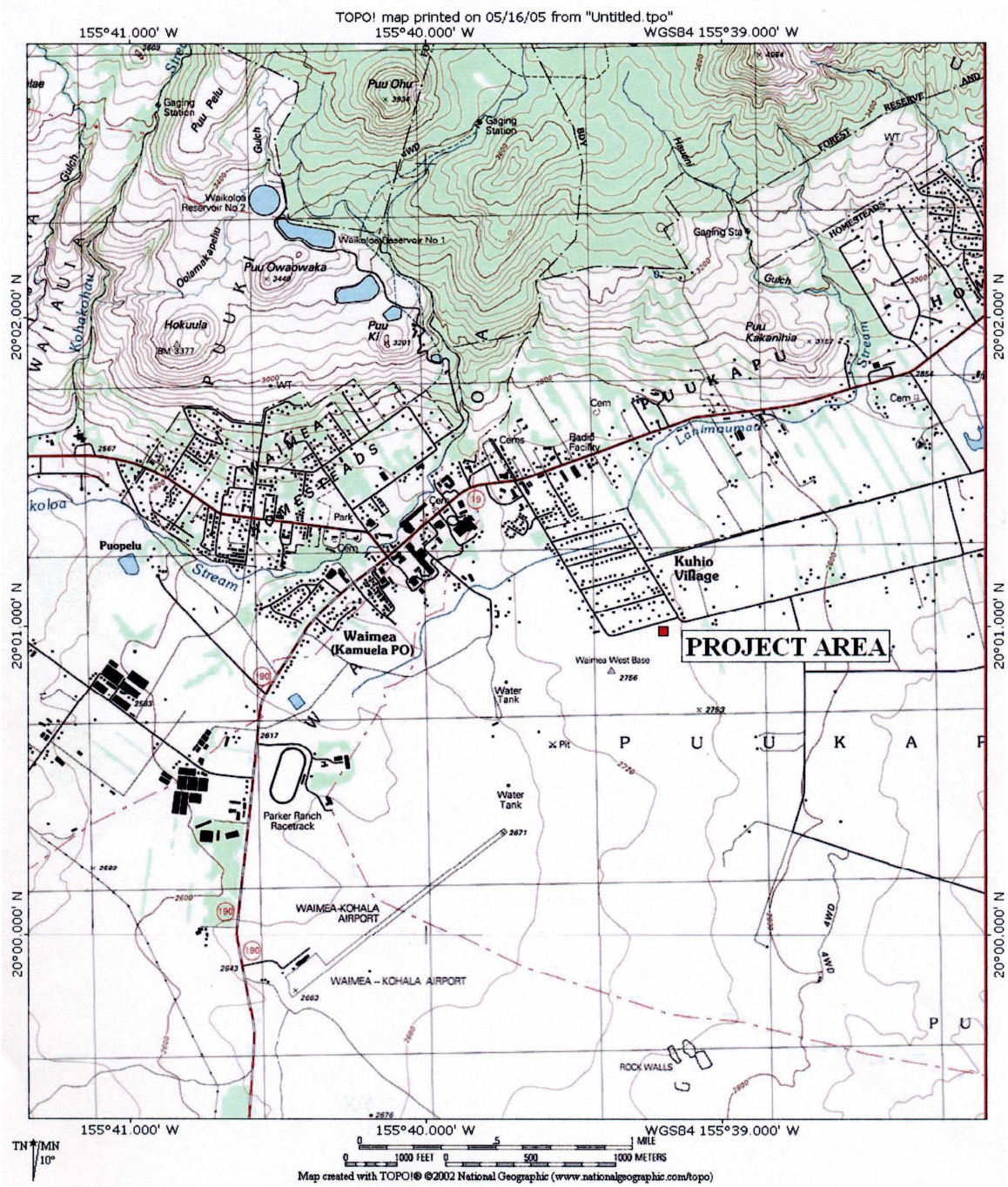

Figure 1. Location of Project Area on U.S.G.S. Kamuela Quadrangle

cultivation was expanded to supply the chief's needs while the Chief resided at Kawaihae (Clark and Kirch 1983:26). During the time when Kamehameha I

sought to conquer all of the islands of Hawai'i, he spent much time in Waimea and Kawaihae. One time was in 1791 and 1792 when he ordered the *heiau* at Kawaihae, Pu'ukohola, to be built. Another time was in 1794 and 1795 when he was preparing his Peleleu fleet, which carried his wars to Maui and O'ahu (ibid: 27). The upland Waimea plain was believed to be important in supplying agricultural produce to Kamehameha at Kaiwaihae where the Kamehameha Dynasty held court from the 1790's through the 1820's.

The Importance of Agriculture in Waimea

As noted above, the upland Waimea plain has long been an important place for agricultural production. As one moves west toward Kawaihae, the lands become less productive as rainfall decreases. As was typically the case prior to Western contact, it is probable that Waimea farmers traded their agricultural products for the products of the sea. Historical accounts, as early as 1793 in conjunction with the visit of Captain George Vancouver, noted that the fertile areas of Waimea provided agricultural crops for people residing on the coast and ships visiting at Kawaihae (Archibald Menzies 1920:55-56). William Ellis described Waimea in 1823:

> On Monday morning Messrs. Bishop and Goodrich commenced their journey to Waimea. Having procured a man to carry their baggage, they left Kapulena (in the Hamakua district), and, taking an inland direction, passed over a pleasant country, gently undulated with hill and dale. The soil was fertile, the vegetation flourishing, and there was considerable cultivation, though but few inhabitants. About noon they reached the valley of Waimea, lying at the foot of Mauna-Kea, on the north-west side. Here a number of villages appeared on each side of the path surrounded with plantations, in which plantains, sugar-cane, and taro were seen growing unusually large (Ellis 1969:354).

The upland Waimea Plain continued to provide crops for consumption by coastal residents and foreign ships after 1793 through the 1840's (Kelly 1974:41-53; Clark 1983a:51-53). Table 1 lists the cultivation that took place in the Waimea area in the early-mid 1800s. Due to fertile soil and abundant rainfall this area was highly productive. In addition, three main streams flowed off the Kohala slope and onto the plain, all of which were described by early visitors to the region. With the streams as the focus of settlement, the people's homes and garden plots were scattered along the lower slopes of the Kohala Mountains and stretched out onto the plain. The settlement was not in the form of a nucleated village, but was fairly well spread out (ibid. 47). The *ahupua'a* of Waimea contains two *'ili kupono*, or independent land units within an *ahupua'a*: 1) Waikoloa, from the ocean to the southern edge of the Kohala mountains and 2) Pu'ukapu, extending north along the crest of the Kohala mountains. The project area is situated in Pu'ukapu and

shown on maps attached. The area was divided into a number of named locales (e.g. Keaali'i, Lihue, Kalaloa, Waiaka, Waikoloa, Alaohia, Pukalani, Pu'ukapu, and others), some of which had a greater population than others (ibid.).

AGRICULTURAL PRODUCTS REPORTED FOR WAIMEA AND WAIMEA VICINITY, 1823 to 1858.

Date	Product	Source
1823	Taro, plantains, sugarcane	Ellis 1963:354, 399
1825	Pig, taro (poi)	Bishop 1825:609, 646
1829	Taro, sugarcane, banana	Bingham 1969:374
1830	Upland taro, potatoes, cattle (wild)	Andrews et al. 1830:4, 7
	Beef (wild); taro, potatoes, melons, other vegetables, mulberry trees, coffee trees, pomegranates, figs, etc. (all planted by Judd).	Judd 1903:28, 35
1830 to 1860	Cattle, mentioned by nearly all references	
1831	Beef (wild)	Judd 1903:28
1832	Sweet potato, Irish potatoes, taro, onions, fowl, ducks, turkeys, eggs, hogs, beef and beef by-products	Baldwin 1832:2013, 2015
	Beans, corn, watermelon, *puaiele* and another famine plant *wauke*, prickly pear, sheep (thriving flock)	Doyle 1945:49, 63
1833	Sweet potatoes (drink)	Doyle 1945:72
1836	Ducks and other waterfowl (present but not in food context), wild plantains, bananas, wild turnip, sweet potatoes, raspberries, strawberries, *uau*, *ti*, other roots and herbs (wild plants utilized), upland taro (cultivated), *mamaki*, cattle, wild boars, feathers, koa planks	Perambulator 1836
1837	Sugarcane and potatoes	Doyle 1945:101
1840	Beef, taro (poi)	Olmsted 1969:233
	Pork, beef, taro (poi), arrowroot	Jarvis 1844:221
1842	Sheep (merino)	Allan 1847
1842 to 1847	Sheep, goat	
1848	Taro, sugarcane	Kenway 1848
	Taro, apples, peaches, vegetables, corn, sheep, goats	
	Plover, ducks, brant (as game)	
1851	Irish potatoes, onions, cattle, sheep, goats	Lyons 1851
1853	Cattle, sheep	Bates 1854:366
1858	Irish potatoes, taro	Lyons 1858

(Taken from Clark and Kirch 1983, Table 3.2)

Table 1. Agricultural Products for Waimea and Vicinity, 1823-1858 (Kalima 1992: A23)

Despite the natural productivity of the upland plain, the vitality of agriculture in Waimea was not without challenges. Moreover, other commercial activities vied for the attention of those engaged in agriculture. After foreigners first visited the Waimea area, subsistence agriculture actually declined in sporadic fashion. "The primary reason for the decline in agricultural activity were 1) depopulation and the abandonment of fields; 2) the pursuit of other commercial interests, such as sandalwood, sugarcane, pulu (a wool that grows on tree ferns used to stuff mattresses and pillows), trade, and the cattle industry (the latter of these was the most devastating, not only in drawing the people away from the fields, but also in bringing about the destruction of the fields); and 3) pest infestations."(ibid: 48). In the late 1840s and early 1850s, agriculture's importance surged briefly as the demand for potatoes (Irish and sweet) increased due mainly to replenishing ships (ibid: 50). The increase of activity by whaling ships after 1840 brought great demands for both sweet and Irish potatoes (Kuykendall 1968:313). The peak of the 1849 California Gold Rush also caused an increase in potato production, but by 1852, the most intense phase of this boom was over (ibid: 321). Several thousand acres were cultivated primarily for Irish potatoes, but taro and beans also received attention (Clark and Kirch 1983:49). After the whaling period ended not long after 1858 and the cattle industry took hold, the population of Waimea decreased and the amount of lands dedicated to agriculture was reduced. Waipi'o Valley replaced Waimea as the primary suppliers of food crops. Whereas Waimea's population was once dispersed, the establishment of a the mission house in Waimea by John I'i, Bingham and Ruggles (Barrera and Kelly 1974:54), a store established by William French, and the cattle processing area resulted in fairly nucleated settlement (Kalima: 26). What was once a largely dispersed settlement became highly concentrated in the upper elevations, especially in the old locations of Lihue, Waikoloa, and Pu'ukapu (Clark and Kirch 1983:49).

<u>The Importance of the Cattle Industry in Waimea</u>

With the introduction of cattle and sheep by George Vancouver in the 1790's, Waimea's lands were seen as a rich resource for the propagation of these animals (Vancouver 1984:1188-1189):

> In this valley (the Waimea plain) is a great luxuriant, natural pasture, whither all the cattle and sheep imported by me were to be driven, there to roam unrestrained, to "increase and multiply" far from the site of strangers…"

Kamehameha I cooperated in the efforts of Vancouver by placing a restriction on the taking of any of the sheep and cattle in order for them to multiply unabated. Kamehameha's *kapu* on the taking of cattle was so effective

that by the early 1800's, cattle became a nuisance to farmers and their residences (Burtchard and Tomonari-Tuggle 2003:29). To protect their farms and residences from damage, farmers constructed fences (stone walls). In 1815, the *kapu* for taking cattle was lifted, and John Palmer Parker was the first person to be awarded a cattle hunter commission (Wellmon 1969: 26). The cattle-ranching industry arose from these early beginnings and Parker Ranch, founded in 1835 by John Palmer Parker, became a dominant force in Waimea and its surroundings (Wellmon 1969). Barrera and Kelley (1974) report on the early days of the ranch:

> After 1819, Parker lived at Waiapuka in North Kohala and moved to the Waimea area about 1835, where he lived first at Pu'uloa and then at Mana, Hamakua. He married a Hawaiian woman and raised a family there…At Mana he developed his ranch based on large herds of cattle and a large acreage over which to graze them. His home became a convenient stopping place for visitors traveling between Hilo and Waimea, and his ranch became the world-famous Parker Ranch, the largest in Hawaii and perhaps the largest in the world for acreage." (Barerra and Kelly 1974:44)

From the 1830s the cattle industry was established but was largely monopolized by the government or chiefs. Most of the common people were excluded from the industry (Barerra and Kelly 1974:45). In 1846 two thirds of the Waimea area had been converted to pasture for government cattle, sheep and horses (ibid.). While the government was taking over the cattle industry, the common people were having a difficult time ranching. Very few Hawaiians had the cash to buy land, and they were required to pay a certain rate per head for the cattle, hogs sheep or goats that they had grazing on the king's land. On account of this, many of them moved (ibid.). Early missionaries described Pu'ukapu Village as one of the three population centers in the Waimea area (Ellis 1825: 217), but by 1850, apparently very few remained in the area. McEldowney (1983) discusses this displacement of the Hawaiian community by the cattle industry through changes in land use and land ownership pre- and post-Mahele. It was largely through the passage and implementation of the Hawaiian Homes Commission Act that native Hawaiians were afforded the opportunity to return to Waimea as land stakeholders.

The Mahele and the Hawaiian Homes Commission Act

With the Mahele of 1848, all of Hawaii's lands were placed in one of three categories: Crown Lands (for the occupant of the throne), Government Lands, and Konohiki Lands, "all subject to the rights of native tenants" (Laws of Hawaii 1848:22)(Kalima, in Thompson 1992: 8). The current project area is a part of Hawaiian Homes Lands that was dedicated for the use of Hawaiians by the Hawaiian Homes Commission Act of 1920. The primary goal of this Act is to

afford native Hawaiians (defined in the act as those with 50% or more blood) with the opportunity to lease these lands and eventually develop into self-sufficient Hawaiian communities. The Department of Hawaiian Homes Land has over 117,000 acres on Hawaii Island. Pu'ukapu is the largest subdivision of the homesteads with over 11,000 acres (DHHL 2004:12). Native Hawaiians began receiving leases in Waimea in 1949 and the Pu'ukapu subdivision was established in 1962. The Hawaiian Homes Commission Act made it possible for native Hawaiians to utilize these lands for agriculture and pasture. There is a long history of the project area being utilized for cattle pasture. *Kupuna* located in Pu'ukapu state that the project area has been continuously used by the Department of Hawaiian Home Lands for a community pasture. Moreover, much of the land surrounding the project area has and is being currently used by native Hawaiians for cattle ranching and other agricultural uses.

Archaeological Work in the Project Area

A recent synthesis of prior surface survey and subsurface testing data (Burtchard and Tomonari-Tuggle 2004) indicates known archaeological and historical sites in the general vicinity of the project site. These sites included:

1) subsurface deposits associated with traditional Hawaiian habitation sites along the leeward sides of knolls or low hills;
2) traditional Hawaiian religious sites on the top of some knolls or low hills;
3) parallel low earthen ridges possibly associated with the accumulation of airborne sediment around floral windbreaks in traditional cultivation fields; 4) irrigation ditches or other artificial water channels associated with cultivation in the plain area; 5) stone walls and discarded rubbish associated with cattle ranching in the nearby vicinity of the project area.

As noted below, despite extensive efforts to obtain input from the Waimea community regarding the presence of any such sites in the project area, no members of the community reported having any knowledge of such sites. However, the cultural and historical setting of the project area indicates that there may be possible discovery of archaeological sites related to native Hawaiian cultural practices and associated settlement as well as historic sites related to the cattle ranching industry during the course of development.

Positive Cultural Impact of Kauhale 'Ōiwi O Pu'ukapu

Kanu O Ka 'Āina Learning 'Ohana (KALO) is a non-profit 501c.3 organization that is committed to creating and operating quality, culturally-driven, family oriented, community based programs of education. The proposed comprehensive learning center, Kauhale 'Ōiwi o Pu'ukapu ("Kauhale"), is an intergenerational community learning center that will provide "womb-to-tomb",

Hawaiian-focused education and be a community resource for Hawaiian cultural practices and values.

In the face of increasingly rapid changes and the apprehension of becoming an "anywhere USA town," Kauhale 'Ōiwi O Pu'ukapu is viewed as a place to provide the educational and cultural tools necessary to deal with change and bring balance to Waimea's community. The establishment of the Kauhale seeks to provide for the perpetuation and revitalization of the Native Hawaiian culture, language and heritage as a means of empowering Hawai'i's indigenous people as well as providing a necessary resource to anchor the well-being of non-Hawaiians who reside in Hawai'i or visit our island. KALO is committed to creating a place for the people of the world to come and experience the Hawaiian culture, and contributing to the community of Waimea, the island and the State of Hawai'i, and the world.

In order to determine the kinds of programs and facilities that meet the educational and cultural needs of Waimea, extensive efforts have been and will continue to be made to obtain the counsel and input from kupuna, parents, students, extended family, and community members. Prior to selecting the proposed site, KALO actively sought the input of community members to determine whether the site was culturally and spiritually suitable for the development of Kauhale 'Ōiwi O Pu'ukapu. KALO also received a grant from the Richard Smart Foundation to engage in a series of community meetings that would allow it to determine how culturally appropriate it would be for KALO to use the site and the types of programs that would best serve the community. KALO is deeply committed to honoring its kupuna and their sense of history and connection to the land. Special efforts were made to meet with all of the kupuna in the community to determine the extent to which matters of cultural importance were present on site and in the immediate vicinity. Among the many kupuna who were consulted were: Sarah Ruis, Maile Zsupnik, Dee Dee Bertelmann, Kanani Kapuniai, Ala Pajimola, Elaine Loo, Margie Spencer, Mabel Tolentino, Lorna Akima, Clayton Bertelmann, Lei Howard-Lee, and Maxine Kehaulelio. Special meetings were also held with the Waimea Hawaiian Civic Club and the Waimea Homesteaders Association. Informal interviews with Hawaiians living in the area (all Hawaiian homestead lessees in the Pu'ukapu area were individually noticed and given the opportunity to provide input) did not reveal any significant cultural and historical properties in the current project area. However, given the commitment to preserving and enhancing the history and culture of Hawaiians and the larger community of Waimea, KALO intends to not only preserve, but celebrate any unanticipated archaeological finds during the course of the development of the Kauhale. The establishment of the burial laws (specifically the Native American Graves Protection and Repatriations Act of 1990 and State of Hawaii burial laws (1990)), has helped to facilitate a process that provides a guideline for agencies and communities to derive an appropriate plan of action in the preparation and preservation of ancestral remains.

a. It is recommended that in regards to iwi kūpuna, KALO will adopt established protocols that clearly define procedural guidelines in the event that ancestral remains are inadvertently discovered. These protocols shall include but not be limited to activities that involve the properly handling and safeguarding of iwi, consultation with appropriate organizations, families, and individuals, and the final disposition of the iwi kūpuna. It is stressed that utmost sensitivity, caring and understanding be employed when dealing with burial issues and iwi kūpuna.
b. In the event of an inadvertent discovery of ancestral remains, the applicable processes outlined in existing State regulations, specifically those provided in the Hawai'i Administrative Rules, Title 13, Chapter 300, Section 40 and Section 33, will be employed.
c. If, for some reason, iwi must be moved or touched, it is highly recommended that an identified cultural monitor, a lineal/cultural descendant or someone of Hawaiian ancestry, conduct this task. It is highly recommended that KALO coordinate the selection of cultural monitor with known and potential lineal and cultural descendants with the Hawai'i Island Burial Council, as well as other appropriate cultural entities or organizations.
d. Notify and consult with known and potential lineal and cultural descendants as it relates to any burial relocation or inadvertent discovery. The recommended preferential treatment of iwi kūpuna that are inadvertently discovered is to have them "preserved" in-place. However, if it is decided upon that burial relocation is necessary, a reburial site should be designated. The physical sighting and procedures for any potential reburial will be coordinated with the appropriate agencies, organizations, and identified lineal and cultural descendents.
e. Consult with the appropriate agencies and organizations including: State Department of Land and Natural Resources, Historic Preservation Division (DLNR/SHPD), SHPD Burial staff, the OIBC, the Office of Hawaiian Affairs (OHA), and other interested Hawaiian organizations.
f. Prepare and implement a Burial Treatment Plan to be developed in consultation with the above agencies, as well as the appropriate organizations and parties wishing to be consulted, including lineal and/or cultural descendents.

In keeping with tradition and a deep sense of respect for the land and native ancestors, Hawaiian protocol and prayer were engaged in for the purpose of seeking permission to utilize the land for the Kauhale. In addition to conducting community meetings, Group 70 International, Inc., of Honolulu, was hired to engage in a charette process that involved students, teachers, staff and community members to determine and articulate community values, norms and

concerns. These meetings were critically important in developing a site plan for the project. As a follow up to these meetings, door-to-door community surveys were conducted to determine if the Kauhale and its proposed programs would serve the community. As a result of these continuing efforts, the Kauhale will provide relevant cultural, place based education for infant-toddler programs through Mālamapōki'i, Kanu O Ka 'Āina New Century Public Charter School (K-12), Hālau Wānana (teacher education training for adults), and other adult community education programs. Plans embraced by the community also include the following facilities that can be accessed by the community:
a state-of-the-art computer laboratory; a large cultural park area and open gardens with *makahiki* (festival) grounds; a *pā hula* (traditional dance platform), as well as an *'ahu* (altar) to be used for ceremonial purposes; an amphitheater and outdoor performance area to practice cultural arts; a group home for children in need; a counseling center; and a community hall and meeting places for community business mentoring. In addition, areas for agriculture, forestry, and animal husbandry research and learning, culturally appropriate entrepreneurial establishments including wood, music and art shops, video and recording studios and a certified kitchen will contribute to the self-sustainability of the Kauhale.

Kauhale 'Ōiwi O Pu'ukapu is dedicated to having a lasting positive cultural impact on the landscape of Waimea and its community members. The site selection, planning, design, development and programs are dedicated to serving the educational and cultural needs of the Waimea community and beyond in accordance with Hawaiian values.

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Appendix E
Traffic Impact Assessment Report

TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED

KANU O KA `AINA `OHANA LEARNING CENTER

TAX MAP KEY (3) 6-4-4:09 (PORTION)

WAIMEA, HAWAI`I

PREPARED FOR

KANU O KA `AINA LEARNING OHANA

PREPARED BY

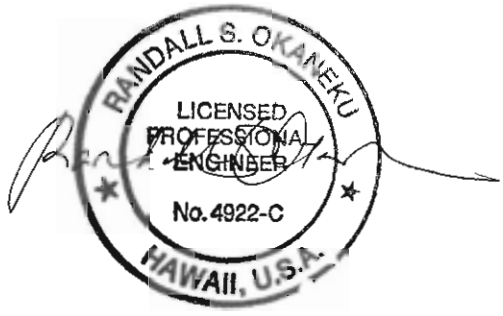
TMC THE TRAFFIC MANAGEMENT CONSULTANT

TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED
KANU O KA `AINA `OHANA LEARNING CENTER
TAX MAP KEY (3) 6-4-4:09 (PORTION)
WAIMEA, HAWAI`I

PREPARED FOR

KANU O KA `AINA LEARNING OHANA

JULY 18, 2005



PREPARED BY

THE TRAFFIC MANAGEMENT CONSULTANT
RANDALL S. OKANEKU, P.E., P.T.O.E., PRINCIPAL * 1188 BISHOP ST., # 1907 * HONOLULU, HI 96813

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TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED
KANU O KA `AINA `OHANA LEARNING CENTER
TAX MAP KEY (3) 6-4-4:09 (PORTION)
WAIMEA, HAWAI`I

I. Introduction

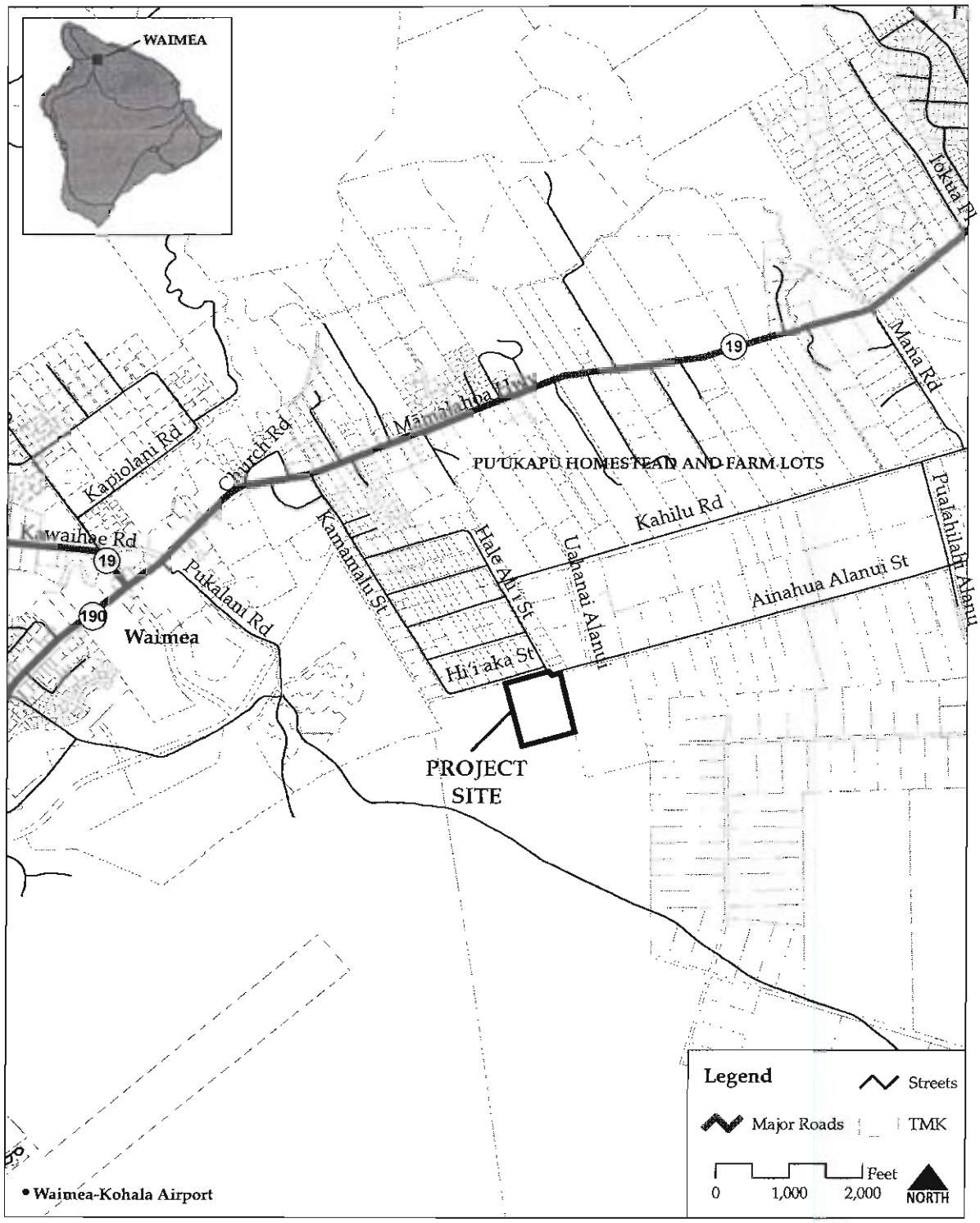
A. Project Description

The Kanu o Ka `Aina Learning `Ohana (KALO) is a non-profit organization, which is proposing to build a cultural and community learning center in Waimea, Hawai`i for native Hawaiians. KALO operates its schools at several locations in the Waimea area. KALO proposes to consolidate its operations in Waimea Town.

The school would be located on Hi`iaka Street in the Pu`ukapu Homestead Pasture Lots of Waimea, Hawai`i. The 46,140 square foot project site is identified as a portion of Tax Map Key (3) 6-4-4-:09. The proposed school would include a Multimedia lab and Community Information Center, Community Center, Cafeteria, Performance Center and Gym, Preschool and Grades K-12 Learning Facilities, Administration Offices, and KALO Store. School hours are from 8:00 AM to 3:00 PM, Monday through Friday. Adult classes are held in the evenings and on Saturdays. Construction is planned to begin in 2006 and the school is expected to reach its design enrollments by the Year 2012. Table 1 summarizes the student enrollments.

Table 1. Student Enrollments

Grades	Existing	Design
Pre-School	10	24
K-5	60	132
6-8	25	63
9-12	34	81
Totals	129	300



Source: State of Hawai'i GIS Data

Figure 1. Vicinity Map

B. Purpose and Scope of the Study

The purpose of this study is to analyze the traffic impacts of the proposed KALO project. The scope of this study includes:

1. Evaluation of existing roadways and traffic conditions.
2. Development of trip generation characteristics of the proposed project.
3. Analysis of the Year 2012 traffic conditions without the proposed project.
4. Identification and analysis of traffic impacts resulting from the full build-out of the proposed project.
5. Recommendations of improvements, as necessary, that would mitigate the traffic impacts identified in this study.

C. Access

Access is proposed on Hi`iaka Street via Kamamalu Street, which leads to Mamalahoa Highway. For the purpose of this analysis, it is assumed that the intersection of Mamalahoa Highway and Kamamalu Street would provide the only access to the site. The site plan for the proposed development is depicted on Figure 2.

D. Methodologies

1. Capacity Analysis Methodology

The highway capacity analysis performed for this study is based upon procedures presented in the Highway Capacity Manual (HCM), published by the Transportation Research Board, 2000. HCM defines Level of Service (LOS) as "a quality measure describing operational conditions within a traffic stream". Several factors may be included in determining LOS, such as: speed, travel time, freedom to maneuver, traffic interruptions, driver comfort, and convenience. LOS "A", "B", and "C" are considered satisfactory levels of service. LOS "D" is generally considered a "desirable minimum" operating level of service. LOS "E" is an undesirable condition, and LOS "F" is an unacceptable condition. Intersection LOS is primarily based upon delay. Table 2 summarizes the LOS criteria.

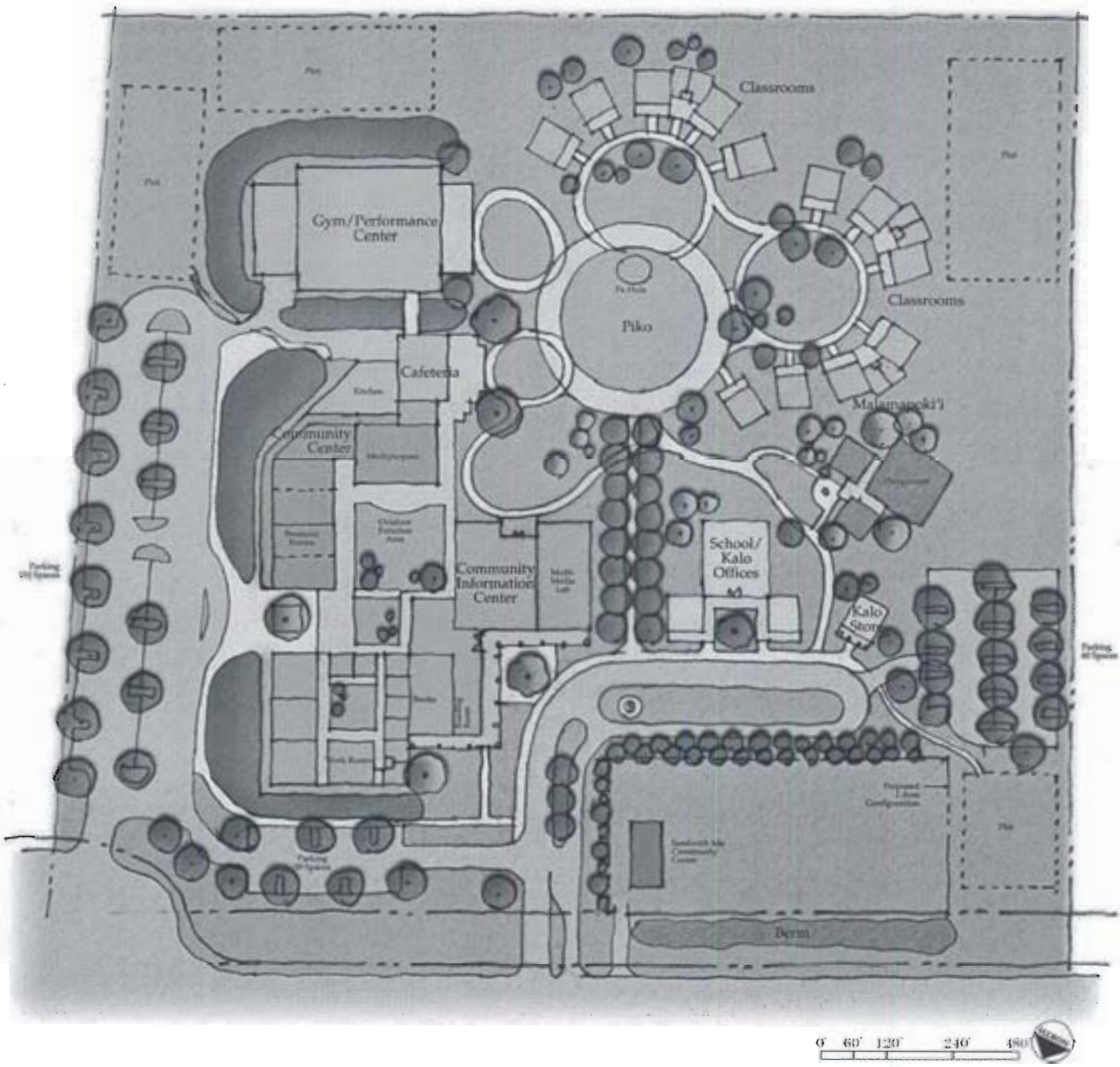


Figure 2. Site Plan

Table 2. Level of Service Criteria (HCM)	
LOS	**Signalized Control**
A	≤ 10
B	> 10 – 20
C	> 20 – 35
D	> 35 – 55
E	> 55 – 80
F	> 80

"Volume-to-capacity" (v/c) ratio is a measure indicating the relative traffic demand to the roadway's capacity. HCM defines capacity as "the maximum number of vehicles that can pass a given point during a specified period under the prevailing roadway, traffic flow, and traffic control conditions." A v/c ratio of 0.50 indicates that the traffic demand is utilizing 50 percent of the roadway's capacity. The capacity analysis worksheets are compiled in the Appendix.

2. Trip Generation Methodology

The trip generation methodology is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in Trip Generation, 7th Edition. ITE trip rates are developed by correlating the total vehicle trip generation data with various activity/land use characteristics, such as the vehicle trips per hour (vph) per student. The trip generation characteristics for the proposed project are based upon ITE average trips rates for a pre-school, elementary school, middle school, and high school.

II. Existing Conditions

A. Roadways

Hawai`i Belt Road is a two-way, two-lane arterial highway between Hilo and Waimea. Hawai`i Belt Road continues as Mamalahoa Highway through Waimea Town before turning south toward Kailua-Kona. At Kamamalu Street, Mamalahoa Highway is a two-lane highway with exclusive left-turn storage lanes in both directions. Mamalahoa Highway becomes a four-lane highway through Waimea Town, with median left-turn lanes at major intersections. Mamalahoa Highway returns to a two-lane highway section south of Lindsey Road.

Kamamalu Street is a two-way, two-lane collector street, which intersects Mamalahoa Highway at a signalized intersection. Hi`iaka Street is a narrow two-way local street with a 16-18 foot-wide pavement.

B. Existing Peak Hour Traffic Volumes and Operating Conditions

1. Field Investigation and Data Collection

Manual traffic count surveys were conducted at the intersection of Mamalahoa Highway and Kamamalu Street, during the peak periods of weekday traffic – from 6:30 AM to 8:30 AM and from 3:00 PM to 5:00 PM – on April 25-26, 2005. Additional traffic count data were obtained from the State Department of Transportation.

2. Existing AM Peak Hour Traffic

The AM peak hour of traffic on Kawaihae Road occurred between 7:15 AM and 8:15 AM. Mamalahoa Highway carried about 1,700 vehicles per hour (vph), total for both directions. The directions of the AM peak hour traffic were 63 percent westbound and 37 percent eastbound. Kamamalu Street carried about 300 vph, total for both directions.

The intersection of Mamalahoa Highway and Kamamalu Street operated at LOS "B" and a v/c ratio of 0.90, during the existing AM peak hour. Long queues were observed on westbound Mamalahoa Highway at Kamamalu Street. Kamamalu Street operated at LOS "C" at Mamalahoa Highway. Figure 3 depicts the existing AM peak hour traffic volumes, and the results of the capacity analysis.

3. Existing PM Peak Hour Traffic

The PM peak hour of traffic occurred between 3:15 PM and 4:15 PM. Mamalahoa Highway again carried about 1,700 vph, total for both directions, during the PM peak hour of traffic. The directions of PM peak hour traffic were 60 percent eastbound and 40 percent westbound.

During the existing PM peak hour of traffic, the intersection of Mamalahoa Highway and Kamamalu Street operated at LOS "B" and a v/c ratio of 0.92. Long queues were observed in the eastbound direction on Mamalahoa Highway at Kamamalu Street. The left-turn movement from Kamamalu Street to westbound Mamalahoa Highway operated at LOS "E", due in part to the extended traffic signal cycle length. The existing PM peak hour traffic volumes, and the results of the capacity analysis also are depicted on Figure 3.

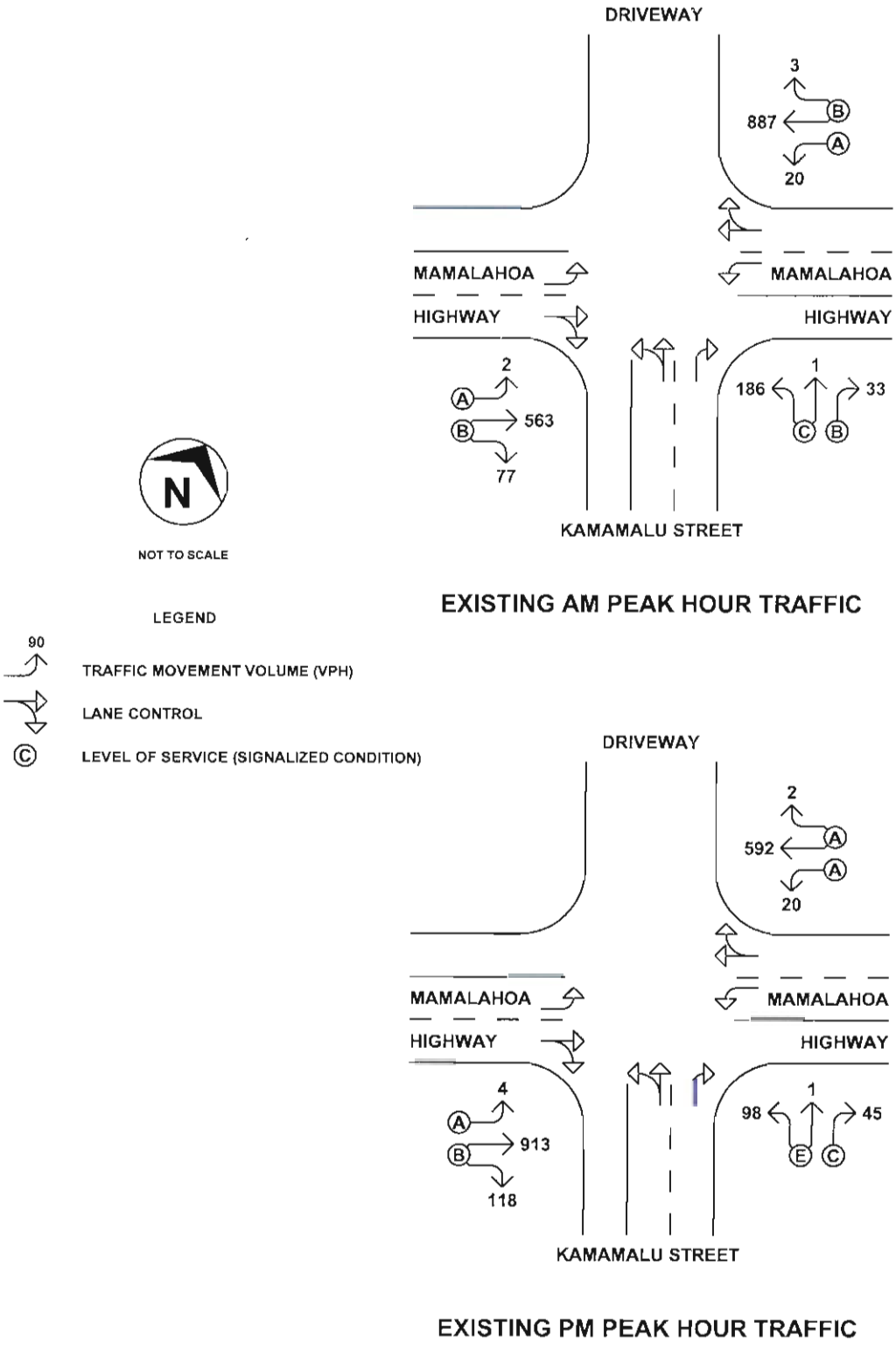


Figure 3. Existing Peak Hour Traffic

III. Future Traffic Conditions

A. External Traffic

1. South Kohala Regional Traffic Forecasts

The South Kohala Regional Traffic Forecasts (SKRTF) was prepared for DOT by Julian Ng, Inc., dated April 2002. The purpose of the SKRTF was to establish a consistent basis for traffic forecasts for ongoing independent planning efforts by DOT for future highways in the South Kohala and Waimea regions. According to the SKRTF, traffic in the study region is expected to increase at a constant annual rate of 2.88 percent through the Year 2025.

The SKRTF developed average daily traffic (ADT) assignments, which included the Saddle Road improvements. However, the Saddle Road Extension, Kawaihae Bypass, and the Waimea Bypass Highway were not included in the SKRTF analysis. The SKRTF indicated that Saddle Road would carry 7,930 ADT versus 7,700 ADT on Mamalahoa Highway (Hawai`i Belt Road) at Mud Lane by the Year 2025. The traffic forecasts, developed in the SKRTF, were interpolated to the Year 2012 for use in this traffic impact analysis.

2. Waimea Town Center

The Traffic Impact Analysis Report for the Proposed Waimea Town Center (TIAR) was prepared for Parker Ranch by The Traffic Management Consultant, dated April 24, 1996. The Waimea Town Center is proposed to be developed on a 338+ acre site, which is located to the south of Waimea Town, between Kamamalu Street and the Kamuela Race Track. The Waimea Town Center included a major collector roadway, which would extend from Kamamalu Street to Mamalahoa Highway, in the vicinity of the Kamuela Race Track.

It was assumed that the completion of the Waimea Town Center collector roadway would be beyond the time frame of the development of the proposed KALO project, and was not included in this traffic impact analysis

B. Future Roadway Improvements

1. Saddle Road Improvements

Saddle Road is under construction, at this writing, to improve/realign the existing roadway between East and West Hawai`i. When completed, the highway project is expected to provide an alternative route for regional traffic between East and West Hawai`i. The Saddle Road improvements are assumed to be completed within the time frame of this study and are taken into account in this traffic impact analysis.

2. Waimea Bypass Highway

The State of Hawai`i Department of Transportation (DOT) is proposing to realign Hawai`i Belt Road (Route 19) in Waimea, Hawai`i, between Mud Lane and Kamuela Race Track. The Hawai`i Belt Road Realignment (formerly known as the Waimea Bypass Highway) would be a 6.3-mile highway, which would be located to the south of Waimea Town. The proposed Bypass Highway was not taken into account in this traffic impact analysis.

C. Year 2012 Peak Hour Traffic Without Project

1. Year 2012 AM Peak Hour Traffic Analysis Without Project

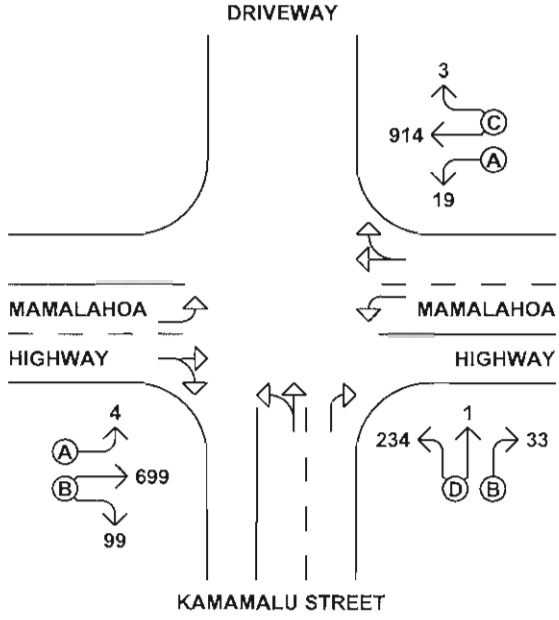
The intersection of Mamalahoa Highway and Kamamalu Street is expected to operate at LOS "C" with a v/c ratio of 0.90, during the AM peak hour of traffic without the proposed project. Kamamalu Street approach is expected to operate at LOS "D" at Mamalahoa Highway. The other traffic movements at the intersection are expected to operate at satisfactory Levels of Service, i.e., LOS "C" or better. Figure 4 depicts the Year 2012 AM peak hour traffic without the proposed project, and the results of the capacity analysis.

2. Year 2012 PM Peak Hour Traffic Analysis Without Project

During the Year 2012 PM peak hour of traffic without the proposed project, the intersection of Mamalahoa Highway and Kamamalu Street is expected to operate at LOS "B" and a v/c ratio of 0.92. The left-turn movement from Kamamalu Street to westbound Mamalahoa Highway is expected to continue to operate at LOS "E". The other traffic movements at the intersection are expected to operate at satisfactory Levels of Service. The Year 2012 PM peak hour traffic without the proposed project, and the results of the capacity analysis also are depicted on Figure 4.

D. Trip Generation Characteristics

During the AM peak hour of traffic, the proposed project is expected to generate a total of 144 vph – 83 vph entering the site and 61 vph exiting the site. The proposed project is expected to generate a total of 143 vph – 57 vph entering the site and 86 vph exiting the site, during the PM peak hour of traffic. The trip generation characteristics for the proposed project are summarized in Table 3.



NOT TO SCALE

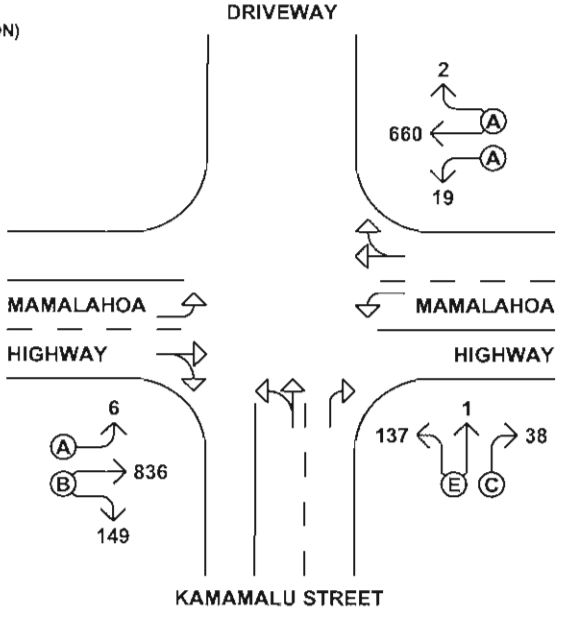
AM PEAK HOUR TRAFFIC WITHOUT PROJECT

LEGEND

90 TRAFFIC MOVEMENT VOLUME (VPH)

LANE CONTROL

C LEVEL OF SERVICE (SIGNALIZED CONDITION)



PM PEAK HOUR TRAFFIC WITHOUT PROJECT

Figure 4. Year 2012 Peak Hour Traffic Without Project

Table 3. Trip Generation Characteristics							
Land Use	Students	AM Peak Hour (vph)			PM Peak Hour (vph)		
		Enter	Exit	Total	Enter	Exit	Total
Day Care Center	24	12	11	23	10	12	22
Elementary School	132	30	25	55	17	20	37
Middle School	63	18	15	33	9	10	19
High School	81	23	10	33	21	44	65
Totals	300	83	61	144	57	86	143

Figure 5 depicts the AM and PM peak hour site-generated traffic assignments for the proposed project.

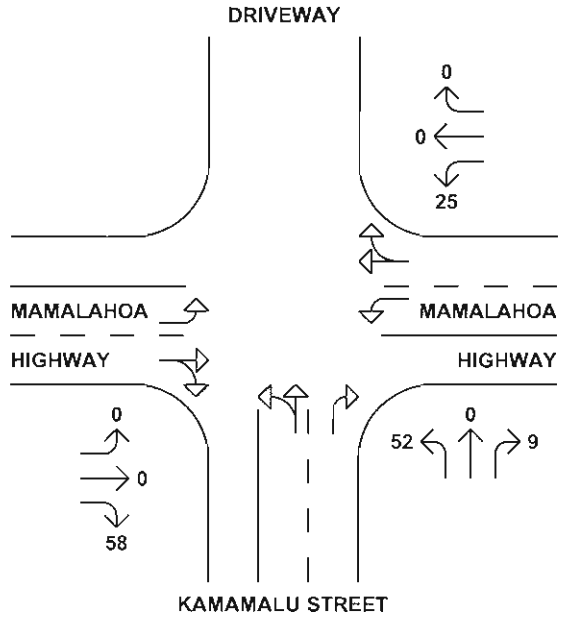
IV. Traffic Impact Analysis

A. Year 2012 AM Peak Hour Traffic Impact Analysis With Project

The intersection of Mamalahoa Highway and Kamamalu Street is not expected to be significantly affected by traffic generated by the proposed project, during the AM peak hour of traffic. The intersection is expected to continue to operate at LOS "C" with a v/c ratio of 0.90. Kamamalu Street is expected to continue to operate at LOS "D" at Mamalahoa Highway. Figure 6 depicts the Year 2012 AM peak hour traffic with the proposed project, and the results of the capacity analysis.

B. Year 2012 PM Peak Hour Traffic Impact Analysis With Project

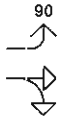
During the Year 2012 PM peak hour of traffic with the proposed project, the intersection of Mamalahoa Highway and Kamamalu Street is expected to operate at LOS "C", with a v/c ratio of 0.94. The left-turn movement from Kamamalu Street to westbound Mamalahoa Highway is expected to continue to operate at LOS "E". The right-turn movement from Kamamalu Street to eastbound Mamalahoa Highway is expected to operate at LOS "D". The other traffic movements at the intersection are expected to operate at satisfactory Levels of Service. The Year 2012 PM peak hour traffic with the proposed project, and the results of the capacity analysis also are depicted on Figure 6.



AM PEAK HOUR SITE TRAFFIC

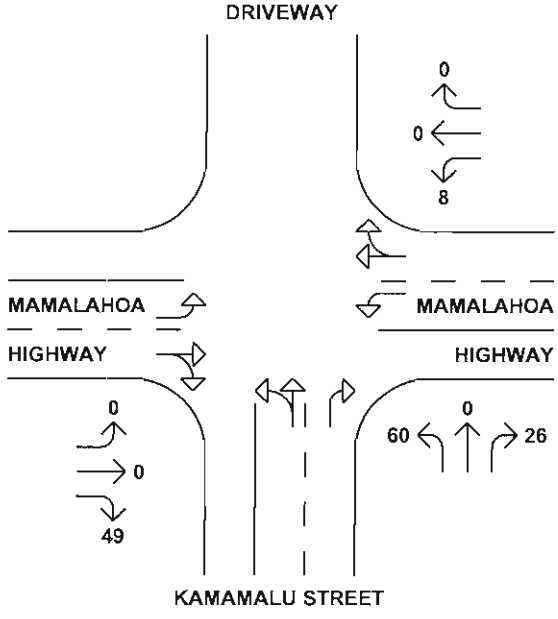
NOT TO SCALE

LEGEND



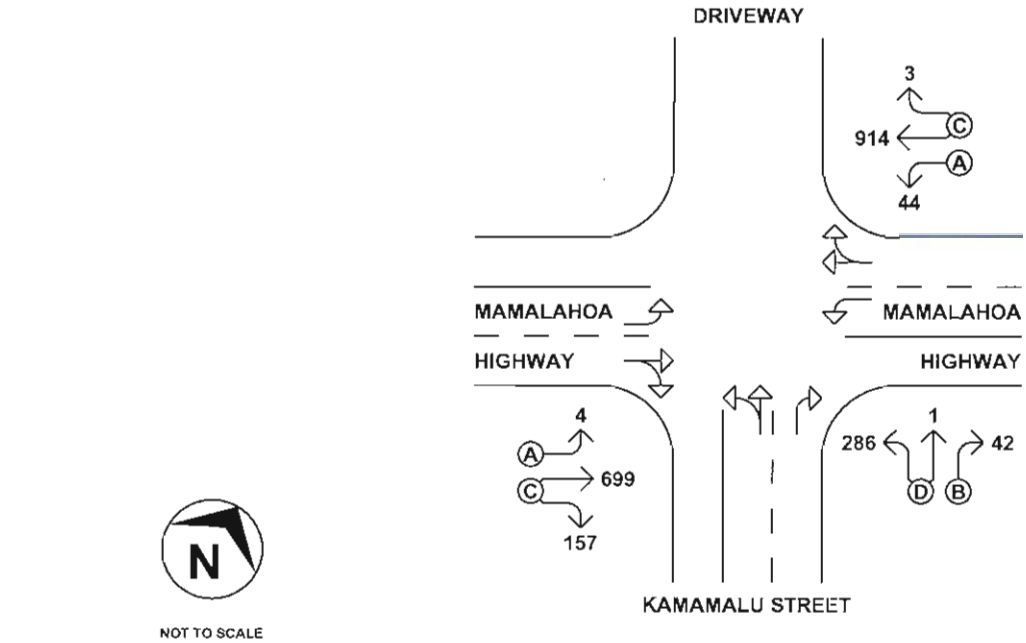
TRAFFIC MOVEMENT VOLUME (VPH)

LANE CONTROL



PM PEAK HOUR SITE TRAFFIC

Figure 5. Peak Hour Site-Generated Traffic



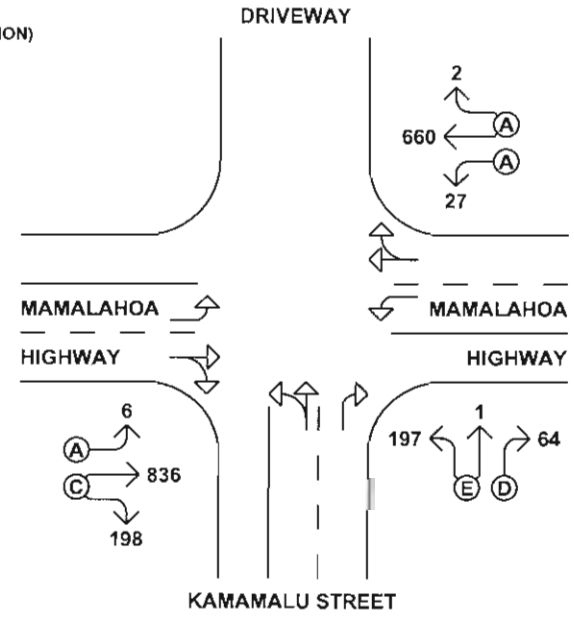
AM PEAK HOUR TRAFFIC WITH PROJECT

LEGEND

90 TRAFFIC MOVEMENT VOLUME (VPH)

LANE CONTROL

C LEVEL OF SERVICE (SIGNALIZED CONDITION)



PM PEAK HOUR TRAFFIC WITH PROJECT

Figure 6. 2012 Peak Hour Traffic With Project

V. Conclusions

Traffic in the region is generally expected to increase by 2.88 percent per year to the Year 2012 without the proposed project. A portion of the growth in traffic between East and West Hawai`i is expected to be diverted from Mamalahoa Highway to Saddle Road. The construction of the Waimea Bypass Highway is scheduled to open to traffic in the Year 2013, one year after the proposed school is expected to reach full enrollment.

The AM peak hour traffic is not expected to be significantly affected by the development of the proposed project. The intersection can be expected to be affected by the development of the proposed project, during the PM peak hour of traffic. The Kamamalu Street approach to Mamalahoa Highway is expected to worsen from LOS "D" to LOS "E", during the PM peak hour of traffic with the proposed project. Retiming the traffic signal system would mitigate the traffic impacts of the proposed project without significantly affecting the other traffic movements at the intersection. Over the long term, the Waimea Bypass is expected to reduce traffic on Mamalahoa Highway by diverting through traffic around Waimea Town.

TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED

KANU O KA `AINA `OHANA LEARNING CENTER

APPENDIX A

TRAFFIC COUNT DATA

TRAFFIC COUNT DATA **FILE NAME: Mamalahoa Kamamalu** Sec 3

PROJECT: Kanu O Ka Aina
LOCATION: Waimea
E-W STREET Mamalahoa Hwy
N-S STREET: Kamamalu Street

PERIOD: AM Peak
NORTH:
TECHNICIAN: Tom Lemanski
DATE: 4/26/05

		Mamalahoa Hwy						Kamamalu Street				Kamamalu Street		
TIME		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	TOTAL
6:30	6:45	0	55	7	5	218	0	17	0	4	0	0	0	306
6:45	7:00	0	84	3	5	259	0	25	0	6	0	0	0	382
7:00	7:15	0	80	15	2	246	0	20	0	8	0	0	0	371
7:15	7:30	0	125	5	4	236	0	42	0	9	0	0	0	421
7:30	7:45	0	128	15	3	236	0	64	0	10	0	0	0	**456**
7:45	8:00	0	150	30	4	219	0	55	0	9	0	0	0	467
8:00	8:15	0	160	27	9	196	0	25	0	5	0	0	0	422
8:15	8:30	0	136	18	6	178	0	21	0	11	0	0	0	370
AM PEAK HOUR														
7:15	**8:15**	**2**	**563**	**77**	**20**	**887**	**3**	**186**	**1**	**33**	**1**	**0**	**2**	**1766**
PHF			**1.10**	**1.28**	**1.67**	**0.94**		**0.73**		**0.83**				

TRAFFIC COUNT DATA **FILE NAME: Mamalahoa Kamamalu** Sec 3

PROJECT: Kanu O Ka Aina
LOCATION: Waimea
E-W STREET Mamalahoa Hwy
N-S STREET Kamamalu Street

PERIOD: PM Peak
NORTH:
TECHNICIAN: Tom Lemanski
DATE: 4/25/05

		Mamalahoa Hwy						Kamamalu Street				Kamamalu Street		
TIME		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	TOTAL
15:00	15:15	0	211	28	3	152	0	25	0	11	0	0	0	430
15:15	15:30	0	224	33	5	146	0	26	0	9	0	0	0	443
15:30	15:45	0	222	38	6	150	0	24	0	14	0	0	0	**454**
15:45	16:00	0	239	20	6	149	0	18	0	14	0	0	0	446
16:00	16:15	0	228	27	3	147	0	30	0	8	0	0	0	443
16:15	16:30	0	235	31	3	121	0	14	0	8	0	0	0	412
16:30	16:45	0	237	21	15	116	0	21	0	9	0	0	0	419
16:45	17:00	0	235	29	10	121	0	28	0	6	0	0	0	429
PM PEAK HOUR														
15:15	**16:15**	**4**	**913**	**118**	**20**	**592**	**2**	**98**	**1**	**45**	**5**	**1**	**3**	**1786**
PHF			**1.03**	**0.78**	**0.83**	**0.99**		**1.02**		**0.80**				

TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED

KANU O KA `AINA `OHANA LEARNING CENTER

APPENDIX B

CAPACITY ANALYSIS WORKSHEETS

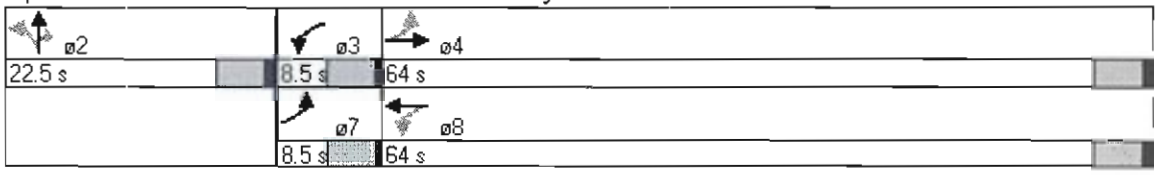
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	200		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50			
Trailing Detector (ft)	0	0		0	0		0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982							0.850			
Flt Protected	0.950			0.950				0.953				
Satd. Flow (prot)	1770	1725	0	1770	1743	0	0	1775	1583	0	0	0
Flt Permitted	0.133			0.314				0.953				
Satd. Flow (perm)	248	1725	0	585	1743	0	0	1775	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14							22			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		904			2439			1542			564	
Travel Time (s)		20.5			55.4			35.0			12.8	
Volume (vph)	2	563	77	20	887	3	186	1	33	0	0	0
Peak Hour Factor	0.92	1.00	1.00	1.00	0.94	0.92	0.73	0.92	0.83	0.92	0.92	0.92
Heavy Vehicles (%)	2%	9%	2%	2%	9%	2%	2%	2%	2%	2%	2%	2%
Lane Group Flow (vph)	2	640	0	20	947	0	0	256	40	0	0	0
Turn Type	pm+pt			pm+pt			Perm		Perm			
Protected Phases	7	4		3	8			2				
Permitted Phases	4			8			2		2			
Detector Phases	7	4		3	8		2	2	2			
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0			
Minimum Split (s)	8.5	21.0		8.5	9.0		21.0	21.0	21.0			
Total Split (s)	8.5	64.0	0.0	8.5	64.0	0.0	22.5	22.5	22.5	0.0	0.0	0.0
Total Split (%)	8.9%	67.4%	0.0%	8.9%	67.4%	0.0%	23.7%	23.7%	23.7%	0.0%	0.0%	0.0%
Maximum Green (s)	4.0	59.0		4.0	59.0		17.5	17.5	17.5			
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0			
All-Red Time (s)	0.5	1.0		0.5	1.0		1.0	1.0	1.0			
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	None		None	None		Max	Max	Max			
Walk Time (s)		5.0					5.0	5.0	5.0			
Flash Dont Walk (s)		11.0					11.0	11.0	11.0			
Pedestrian Calls (#/hr)		0					0	0	0			
Act Effct Green (s)	44.7	43.3		45.4	44.8			19.3	19.3			
Actuated g/C Ratio	0.55	0.59		0.58	0.61			0.26	0.26			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.01	0.63		0.05	0.90			0.55	0.09			
Control Delay	5.0	11.9		5.0	18.7			33.7	17.9			
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			
Total Delay	5.0	11.9		5.0	18.7			33.7	17.9			
LOS	A	B		A	B			C	B			
Approach Delay		11.8			18.4			31.6				
Approach LOS		B			B			C				
Stops (vph)	2	365		7	648			150	17			
Fuel Used(gal)	0	11		1	32			4	1			
CO Emissions (g/hr)	2	753		42	2210			305	43			
NOx Emissions (g/hr)	0	147		8	430			59	8			
VOC Emissions (g/hr)	1	175		10	512			71	10			
Dilemma Vehicles (#)	0	0		0	0			0	0			
Queue Length 50th (ft)	0	141		3	296			101	6			
Queue Length 95th (ft)	2	299		9	#737			#257	33			
Internal Link Dist (ft)		824			2359			1462			484	
Turn Bay Length (ft)	120			200					50			
Base Capacity (vph)	225	1159		406	1187			465	431			
Starvation Cap Reductn	0	0		0	0			0	0			
Spillback Cap Reductn	0	0		0	0			0	0			
Storage Cap Reductn	0	0		0	0			0	0			
Reduced v/c Ratio	0.01	0.55		0.05	0.80			0.55	0.09			

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 73.8
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 18.2 Intersection LOS: B
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 12: Mamalahoa Hwy & Kamamalu St



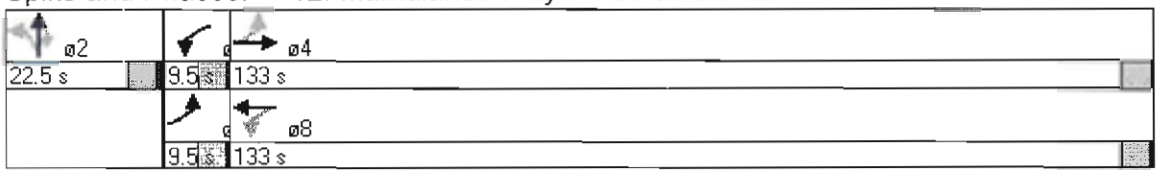
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	200		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50			
Trailing Detector (ft)	0	0		0	0		0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.979							0.850			
Flt Protected	0.950			0.950				0.953				
Satd. Flow (prot)	1770	1695	0	1770	1827	0	0	1775	1583	0	0	0
Flt Permitted	0.390			0.178				0.953				
Satd. Flow (perm)	726	1695	0	332	1827	0	0	1775	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17							42			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		970			2439			1542			474	
Travel Time (s)		22.0			55.4			35.0			10.8	
Volume (vph)	4	913	118	20	592	2	98	1	45	0	0	0
Peak Hour Factor	0.92	1.00	0.78	0.83	0.99	0.92	1.00	0.92	0.80	0.92	0.92	0.92
Heavy Vehicles (%)	2%	11%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Lane Group Flow (vph)	4	1064	0	24	600	0	0	99	56	0	0	0
Turn Type	pm+pt			pm+pt			Perm		Perm			
Protected Phases	7	4		3	8			2				
Permitted Phases	4			8			2		2			
Detector Phases	7	4		3	8		2	2	2			
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0			
Minimum Split (s)	8.5	21.0		8.5	9.0		21.0	21.0	21.0			
Total Split (s)	9.5	133.0	0.0	9.5	133.0	0.0	22.5	22.5	22.5	0.0	0.0	0.0
Total Split (%)	5.8%	80.6%	0.0%	5.8%	80.6%	0.0%	13.6%	13.6%	13.6%	0.0%	0.0%	0.0%
Maximum Green (s)	5.0	128.0		5.0	128.0		17.5	17.5	17.5			
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0			
All-Red Time (s)	0.5	1.0		0.5	1.0		1.0	1.0	1.0			
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	None		None	None		Max	Max	Max			
Walk Time (s)		5.0					5.0	5.0	5.0			
Flash Dont Walk (s)		11.0					11.0	11.0	11.0			
Pedestrian Calls (#/hr)		0					0	0	0			
Act Effct Green (s)	79.2	77.4		80.6	80.6			22.3	22.3			
Actuated g/C Ratio	0.65	0.68		0.69	0.71			0.20	0.20			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.01	0.92		0.08	0.46			0.29	0.16			
Control Delay	3.2	17.4		3.2	6.4			59.1	26.7			
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			
Total Delay	3.2	17.4		3.2	6.4			59.1	26.7			
LOS	A	B		A	A			E	C			
Approach Delay		17.4			6.3			47.4				
Approach LOS		B			A			D				

Intersection Summary

Area Type: Other
Cycle Length: 165
Actuated Cycle Length: 113.8
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 16.2 Intersection LOS: B
Intersection Capacity Utilization 67.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 12: Mamalahoa Hwy & Kamamalu St



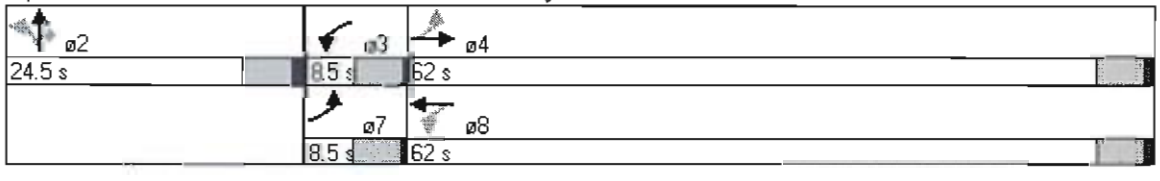
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	200		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50			
Trailing Detector (ft)	0	0		0	0		0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.981							0.850			
Flt Protected	0.950			0.950				0.953				
Satd. Flow (prot)	1770	1724	0	1770	1743	0	0	1775	1583	0	0	0
Flt Permitted	0.097			0.204				0.953				
Satd. Flow (perm)	181	1724	0	380	1743	0	0	1775	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14							18			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		904			2439			1542			564	
Travel Time (s)		20.5			55.4			35.0			12.8	
Volume (vph)	4	699	99	19	914	3	234	1	33	0	0	0
Peak Hour Factor	0.92	1.00	1.00	1.00	0.94	0.92	0.73	0.92	0.83	0.92	0.92	0.92
Heavy Vehicles (%)	2%	9%	2%	2%	9%	2%	2%	2%	2%	2%	2%	2%
Lane Group Flow (vph)	4	798	0	19	975	0	0	322	40	0	0	0
Turn Type	pm+pt			pm+pt			Perm		Perm			
Protected Phases	7	4		3	8			2				
Permitted Phases	4			8			2		2			
Detector Phases	7	4		3	8		2	2	2			
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0			
Minimum Split (s)	8.5	21.0		8.5	9.0		21.0	21.0	21.0			
Total Split (s)	8.5	62.0	0.0	8.5	62.0	0.0	24.5	24.5	24.5	0.0	0.0	0.0
Total Split (%)	8.9%	65.3%	0.0%	8.9%	65.3%	0.0%	25.8%	25.8%	25.8%	0.0%	0.0%	0.0%
Maximum Green (s)	4.0	57.0		4.0	57.0		19.5	19.5	19.5			
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0			
All-Red Time (s)	0.5	1.0		0.5	1.0		1.0	1.0	1.0			
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	None		None	None		Max	Max	Max			
Walk Time (s)		5.0					5.0	5.0	5.0			
Flash Dont Walk (s)		11.0					11.0	11.0	11.0			
Pedestrian Calls (#/hr)		0					0	0	0			
Act Effct Green (s)	49.9	48.4		50.7	50.0			21.0	21.0			
Actuated g/C Ratio	0.57	0.60		0.59	0.62			0.26	0.26			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.02	0.77		0.06	0.90			0.70	0.09			
Control Delay	5.8	16.5		5.6	22.2			39.8	19.2			
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			
Total Delay	5.8	16.5		5.6	22.2			39.8	19.2			
LOS	A	B		A	C			D	B			
Approach Delay		16.4			21.9			37.5				
Approach LOS		B			C			D				
Stops (vph)	2	547		6	664			193	17			
Fuel Used(gal)	0	15		1	33			6	1			
CO Emissions (g/hr)	4	1027		40	2320			405	43			
NOx Emissions (g/hr)	1	200		8	451			79	8			
VOC Emissions (g/hr)	1	238		9	538			94	10			
Dilemma Vehicles (#)	0	0		0	0			0	0			
Queue Length 50th (ft)	1	228		3	346			158	9			
Queue Length 95th (ft)	3	476		9	#797			#332	34			
Internal Link Dist (ft)		824			2359			1462			484	
Turn Bay Length (ft)	120			200					50			
Base Capacity (vph)	186	1120		299	1150			463	426			
Starvation Cap Reductn	0	0		0	0			0	0			
Spillback Cap Reductn	0	0		0	0			0	0			
Storage Cap Reductn	0	0		0	0			0	0			
Reduced v/c Ratio	0.02	0.71		0.06	0.85			0.70	0.09			

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 80.6
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 22.5 Intersection LOS: C
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 12: Mamalahoa Hwy & Kamamalu St



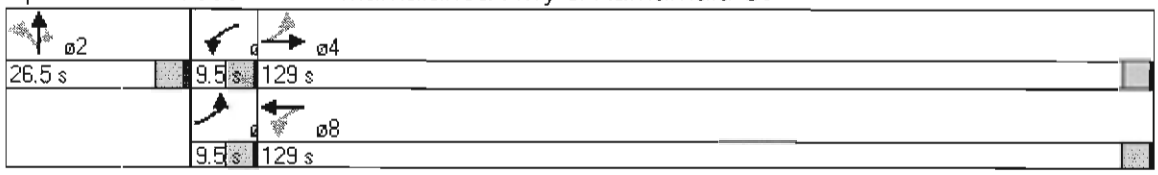
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	200		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50			
Trailing Detector (ft)	0	0		0	0		0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972							0.850			
Flt Protected	0.950			0.950				0.953				
Satd. Flow (prot)	1770	1689	0	1770	1827	0	0	1775	1583	0	0	0
Flt Permitted	0.346			0.178				0.953				
Satd. Flow (perm)	645	1689	0	332	1827	0	0	1775	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21							26			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		970			2439			1542			474	
Travel Time (s)		22.0			55.4			35.0			10.8	
Volume (vph)	6	836	149	19	660	2	137	1	38	0	0	0
Peak Hour Factor	0.92	1.00	0.78	0.83	0.99	0.92	1.00	0.92	0.80	0.92	0.92	0.92
Heavy Vehicles (%)	2%	11%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Lane Group Flow (vph)	7	1027	0	23	669	0	0	138	48	0	0	0
Turn Type	pm+pt			pm+pt			Perm		Perm			
Protected Phases	7	4		3	8			2				
Permitted Phases	4			8			2		2			
Detector Phases	7	4		3	8		2	2	2			
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0			
Minimum Split (s)	8.5	21.0		8.5	9.0		21.0	21.0	21.0			
Total Split (s)	9.5	129.0	0.0	9.5	129.0	0.0	26.5	26.5	26.5	0.0	0.0	0.0
Total Split (%)	5.8%	78.2%	0.0%	5.8%	78.2%	0.0%	16.1%	16.1%	16.1%	0.0%	0.0%	0.0%
Maximum Green (s)	5.0	124.0		5.0	124.0		21.5	21.5	21.5			
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0			
All-Red Time (s)	0.5	1.0		0.5	1.0		1.0	1.0	1.0			
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	None		None	None		Max	Max	Max			
Walk Time (s)		5.0					5.0	5.0	5.0			
Flash Dont Walk (s)		11.0					11.0	11.0	11.0			
Pedestrian Calls (#/hr)		0					0	0	0			
Act Effct Green (s)	79.2	77.1		80.5	80.3			26.2	26.2			
Actuated g/C Ratio	0.63	0.66		0.67	0.69			0.22	0.22			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.02	0.92		0.08	0.53			0.35	0.13			
Control Delay	4.0	19.4		4.1	8.5			55.8	33.3			
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			
Total Delay	4.0	19.4		4.1	8.5			55.8	33.3			
LOS	A	B		A	A			E	C			
Approach Delay		19.3			8.4			50.0				
Approach LOS		B			A			D				

Intersection Summary

Area Type: Other
Cycle Length: 165
Actuated Cycle Length: 117.2
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 18.3 Intersection LOS: B
Intersection Capacity Utilization 67.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 12: Mamalahoa Hwy & Kamamalu St



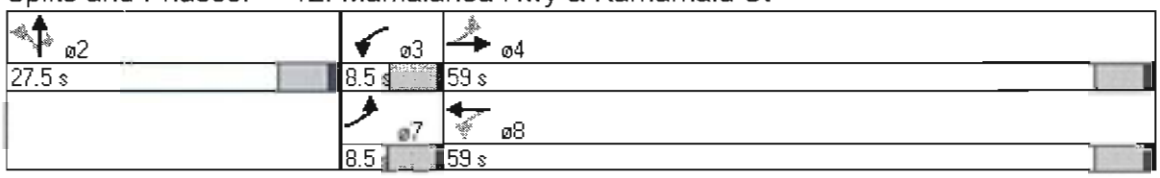
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	200		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50			
Trailing Detector (ft)	0	0		0	0		0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972							0.850			
Flt Protected	0.950			0.950				0.952				
Satd. Flow (prot)	1770	1715	0	1770	1743	0	0	1773	1583	0	0	0
Flt Permitted	0.073			0.143				0.952				
Satd. Flow (perm)	136	1715	0	266	1743	0	0	1773	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20							20			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		904			2439			1542			564	
Travel Time (s)		20.5			55.4			35.0			12.8	
Volume (vph)	4	699	157	44	914	3	286	1	42	0	0	0
Peak Hour Factor	0.92	1.00	1.00	1.00	0.94	0.92	0.73	0.92	0.83	0.92	0.92	0.92
Heavy Vehicles (%)	2%	9%	2%	2%	9%	2%	2%	2%	2%	2%	2%	2%
Lane Group Flow (vph)	4	856	0	44	975	0	0	393	51	0	0	0
Turn Type	pm+pt			pm+pt			Perm		Perm			
Protected Phases	7	4		3	8			2				
Permitted Phases	4			8			2		2			
Detector Phases	7	4		3	8		2	2	2			
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0			
Minimum Split (s)	8.5	21.0		8.5	9.0		21.0	21.0	21.0			
Total Split (s)	8.5	59.0	0.0	8.5	59.0	0.0	27.5	27.5	27.5	0.0	0.0	0.0
Total Split (%)	8.9%	62.1%	0.0%	8.9%	62.1%	0.0%	28.9%	28.9%	28.9%	0.0%	0.0%	0.0%
Maximum Green (s)	4.0	54.0		4.0	54.0		22.5	22.5	22.5			
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0			
All-Red Time (s)	0.5	1.0		0.5	1.0		1.0	1.0	1.0			
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	None		None	None		Max	Max	Max			
Walk Time (s)		5.0					5.0	5.0	5.0			
Flash Dont Walk (s)		11.0					11.0	11.0	11.0			
Pedestrian Calls (#/hr)		0					0	0	0			
Act Effct Green (s)	54.5	52.0		56.1	55.2			23.7	23.7			
Actuated g/C Ratio	0.57	0.59		0.61	0.62			0.27	0.27			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.03	0.84		0.19	0.90			0.83	0.12			
Control Delay	6.8	23.8		7.6	25.9			49.0	19.7			
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			
Total Delay	6.8	23.8		7.6	25.9			49.0	19.7			
LOS	A	C		A	C			D	B			
Approach Delay		23.7			25.1			45.6				
Approach LOS		C			C			D				
Stops (vph)	2	638		15	660			241	22			
Fuel Used(gal)	0	17		1	34			8	1			
CO Emissions (g/hr)	4	1210		94	2366			534	56			
NOx Emissions (g/hr)	1	235		18	460			104	11			
VOC Emissions (g/hr)	1	280		22	548			124	13			
Dilemma Vehicles (#)	0	0		0	0			0	0			
Queue Length 50th (ft)	1	393		8	392			223	14			
Queue Length 95th (ft)	4	#674		19	#831			#399	39			
Internal Link Dist (ft)		824			2359			1462			484	
Turn Bay Length (ft)	120			200					50			
Base Capacity (vph)	155	1040		236	1109			475	439			
Starvation Cap Reductn	0	0		0	0			0	0			
Spillback Cap Reductn	0	0		0	0			0	0			
Storage Cap Reductn	0	0		0	0			0	0			
Reduced v/c Ratio	0.03	0.82		0.19	0.88			0.83	0.12			

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 88.6
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 28.5 Intersection LOS: C
Intersection Capacity Utilization 70.9% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 12: Mamalahoa Hwy & Kamamalu St



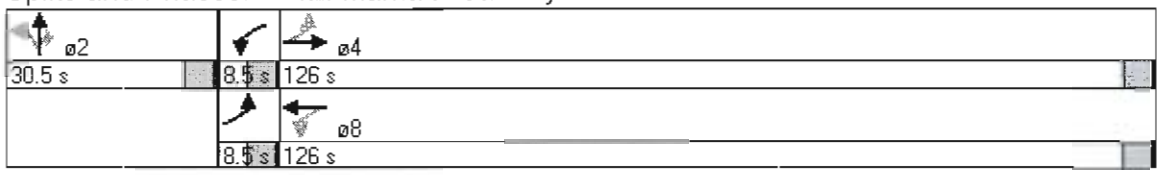
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	200		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	50			
Trailing Detector (ft)	0	0		0	0		0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965							0.850			
Flt Protected	0.950			0.950				0.953				
Satd. Flow (prot)	1770	1684	0	1770	1827	0	0	1775	1583	0	0	0
Flt Permitted	0.338			0.136				0.953				
Satd. Flow (perm)	630	1684	0	253	1827	0	0	1775	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25							32			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		970			2439			1542			474	
Travel Time (s)		22.0			55.4			35.0			10.8	
Volume (vph)	6	836	198	27	660	2	197	1	64	0	0	0
Peak Hour Factor	0.92	1.00	0.78	0.83	0.99	0.92	1.00	0.92	0.80	0.92	0.92	0.92
Heavy Vehicles (%)	2%	11%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Lane Group Flow (vph)	7	1090	0	33	669	0	0	198	80	0	0	0
Turn Type	pm+pt			pm+pt			Perm		Perm			
Protected Phases	7	4		3	8			2				
Permitted Phases	4			8			2		2			
Detector Phases	7	4		3	8		2	2	2			
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0			
Minimum Split (s)	8.5	21.0		8.5	9.0		21.0	21.0	21.0			
Total Split (s)	8.5	126.0	0.0	8.5	126.0	0.0	30.5	30.5	30.5	0.0	0.0	0.0
Total Split (%)	5.2%	76.4%	0.0%	5.2%	76.4%	0.0%	18.5%	18.5%	18.5%	0.0%	0.0%	0.0%
Maximum Green (s)	4.0	121.0		4.0	121.0		25.5	25.5	25.5			
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0			
All-Red Time (s)	0.5	1.0		0.5	1.0		1.0	1.0	1.0			
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0			
Recall Mode	None	None		None	None		Max	Max	Max			
Walk Time (s)		5.0					5.0	5.0	5.0			
Flash Dont Walk (s)		11.0					11.0	11.0	11.0			
Pedestrian Calls (#/hr)		0					0	0	0			
Act Effct Green (s)	93.3	91.5		94.4	94.2			29.4	29.4			
Actuated g/C Ratio	0.66	0.68		0.69	0.70			0.22	0.22			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.02	0.94		0.14	0.52			0.51	0.21			
Control Delay	4.5	24.4		5.6	9.2			61.7	39.2			
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			
Total Delay	4.5	24.4		5.6	9.2			61.7	39.2			
LOS	A	C		A	A			E	D			
Approach Delay		24.3			9.1			55.2				
Approach LOS		C			A			E				

Intersection Summary

Area Type: Other
Cycle Length: 165
Actuated Cycle Length: 133.9
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 23.3 Intersection LOS: C
Intersection Capacity Utilization 73.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 12: Mamalahoa Hwy & Kamamalu St



Appendix F
Pre-Consultation Period Comments and Responses

Respondents and Distribution	Received Pre-Consultation Notice	Comments Received
State of Hawaiʻi Agencies		
State of Hawaiʻi Department of Hawaiian Home Lands	x	
State of Hawaiʻi Department of Health	x	x
State of Hawaiʻi Department of Land and Natural Resources	x	x
State of Hawaiʻi Department of Land and Natural Resources, Historic Preservation Division	x	
State of Hawaiʻi Office of Environmental Quality Control	x	
State of Hawaiʻi Office of Hawaiian Affairs	x	x
State of Hawaiʻi Department of Business, Economic Development & Tourism, Planning Office	x	x
County of Hawaiʻi Agencies	x	
County of Hawaiʻi Department of Parks and Recreation	x	
County of Hawaiʻi Department of Public Works	x	x
County of Hawaiʻi Department of Water Supply	x	x
County of Hawaiʻi Planning Department	x	x
County of Hawaiʻi Council District 9, Councilman Pete Hoffmann	x	
Other Parties and Associations		
Waimea Homestead Association Board	x	
Waimea Community Association	x	
Waimea Hawaiian Civic Club	x	

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 3, 2005

LD-NAV
KANUoKAAINAG-70.RCM

Group 70 International
Mark Kawika McKeague, Planner
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813

Dear Mr. McKeague:

Subject: Pre-Assessment Consultation for the Preparation of a Draft Environmental Assessment for Kanu o Ka Aina Learning Ohana, Waimea, Island of Hawaii, Hawaii

Thank you for the opportunity to review and comment on the subject matter.

A copy of your letter and map dated February 7, 2005, pertaining to the subject matter was distributed or made available to the following Department of Land and Natural Resources' Divisions for their review and comment:

- Division of Forestry and Wildlife
- Division of State Parks
- Engineering Division
- Commission on Water Resource Management
- Office of Conservation and Coastal Lands
- Land-Hawaii District Land office

Enclosed please find a copy of the Engineering Division comment.

Based on the attached responses, the Department of Land and Natural Resources has no other comment to offer on the subject matter at this time.

Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 1-808-587-0384.

Very truly yours,

WARREN F. WEGESEND JR.
Administrator

C: HDLO

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOSHIMURA
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 11, 2005

LD/NAV
Ref.: KANUoKAAINAGROUP70.CMT Suspense Date: 2/18/05

MEMORANDUM:

TO: XXX Division of Forestry and Wildlife
XXX Engineering Division
XXX Division Of State Parks
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Hawaii District Land Office

FROM: Warren F. Wegesend Jr., Administrator
Land Division

SUBJECT: Pre-Assessment Consultation for Preparation of a Draft Environmental Assessment
Project: Kanu o Ka Aina Learning Ohana, Waimea, Island of Hawaii, Hawaii
Property: State Land (DHHL Property)
Consultant: Group 70 International (523-5866 ext. 149)
TMK: (3) 6-4-004: 009

Please review the attached letter dated February 7, 2005 (Project information) and map pertaining to the subject matter.

Please submit your comments (if any) on Division letterhead signed and dated by the suspense date.

If you have any questions, please contact Nicholas A. Vaccaro at 587-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments. ( ) Comments attached.

Division: _____ Signed: Paul Conry

Date: FEB 14 2005 Name: PAUL J. CONRY, ADMINISTRATOR
DIVISION OF FORESTRY AND WILDLIFE

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
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LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2005 FEB 14 P 3:28
RECEIVED
LAND DIVISION
HILO, HAWAII

February 11, 2005

LD/NAV
Ref.: KANUoKAAINAGROUP70.CMT Suspense Date: 2/18/05

MEMORANDUM:

TO: XXX Division of Forestry and Wildlife
XXX Engineering Division
XXX Division Of State Parks
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
✓XXX Land-Hawaii District Land Office

FROM: Warren F. Wegesend Jr., Administrator
Land Division

2005 FEB 23 A 10:28
RECEIVED

SUBJECT: Pre-Assessment Consultation for Preparation of a Draft Environmental Assessment
Project: Kanu o Ka Aina Learning Ohana, Waimea, Island of Hawaii, Hawaii
Property: State Land (DHHL Property)
Consultant: Group 70 International (523-5866 ext. 149)
TMK: (3) 6-4-004: 009

Please review the attached letter dated February 7, 2005 (Project information) and map pertaining to the subject matter.

Please submit your comments (if any) on Division letterhead signed and dated by the suspense date.

If you have any questions, please contact Nicholas A. Vaccaro at 587-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(✓) We have no comments. ( ) Comments attached.

Division: LAND Signed: [signature]

Date: 2/18/05 Name: Harry Yada

46556

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
STATE PARKS DIV

'05 FEB 14 A9:11

DEPT OF LAND & NATURAL RESOURCES

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

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

TO:
ADMINISTRATOR
ASST ADMIN
DEV BR
PLAN BR
RES MGT BR
CLERICAL
ADMIN ASST
INTERP BR

FOR:
CIRC/POST/STAFF RM
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February 11, 2005

LD/NAV
Ref.: KANUoKAAINAGROUP70.CMT

Suspense ~~Date~~: 2/18/05

MEMORANDUM:

TO: XXX Division of Forestry and Wildlife
XXX Engineering Division
✓XXX Division Of State Parks
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Hawaii District Land Office

FROM: Warren F. Wegesend Jr., Administrator
Land Division

2005 FEB 16 P 3:27
RECEIVED

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(✓ We have no comments. ( ) Comments attached.

Division: State Parks Signed: [signature]

Date: 2/15/05 Name: David S. Quin

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

YVONNE Y. IZU
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STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 11, 2005

LD/NAV
Ref.: KANUoKAAINAGROUP70.CMT Suspense Date: 2/18/05

'05 FEB 11 PM 03:16 ENGINEERING

2005 FEB 16 A 10:09

MEMORANDUM:

TO: XXX Division of Forestry and Wildlife
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XXX Division Of State Parks
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Hawaii District Land Office

FROM: Warren F. Wegesend Jr., Administrator
Land Division

SUBJECT: Pre-Assessment Consultation for Preparation of a Draft Environmental Assessment
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( ) We have no comments. (X) Comments attached.

Division: Engineering

Date: 2/15/05

Signed: Eric T. Hirano

Name: ERIC T. HIRANO, CHIEF ENGINEER

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LA/NAV

Ref.: KANUOKAAINAGROUP70.CMT
Hawaii.309

COMMENTS

(X) **We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The Flood Insurance Program does not have any regulations for development within Zone X.**

( ) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is 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.

(X) **Additional Comments: Please correct information on page 2, Flood Zone, of the Project Information Summary. Zone X is an area determined to be outside 500-year flood plain, not outside the 100-year flood plain.**

( ) Other: _____

_____

Should you have any questions, please call Mr. Andrew Monden of the Planning Branch at 587-0229.

Signed: _____
ERIC T. HIRANO, CHIEF ENGINEER

Date: 2/15/05

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
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HISTORIC PRESERVATION
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LAND
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COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
LAND DIVISION
2005 FEB 15 A 10: 15

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 11, 2005

LD/NAV
Ref.: KANUoKAAINAGROUP70.CMT

Suspense Date: 2/18/05

MEMORANDUM:

TO: XXX Division of Forestry and Wildlife
XXX Engineering Division
XXX Division Of State Parks
✓XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Hawaii District Land Office

FR:

TO: FROM: Warren F. Wegesend Jr. Administrator
Land Division

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If this office does not receive your comments by the suspense date, we will assume there are no comments.

(✓) We have no comments. ( ) Comments attached.

Division: CWRM

Signed: Edwin T. Sakoda

Date: 2/14/05

Name: Edwin T. Sakoda

GROUP 70
INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Ralph E. Portmore, AICP
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine M. Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Stephen H. Kelly, AICP
Katherine M. MacNeil, AIA
Frank B. McCue
Kathryn A. Nam
Donna D. Pennington
Alvin Sakutori
Scott Tangonan
Tom Young, AIA

April 12, 2005

Mr. Warren F. Wegesend, Jr., Administrator
State of Hawai'i
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawai'i 96809

RE: **Pre-Consultation for Draft Environmental Assessment, Kanu o Ka 'Āina Learning 'Ohana Project, Waimea, South Kohala, Hawai'i TMK: 6-4-004:009**

Dear Mr. Wegesend:

Thank you for your letter of March 3, 2005 regarding the early consultation request for the proposed native Hawaiian cultural and community learning center in Waimea on the Island of Hawai'i.

We acknowledge that the Division of Forestry and Wildlife, Division of State Parks, Commission on Water Resource Management, and Hawai'i District Land Office have no comments at this time.

The following is offered in response to the comments provided by the Engineering Division.

The project area lies within the flood Zone X, which is outside the 500-year flood plain. The Flood Insurance Program does not have any regulations for development within this district. We also corrected the information on page 2, Flood Zone, of the Project Information Summary, to declare Zone X is an area determined to be outside of the 500-year food plain.

Your comments and this response letter will be included in the Draft EA. We will forward you a copy of the Draft EA for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Kāwika McKeague
Senior Planner

Cc: Steve Bess

Standard Comments

Environmental Planning Office Dated 3/2/04

The Environmental Planning Office (EPO) is responsible for several surface water quality management programs mandated by the federal Clean Water Act or dictated by State policy . (http://www.state.hi.us/doh/eh/epo/wqm/wqm.htm). Among these responsibilities, EPO:

- maintains the *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)* (http://www.state.hi.us/doh/eh/epo/wqm/303dpcfinal.pdf);
- develops and establishes Total Maximum Daily Loads (TMDLs) for listed waters (suggesting how much existing pollutant loads should be reduced in order to attain water quality standards, please see http://www.epa.gov/owow/tmdl/intro.html);
- writes TMDL Implementation Plans describing how suggested pollutant load reductions can be achieved; and
- conducts assessments of stream habitat quality and biological integrity.

To facilitate TMDL development and planning, and to assist our assessment of the potential impact of proposed actions upon water quality, pollutant loading, and biological resources in receiving waters, we suggest that environmental review documents, permit applications, and related submittals include the following standard information and analyses:

Waterbody type and class

1. Identify the waterbody type and class, as defined in Hawaii Administrative Rules Chapter 11-54 (http://www.state.hi.us/doh/rules/11-54.pdf), of all potentially affected water bodies[1].

Existing water quality management actions

2. Identify any existing National Pollutant Discharge Elimination System (NPDES) permits and related connection permits (issued by permittees) that will govern the management of water that runs off or is discharged from the proposed project site or facility. Please include NPDES and other permit numbers; names of permittees, permitted facilities, and receiving waters (including waterbody type and class as in 1. above); diagrams showing drainage/discharge pathways and outfall locations; and note any permit conditions that may specifically apply to the proposed project.

3. Identify any planning documents, groups, and projects that include specific prescriptions for water quality management at the proposed project site and in the potentially affected waterbodies. Please note those prescriptions that may specifically apply to the proposed project.

Pending water quality management actions

4. Identify all potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)* including the listed waterbody, geographic scope of listing, and pollutant(s) (See Table 7 at http://www.state.hi.us/doh/eh/epo/wqm/303dpcfinal.pdf).

5. If the proposed project involves potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)*, identify and quantify expected changes in the following site and watershed conditions and characteristics:
   - surface permeability
   - hydrologic response of surface (timing, magnitude, and pathways)
   - receiving water hydrology
   - runoff and discharge constituents
   - pollutant concentrations and loads in receiving waters
   - aquatic habitat quality and the integrity of aquatic biota

Where TMDLs are already established they include pollutant load allocations for the surrounding lands and point source discharges. In these cases, we suggest that the submittal specify how the proposed project would contribute to achieving the applicable load reductions.

Where TMDLs are yet to be established and implemented, a first step in achieving TMDL objectives is to prevent any project-related increases in pollutant loads. This is generally accomplished through the proper application of suitable best management practices in all phases of the project and adherence to any applicable ordinances, standards, and permit conditions. In these cases we suggest that the submittal specify how the proposed project would contribute to
reducing the polluted discharge and runoff entering the receiving waters, including plans for
additional pollutant load reduction practices in future management of the surrounding lands and drainage/discharge systems.

Proposed Action and Alternatives Considered

We suggest that each submittal identify and analyze potential project impacts at a watershed scale by considering consider the potential contribution of the proposed project to cumulative, multi-project watershed effects on hydrology, water quality, and aquatic and riparian ecosystems.

We also suggest that each submittal broadly evaluate project alternatives by identifying more than one engineering solution for proposed projects. In particular, we suggest the consideration of "alternative," "soft," and "green" engineering solutions for channel modifications that would provide a more environmentally friendly and aesthetically pleasing channel environment and minimize the destruction of natural landscapes.

If you have any questions about these comments or EPO programs, please contact Herman Tuiolosega at 586-4337.

[1]"Potentially affected waterbodies" means those in which proposed project activity would take place and any that could receive water discharged by the proposed project activity or water flowing down from the proposed project site. These waterbodies can be presented as a chain of receiving waters whose top link is at the project site upslope and whose bottom link is in the Pacific Ocean, and can be named according to conventions established by Chapter 11-54 and the *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)*. For example, a recent project proposed for Nuhelewai Stream, Oahu might potentially affect Nuhelewai Stream, Kapalama Canal, and Honolulu Harbor and Shore Areas.
[OTHER EXAMPLES OR DIAGRAM??]

Solid and Hazardous Waste Branch Dated 3/2/04

1)
The OSWM recommends the development of a solid waste management plan that encompasses all project phases including demolition, construction, and occupation/operation of the completed project.

Specific examples of elements that the plan should address include:

- The recycling of green-waste during clear and grub activities;
- Recycling construction and demolition wastes, if appropriate;
- The use of locally produced compost in landscaping;
- The use of recycled content building materials;
- The provision of recycling facilities in the design of the project.

- -

2)
The developer shall ensure that all solid waste generated during project construction is directed to a Department of Health permitted solid waste disposal or recycling facility.

- -

3)
The developer should consider providing space in the development for recycling activities. The provision of space for recycling bins for paper, glass, and food/wet waste would help to encourage the recycling of solid waste(s) generated by building occupants.

- -

4)
The discussion of solid waste issues contained in the document is restricted to activities within the completed project. The OSWM recommends the development of a solid waste management plan that encompasses all project phases, from construction (and or demolition) to occupation of the project.

Specific examples of plan elements include: the recycling of green-waste during clear and grub activities; maximizing the recycling of construction and demolition wastes; the use

of locally produced compost in the landscaping of the project; and the provision of recycling facilities in the design of the project.

- -

5)
Hawaii Revised Statutes Chapter 103D-407 stipulates that all highway and road construction and improvement projects funded by the State or a county or roadways that are to be accepted by the State or a county as public roads shall utilize a minimum of ten per cent crushed glass aggregate as specified by the department of transportation in all base-course (treated or untreated) and sub-base when the glass is available to the quarry or contractor at a price no greater than that of the equivalent aggregate.

If you have any questions, please contact the Solid and Hazardous Waste Branch at (808) 586-4240.

Noise, Radiation & Indoor Air Quality Branch Dated 3/2/04

"Project activities shall comply with the Administrative Rules of the Department of Health:

- Chapter 11-39 Air Conditioning and Ventilating.
- 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 11-504 Asbestos Abatement Certification Program

Should there be any questions, please contact Russell S. Takata, Environmental Health Program Manager, Noise, Radiation and Indoor Air Quality Branch, at 586-4701."

Clean Water Branch Dated 3/2/04

1. The Army Corps of Engineers should be contacted at (808) 438-9258 to identify whether a Federal license or permit (including a Department of Army permit) is required for this project. Pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act"), a Section 401 Water Quality Certification 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...."

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following activities:

   a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).

b. 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.**

c. Discharges of treated effluent from leaking underground storage tank remedial activities.

d. Discharges of once through cooling water less than one (1) million gallons per day.

e. Discharges of hydrotesting water.

f. Discharges of construction dewatering effluent.

g. Discharges of treated effluent from petroleum bulk stations and terminals.

h. Discharges of treated effluent from well drilling activities.

i. Discharges of treated effluent from recycled water distribution systems.

j. Discharges of storm water from a small municipal separate storm sewer system.

k. Discharges of circulation water from decorative ponds or tanks.

The CWB requires that a Notice of Intent (NOI) to be covered by a NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at http://www.state.hi.us/health/eh/cwb/forms/genl-index.html.

3. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e. NPDES general permits do not cover discharges into Class 1 or Class AA receiving waters). An application for the NPDES 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.state.hi.us/health/eh/cwb/forms/indiv-index.html.

4. Hawaii Administrative Rules, Section 11-55-38, also requires the owner 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. Please submit a copy of the request for review by SHPD or SHPD's determination letter for the project.

If you have any questions, please contact the CWB at 586-4309.

Waste Water Branch Dated 3/2/04

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems". We do reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

Clean Air Branch Dated 3/2/04

Construction/Demolition Involving Asbestos:

Since the proposed project would entail renovation/demolition activities which may involve asbestos, the applicant should contact the Asbestos Abatement Office in the Noise, Radiation and Indoor Air Quality Branch at 586-5800.

Control of Fugitive Dust:

A significant potential for fugitive dust emissions exists during all phases of construction. Proposed construction activities will occur in proximity to **existing residences, businesses, public areas and thoroughfares**, thereby exacerbating potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of development and construction activities is warranted.

Construction activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on Fugitive Dust.

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to, the following:

a) Plan the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;
b) Provide an adequate water source at the site prior to start-up of construction activities;
c) Landscape and provide rapid covering of bare areas, including slopes, starting from the initial grading phase;
d) Minimize dust from shoulders and access roads;
e) Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
f) Control dust from debris being hauled away from the project site.

Hazard Evaluation and Emergency Response Office(HEER) Dated 3/2/04

1. A phase I Environmental Site Assessment (ESA) should be conducted for developments or redevelopments. If the investigation shows that a release of petroleum, hazardous substance, pollutants or contaminants occurred at the site, the site should be properly characterized through an approved Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response Office (HEER) soil and or groundwater sampling plan. If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.

2. All lands formerly in the production of sugarcane should be characterized for arsenic contamination, If arsenic is detected above the US EPA Region (preliminary remediation goal (PRG) for non-cancer effects, then a removal and or remedial plan must be submitted to the Hazard Evaluation and Emergency Response (HEER) Office of the State Department of Health for approval. The plan must comply with Chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.

3. If the land has a history of previous releases of petroleum, hazardous substances, pollutants, or contaminants, we recommend that the applicant request a "no further action" (NFA) letter from the Hawaii State Department of Health (DOH)/ Hazard Evaluation and Emergency Response (HEER) Office prior to the approval of the land use change or permit approval.

Safe Drinking Water Branch Dated 3/11/04

The Safe Drinking Water Branch administers programs in the areas of: 1) public water systems; 2) underground injection control; and 3) groundwater protection. Our general comments on projects are as follows.

Public Water Systems

- Federal and state regulations define a public water system as a system that serves 25 or more individuals at least 60 days per year or has at least 15 service connections. All public water system owners and operators are required to comply with Hawaii Administrative Rules, Title 11, Chapter 20, titled Rules Relating to Potable Water Systems.

- All new public water systems are required to demonstrate and meet minimum capacity requirements prior to their establishment. This requirement involves demonstration that the system will have satisfactory technical, managerial and financial capacity to enable the system to comply with safe drinking water standards and requirements.

- Projects that propose development of new sources of potable water serving or proposed to serve a public water system must comply with the terms of Section

11-20-29 of Chapter 20. This section requires that all new public water system sources be approved by the Director of Health prior to its use. Such approval is based primarily upon the submission of a satisfactory engineering report which addresses the requirements set in Section 11-20-29.

- The engineering report must identify all potential sources of contamination and evaluate alternative control measures which could be implemented to reduce or eliminate the potential for contamination, including treatment of the water source. In addition, water quality analyses for all regulated contaminants, performed by a laboratory certified by the State Laboratories Division of the state of Hawaii, must be submitted as part of the report to demonstrate compliance with all drinking water standards. Additional parameters may be required by the Director for this submittal or additional tests required upon his or her review of the information submitted.

- All sources of public water system sources must undergo a source water assessment which will delineate a source water protection area. This process is preliminary to the creation of a source water protection plan for that source and activities which will take place to protect the source of drinking water.

- Projects proposing to develop new public water systems or proposing substantial modifications to existing public water systems must receive approval by the Director of Health prior to construction of the proposed system or modification. These projects include treatment, storage and distribution systems of public water systems. The approval authority for projects owned and operated by a County Board or Department of Water or Water Supply has been delegated to them.

- All public water systems must be operated by certified distribution system and water treatment plant operators as defined by Hawaii Administrative Rules, Title 11, Chapter 11-25 titled; Rules Pertaining to Certification of Public Water System Operators.

- All projects which propose the use of dual water systems or the use of a non-potable water system in proximity to an existing potable water system to meet irrigation or other needs must be carefully design and operate these systems to prevent the cross-connection of these systems and prevent the possibility of backflow of water from the non-potable system to the potable system. The two systems must be clearly labeled and physically separated by air gaps or reduced pressure principle backflow prevention devices to avoid contaminating the potable water supply. In addition backflow devices must be tested periodically to assure their proper operation. Further, all non-potable spigots and irrigated areas should be clearly labeled with warning signs to prevent the inadvertent consumption on non-potable water. Compliance with Hawaii Administrative Rules, Title 11, Chapter 11-21 titled; Cross-Connection and Backflow Control is also required.

- All projects which propose the establishment of a potentially contaminating activity (as identified in the Hawai`i Source Water Assessment Plan) within the source water protection area of an existing source of water for a public water

supply should address this potential and activities that will be implemented to prevent or reduce the potential for contamination of the drinking water source.

- For further information concerning the application of capacity, new source approval, operator certification, source water assessment, backflow/cross-connection prevention or other public water system programs, please contact the Safe Drinking Water Branch at 586-4258.

Underground Injection Control (UIC)

- Injection wells used for the subsurface disposal of wastewater, sewage effluent, or surface runoff are subject to environmental regulation and permitting under Hawai`i Administrative Rules, Title 11, Chapter 11-23, titled Underground Injection Control (UIC). The Department of Health's approval must be first obtained before any injection well construction commences. A UIC permit must be issued before any injection well operation occurs.

- Authorization to use an injection well is granted when a UIC permit is issued to the injection well facility. The UIC permit contains discharge and operation limitations, monitoring and reporting requirements, and other facility management and operational conditions. A complete UIC permit application form is needed to apply for a UIC permit.
- A UIC permit can have a valid duration of up to five years. Permit renewal is needed to keep an expiring permit valid for another term.

For further information about the UIC permit and the Underground Injection Control Program, please contact the UIC staff of the Safe Drinking Water Branch at 586-4258.

Groundwater Protection Program

Projects that propose to develop a golf course are asked to use the Guidelines Applicable to Golf Courses in Hawai`i (Version 6) in order to address certain groundwater protection concerns, as well as other environmental concerns

GROUP 70
INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
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Katherine M. MacNeil, AIA
Frank B. McCue
Kathryn A. Nam
Donna D. Pennington
Alvin Sakutori
Scott Tangorian
Tom Young, AIA

April 12, 2005

Dr. Chiyome Fukino, Director
State of Hawai'i
Department of Health
Environmental Planning Office
P.O. Box 3378
Honolulu, Hawai'i 96801

RE: **Pre-Consultation for Draft Environmental Assessment, Kanu o Ka 'Āina Learning 'Ohana Project, Waimea, South Kohala, Hawai'i TMK: 6-4-004:009**

Dear Dr. Fukino:

Thank you for your email of February 25, 2005 regarding the early consultation request for the proposed native Hawaiian cultural and community learning center in Waimea on the Island of Hawai'i.

The following is offered in response to the Environmental Planning Office Standard Comments provided in your email:

1) The Draft EA will identify potentially affected water bodies, as defined in Hawaii Administrative Rules Chapter 11-54. There have been no water bodies identified on the subject property.

2) An application for a National Pollutant Discharge Elimination System (NPDES) general coverage permit will be submitted for the anticipated construction activities associated with the proposed project. A Notice of Intent (NOI) will be submitted according to the 30-day requirement stipulated in the applicable section of Hawai'i Administrative Rules (HAR), Title 11, Chapter 55-4(a)(5), Application for NPDES Permit.

3) The Draft EA will also identify potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)*. We acknowledge that water pollution control permitting for the project is linked with Total Maximum Daily Load (TMDL) implementation. Presently, there are no water bodies known to be located on the subject property.

4) Development-generated runoff will be disposed of on-site and will not be directed toward any adjacent properties. A civil engineering assessment will be conducted for the Draft EA and will address runoff and drainage management.

5) The Draft EA will analyze potential contribution of the proposed project to cumulative, multi-project watershed effects on hydrology, water quality, and aquatic and riparian ecosystems.

6) We acknowledge the HRS Chapter 103D-407 stipulation and the recommendations of the OSWM solid waste management plan.

7) The Draft EA will include a discussion on any potential noise impacts and propose mitigation measures to noise quality. The proposed project will comply with the Administration Rules of the DOH, Chapter 11, Sections 39, 45, 46, 501, 502, 503, and 504.

8) The proposed project will comply with the DOH's Administrative Rules, Chapter 11-62, "Wastewater Systems."

9) The Draft EA will address any potential impacts to air quality and include mitigation measures to reduce impacts to air quality, such as fugitive dust during and after construction of the proposed project.

10) The Draft EA will analyze potential impacts of the proposed project on public water systems and comply with the HAR, Title 11, Chapter 20.

11) If it is determined to be required, an application for an UIC permit will be submitted at least 180 days prior to initiation of these activities.

Your comments and this response letter will be included in the Draft EA. We will forward you a copy of the Draft EA for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Kāwika McKeague
Senior Planner

Cc: Steve Bess

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
ACTING DEPUTY DIRECTOR
MARY LOU KOBAYASHI
ADMINISTRATOR
OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

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

RECEIVED
MAR - 3 2005
GROUP 70 INT'L

Ref. No. P-10824

March 1, 2005

Mr. Mark K. McKeague
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307

Subject: Pre-consultation for Draft Environmental Assessment
Kanu o Ka'Aina Learning Ohana Project
TMK: (3) 6-4-4: 09 Waimea, Island of Hawaii, Hawaii

Dear Mr. McKeague:

The Office of Planning has received your project summary and overview of the Kanu o Ka'Aina Learning Ohana ("KALO") Project on Department of Hawaiian Home Lands (DHHL) property and offers the following comments.

The proposed cultural and community learning center serving native Hawaiians living in the Puukapu Farmlots and the Island of Hawaii is planned for a 46,140 square foot site within a 15-acre lot in the Pupukapu Homestead Pasture Lots of Waimea. The project is a collaboration of several organizations serving Hawaiians, including DHHL, the KALO Project, and Sandwich Isles Communications.

The Office of Planning recommends that the Draft Environmental Assessment disclose potential impacts and proposed mitigation measures regarding traffic, drinking water, wastewater systems, and adjacent farming and pasturage activities.

The location of the cultural and learning center with young children between the existing farm lots and pasturage leases poses a potential concern. The Hawaii Right-to-Farm Act (Ch. 165, HRS) protects agricultural activities from restrictions sought by new non-farming neighbors. In the case where students also may need protection from odors, dust, insects and pesticide overspray, some thought needs to be given to mitigating measures that protect both agriculture and young students. As experienced in similar cases, (Maili Elementary School) these conflicts can generate the need for expensive retrofits, if not planned for.

Thank you for the opportunity to comment on this proposal. If you have any questions, please call Mary Alice Evans at 587-2802.

Sincerely,

Mary Lou Kobayashi

Mary Lou Kobayashi
Administrator
Office of Planning

GROUP 70
INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
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Frank B. McCue
Kathryn A. Nam
Donna D. Pennington
Alvin Sakutori
Scott Tangonan
Tom Young, AIA

April 12, 2005

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

RE: Pre-Consultation for Draft Environmental Assessment, Kanu o Ka 'Āina Learning 'Ohana Project, Waimea, South Kohala, Hawai'i TMK: 6-4-004:009

Dear Ms. Kobayashi:

Thank you for your letter of March 1, 2005 regarding the early consultation request for the proposed native Hawaiian cultural and community learning center in Waimea on the Island of Hawai'i.

The Draft Environmental Assessment will include a discussion on potential impacts and propose mitigation measures regarding traffic, drinking water, wastewater systems, and adjacent farming and pasturage activities. The following is offered in response to the comments provided in your letter:

1) A traffic study will be prepared for the Draft EA and will include a discussion of the traffic impacts. The study will also examine potential mitigation measures to address the identified impacts.

2) A civil engineer assessment will be conducted to examine the potential impacts to drinking water and wastewater systems.

3) We acknowledge that proposed the cultural and community learning center is located in existing farm lots and pasturage lands, which are protected under the Hawaii Right-to-Farm Act (Ch. 165, HRS). The Draft EA will include a discussion on potential impacts and mitigation measures to protect both agriculture and students from agricultural activities including odors, dust, insects, and pesticide overspray.

Your comments and this response letter will be included in the Draft EA. We will forward you a copy of the Draft EA for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Kāwika McKeague
Senior Planner

Cc: Steve Bess

PHONE (808) 594-1888

FAX (808) 594-1865

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

RECEIVED
MAR 25 2005
GROUP 70 INT'L

HRD05/1741

March 22, 2005

Mr. Kawika McKeague
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawai'i 96813-4307

Re: Pre-Consultation Request, Draft Environmental Assessment, Kanu o Ka 'Āina Learning 'Ohana Project, Waimea, South Kohala, Island of Hawai'i TMK: 6-4-004:009

Dear Mr. McKeague:

The Office of Hawaiian Affairs (OHA) is in receipt of your request for early consultation regarding a proposed cultural and community learning center on Department of Hawaiian Homelands on Lot 23-C of the Pu'ukapu Pasture in Waimea, South Kohala, Island of Hawai'i.

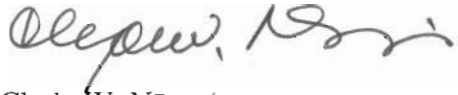
The project, proposed by Kanu o Ka 'Āina Learning 'Ohana, a non-profit 501(c)3 organization, seeks to establish a dedicated facility in Waimea where Hawaiians can learn the Hawaiian language, culture and traditions in a culturally appropriate setting as well as provide an environment to enrich the lives of children in the area.

The proposed learning center and associated improvements do not appear to adversely impact any known native Hawaiian rights, resources or practices in the area. As the Waimea area has yielded unmarked human burial sites, an archaeological assessment of the affected parcel should occur with associated research to determine the likelihood of adversely impacting any subsurface cultural deposits, especially unmarked human burial sites.

OHA commends this effort to provide a cultural based learning center for Hawaiians living in the Kuhio Village and Pu'ukapu Farmlots as the proposed project and its intended benefits would appear to serve our beneficiaries in the area. OHA would request to be kept abreast and informed of any further actions concerning this particular initiative.

If you have any questions or concerns, please contact Kai Markell, Policy Advocate, at 594-1945 or kaim@oha.org. Once again, thank you for your patience during our review and assessment of this important matter.

'O wau iho nō,



Clyde W. Nāmu'o
Administrator

GROUP 70
INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
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Donna D. Pennington
Alvin Sakutori
Scott Tangonan
Tom Young, AIA

April 12, 2005

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

RE: Pre-Consultation for Draft Environmental Assessment, Kanu o Ka 'Āina Learning 'Ohana Project, Waimea, South Kohala, Hawai'i TMK: 6-4-004:009

Dear Mr. Nāmu'o:

Thank you for your letter of March 22, 2005 regarding the early consultation request for the proposed native Hawaiian cultural and community learning center in Waimea on the Island of Hawai'i.

We acknowledge the support of your organization to provide a cultural based learning center for Hawaiians living in the Kuhio Village and Pu'ukapu Farmlots.

An archaeological study of the affected parcel will be prepared for the Draft EA to determine the likelihood of adversely impacting any subsurface cultural deposits, especially unmarked human burial sites. The Draft EA will include a discussion on potential impacts identified by the study and proposed mitigation measures.

Your comments and this response letter will be included in the Draft EA. We will forward you a copy of the Draft EA for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Kāwika McKeague
Senior Planner

Cc: Steve Bess

Harry Kim
Mayor

RECEIVED
FEB 23 2005
GROUP 70 INT'L

Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii

PLANNING DEPARTMENT
101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-3043
(808) 961-8288 • Fax (808) 961-8742

February 18, 2005

Mr. Mark Kawika McKeague
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu HI 96813-4307

Dear Mr. McKeague:

SUBJECT: Pre-Consultation for Draft Environmental Assessment
Kanu o Ka'Aina Learning 'Ohana Project
TMK: 6-4-4:Por. of 9, Puukapu, South Kohala, Hawaii

This is in response to your February 7, 2005 letter concerning the proposed construction of a cultural and community learning center in Waimea for native Hawaiians on the Island of Hawaii. The proposed development includes a Multimedia Lab and Community Information Center, Community Center, Cafeteria, Performance Center and Gym, Preschool and Grades K-12 Learning Facilities, Administration Offices and KALO Store.

With reference to Section III(G) of the 2002 Memorandum of Agreement between the County of Hawaii and the Department of Hawaiian Home Lands, we have the following to offer:

1. Both the State Land Use designation and the County zoning are Agricultural. A Special Permit approved by the Planning Commission is required to establish the proposed use on 46,140 square feet of this parcel.
2. A portion of the subject parcel is within an easement for aviation purposes.
3. This parcel is not located in the Special Management Area.

Should you have questions or require further information, please feel free to contact Esther Imamura or Larry Brown of our Department at 961-8288.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

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cc: Planning Department – Kona

GROUP 70
INTERNATIONAL

Francis S. Oda, Arch D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
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Kathryn A Nam
Donna D. Pennington
Alvin Sakutori
Scott Tangonan
Tom Young, AIA

April 12, 2005

Mr. Christopher J. Yuen, Planning Director
County of Hawai'i
Planning Department
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720-3043

RE: Pre-Consultation for Draft Environmental Assessment, Kanu o Ka 'Āina Learning 'Ohana Project, Waimea, South Kohala, Hawai'i TMK: 6-4-004:009

Dear Mr. Yuen:

Thank you for your letter of February 18, 2005 regarding the early consultation request for the proposed native Hawaiian cultural and community learning center in Waimea on the Island of Hawai'i.

The Draft Environmental Assessment will include a discussion on potential impacts and mitigation measures regarding land use. The following is offered in response to the comments provided in your letter:

1) The subject parcel is classified as Agricultural for County zoning and State Land Use designation, we understand that a Special Permit will be required to be approved by the Planning Commission.

2) A portion of the subject parcel lies within an easement for aviation purposes. Initial consultation with the Federal Aviation Administration (FAA) indicated that it is possible to develop and use the subject property.

3) The subject parcel is not located in the Special Management Area.

Your comments and this response letter will be included in the Draft EA. We will forward you a copy of the Draft EA for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Kāwika McKeague
Senior Planner

Cc: Steve Bess

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

May 6, 2005

RECEIVED
MAY 9 2005
GROUP 70 INT'L

Mr. Mark K. McKeague
925 Bethel Street, 5th Floor
Honolulu, HI 96813-4307

PRE-CONSULTATION FOR DRAFT ENVIRONMENTAL ASSESSMENT
KANU O KA 'ĀINA LEARNING 'OHANA GROUP PROJECT
TAX MAP KEY 6-4-004:009

This letter supersedes our letter of March 14, 2005.

Water for the proposed development is available from the 6-inch waterline in Hiaka Street, fronting the project site. However, the correct meter connection size will be determined by the anticipated maximum daily water usage and peak-hour flow as recommended by an engineer, registered in the State of Hawai'i. The water use calculations will be subject to review and approval during the construction design phase of the development.

In addition, the 6-inch waterline along Hiaka Street has a theoretical fire-flow capacity of 1,500 gallons per minute (gpm) that does not meet the 2,000-gpm requirement for the proposed use. The nearest fire hydrant is approximately 500 feet east of the subject property. The Fire Department should be consulted regarding any additional fire protection requirements due to the lack of fire flow.

Should there be any questions, please contact Ms. Shari Komata of our Water Resources and Planning Branch at 961-8070, extension 252.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

SHK:sco

copy - Mr. Barry Muranaka, Akinaka & Associates, Ltd.

... Water brings progress...

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

GROUP 70
INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
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Alvin Sakutori
Scott Tangonan
Tom Young, AIA

May 9, 2005

Mr. Milton D. Pavao, P.E., Manager
County of Hawai'i
Department of Water Supply
345 Kekūanaō'a Street, Suite 20
Hilo, Hawai'i 96720

RE: Pre-Consultation for Draft Environmental Assessment
Kanu o Ka 'Āina Learning 'Ohana Project
Waimea, South Kohala, Hawai'i TMK: 6-4-004:009 (por.)

Dear Mr. Pavao:

Thank you for your letter of May 6, 2005, superseding your letter of March 14, 2005, regarding the early consultation request for the proposed native Hawaiian cultural and community-learning center in Waimea on the Island of Hawai'i.

The Draft Environmental Assessment will include a discussion on potential impacts and propose mitigation measures regarding water use and fire protection requirements. The following is offered in acknowledgement of the statements provided in your letter:

1) Water for the proposed development is available from the 6-inch waterline in Hiaka Street.
2) The correct meter connection size will be determined by the anticipated maximum daily water usage and peak-hour flow by an engineer, registered in the State of Hawai'i.
3) The water use calculations will be subject to review and approval during the construction design phase of the development.
4) The 6-inch waterline along Hiaka Street has a theoretical fire-flow capacity of 1,500 gallons per minute (gpm) that does not meet the 2,000-gpm requirement for the proposed use.
5) The nearest fire hydrant is approximately 500 feet east of the subject property.
6) The Fire Department will be consulted regarding additional fire protection requirements due to the lack of fire flow.

Your comments and this response letter will be included in the Draft EA. We will forward you a copy of the Draft EA for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Kawika McKeague
Planner

Harry Kim
Mayor

Bruce C. McClure
Director

County of Hawai'i
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawai'i 96720-4224
(808) 961-8321 • Fax (808) 961-8630

RECEIVED
FEB 23 2005
GROUP 70 INT'L

February 18, 2005

Mark Kawika McKeague, Planner
Group 70 International Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813-4307

Subject: Pre-consultation for Draft Environmental Assessment
Kanu o Ka'Aina Learning Ohana Project
TMK: (3) 6-4-4-:009

We received your request for comments on the subject and they are as follows:

1. The proposed project will likely create traffic management concerns for the existing residents along Kamamalu Street and at its signalized intersection with Highway 19. The EA should describe the existing facilities, address the traffic impacts of the proposed project and proposed mitigation.

2. All development generated runoff shall be disposed of on-site and shall not be directed toward any adjacent properties.

3. The applicant shall be informed that if they include drywells in the subject development, an Underground Injection Control (UIC) permit may be required from the Department of Health, State of Hawaii.

4. All earthwork and grading shall conform to Chapter 10, Erosion and Sediment Control, of the Hawaii County Code.

5. The applicant shall comply with chapter 11-55, Water Pollution Control, Hawaii Administrative Rules, Department of Health, which requires an NPDES permit for certain construction activity.

Thank you for the opportunity to comment. If you have any questions, please contact Kiran Emler of our Kona office at 327-3530.

Galen M. Kuba, Division Chief
Engineering Division

KE
c: ENG-HILO/KONA
Planning Director

GROUP 70
INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
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Donna D. Pennington
Alvin Sakutori
Scott Tangonan
Tom Young, AIA

April 12, 2005

Mr. Galen M. Kuba, Division Chief
County of Hawai'i
Department of Public Works
Aupuni Center
101 Pauahi Street, Suite 7
Hilo, Hawai'i 96720-8630

RE: Pre-Consultation for Draft Environmental Assessment, Kanu o Ka 'Āina Learning 'Ohana Project, Waimea, South Kohala, Hawai'i TMK: 6-4-004:009

Dear Mr. Kuba:

Thank you for your letter of February 18, 2005 regarding the early consultation request for the proposed native Hawaiian cultural and community learning center in Waimea on the Island of Hawai'i.

The following is offered in response to the comments provided in your letter:

1) The Draft EA will include a discussion on the existing facilities, potential traffic impacts, and proposed mitigation. A traffic study will be conducted for the Draft EA and will include a discussion of the traffic impacts to Kamamalu Street and its signalized intersection with Highway 19. The study will also examine potential mitigation measures to address identified impacts.

2) Development-generated runoff will be disposed of on-site and will not be directed toward any adjacent properties. A civil engineering assessment will be conducted for the Draft EA and will address runoff and drainage management.

3) If it is determined, an application for an UIC permit will be submitted at least 180 days prior to initiation of these activities.

4) All earthwork and grading will conform to Chapter 10, Erosion and Sediment Control, of the Hawaii County Code.

5) An application for a National Pollutant Discharge Elimination System (NPDES) general coverage permit will be submitted for the anticipated construction activities associated with the proposed project. A Notice of Intent (NOI) will be submitted according to the 30-day requirement stipulated in the applicable section of Hawai'i Administrative Rules (HAR), Title 11, Chapter 55-4(a)(5), Application for NPDES Permit.

Your comments and this response letter will be included in the Draft EA. We will forward you a copy of the Draft EA for your review upon its completion. We appreciate your participation in the environmental review process.

Sincerely,
GROUP 70 INTERNATIONAL, INC.

Kāwika McKeague
Senior Planner

Cc: Steve Bess

Appendix G
Draft EA Comments and Responses

Respondents and Distribution	Received Draft EA	Comments Received
Federal Agencies		
U.S. Federal Aviation Administration, Western-Pacific Regional Office	x	
State of Hawaiʻi Agencies		
State of Hawaiʻi Department of Hawaiian Home Lands	x	
State of Hawaiʻi Department of Health	x	x
State of Hawaiʻi Department of Land and Natural Resources	x	
State of Hawaiʻi Department of Land and Natural Resources, Historic Preservation Division	x	
State of Hawaiʻi Office of Environmental Quality Control	x	x
State of Hawaiʻi Office of Hawaiian Affairs	x	x
State of Hawaiʻi Department of Business, Economic Development & Tourism, Planning Office	x	x
State of Hawaiʻi Department of Transportation	x	
State of Hawaiʻi Department of Agriculture	x	
State of Hawaiʻi Department of Education	x	
County of Hawaiʻi Agencies		
County of Hawaiʻi Department of Parks and Recreation	x	
County of Hawaiʻi Department of Public Works	x	
County of Hawaiʻi Department of Water Supply	x	
County of Hawaiʻi Planning Department	x	
County of Hawaiʻi Council District 9, Councilman Pete Hoffmann	x	
County of Hawaiʻi Police Department	x	x
County of Hawaiʻi Fire Department	x	

Respondents and Distribution	**Received Draft EA**	**Comments Received**
Other Parties and Associations		
Waimea Homestead Association Board	x	
Waimea Community Association	x	
Waimea Hawaiian Civic Club	x	
Thelma Parker Memorial Public & School Library	x	
Hawaiʻi State Library	x	

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
DEPUTY DIRECTOR
LAURA H. THIELEN
DIRECTOR
OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

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-11008

RECEIVED
JUL - 5 2005
GROUP 70 INT'L

July 1, 2005

Mr. Mark K. McKeague
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307

Subject: Response to Draft Environmental Assessment
Kanu o Ka'Aina Learning Ohana Project
TMK: (3) 6-4-4: 09 Waimea, Island of Hawaii, Hawaii

Dear Mr. McKeague:

The Office of Planning has received the Draft Environmental Assessment (DEA) of the Kanu o Ka'Aina Learning Ohana ("KALO") Project on Department of Hawaiian Home Lands (DHHL) property and offers the following comments.

The Office of Planning recommends that the Final Environmental Assessment (FEA) include letters of comment from the State Department of Transportation (DOT), Highways Division and Airports Division.

A discussion of the relationship of the project site to the Waimea-Kamuela Airport was included in the DEA, however the Office of Planning believes the DOT Airports Division should be afforded the opportunity to comment on the adequacy of disclosure of impacts and the proposed mitigation measures, if any.

A Traffic Impact Analysis Report was included in the DEA. We believe the FEA should include comments from the DOT Highways Division on the methodology and conclusions of the traffic consultant.

The Office of Planning appreciates the response to our concern expressed in our letter of March 1, 2005, regarding the need to plan for mitigating measures to protect both agricultural activities under Chapter 165, HRS, the Hawaii-Right-to-Farm Act and young students from the potential problems of odors, dust, insects, and agricultural pesticides.

Thank you for the opportunity to comment on this proposal. If you have any questions, please call Mary Alice Evans at 587-2802.

Sincerely,

Mary Ann Kolayski for

Laura H. Thielen
Director

c: Anthony Ching, LUC
Rodney Haraga, DOT
Sandra Kunimoto, DOA

GROUP 70

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, A.A., ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James T. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kanesh'ro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia
Kimberly Evans
Pete C. Galvez, AIA
Sutobri Halim
Roy A. Inouye, A.A., CSI
Stephen H. Kelly, AICP
Cami Kloster
Katherine M. MacNeil, AIA
Frank B. McCue
Kawika McKeague
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Alvin Sakuton
Scott Tangorra
Tom Young, AIA

Ralph E. Portmore, AICP
Of Counsel

July 15, 2005

Ms. Laura H. Thielen, Director
State of Hawai'i
Department of Business, Economic Development and Tourism
Office of Planning
P.O. Box 2359
Honolulu, Hawai'i 96804

RE: Kauhale 'Ōiwi 'O Pu'ukapu – A Cultural and Community Educational Center by Kanu O Ka 'Āina Learning 'Ohana
Draft Environmental Assessment, May 2005
TMK: (3) 6-4-4: 09 Waimea, Island of Hawai'i, Hawai'i

Dear Ms. Thielen:

Thank you for your letter of July 1, 2005 regarding your review of the Draft Environmental Assessment (DEA) for the Kauhale 'Ōiwi 'O Pu'ukapu cultural and community education center.

The following are offered in response to your comments:

1. On June 8, 2005, the State Department of Transportation (DOT), Highways Division and Airports Division were provided six (6) additional copies of the Draft Environmental Assessment Kauhale 'Ōiwi 'O Pu'ukapu – A Cultural and Community Educational Center for review purposes. In addition, a seven (7) day comment period extension was provided ending on June 15, 2005. During the review period no comments were received from DOT regarding the Kauhale 'Ōiwi 'O Pu'ukapu Draft EA.

2. The State DOT Airports Division was afforded the opportunity to comment on the adequacy of disclosure of impacts and the proposed mitigation measures during the review period. During the review period no comments were received from the DOT Airports Division regarding the Kauhale 'Ōiwi 'O Pu'ukapu Draft EA.

   Kanu O Ka 'Āina Learning 'Ohana has been in consultation with the Waimea-Kohala Airports Division. Consultation with the Airports Division and the Federal Aviation Administration (FAA) indicated that the proposed community and learning center will not interfere with aviation operations at the Waimea-Kohala Airport. The proposed building heights would not be affected by aviation easement requirements. In addition, flight navigation operations, such as runway approach and/or flight paths will not be impacted by proposed building heights for the project. According to the Hawai'i Administrative Rules, Title 19, Chapter 12, a Department of Transportation permit must be approved to construct or use land located within the flight aviation easement. In addition, the FAA requires a Notice of Proposed Construction or Alteration approval as required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718.

   In addition, the location of the proposed project in proximity to the Waimea-Kohala Airport has been determined not to require mitigation measures for noise exposure.

3. As a part of the Draft EA analysis, a Traffic Impact Analysis (TIA) Report was included. As stated above the State DOT Highways Division was afforded the opportunity to comment during the review period and no comments were received during that time.

   However, the County of Hawai'i Police Department provided written comments regarding the TIA Report. In response to the Police Department's comments, the Traffic Impact Analysis Report has been revised to include an evaluation of potential impacts of the proposed project on existing conditions of traffic and roadways and for the use of Hi'iaka Street for school buses and/or large vehicles. In response, Kanu O Ka 'Āina does not have any school buses nor currently uses school buses for the transportation of students to and from school. An estimate, that at least for the next 3 years, was provided that there will be little, if any, bus service to the site. For at least the next three years, improvements to the Kauhale site will consist of a double wide trailer that will house the Mālamapōki' program and the media information center. No more than an estimated 50 infants and preschoolers will be utilizing the double wide trailer. No school bus service will be provided for these children. Any transportation that may be provided for these children during the day will be provided by school vans that have a maximum capacity of 12 students. These vans will not adversely impact traffic movement on Hi'iaka.

   Regarding the media information center, the proposed project does not anticipate using any school buses for the transportation of students to and from this center. The media center will be viewed as but one campus of a school having 4 different campuses. School vans having a maximum capacity of 12 students will be utilized to transport students between the media center and other campuses. When the Kauhale site is utilized as the main location of the school (rather than as a satellite site as contemplated for at least the next three years), some school bus activity on Hi'iaka Street may occur. Until such time, there should be no requirement imposed on KALO to widen the existing road.

4. The need to plan for mitigation measures to protect both agricultural activities under Chapter 165, HRS, the Hawaii-Right-to-Farm Act and young students from the potential problems of odors, dust, insects, and agricultural pesticides is an important component of the EA evaluation and a discussion is included in Section 3.0 and 4.0. Your letter of March 1, 2005 is included in the Final EA.

Your comments and this response letter will be included in the Final EA. We appreciate your participation in the environmental review process.

Sincerely,

Kawika McKeague
Associate Planner

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

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JUL 11 2005
GROUP 70 INT'L

July 7, 2005

Mr. Micah Kane, Director
Department of Hawaiian Homelands
P.O. Box 1879
Honolulu, Hawaii 96805

Dear Mr. Kane:

Subject: Draft Environmental Assessment for the Kanu O Ka 'Aina Learning 'Ohana, Waimea, Hawai'i

Thank you for the opportunity to review the subject document. We have the following comment.

1. Please provide full details of the proposed individual wastewater system. Describe the potential impacts and mitigation measures of the wastewater system.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,

Genevieve Salmonson

Genevieve Salmonson
Director

c: Group 70
Kanu O Ka 'Aina Learning 'Ohana

GROUP 70
INTERNATIONAL

Francis S. Oda,
Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hideshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kanashiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, AIA, CSI
Stephen H. Kelly, AICP
Carni Kloster
Katherine M. MacNeil, AIA
Frank B. McCue
Kawika McKeague
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Pollinchion, AIA, LEED
Alvin Saiuitori
Scott Tangonan
Tom Young, AIA

Ralph E. Portmore, AICP
Of Counsel

July 15, 2005

Ms. Genevieve Salmonson, Director
State of Hawai'i
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813

RE: Kauhale 'Ōiwi 'O Pu'ukapu – A Cultural and Community Educational Center by Kanu O Ka 'Āina Learning 'Ohana
Draft Environmental Asssessment, May 2005
TMK: (3) 6-4-4: 09 Waimea, Island of Hawai'i, Hawai'i

Dear Ms. Salmonson:

Thank you for your letter of July 7, 2005 sent to Mr. Micah Kane regarding your review of the Draft Environmental Assessment (DEA) for the Kauhale 'Ōiwi 'O Pu'ukapu cultural and community education center.

In response to your comments, the civil engineer for the project has provided the following insert, providing full details of the proposed individual wastewater system for the project.

DETAILS OF PROPOSED INDIVIDUAL WASTEWATER SYSTEM

The Whitewater Sewage Treatment System is a modular (package plant) system which utilizes aeration technology to maintain an aerobic condition in the digestion chamber of the treatment plant. This technology ensures optimum conditions for the micro-organisms to digest the nutrients.

The Whitewater System produces a high quality effluent having a low BOD5 (Biochemical Oxygen Demand over a 5 day period) and TSS (Total Suspended Solids) content, while being high in DO (Dissolved Oxygen), which in return keeps the leaching field healthy and longer lasting.

The Whitewater Sewage Treatment Plant can be referred to as an activated sludge process in conjunction with an extended aeration process. New incoming sewage is digested (absorbed) by activated sludge micro-organisms. As ammonia from urine converts to Nitrite then to Nitrate, the activated sludge return process passes Nitrate through an anoxic state allowing for the conversion to nitrogen gas that is then vented out of the system. This creates the reduction of the Nitrate level from the typical septic tank effluent of 35 mg/l (or ppm), and from the typical secondary sewage treatment plant of 25 mg/l (or ppm) to the Whitewater tertiary level of **less than 5 mg/l (or ppm)**. No hydrogen sulfide or methane gases are produced.

There are no submerged sewage pumps, no filters, and no moving parts inside to be removed, replaced, or cleaned. Solids in suspension in the Whitewater tank will need to be removed approximately once every year.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Gages and monitors can be installed to detect an abnormal operation in the sewer system. An alarm system can also be installed to notify the operator of the abnormality. The operator will have the capability to pump-out any of the chambers if needed.

The Whitewater system is presently being used on the Island of Hawai'i (Puakō Subdivision). It has been approved by the County's Planning Department, the Department of Water Supply, and the State of Hawai'i Department of Health.

Your comments and this response letter will be included in the Final EA. We appreciate your participation in the environmental review process.

Sincerely,

Mark Kāwika McKeague
Senior Planner

PHONE (808) 594-1888

FAX (808) 594-1865

RECEIVED
JUN 22 2005
GROUP 70 INT'L

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

HRD05/1741B

June 17, 2005

Stephen Bess
Kanu O Ka 'Āina Learning 'Ohana
P.O. Box 6511
Kamuela, HI 96743

RE: Draft Environmental Assessment for Kauhale 'Ōiwi 'O Pu'ukapu – A Cultural and Community Education Center, Waimea, Hawai'i Island, TMK: (3) 6-4-4:09 (por).

Dear Mr. Bess,

The Office of Hawaiian Affairs (OHA) is in receipt of your June 3, 2005 request for comment on the above listed proposed project, TMK: (3) 6-4-4:09 (por). The environmental, cultural and archaeological studies of the proposed project area appear sufficient. Therefore, OHA has no comment at this time.

OHA further requests your assurances that if the project goes forward, should iwi or Native Hawaiian cultural or traditional deposits be found during ground disturbance, 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 Jesse Yorck at 594-0239 or jessey@oha.org.

'O wau iho nō,

Clyde W. Nāmu'o
Administrator

CC: Linda Chinn
Department of Hawaiian Homelands
P.O. Box 1879
Honolulu, HI 96805

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Kawika McKeague
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813

Ululani Sherlock
OHA Community Affairs Coordinator (Hilo)
162 A Baker Avenue
Hilo, HI 96720-4869

GROUP 70

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, A.A., ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James T. Nishimoto, AIA
Stephen H. Yuen, A.A.
Linda C. Miki, AIA
George I. Atta, AICP
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Kimberly Polkinhorn, AIA, LEED
Alvin Sakuton
Scott Tangonan
Tom Young, AIA

Ralph E. Portmore, AICP
Of Counsel

July 15, 2005

Clyde W. Nāmu'o, Administrator
State of Hawai'i
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 1250
Honolulu, Hawai'i 96813

RE: Kauhale 'Ōiwi 'O Pu'ukapu – A Cultural and Community Educational Center by Kanu O Ka 'Āina Learning 'Ohana
Draft Environmental Asssessment, May 2005
TMK: (3) 6-4-4: 09 Waimea, Island of Hawai'i, Hawai'i

Dear Mr. Nāmu'o:

Thank you for your letter of June 17, 2005 sent to Stephen Bess regarding your review of the Draft Environmental Assessment (DEA) for the Kauhale 'Ōiwi 'O Pu'ukapu cultural and community education center.

The following is offered in response to your comment:

Due to the absence of known cultural remains in the project area and extensive previous historical land disturbances from cattle grazing and construction activities, no negative impacts are anticipated. The proposed developments will likely have "no effect" on iwi or significant Native Hawaiian cultural or traditional resources. However, in the event that any previously unidentified sites or remains are encountered during site work and construction, work in the immediate area shall cease and the applicable regulatory controls of HRS, Chapter 6-E will be applied. An archaeologist from the State Historic Preservation District shall be notified and work in the area will be suspended until further recommendations are made for appropriate treatment of archaeological and/or cultural materials.

In the event of an inadvertent discovery of ancestral remains, the applicable processes outlined in existing State regulations, specifically those provided in the Hawai'i Administrative Rules, Title 13, Chapter 300, Section 40 and Section 33, will be *employed. Further, the following interim procedures have been adopted:*

a. If, for some reason, iwi must be moved or touched, it is highly recommended that an identified cultural monitor, a lineal respected kūpuna/cultural descendant or someone of Hawaiian ancestry, conduct this task. It is highly recommended that KALO coordinate the selection of cultural monitor with known and potential lineal and cultural descendants with the Hawai'i Island Burial Council (HIBC), as well as other appropriate cultural entities or organizations.
b. Notify and consult with known and potential lineal and cultural descendants as it relates to any inadvertent discovery. The recommended preferential treatment of iwi kūpuna that are inadvertently discovered is to have them "preserved" in-place. However, if it is decided upon that burial relocation is necessary, a reburial site would be designated with consultation of recognized lineal/cultural descendants. The physical sighting procedures for any potential reburial will be

coordinated with the appropriate agencies, organizations, and identified lineal and cultural descendents.

c. Consult with the appropriate agencies and organizations including but not limited to: State Department of Land and Natural Resources, Historic Preservation Division (DLNR/SHPD), SHPD Burial staff, the HIBC, the Office of Hawaiian Affairs (OHA), Hui Mālama I Nā Kupuna o Hawai'i Nei and other interested Hawaiian organizations.
d. Prepare and implement a Burial Treatment Plan to be developed in consultation with the above agencies, as well as the appropriate organizations, including lineal and/or cultural descendents.

Given the commitment to preserving and enhancing the history and culture of Hawaiians and the larger community of Waimea, KALO intends to not only preserve, but be stewards to any unanticipated archaeological finds during the course of the development of Kauhale.

This response and your comment letter will be included in the Final EA. We appreciate your participation in the environmental review process.

Sincerely,

Mark Kāwika McKeague
Senior Planner

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:
EPO-05-056

July 14, 2005

Mr. Stephen G. Bess
Kanu O Ka Aina Learning Center
P. O. Box 6511
Kamuela, Hawaii 96743

Dear Mr. Bess:

SUBJECT: **Draft Environmental Assessment**
Kauhale Oiwi O Puukapu
A Cultural and Community Educational Center
Waimea, Island of Hawaii
TMK: (3) 6-4-004:09

Thank you for allowing us to review and comment on the subject document. Please find the enclosed comments from our Waste Water Branch. Also, please refer to our website for the Standard Comments (http:// www.state.hi.us/health/environmental/env-planning/landuse/landuse.html). If there are any questions about these standard comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346.

Sincerely,

JUNE F. HARRIGAN-LUM, MANAGER
Environmental Planning Office

Enclosure

c: EPO
WWB

LINDA LINGLE
GOVERNOR OF HAWAII

JUL 15 2005

CHIYOME LEINAALA 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:
File:

July 11, 2005

H6 4 004 009
D:W13 wb050568
Ref # EPO 05-056

To: Jiacai Liu, Staff, Environmental Planning Office
email: jliu@eha.health.state.hi.us

From: Harold Yee, Branch Chief, Wastewater Branch

Subject: **Draft Environmental Assessment**
Kauhale Oiwi O Puukapu
A Cultural and Community Educational Center
Waimea, Island of Hawaii
TMK: (3) 6-4-004: 009 14 acres

We have reviewed the subject draft assessment which proposes to build Kauhale Oiwi O Puukapu, a cultural and community educational center in Waimea. The project includes a multi-media lab and community information center and cafeteria, gym/performance center, administration offices, and a KALO bookstore / gift shop. The proposed project includes a large cultural park area, open spaces, recreational facilities, infrastructure improvements and other developments.

As there is no County sewer service system within the vicinity, we will offer our tentative concurrence with the proposed project provided that wastewater from the various activities is treated and disposed of through the proper use of treatment individual wastewater systems.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

GROUP 70
INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Horig, AIA
Sherry B. Seaman, A.A., ASID
Hiroshi Inda, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, A.A.
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kanestiro, AIA, LEED
Jeffrey H. Overton, AICP
Christine Mendes Ruotola, AICP
James L. Stone, AIA, LEED

Paul P. Chorney, AIA
Philip T. Cuccia
Kimberly Evans
Pete C. Galvez, AIA
Sutobin Halim
Roy A. Inouye, A.A., CSI
Stephen H. Kelly, AICP
Carrie Kloster
Katherine M. MacNeil, AIA
Frank B. McCue
Kawika McKeague
Kathryn A. Nam
Hiram C. Pajo
Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Alvin Sakuteri
Scott Tangonan
Tom Young, AIA

Ralph E. Portmore, AICP
Of Counsel

July 15, 2005

June F. Harrigan-Lum, Manager
State of Hawai'i
Department of Health, Environmental Planning Office
P.O. Box 3378
Honolulu, Hawai'i 96801-3378

RE: Kauhale 'Ōiwi 'O Pu'ukapu – A Cultural and Community Educational Center by Kanu O Ka 'Āina Learning 'Ohana
Draft Environmental Asssessment, May 2005
TMK: (3) 6-4-4: 09 Waimea, Island of Hawai'i, Hawai'i

Dear Ms. Harrigan-Lum:

Thank you for your letter of July 14, 2005 sent to Mr. Stephen Bess regarding your review of the Draft Environmental Assessment (DEA) for the Kauhale 'Ōiwi 'O Pu'ukapu cultural and community education center.

The following is offered in response to your comments:

1. The majority of residences in Waimea rely on individual cesspools and septic tanks. There is no existing sewer system near to the project site. All wastewater flows produced from the project will be handled thru an Individual Wastewater System (IWS). The proposed sewer system will consist of Individual Wastewater Systems (IWS) distributed thru out the project site as needed. The IWS is an aerobic system which requires underground tanks and an open field to discharge the effluent (discharge done underground). The system will have a maximum allotted flow. The proposed sewer flows, based on County of Hawai'i standards, were determined to have an average flow of 6,300 gallons per day. Infiltration flows were determined for dry weather to be at a low rate of 5 gpcd and for wet weather at a rate of 1,250 gallons per acre per day. The IWS will require periodical maintenance and additional flows will require an additional IWS.

2. All wastewater plans will conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems," and to the Department's guidelines for the treatment and installation of wastewater systems. As stated in your letter, the Wastewater Branch does have the right to review the detailed wastewater plans for conformance to applicable rules.

Your comments and this letter will be provided in the Final EA. We appreciate your participation in the environmental review process.

Sincerely,

Mark Kāwika McKeague
Senior Planner

Harry Kim
Mayor

Lawrence K. Mahuna
Police Chief

Harry S. Kubojiri
Deputy Police Chief

County of Hawaii

POLICE DEPARTMENT
349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-8869

RECEIVED
JUN 23 2005
GROUP 70 INT'L

June 24, 2005

Mr. Mark Kawika McKeague
Group 70 International Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307

Dear Mr. McKeague:

RE: Draft Environmental Assessment Kauhale 'Oiwi 'O Pu'ukapu – A Cultural and Community Educational Center

Thank you for providing the Hawaii Police Department with the Draft Environmental Assessment for the Kauhale 'Oiwi 'O Pu'ukapu project. The following is offered in response to your request for comments regarding the proposed cultural and community learning center in Waimea.

With reference to SECTION 3.17 ROADWAYS AND TRAFFIC (II. Existing Conditions) of the Traffic Impact Assessment Report:

1. The existing condition of Hiaka Street should be evaluated. Although Hiaka Street will provide direct access to the proposed cultural and learning center, there is no reference to the existing condition of this roadway or traffic impacts to this roadway.

2. Hiaka Street is a two-way, single-lane, asphalt roadway that intersects with Kamamalu Street. This roadway is only 18 feet wide with graded earth shoulders. The existing condition of Hiaka Street is inadequate to accommodate two-way traffic for buses and other large vehicles.

3. The proposed project will likely create traffic management concerns for the existing residents along Hiaka Street and visitors to the proposed cultural and learning center.

4. Improvements, specifically the widening of Hiaka Street, should be proposed to mitigate the traffic impacts the proposed cultural and learning center will create.

Thank you for the opportunity to comment. If you have any questions, please contact Captain Kenneth Vieira, the South Kohala District Commander, at (808) 887-3080.

Sincerely,

LAWRENCE K. MAHUNA
POLICE CHIEF

RONALD T. NAKAMICHI
ASSISTANT POLICE CHIEF
AREA II OPERATIONS

KV:dmv

GROUP 70
INTERNATIONAL

Francis S. Oda, Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
James I. Nishimoto, AIA
Stephen H. Yuen, AIA
Linda C. Miki, AIA
George I. Atta, AICP
Charles Y. Kaneshiro, AIA, LEED
Jeffrey H. Overton, AICP
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Katherine M. MacNeil, AIA
Frank B. McCue
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Kathryn A. Nam
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Donna D. Pennington
Kimberly Polkinhorn, AIA, LEED
Alvin Saikuton
Scott Tangonan
Tom Young, AIA

Ralph E. Portmore, AICP
Of Counsel

July 15, 2005

Lawrence K. Mahuna, Chief
County of Hawaii
Police Department
349 Kapiolani Street
Hilo, Hawaii 96720-3998

RE: Kauhale ʻŌiwi ʻO Puʻukapu – A Cultural and Community Educational Center by Kanu O Ka ʻĀina Learning ʻOhana
Draft Environmental Assessment, May 2005
TMK: (3) 6-4-4: 09 Waimea, Island of Hawaiʻi, Hawaiʻi

Dear Chief Mahuna:

Thank you for your letter of June 24, 2005 regarding your review of the Draft Environmental Assessment (DEA) for the Kauhale ʻŌiwi ʻO Puʻukapu cultural and community education center.

The following are offered in response to your comments:

1. The Traffic Impact Analysis (TIA) Report by Traffic Management Consultants, Inc. has been revised to include an evaluation of the existing condition of Hiʻiaka Street. The following insert from the TIA report has been provided in Section 3.17 of the Final EA for the analysis of the impacts to this roadway:

   Access to the project site is via Hiʻiaka Street. Hiʻiaka Street is accessible from Kamāmalu Street or Hale Aliʻi Street. Hiʻiaka Street is a narrow two-way local street with an 18 foot wide pavement with graded earth shoulders. The pavement surface appears to be in fairly good condition. Within the project site, the roadway system will primarily involve roadways to the two separate parking lots on the east and west ends of the site.

2. With regard to item 2 of the letter, a concern over the ability of the roadway to accommodate school buses and trucks was indicated. Please be advised that Kanu O Ka ʻĀina does not have any school buses nor do they currently utilize school buses for the transportation of their students to and from school. They estimate that at least for the next 3 years, there will be little, if any, bus service to the site. For at least the next three years, improvements to the Kauhale site will consist of a double wide trailer that will house the Mālamapōkiʻi program and the media information center. No more than an estimated 50 infants and preschoolers will be utilizing the double wide trailer. No school bus service will be provided for these children. Any transportation that may be provided for these children during the day will be provided by school vans that have a maximum capacity of 15 students. The vans have a dimension of 6 feet and 6 inches wide by 19 feet and a half inch long. This type of vehicle does not require a Commercial Drivers License. In conclusion, these vans will not adversely impact traffic movement on Hiʻiaka Street.

Regarding the media information center, we do not anticipate using any school buses for the transportation of our students to and from this center. The media center will be viewed as one of four integrated campus within the school. School vans having a maximum capacity of 15 students will be utilized to transport students between the media center and other campuses. When the Kauhale site is utilized as the main location of the school (rather than as a satellite site as contemplated for at least the next three years), some school bus activity on Hi'iaka Street may occur. Until such time, there should be no requirement imposed on KALO to widen the existing road.

3. The Traffic Impact Analysis includes an additional evaluation of the traffic management concerns for the existing residents along Hi'iaka Street and visitors to the proposed cultural and learning center. The following evaluation has been provided:

   During the AM peak hour of traffic, the proposed project is expected to generate a total of 144 vehicles per hour (vph) entering the site and 61 vph exiting the site. The proposed project is expected to generate a total of 143 vph – 57 vph entering the site and 86 vph exiting the site, during the PM peak hour of traffic.

4. At this time, no school buses for the transportation of students to and from this center have been proposed. Future expansion of the proposed sight may include some school bus activity on Hi'iaka Street. Until such time, there should be no requirement imposed on KALO to widen the existing road.

   The following insert has been provided in the report for the analysis of the impacts to the existing roadways and to provide mitigation measures to mitigate the traffic impacts of the proposed cultural and learning center:

   During the AM peak hour of traffic the intersection of Māmalahoa Highway and Kamāmalu Street operated at a Level Of Service (LOS) "B" and a "Volume to capacity" (v/c) ratio of 0.90. Kamāmalu Street operated at LOS "C" at Māmalahoa Highway. Kamāmalu Street and Hi'iaka carried about 300 vph, total for both directions.

   During the PM peak hour of traffic, the intersection of Māmalahoa Highway and Kamāmalu Street operated at LOS "B" and a v/c ratio of 0.92. The left-turn movement from Kamāmalu Street to westbound Māmalahoa Highway operated at LOS "E", due in part to the extended traffic signal cycle length.

   In Year 2012, the intersection of Mamaloa Highway and Kamāmalu Street is expected to operate at LOS "C" with a v/c ratio of 0.90, during the AM peak hour of traffic without the proposed project. Kamāmalu Street approach is expected to operate at LOS "D" at Māmalahoa Highway. The other traffic movements at the intersection are expected to operate at satisfactory Levels of Service, i.e., LOS "C" or better.

   In During the Year 2012 PM peak hour of traffic without the proposed project, the intersection of Māmalahoa Highway and Kamāmalu Street is expected to operate at LOS "B" and a v/c ratio of 0.92. The left-tern movement from

Kamāmalu Street to westbound Māmalahoa Highway is expected to continue to operate at LOS "E". The other traffic movements are expected to operate at satisfactory Levels of Service.

In 2012, the intersection of Māmalahoa Highway and Kamāmalu Street is not expected to be significantly affected by traffic generated by the proposed project, during the AM peak hour of traffic. The intersection is expected to continue to operate at LOS "C" with a v/c ratio of 0.90. Kamāmalu Street is expected to continue to operate at LOS "D" at Māmalahoa Highway.

During the year 2012 PM peak hour of traffic with the proposed project, the intersection of Māmalahoa Highway and Kamāmalu Street is expected to operate at LOC "C", with a v/c ratio of 0.94. The left-turn movement from Kamāmalu Street to westbound Māmalahoa Highway is expected to continue to operate at LOS "E". The right-turn movement from Kamāmalu Street to eastbound Māmalahoa Highway is expected to operate at LOS "D". The other traffic movements at the intersection are expected to operate at satisfactory Levels of Service.

In conclusion, traffic in the region is generally expected to increase by 2.88 percent per year to the Year 2012 without the proposed project. A portion of the growth in traffic between East and West Hawai'i is expected to be diverted from Māmalahoa Highway to Saddle Road. The construction of the Waimea Bypass Highway is scheduled to open to traffic in the Year 2013, one year after the proposed school is expected to reach full enrollment.

The AM peak hour traffic is <u>not</u> expected to be significantly affected by the development of the proposed project. The intersection can be expected to be affected by the development of the proposed project, during the PM peak hour of traffic. The Kamāmalu Street approach to Māmalahoa Highway is expected to worsen from LOS "D" to LOS "E", during the PM peak hour of traffic with the proposed project. Retiming the traffic signal system would mitigate the traffic impacts of the proposed project without significantly affecting the other traffic movements at the intersection. Over the long term, the Waimea Bypass is expected to reduce traffic on Māmalahoa Highway by diverting through traffic around Waimea Town.

Your comments and this response letter will be included in the Final EA. We appreciate your participation in the environmental review process.

Sincerely,

Mark Kāwika McKeague
Senior Planner