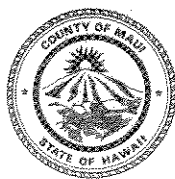


ALAN M. ARAKAWA
Mayor
MICHAEL W. FOLEY
Director
WAYNE A. BOTEILHO
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

November 23, 2004

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

RE: Final Environmental Assessment Prepared for the Proposed Maui Preparatory Academy at Tax Map Key: 4-3-001: 001 (portion), Napili, Island of Maui, Hawaii (EA 2004/0005) (CIZ 2004/0012) (CPA 2004/0005) (DBA 2004/0007)

The Maui Planning Commission at its regular meeting on November 23, 2004, accepted the Final Environmental Assessment (FEA) for the subject project, and issued a Finding of No Significant Impact (FONSI). Please publish the FEA in the December 8, 2004, Office of Environmental Quality Control (OEQC) Environmental Notice.

We have enclosed a completed OEQC Publication Form and four (4) copies of the FEA. If you have any questions, please call Ms. Kivette A. Caigoy, Environmental Planner, of our office at 270-7735.

Sincerely,

for

MICHAEL W. FOLEY
Director of Planning

MWF:KAC:do
Enclosures

c: Wayne A. Boteilho, Deputy Planning Director
Clayton I. Yoshida, AICP, Planning Program Administrator
Kivette A. Caigoy, Environmental Planner
Colleen Suyama, Staff Planner
EA Project File (w/enclosures)
General File
K:\WP_DOCS\PLANNING\EA\2004\5_MauiPreparatorySchool\OEQCTransmitFEA.wpd

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MAUI PREPARATORY ACADEMY

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QUALITY CONTRM.

Final
Environmental Assessment

**PROPOSED MAUI
PREPARATORY ACADEMY**

Prepared for:

November 2004

Maui Preparatory Academy
and the Accepting Authority,
Maui Planning Commission


MUNEKIYO & HIRAGA, INC.

Final
Environmental Assessment

**PROPOSED MAUI
PREPARATORY ACADEMY**

Prepared for:

November 2004

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MUNEKIYO & HIRAGA, INC.

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Executive Summary

Project Name: Proposed Maui Preparatory Academy

Type of Document: Final Environmental Assessment

Legal Authority: Chapter 343, Hawaii Revised Statutes

Agency Determination: Anticipated FONSI

Applicable Environmental Assessment Review "Trigger": Community Plan Amendment

Location: Maui Island
Napili, Kaanapali District
TMK 4-3-01:01(por.)

Proposing Agency: County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793
Contact: Kivette Caigoy, Planner
Phone: (808) 270-7735

Operator: Maui Preparatory Academy
11 Hale Malia Place
Lahaina, Hawaii 96761
Contact: Tom DiNoto
Phone: (808) 385-3579

Accepting Authority: Maui Planning Commission
250 South High Street
Wailuku, Hawaii 96793
Contact: Kivette Caigoy
Phone: (808) 270-7735

Agent: Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793
Contact: Matthew Slepín, Planner
Phone: (808) 244-2015

Project Summary:

The Maui Planning Department, in response to land use initiatives set forth by the Maui County Council, is processing this environmental assessment for Maui Preparatory Academy's proposed new, independent, non-profit, private, college preparatory school. The school will be implemented in several phases and will eventually school 360 students in grades kindergarten through twelve. Improvements include renovating existing structures and building new structures to function as classrooms and administrative offices, as well as developing parking areas and athletic fields.

Chapter 1

Project Overview

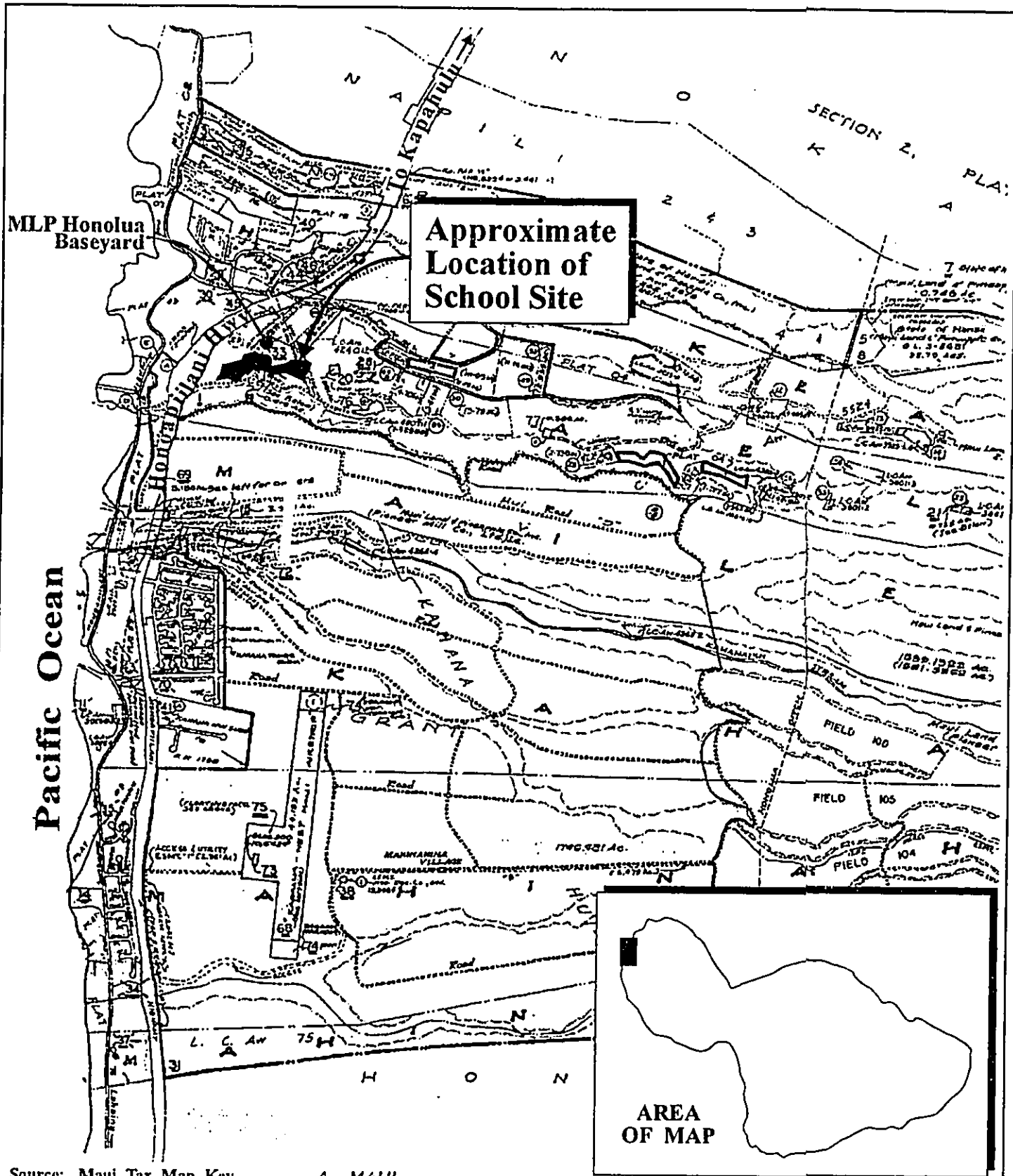
I. PROJECT OVERVIEW

A. PROJECT BACKGROUND

The Maui Preparatory Academy (MPA), in collaboration with Maui Land & Pineapple Company, Inc. (MLP), proposes a new independent, non-profit, non-sectarian college preparatory school at Napili, Maui. See Figure 1. The subject property is identified as Tax Map Key (TMK) 4-3-01:01 (por.) and encompasses an area of approximately 14.90 acres. See Figure 2. The property lies mauka (east) of Honoapiilani Highway and is located adjacent to MLP's Honolua Baseyard facility. Access to the property will be via the signalized Honoapiilani Highway-Napilihau Street intersection.

A portion of the school site currently houses dormitory and related supporting buildings, which were previously used by MLP's transient summer field workers. See Figure 3. Adjoining lands currently in pineapple cultivation will also be part of the campus. MLP proposes to donate the school site to MPA as part of its larger educational initiative involving the Lahainaluna Agricultural Internship Program and the Earth University/University of Hawaii Agriculture Entrepreneur Program. As part of this broader educational vision, MPA's curriculum will provide for a rigorous college preparatory program having integrative opportunities with the Lahainaluna and Earth University programs.

The project site's existing dormitory facilities encompassing approximately 18,000 square feet, will be converted to classroom and school support facilities to accommodate the initial grades and classes. An enrollment of 110 students is projected for kindergarten through grade 3 and grades 6 through 8 during the school's first year of operation starting in the fall of 2005. The school will add a grade level each succeeding year, to reach a full program of 36 students in each grade 6 through 12, with an



Source: Maui Tax Map Key A MA111

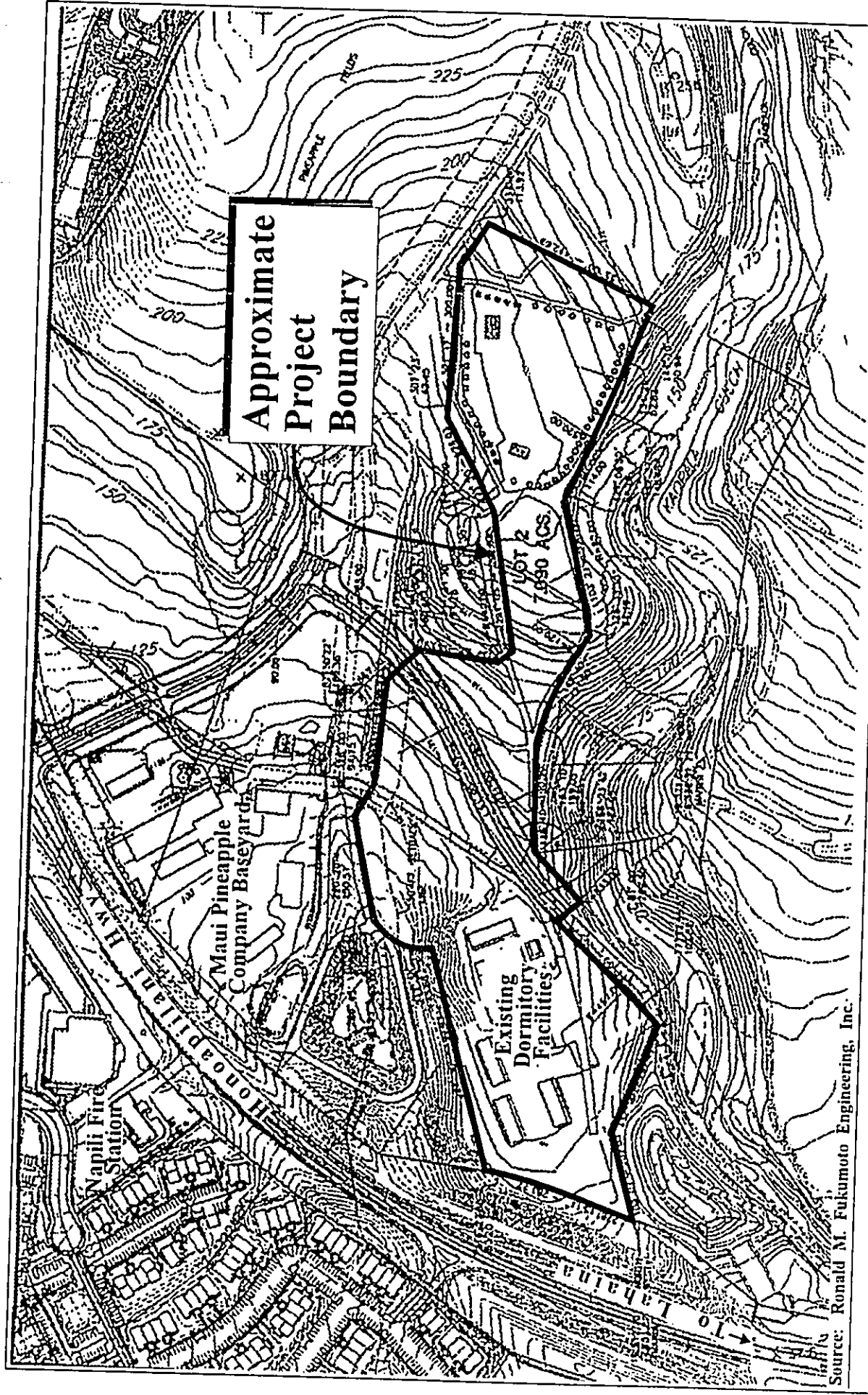
Figure 1 Proposed Maui Preparatory Academy
Regional Location Map

NOT TO SCALE



Prepared for: Maui Preparatory Academy

MUNEKIYO & HIRAGA, INC.



Source: Ronald M. Fukumoto Engineering, Inc.

Figure 2

Proposed Maui Preparatory Academy
Property Location Map

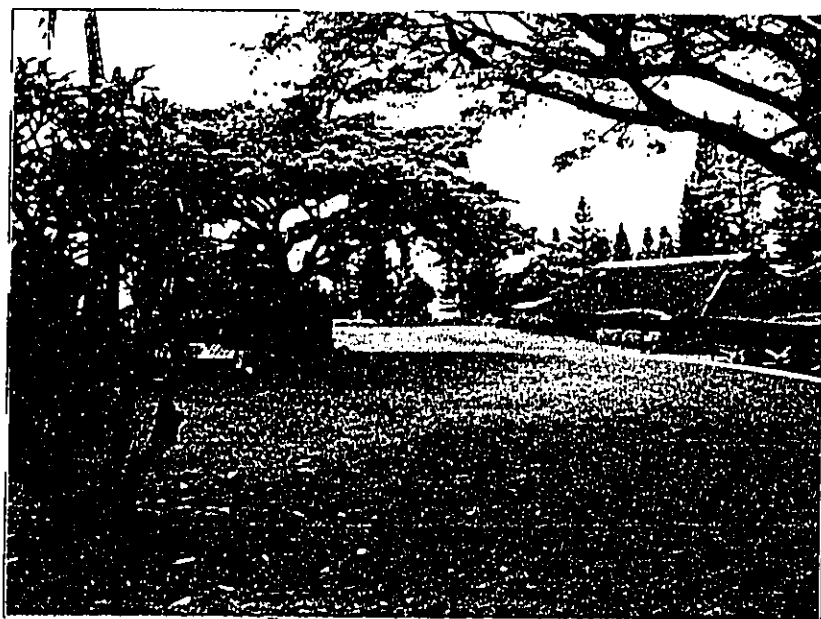


Prepared for: Maui Preparatory Academy

MUNEKIYO & HIRAGA, INC.



**West View - Proposed Maui Preparatory
Academy Campus**



**West View - Proposed Intermediate School -
Existing structures to be renovated**

Source: Munekiyo & Hiraga, Inc.

Figure 3 Proposed Maui Preparatory Academy



Photographs of Existing
Dormitory Facilities

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MUNEKIYO & HIRAGA, INC.

enrollment of approximately 252. Primary grades, with a maximum class size of 18 students, would also be added each year toward a fully enrolled school of 360 students in grades kindergarten through 12. Additional facilities will be constructed over time to accommodate the projected enrollment.

The subject property falls within the State Land Use "Agricultural" district and is designated for "Agricultural" use by the West Maui Community Plan. County zoning for the property is "Agricultural". To facilitate project implementation, the Maui County Council is currently processing a Council-initiated Community Plan Amendment, as well as a Council-initiated State Land Use district boundary amendment and a County change in zoning. The Council's Planning and Land Use Committee, at its March 2, 2004 meeting, recommended approval of the land use initiatives and full Council approval to process the proposed ordinances was received on May 7, 2004. See Appendix "A".

With respect to environmental review and processing, the County's Department of the Corporation Counsel, in a written opinion dated March 1, 2004, determined that Community Plan Amendment actions initiated by the County Council is a trigger for an environmental assessment (EA) under Chapter 343, Hawaii Revised Statutes (HRS). Accordingly, an EA will be needed for the proposed school project.

It is noted that the scope of this EA document covers the entire school property and ultimate student enrollment of 360 students in grades kindergarten through 12.

B. PURPOSE AND NEED

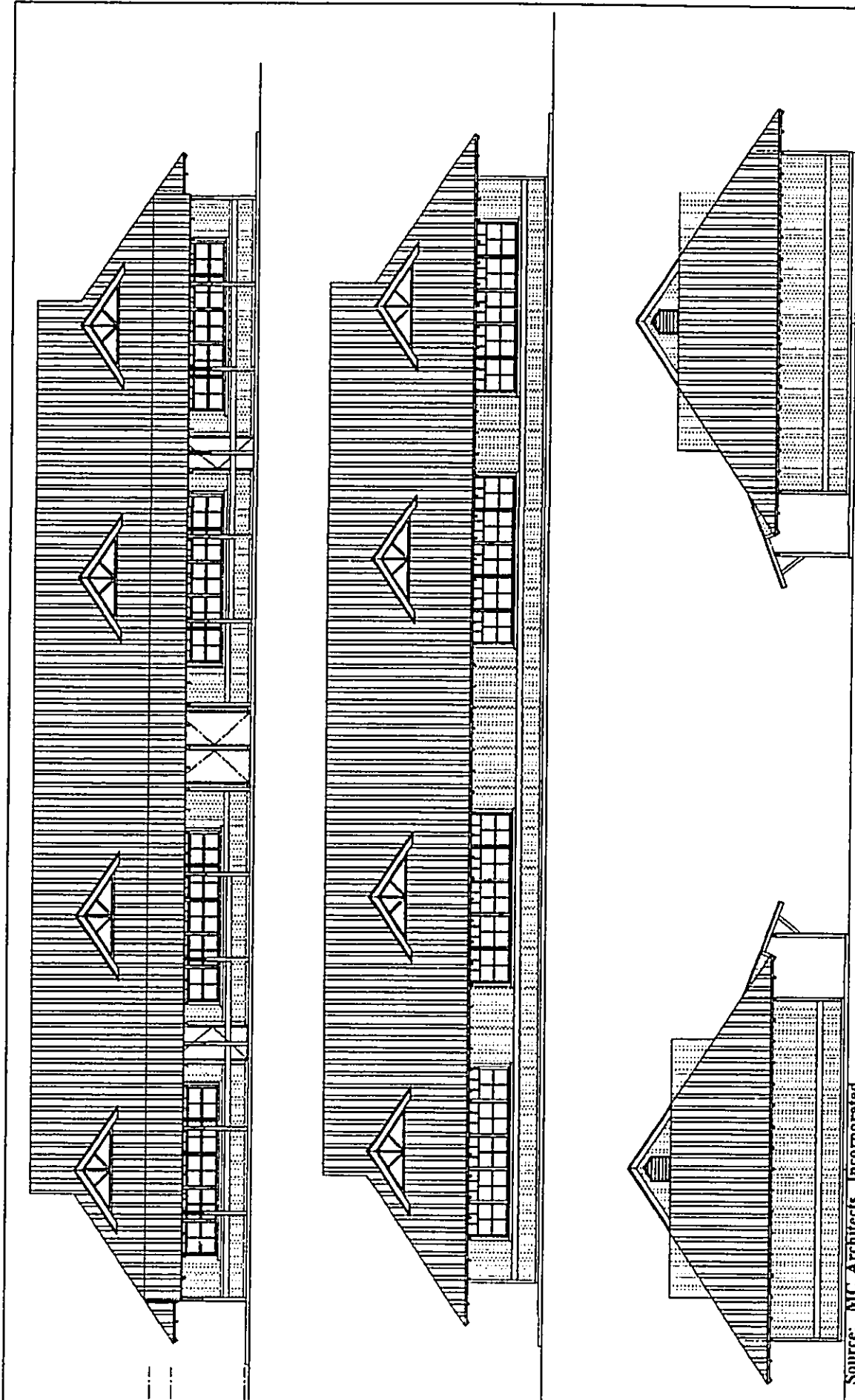
The mission of the MPA is to provide children with a college preparatory

education using proven best practices in teaching methods in an emotionally safe and nurturing atmosphere that integrates respect for others, moral character and positive self-image. The school will be open to children from diverse economic and ethnic backgrounds, with a commitment to providing financial aid for families with demonstrated need for tuition assistance.

MPA is designed to provide an educational option to the West Maui community. Currently, there is no private, independent, non-sectarian school in West Maui for middle and high school students. The collaborative curriculum with Lahainaluna High School and Earth University will provide focused learning opportunities in environmental, biological and agricultural sciences. The school will be a member of the Hawaii Association of Independent Schools and accredited through that organization in conjunction with the Western Association of Schools and Colleges. By providing educational facility capacity and new learning options, MPA will extend benefits to a broad segment of the community.

C. **PROPOSED IMPROVEMENTS**

As noted above, the initial phase of operations for the MPA will involve the use of approximately 18,000 square feet of existing dormitory and supporting facilities. Phase I of the proposed project calls for construction and the renovation of existing buildings to convert dormitory facilities into classrooms, along with attendant library, eating halls, activity rooms, maintenance building, administrative offices, and a Headmaster's cottage. See Figure 4 for a preliminary classroom elevation. The project also encompasses a realignment of the existing access road mauka of Honoapiilani Highway (at the signalized Honoapiilani Highway-Napili Hau Street intersection) and the construction of a new access roadway from that point leading into the school grounds. See Appendix "B". Further



Source: MC Architects, Incorporated

Figure 4

Proposed Maui Preparatory Academy
 Typical Classroom Exterior Elevation

NOT TO SCALE



Prepared for: Maui Preparatory Academy



Phase I improvements include open play areas, a basketball court, and a parking lot containing approximately 60 stalls. Necessary infrastructure improvements, such as drainage improvements to address current and future needs, are included in Phase I. This phase would be implemented at the northwest end of the subject property.

While details regarding the initial phase of school development are better defined based on current planning efforts, the school will be implemented in accordance with its long-range physical master plan. The long-range plan reflects physical planning concepts which incorporates desired placement of buildings, parking, circulation and educational support areas. At this point in time, the plan is intended to provide a "best estimate" of facility requirements and will be used for planning and development purposes over the next few years. See Figure 5.

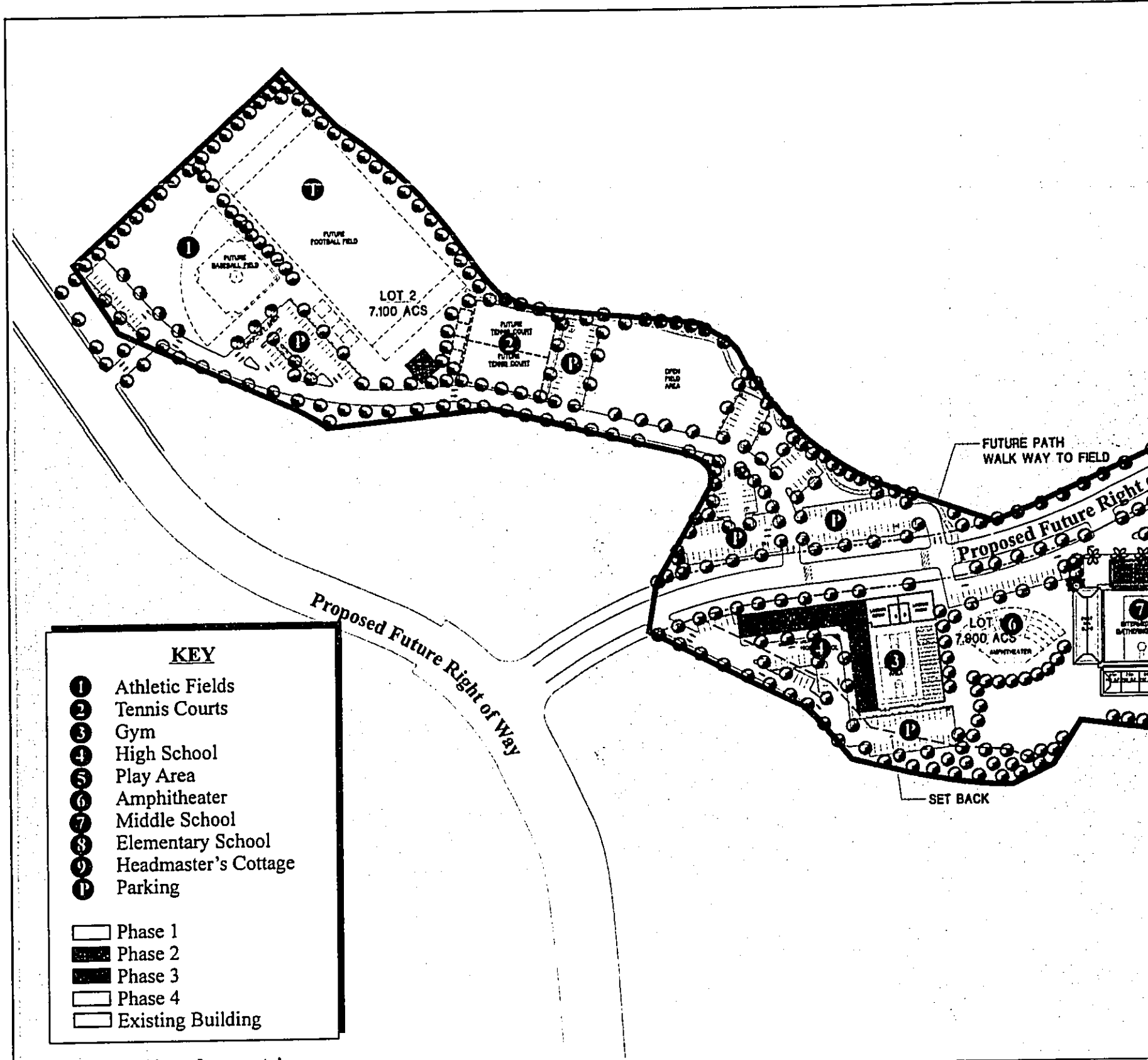
In the long term, as new facilities are constructed, site improvements such as grading, utility installation and landscaping will be implemented. Full enrollment of 360 students in grades kindergarten to 12 is envisioned with the master plan build-out in 2009. As previously noted, this EA document is intended to address the long-range master plan.

The cost to open the school in the fall of 2005 is estimated to be approximately \$6.0 million. Total build-out is estimated to cost approximately \$15.0 million.

D. LAND USE ENTITLEMENTS PROCESSING SUMMARY

The County Council's Resolution No. 04-62 referred the following bills to the Maui Planning Commission:

1. "BILL FOR AN ORDINANCE TO AMEND THE WEST MAUI



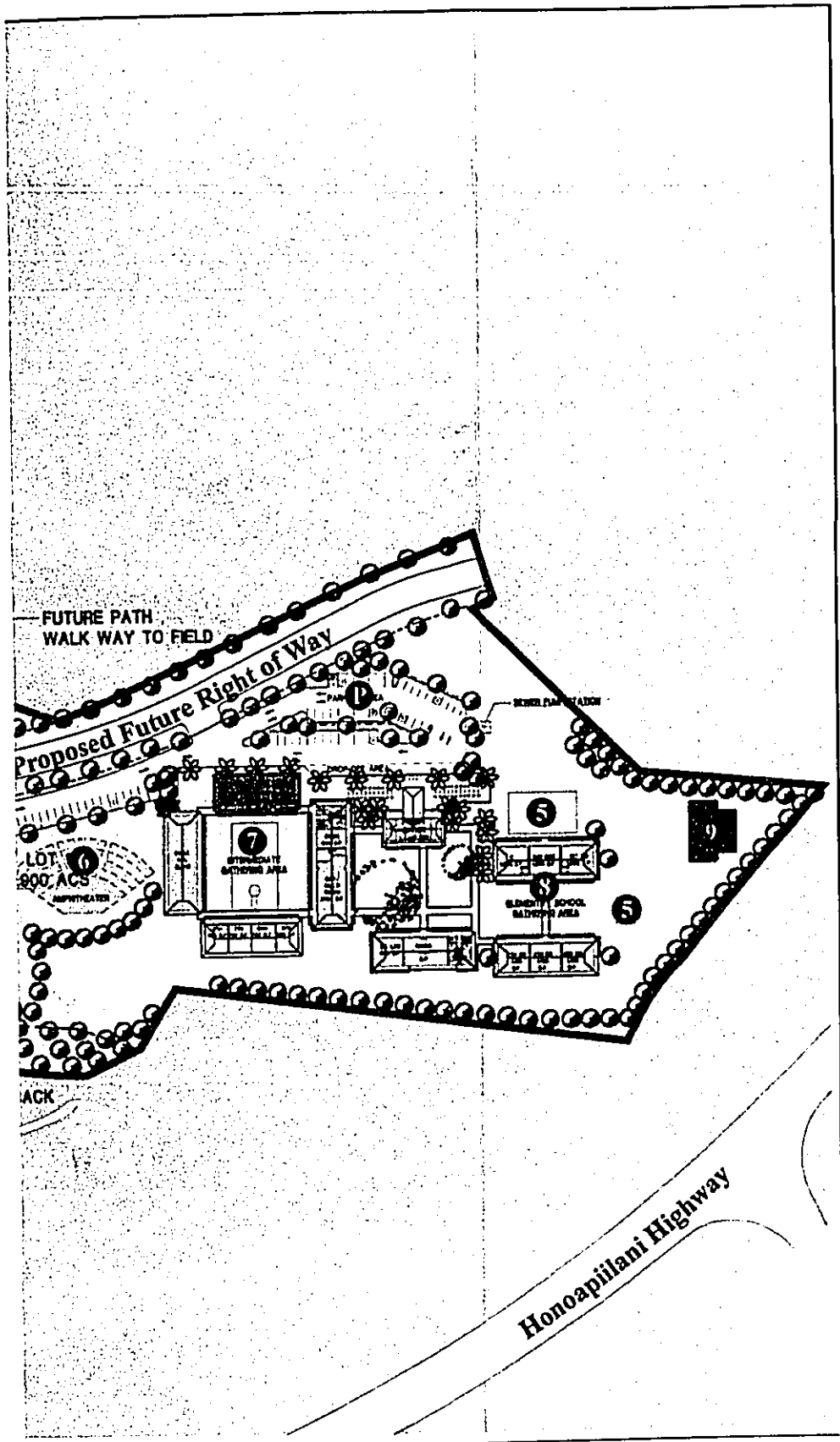
Source: MC Architects Incorporated

Figure 5

Proposed Maui Preparatory Academy Long Range Master Plan



Prepared for: Maui Preparatory Academy



ademy

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.

COMMUNITY PLAN FROM AGRICULTURAL TO PUBLIC/QUASI-PUBLIC FOR PROPERTY SITUATED AT NAPILI, MAUI, HAWAII FOR THE PROPOSED MAUI PREPARATORY ACADEMY"; and

2. "A BILL FOR AN ORDINANCE TO CHANGE THE ZONING FROM AGRICULTURAL DISTRICT TO P-1 PUBLIC/QUASI-PUBLIC DISTRICT FOR PROPERTY SITUATED AT NAPILI, MAUI, HAWAII FOR THE PROPOSED MAUI PREPARATORY ACADEMY"; and
3. "A BILL FOR AN ORDINANCE TO AMEND THE STATE LAND USE DISTRICT CLASSIFICATION FROM AGRICULTURAL TO URBAN FOR PROPERTY SITUATED AT NAPILI, MAUI, HAWAII FOR THE PROPOSED MAUI PREPARATORY ACADEMY."

The Maui Planning Commission will review the foregoing ordinances at a scheduled public hearing then transmit its recommendations on the ordinances to the Council's Planning and Land Use Committee. Upon receipt of the Planning Commission's recommendations, the Planning and Land Use Committee will further deliberate the proposals and advance the Committee's recommendations to the full Council. The Council will then formally take action on the bills for ordinances.

It is noted that the Maui Planning Commission has been designated as the accepting authority for this Chapter 343, HRS Environmental Assessment. Before scheduling its public hearing on the bills for ordinances, the Planning Commission will review, comment, and determine whether this document may be filed as a Finding of No Significant Impact.

Chapter II

***Description of the
Existing Environment***

II. DESCRIPTION OF THE EXISTING ENVIRONMENT

A. PHYSICAL SETTING

1. Surrounding Land Uses

The project site is located in the Napili area of Lahaina, Maui. The subject property is situated adjacent to the Maui Land & Pineapple Company's Honolua Baseyard and is bordered by pineapple fields. Lands to the west of the property, across Honoapiilani Highway, are urbanized and characterized by condominium, business/commercial and single-family residential uses. Condominium projects in proximity to the project site include the Kahana Sunset, the Alaeloa, Kahana Village and Napilihau Villages. The Napili Plaza, a commercial shopping center, is located at the corner of Honoapiilani Highway and Napilihau Street. The County of Maui's Napili Fire Station is located to the immediate south of the Napili Plaza. The Honolua United Methodist Church is located across of the Napili Plaza, off of Napilihau Street.

2. Climate

Like most areas of Hawaii, Lahaina's climate is relatively uniform year-round. Lahaina's tropical latitude, its position relative to storm tracts and the Pacific anticyclone, and the surrounding ocean combine to produce this stable climate. Variations in climate among different regions, then, is largely left to local terrain.

Average temperatures in Lahaina range between 60 degrees and 88 degrees Fahrenheit. August is historically the warmest month, while January and February are the coolest.

Rainfall at Lahaina is highly seasonal, with most precipitation

occurring between October and April when winter storms hit the area. Situated on the leeward side of the West Maui Mountains, this region receives most of its rainfall in late afternoon and early evening, after seabreezes take moisture upslope during the day. Precipitation data collected at the Wahikuli Station (#364) show that on average, January is the wettest month, with 3.31 inches of precipitation, while June is the driest, with just 0.25 inch.

Wind patterns in the Lahaina area are also seasonal. The northeasterly tradewind occurs 90 percent of the time during the summer, and just 50 percent of the time in the winter. Wind patterns also vary on a daily basis, with tradewinds generally being stronger in the afternoon. During the day, winds blow onshore toward the warmer land mass. In the evening, the reverse occurs, as breezes blow toward the relatively warm ocean.

3. **Topography and Soils**

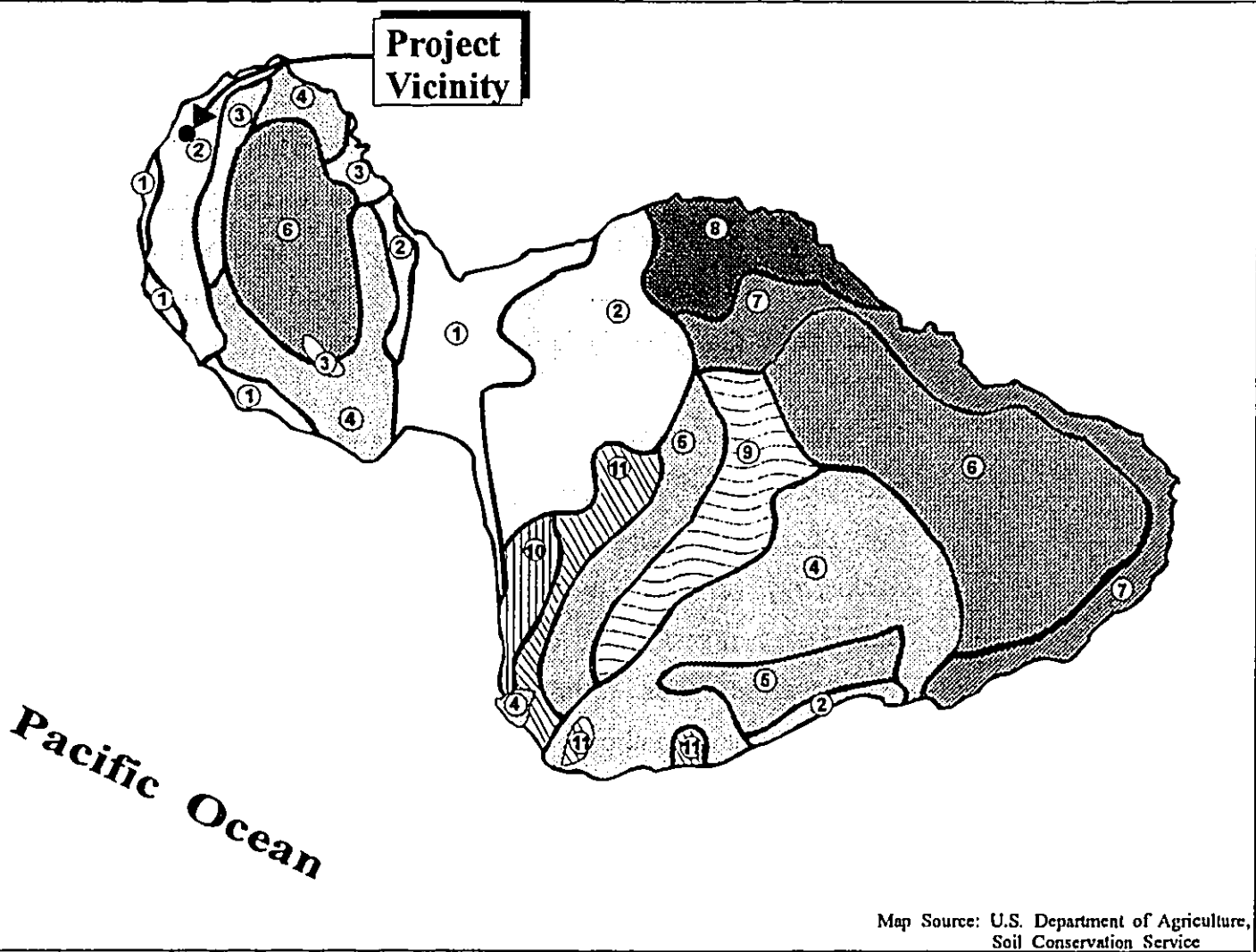
The project site is situated at the base of the West Maui Mountains, near the southeast corner of the Honoapiilani Highway and Napilihau Street intersection.

Elevations at the project site range between approximately 110 feet and 230 feet above mean sea level. The property generally slopes at a 6.1 percent slope in a southwest to northeast direction.

Underlying the project site are the soils of the Waiakoa-Keahua-Molokai association. The Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, characterize the soils of this association as well-drained, moderately fine textured soils which are nearly level to moderately steep. See Figure 6.

LEGEND

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



**Figure 6 Proposed Maui Preparatory Academy NOT TO SCALE
Soil Association Map**



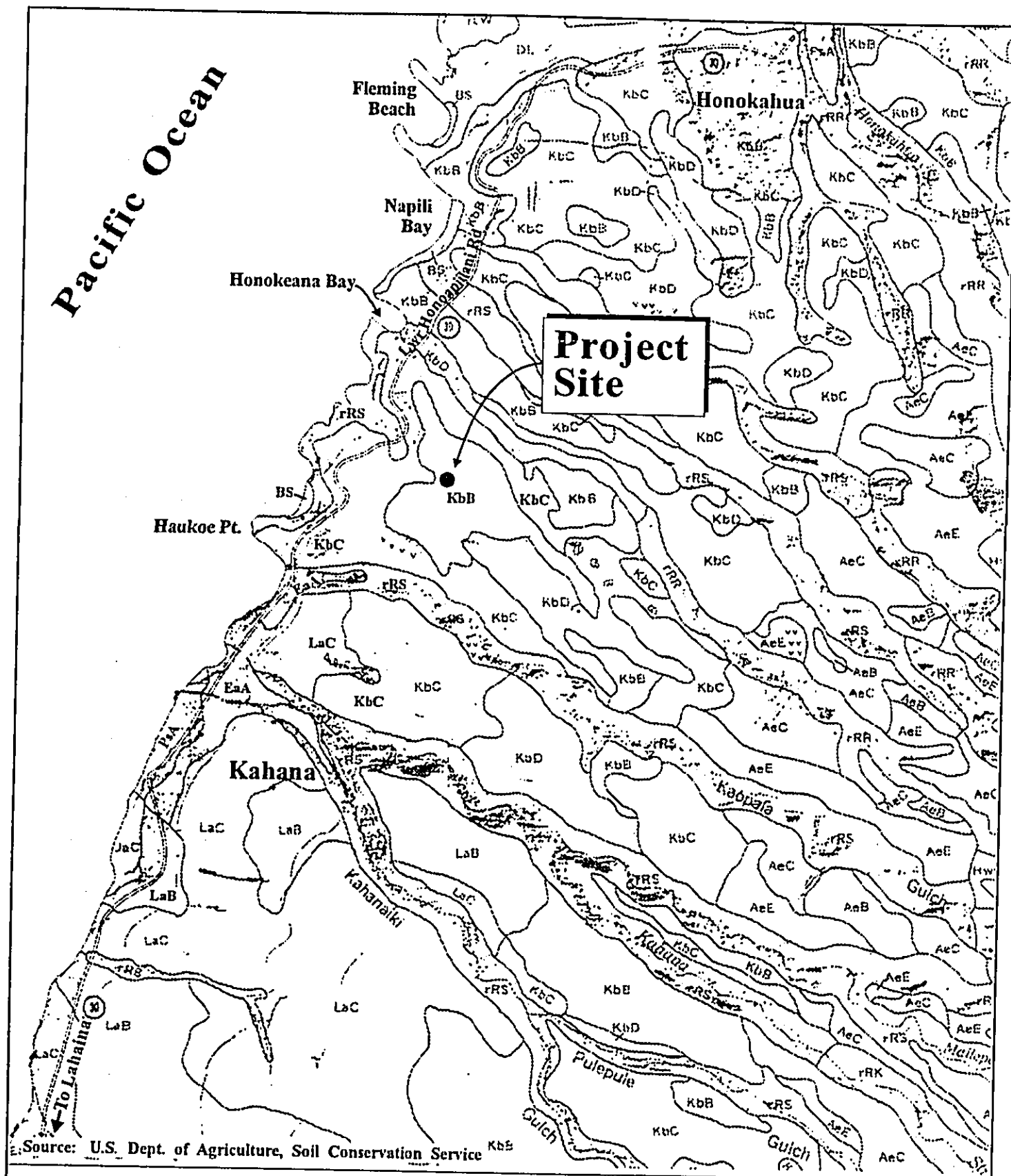
Prepared for: Maui Preparatory Academy


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Soils underlying the project site are of the Kahana Series (KbB). This soil has an approximately 14-inch thick surface layer of reddish brown silty clay. Runoff is slow and the erosion hazard is slight. The soil is used primarily for sugarcane, pineapple and homesites (United States Department of Agriculture Soil Conservation Service). See Figure 7.

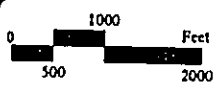
The University of Hawaii Land Study Bureau classifies productivity characteristics on a scale of "A" to "E" with lands designated as "A" reflecting highest productivity and "E" representing lands ranked lowest. The letters are followed by numbers which further classify the soil types conveying information such as texture, drainage and stoniness. Land underlying the project site is classified as C21, which reflects soil that is nonstony, deep, fine textured, and well drained. The major existing use for this land is pineapple and sugar cane (Land Study Bureau).

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



Source: U.S. Dept. of Agriculture, Soil Conservation Service

Figure 7 Proposed Maui Preparatory Academy Soil Classification Map



Prepared for: Maui Preparatory Academy

MUNEKIYO & HIRAGA, INC.

As reflected by the ALISH map for the Lahaina region, the proposed project is comprised of lands that have been defined as "Prime" agricultural lands. See Figure 8.

4. Flood Hazard Characteristics

The Flood Insurance Rate Maps (FIRM) for this region indicate that the proposed project site is located in areas of minimal flooding (Zone C). See Figure 9.

5. Flora and Fauna

Plant life surrounding the project site is typical of adjoining developed and undeveloped properties.

Plant material found at the existing developed dormitory site include monkeypod, Cook Island Pine, ironwood and palms. Grassed lawns occupy spaces between the buildings, providing a campus-like environment. Lands currently in pineapple cultivation are bordered by introduced species of roadside weeds and grasses which are common to the area. Due to urban and agricultural uses surrounding the project site, there are no known rare, threatened or endangered species of plant life in the vicinity of the proposed project.

A portion of the project site is developed with dormitory buildings and related structures. There are no wetlands or streams within the property or on nearby parcels which provide habitat ecosystems. Fauna typically found in the vicinity include cats, dogs, rats, and mongoose, as well as the House Finch, Zebra Dove, Spotted Dove, Common Mynah, and the Japanese White-Eye. There are no known rare, threatened, or endangered species

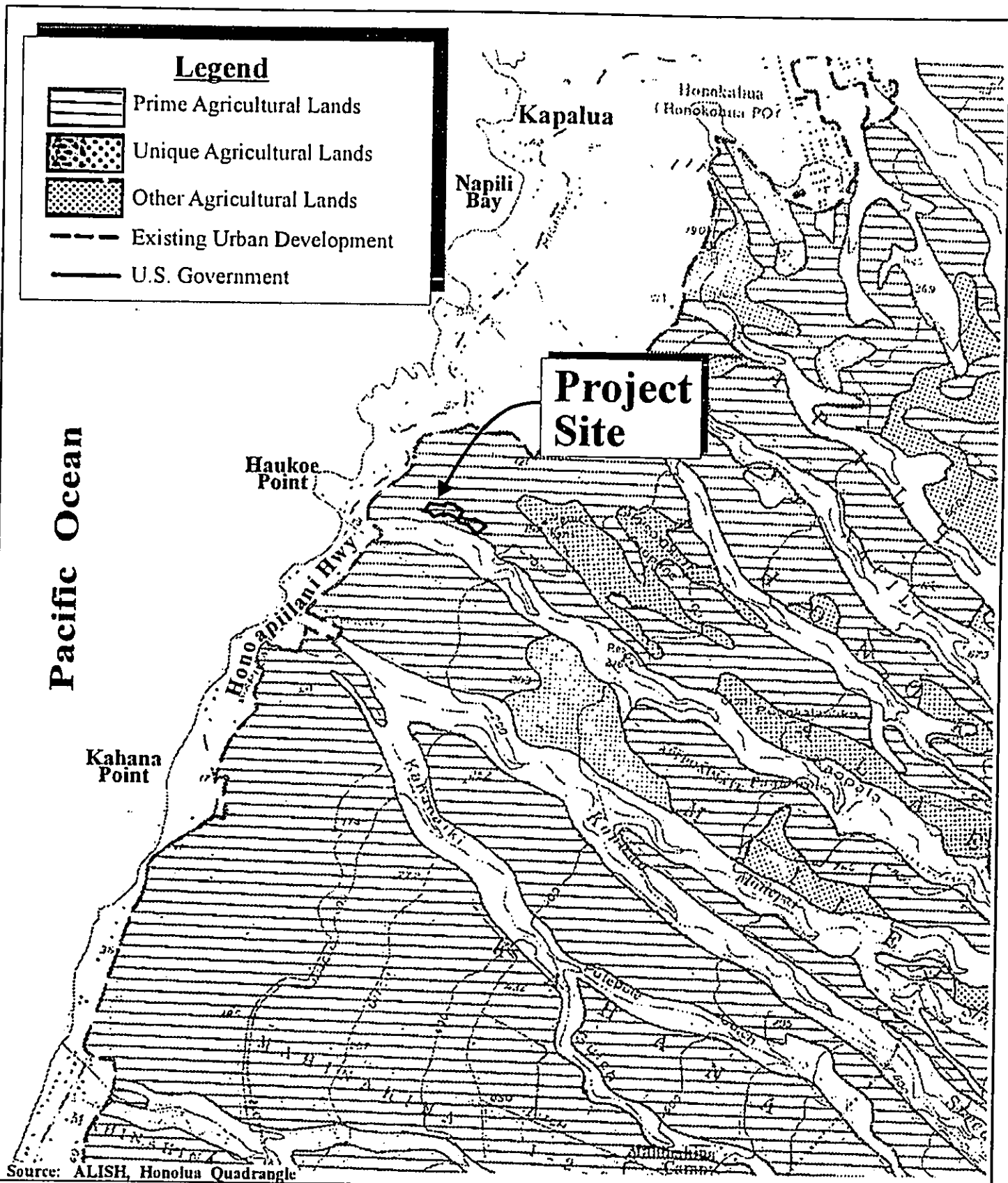
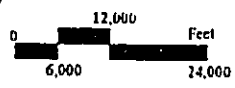
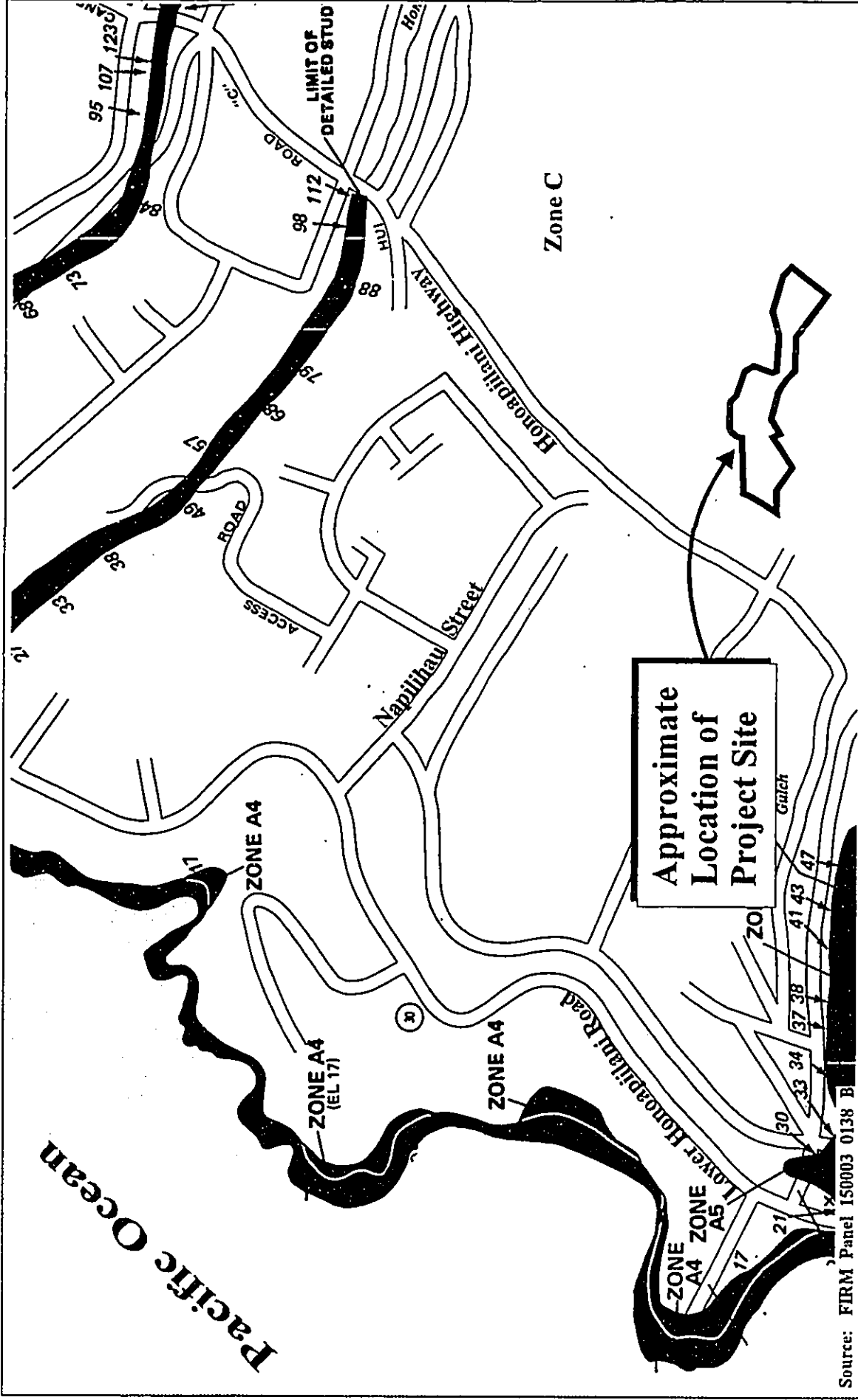


Figure 8 Proposed Maui Preparatory Academy
Agricultural Lands of Importance
to the State of Hawaii



Prepared for: Maui Preparatory Academy

MUNEKIYO & HIRAGA, INC.



Source: FIRM Panel 150003 0138 B

Figure 9

Proposed Maui Preparatory Academy
Flood Insurance Rate Map

NOT TO SCALE



Prepared for: Maui Preparatory Academy



MUNEKIYO & HIRAGA, INC.

of animal life or significant habitats found in the vicinity of the proposed project.

6. **Archaeology**

An Archaeological Assessment for the proposed project was conducted by Xamanek Researches in April 2004. See Appendix "C".

Archaeological fieldwork, consisting of systematic pedestrian survey, was conducted at the project site. The majority of the project area has been impacted by earthmoving activities associated with the development of the existing dormitory facility and former pineapple cultivation. There are no historic sites within the project area.

7. **Air Quality**

Airborne pollutants that do exist can largely be attributed to vehicular exhaust from Honoapiilani Highway and adjoining roadways. Other sources may include dust from pineapple cultivating operations on surrounding lands. These sources are intermittent, however, and the prevailing tradewinds will disperse particulates generated by these temporary sources.

8. **Noise**

Existing noise at the project vicinity is primarily attributed to vehicular traffic. Noise associated with agricultural operations at the adjacent baseyard include the ingress and egress of trucks and equipment. Limited truck traffic currently utilizes the existing unimproved agricultural road which provides access to the dormitory site. There are no adverse aircraft related noise

conditions which impinge upon the project site.

9. **Hazardous Wastes**

A Phase I, Environmental Site Assessment was carried out by Vuich Environmental Consultants. See Appendix "D".

The subject property has been historically utilized for pineapple cultivation. It has thus been subject to pesticide and fertilizer use. It is possible, but by no means likely, for residual amounts of these substances to accumulate in the soils. As needed, further testing could determine concentrations of these chemicals.

The existing structures on the subject property were built at a time when regulated materials, such as lead-based paint, would have been allowed. Appropriate measures relating to building materials management will be implemented during renovation activities.

10. **Scenic and Open Space Resources**

The project site is located on a sloping hillside mauka or east of Honoapiilani Highway. This geographic orientation provides for views from the site to the urbanized coastal region of Napili to the west. Surrounding pineapple fields establish the visual context for lands to the immediate south and east of the property, while the adjacent baseyard facility defines the visual context to the north. The property is not part of a scenic corridor and due to topography and tree cover, cannot be seen from Honoapiilani Highway or residences further makai of that.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Population

Just as the visitor count has grown, the resident population of the West Maui region has increase dramatically over the last two (2) decades. Population gains were especially pronounced in the 1970s as the rapidly developing visitor industry attracted many new residents. According to the 2000 Census of Population and Housing, the resident population of the Lahaina District was 17,967. The projected resident population for the year 2010 is approximately 26,890 (SMS, 2002).

Growth patterns at the County level exhibit a similar pattern. The County's 1990 resident population of 71,000 has since grown to 128,241 in 2000 (U.S. Census). The estimated population for the year 2010 is 151,269 (SMS, 2002).

2. Economy

The economy of Maui is heavily dependent upon the visitor industry as reflected by the large number of persons employed in the hotel industry as well as employees engaged in other hotel-related services. In addition to contributing to jobs in the trades and service industries, the hotel industry supports employment in the construction and manufacturing industries as well.

Agriculture is another vital component of the West Maui economy with Maui Land and Pineapple Company's pineapple fields being an important component of the region's agricultural base.

Until recently, Pioneer Mill Company cultivated most of its approximately 6,700 acres in sugar cane. However, sugar

operations terminated in February 1999.

As of January 2004, the unemployment rate for Maui County and the island of Maui was approximately 3.8 percent and 3.7 percent, respectively (State Department of Labor and Industrial Relations, Hawaii Workforce Informer).

C. PUBLIC SERVICES

1. Recreational Facilities

West Maui is served by numerous County parks and shoreline areas that provide diverse recreational opportunities for residents and visitors. Popular ocean and shoreline recreational activities include diving, fishing, surfing, swimming, canoeing, kayaking, picnicking, snorkeling, sunbathing, windsurfing and bodysurfing.

About one-third of the County parks are situated along the coast. Most of these shoreline parks feature sandy beaches as well as parking, restroom, shower, and picnicking facilities. County beach parks located in the general vicinity of the project site include Honokowai Beach Park in Honokowai, Pohaku Park ("S" Turns) in Kahana, and D.T. Fleming Beach Park in Kapalua. Other beaches and shoreline recreational areas in the vicinity include Napili Bay, Kapalua Bay, and Oneloa Bay in the Napili/Kapalua area.

Popular surf spots in the area include "S" Turns, Rainbows, Fleming Beach, and Honolua Bay. In addition, the Kaanapali and Kapalua Resorts feature five (5) world-class golf courses which are available for public use.

2. **Police and Fire Protection**

The subject property is within the Maui Police Department's (MPD) service area, which includes the entire West Maui region. The MPD's Lahaina Station is located in the Lahaina Civic Center complex at Wahikuli, and was built in the early 1970's. The Lahaina Patrol includes approximately 54 full-time personnel, consisting of one (1) captain, one (1) lieutenant, seven (7) sergeants, and 39 police officers. The remaining six (6) personnel consist of public safety aides and administrative support staff.

Fire prevention, suppression and protection services for the West Maui region is provided by the Maui Fire Department's (MFD) Lahaina Fire Station, also located in the Lahaina Civic Center, and the Napili Fire Station, located west of the project site. The Lahaina Fire Station includes an engine and a ladder company, and is staffed by 30 full-time personnel. The Napili Fire Station consists of an engine company including 15 full-time firefighting personnel.

3. **Solid Waste Disposal**

West Maui's solid waste requirements are served by the County of Maui's Central Maui Landfill, located near Puunene. County collection service is provided to single-family residences in West Maui. Both County and private collection services utilize the Central Maui Landfill.

A refuse transfer station is located in Olowalu for West Maui residents. This station accepts household refuse and greenwaste, as well as used oil. The County has contracted Maui Disposal Company to transport these wastes to the Central Maui Landfill in

Puunene. No commercial use is allowed at the Olowalu transfer station.

4. **Medical Facilities**

The only major medical facility on the island is Maui Memorial Medical Center, located approximately 20 miles from Lahaina, midway between Wailuku and Kahului. Licensed for 196 beds, the medical center provides general, acute, and emergency patient care services for residents and visitors.

In addition, the Maui Medical Group, Lahaina Physicians, West Maui Healthcare Center, and Kaiser Permanente's Lahaina Clinic provide outpatient care and services for residents and visitors during regular business hours.

5. **Schools**

The State of Hawaii, Department of Education operates four (4) public schools in West Maui: Lahainaluna High School; Lahaina Intermediate School; King Kamehameha III Elementary School; and Princess Nahienaena Elementary School. All of the public schools are located within the Lahaina Town area.

Private schools include Sacred Hearts School (grades K to 8) and Carden Academy (grades K to 5). Both schools are also located in Lahaina.

D. **INFRASTRUCTURE**

1. **Roadways**

Honoapiilani Highway (FAP 30) is the primary arterial serving West Maui. This highway is the only link between West Maui and the

rest of the island (except for a substandard segment that provides limited access around the north coast of the island from Honokohau to Waihee). Honoapiilani Highway is configured for two (2) travel lanes except for an existing four-lane section that extends from Lahainaluna Road in Lahaina Town to Lower Honoapiilani Road in Honokowai.

Lower Honoapiilani Road is a two-lane County roadway with a variable ROW that ranges from 40 to 60 feet. This roadway begins at its intersection with Honoapiilani Highway opposite the County's Lahaina Wastewater Reclamation Facility (LWRF) and proceeds in a northerly direction to its terminus in the Kapalua Resort (at the entrance driveway for public beach access and parking for Kapalua Bay). The portion of Lower Honoapiilani Road within the Kapalua Resort is privately owned and maintained by Kapalua Land Company and terminates at its intersection with Office Road.

Napilihau Street is a two-way, two-lane County road that runs in a east-west direction. At the intersection with Lower Honoapiilani Road, there are separate right- and left-turn lanes and is stop-sign controlled. Napilihau Street also intersects with the State of Hawaii's Honoapiilani Highway at its eastern terminus. That intersection is controlled by a traffic signal with right- and left-turn lanes on to Honoapiilani Highway. The speed limit on Napilihau Street is 20 miles per hour (mph).

2. Water

The County of Maui, Department of Water Supply provides water service for the area. The water system in the area consists of the 1.0-million gallon Kahana Ridge Reservoir and the 2.0-million

gallon Honokowai Reservoir. The 1.0-million gallon reservoir, located on the mauka side of Honoapiilani Highway, about 1,100 feet north of the project, provides storage and supplies the distribution system in the area. This project will tap into an existing 12-inch line from the Kahana Ridge Reservoir, which is capable of providing the required water needs of the project.

3. **Wastewater Systems**

The County's wastewater collection and transmission system and the Lahaina Wastewater Reclamation Facility (LWRF) accommodate the region's wastewater needs. The LWRF, located along Honoapiilani Highway just north of Kaanapali Resort and approximately 2.8 miles south of the project site, has a design capacity of 9.0 million gallons per day (MGD) and currently processes approximately 4.0 MGD.

Operating components of the LWRF include a collection and transmission system which serves the West Maui region from Lahaina to Kapalua. Wastewater generated by the existing dormitory is pumped through the baseyard area and eventually gravity flows across Honoapiilani Highway to connect with the sewer system on Lower Honoapiilani Road. From there it is transported to the LWRF.

4. **Drainage**

There are no existing drainage facilities within the project site. Kaopala Gulch lies outside the southerly boundary and a detention basin is located outside the northwest boundary of the project site. Flow through Kaopala Gulch is diverted across Honoapiilani Highway into a natural earth channel. The 100-year flow in the

Gulch is 1,344 cfs. Overflow from the detention basin is also diverted across the highway via a 66-inch culvert which connects with the drainage system for the Napili Villas project.

The 50-year, 1-hour runoff from the existing site is estimated at 19.2 cubic feet per second (cfs). Of this, approximately 6.6 cfs flows into Kaopala Gulch and 12.6 cfs flows into the detention basin.

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

Electrical and telephone service to the West Maui region is provided by Maui Electric Company (MECO) and Verizon Hawaii, respectively. Cable service is provided by Oceanic Time Warner Cable.

Chapter III

***Potential Impacts and
Mitigation Measures***

III. POTENTIAL IMPACTS AND MITIGATION MEASURES

A. IMPACTS TO THE PHYSICAL ENVIRONMENT

1. Topography and Landform

To facilitate access roadway installation, as well as provision of buildings for future classroom facilities, cut and fill work will be needed. In general, the proposed extent of earthwork for the project is not considered significant and will not alter local topographic and landform conditions.

Grading activities are not required for the initial conversion of the dormitory facilities to classroom use.

2. Flora and Fauna

There are no sensitive native plant communities which are located in the project area. Vegetation in the project site is dominated by introduced plant species, and there are no known rare, endangered, or threatened species of flora within the site.

Existing mature trees at the dormitory site will be maintained to the extent possible. Landscaping will be integrated as part of all future phases of school facility development.

Similarly, there are no known rare, endangered, or threatened species of fauna or avifauna within the vicinity of the project site. The proposed project is not anticipated to impact wetland areas and wildlife habitats.

3. Archaeological Resources

The archaeological assessment carried out by Xamanek Researches uncovered no sites of significance within the project

area. See Appendix "C". A possible rock alignment or terrace was observed well away from the project area in Kaopala Gulch to the south. It is noted by Xamanek that the proposed project makes adaptive reuse of the existing dormitory structure.

Should any archaeological or historic features be uncovered during construction activities, work will be halted and the State Historic Preservation Division (SHPD) will be contacted to ensure that applicable procedures relating to Chapter 6E of the Hawaii Revised Statutes (HRS), are implemented.

4. **Cultural Impact Considerations**

The Lahaina District is described as a rich agricultural oasis watered from nearby valleys (Handy and Handy, 1972). This oasis "extended about three leagues in length (about nine miles along the coast) and one (three miles) in breadth. Beyond this, all is dry and barren". Kirch (1985) and Chapman and Kirch (1979), describe coastal marine resource areas and the inland use of agricultural lands, including the movement from one environment to another on the part of early populations in order to utilize the variety of resources available within the ahupua'a.

The evolution of the ahupua'a land use system essentially provided inhabitants access to resources present in the land unit which stretched from the ocean to the rim of the mountains. Semi-permanent to permanent settlement probably occurred in both coast and upland areas (Chapman and Kirch, 1979). As noted by Kirch (1985), it is plausible that the ahupua'a in West Maui replicated settlement patterns found elsewhere in the Hawaiian archipelago (i.e., habitation in coastal and inland areas with

relatively little activity occurring in the intermediate zone between these areas). In Honokowai and neighboring ahupua'a, the intermediate zone is fairly narrow due to the geographical layout of the mountains and the coastline. As suggested by Handy (1940 and 1972), by late pre-contact times, the fairly sizable population dwelling in the region utilized coastal fishing areas and inland garden plots for subsistence, cultivating sweet potatoes near shore, or taro in terraced lo'i in the wetter valleys inland.

By the time of contact, the Lahaina region had become an important socio-political center, and the residence of several powerful chiefs, most notably Kahekili, one of the highest ranking on Maui. Lahaina was considered by high chiefs to be a favorable place due to the abundance of natural resources and its close proximity to the islands of Lana'i and Moloka'i (Handy and Handy, 1972). In 1820, about 40 years after Captain James Cook's discovery of the Hawaiian Islands, the islands experienced the loss of King Kamehameha I, the crumbling of the ancient Hawaiian social system, and the sudden arrival on the scene of the first New England whaling ships and missionaries. The population of West Maui continued to decline in the second half of the 19th century followed by the collapse of the Pacific whaling industry in the 1860's which was prompted by the discovery of oil in Pennsylvania a decade or so earlier. In the Lahaina area, sugar production developed in the mid-1800s, while further north, different crops were tried, including coffee and pineapples.

In the 1840s, sugar cane cultivation began in the Lahaina-Kaanapali area. In 1852, the first contract laborers from China arrived in Hawaii to work in the sugar industry. Later, in 1868, the

first Japanese laborers arrived, followed by Norwegians, Germans, Koreans, Puerto Ricans, Portuguese, Spaniards, Russians, and Filipinos. In 1865, Pioneer Mill Company was established and during the next decade, added other plantations to its holdings. Later in 1883, Pioneer Mill modernized sugar operations and constructed a railroad across plantation property. Trains were hauling harvested cane between Kaanapali and Lahaina, with more track being laid out to outlying areas. At that time, Pioneer Mill owned 900 acres of land, with 600 acres in cultivation. By the end of the 19th century, Pioneer Mill had grown in size to approximately 12,500 acres. Its fields spread across the West Maui coastline for about 10 miles, from Launiupoko to Kaanapali, and extended approximately a mile inland. In 1918, Pioneer Mill was sold to American Factors. Later, in 1960, Pioneer Mill became a subsidiary of Amfac, Inc.

The pineapple industry in West Maui began as Honolua Ranch. Along with its pineapple crop, Honolua Ranch, which later became Baldwin Packers, grew coffee, cotton, aloe, mangoes, and watermelon. In 1914, the first pineapple cannery was built at Honokahua and five years later, a new cannery was constructed near Mala Wharf. By the 1920s, pineapple was being grown on a large scale. Later, in 1963, Baldwin Packers merged with Maui Pineapple Company, a subsidiary of Maui Land & Pineapple Company.

Up until the mid-1960s, sugar and pineapple cultivation occupied much of the land in the West Maui region. Since the 1960s, commercial, residential, and visitor industry-related land uses have come to dominate the coastal strip along Lower Honoapiilani Road

from Kaanapali to Kapalua. While sugar cultivation in the region terminated in 1999, pineapple farming still continues on lands mauka of Honoapiilani Highway.

The subject property is located within the Alaeloa Ahupua'a, within the Kaanapali District. The Kaanapali District is known as a traditional population center, as well as a battleground area (Dega, 2003). Coastal areas of the ahupua'a was likely used in pre-contact times for marine resources utilization and small gardening plots. Land Commission Awards in the ahupua'a indicate *habitation and agricultural activities involving sweet potato and dry land taro cultivation*. After the Mahele, sugar and pineapple cultivation dominated the region. A railroad was constructed along the coast to facilitate transport of agricultural products. The Lower Honoapiilani Road is located in proximity to the original railroad alignment.

a. **Recollections**

Recollections of individuals familiar with the Napili area were documented in the Final Environmental Assessment, Lower Honoapiilani Road Improvements, Hoohui Road to Napili Hau Street. The Lower Honoapiilani Road project referred to in this environmental assessment is located approximately one-half mile to the west of the Maui Preparatory School site. In this regard, excerpts contained in the report are considered appropriate when considering the cultural context for the surrounding area. These excerpts follow.

Edna Bekeart

Edna Pualani Farden Bekeart, the daughter of Charles and

Annie Farden, and the twelfth of thirteen children, was born in 1917 at the Pioneer Mill Company Hospital, the site of the existing Lahaina Center at 900 Front Street. Her mother Annie Kahalepouli Shaw was born in Honolulu and raised on a private estate at Keka'a in Ka'anapali. It was while she was attending Mauna'olu Seminary at Makawao that she met Charles Kekua Farden, who had recently returned from Punahou College (re-named Punahou School). Due to social unrest, Punahou College had closed its doors during the insurrection against Queen Lili'uokalani in 1893. Charles Farden was born in Nahiku and raised in Makawao by his mother. After her graduation in 1897, Annie and Charles were married at the Seminary and again at Makawao Union Church, today, a historic place. A year later, the Fardens moved to West Maui where Charles was hired by Pioneer Mill as a Section Field Overseer. At the time, political and social conditions were unstable; the people of Hawaii were living through trying times as the monarchy sought to retain control of their homeland. In the agricultural sector, plantations were thriving; wages were low but workers were provided with free housing and medical care. Plantation stores offered clothing, baked goods, fresh meat, and dairy products, as well as tools and household goods and supplies. Fishing, hunting, bartering, and home gardening also supplemented their needs.

As their family increased, the Fardens lived in three different locales, moving to larger plantation homes each time. With the coming of their eleventh child, the Fardens acquired a 0.5 acre ocean front parcel across from Malu-ulu-o-Lele Park, the site of Moku'ula, the ancient home-place of Hawaiian royalty, and construction of a two-story, six bedroom home commenced. With the advent of World War I, the increased demand for sugar resulted in longer working hours in the fields at the mill. More foreign labor was brought in and better wages and salaries ushered in a new prosperity. Keka'a landing became a busy seaport for freighters transporting raw sugar to refineries in California and importing lumber from the Pacific Northwest. Interisland steamships anchored offshore and carried passengers and freight to shore in whale boats. Forced to move as a result of these changes, the Shaw's of Ka'anapali moved to Kahana and established residence on several acres of land now known as Puamana Place (Farden Subdivision). Edna noted that prior to her birth, her older siblings used to visit

the old folks in Kahana when the country side was mostly pasture land and kiawe forest, and where there were taro patches in the valleys and horses and cows roamed in the wild. A packed dirt road led from the town of Lahaina to Ka'anapali, Honokowai, Kahana, Napili, and around the cliffs of Kahakuloa. There were only a few scattered settlements. It was said that King Pi'ilani of ancient times lived at Moku'ula and engaged the common people in building a wide pathway around the entire island. The roadway was named "Nahonoapi'ilani" (the bays of Pi'ilani) due to the six (6) bays along the western coastline. The Farden children used to swim, fish and canoe in the bays and gather limu and 'opihi in the shallows. Salt drying in the sun in tidal pools was collected and used in their food; fresh water was drawn from a well on their property. Prior to the end of World War I, the Farden residence in Lahaina was completed and the family moved in, although the majority of the children were grown and were mostly attending boarding schools in Honolulu. Almost immediately, Charles saw to it that each of the children planted a sprouting coconut along the seaside border of the property, as well as care for it. Many of the coconut trees still stand today. "Puamana", a song composed by Charles and daughter Irmgard, describes the beauty and comfort of their home and its grounds. In 1956, long after her parents passed on, the property was sold to American Factors. In a ceremony at the Pioneer Mill manager's estate nearby, the Fardens transferred the name "Puamana" to the plantation manager's grounds and to the park next door. Coconut trees were planted in memory of her parents.

Edna described her childhood and growing up years in Lahaina as "a time of innocence", a period when kids were kids and adults were in charge. Folks were gentle, kindly, and well-mannered. Dignified behavior and respect for others typified the people of that era. Geared to the daily rhythm of planting, cultivating, harvesting, and milling sugar cane, people were united in their common effort to live together in peace and harmony, despite their different cultures. Children of all ethnic backgrounds went to public schools together but lived in separate neighborhoods (by choice) generally because of the different social lives of labor and management employees. Inter-marriage was not encouraged. Fathers worked to support their families, while mothers were home-makers, looking after their children who

roamed freely close to home, playing, climbing mango trees, and going to the beach. Toys were scarce. Teenagers attended school dances and home parties, went to picnics at Ka'anapali and on hikes in the hills and valleys, and participated in tennis, swimming, and barefoot football... Edna attended kindergarten in a building behind the Baldwin Mission House (the structure still exists). Then, when sister Emma began her teaching career at Honokowai School, Edna went along and learned to read before entering Kamehameha III Elementary School. High school years then followed, first at St. Andrew's Priory in Honolulu, then at Lahainaluna where she graduated and went on to earn a degree in education at the University of Hawaii.

Wesley Nohara

Wesley Nohara is the Plantation Manager for Maui Pineapple Company's field operations at Honolua and Haliimaile and is also the Vice-Chair of the West Maui Soil and Water Conservation District.

Mr. Nohara was born and raised in Honolua, a plantation village established for pineapple workers by Honolua Ranch around 1915. When Mr. Nohara was growing up, Honolua Village had a population of approximately 300. At the time, the rent for a village plantation home was about \$25.00 a month. In addition to employee housing at the Hawaiian, Japanese, and Filipino camps, the village contained a general store and gas station, dormitories for seasonal workers, an administration building and dispensary, as well as storage, repair, and maintenance facilities.

Around 1975, the three (3) labor camps at Honolua were abandoned and the dwellings demolished. In order to accommodate former village residents in need of home acquisition assistance, Maui Land & Pineapple Company constructed the 174-unit Napili Hau Planned Unit Development which is located about 1 mile south of Honolua.

Mr. Nohara mentioned that "Track Road", a pineapple "haul" road that is no longer in use, follows the alignment of an old railway that paralleled Lower Honoapiilani Road. The railway was used to transport pineapple from Honolua to the

Baldwin Packers Cannery near Mala Wharf in the town of Lahaina. He also recalled that sugar cane fields, interspersed with scattered single-family development, used to occupy the lands mauka of the lower road.

Insofar as cultural resources within the project corridor are concerned, Mr. Nohara remembered diving and pole fishing in the waters off the Kahana Sunset condominium. He mentioned that his father used to pick seaweed and spear octopus in the coastal waters around Kahana Stream and that locals would pole fish and pick seaweed in the waters of Kahana Bay and Kaopala Bay, as well as spear octopus around the reefs fringing the bays. In addition, he recalled that fishermen used to catch nehu and salt water opai for use as bait in the waters offshore of the Smith and Robinson properties.

b. Project Site Information

In order to obtain site specific information relative to past uses and cultural considerations, a follow-up interview was conducted with Mr. Nohara on March 29, 2004. Mr. Nohara noted that the proposed school site and surrounding lands have been in pineapple cultivation for decades. He recalled that lands to the north of the project site were also used for fruit orchard purposes. The area to the immediate southwest of the property was once quarried by Baldwin Packers for gravel and blue rock production. The quarried area is now used as a desilting basin.

The Maui Land & Pineapple Company's baseyard was built in the early 1970's followed by construction of the existing dormitories in 1975. Historically, the dormitories were used to house seasonal workers. Early users of the dormitories (prior to 1991) were high school students from the mainland. Students worked the fields and were housed and schooled

at the dormitory. Education for the students was provided in coordination with the Lahainaluna High School. In the early 1990s, use of student workers was terminated. The dormitories were then used to house workers from Mexico and Micronesia. With labor requirements for pineapple operations declining, the use of the dormitories for seasonal workers will be phased out.

Mr. Nohara noted that given current dormitory and agricultural use conditions, the site for the proposed Maui Preparatory Academy is not used for cultural gathering, access or religious practices. He noted that valley lands further upland (along the Kaopala drainageway) do contain evidence of early agricultural use, including taro lo'i.

c. **Cultural Assessment**

The Kaanapali District has a rich history, both in pre-contact and post-contact times. The coastal areas offered a source of food and recreation, while inland areas provided lands for agricultural use. The region experienced economic, social and cultural transformation with the introduction of the whaling industry, followed by the sugar and pineapple industries.

Within this regional and historic context, the site for the proposed Maui Preparatory Academy has been used for dormitory and pineapple cultivation purposes. Operational requirements for Maui Pineapple Company are also changing, leading to the planned phase out of dormitory use for agricultural workers. As indicated by the archaeological

assessment, there are no historic sites on the property. In addition, the property is not used for traditional cultural gathering, access or religious practices. With these considerations in mind, there are no adverse cultural impacts anticipated in connection with the proposed action.

5. *Air Quality*

Emissions from construction equipment and other vehicles involved in construction activities may temporarily affect the ambient air quality within the immediate vicinity. However, these effects can be minimized by properly maintaining construction equipment and vehicles.

In addition, dust generated during construction (for future buildings), especially from earth-moving operations such as clearing, excavating, and material importing may also result in a temporary decrease in ambient air quality. Mitigation measures include utilizing dust barriers, waterwagons and/or sprinklers to control dust, and watering graded areas after construction activity has ceased for the day.

On a long-term basis, once construction activities have been completed, school-related vehicular traffic will generate automotive emissions. However, these emissions are not expected to adversely impact local and regional ambient air quality conditions.

Surrounding agricultural operations will also contribute to temporary fugitive dust emissions. The potential impacts of surrounding agricultural operations are acknowledged by the MPA. (A key element of the proposed curriculum is related to agricultural

practice and sciences.)

A Phase I, Environmental Site Assessment was carried out at the subject property by Vuich Environmental Consultants, Inc. See Appendix "D". This report notes that, owing to their age, the existing dormitory structures may contain hazardous materials such as asbestos and lead paint. Demolition and renovation of these structures could pose a risk to air quality. Vuich, therefore, will prepare a mitigation plan for hazardous substances when Maui Preparatory Academy submits for building and demolition permits.

6. **Noise Characteristics**

As with air quality, ambient noise conditions will be temporarily impacted by construction activities. Power tools, heavy construction equipment, such as bulldozers, front-end loaders, and materials-carrying trucks and trailers (for future buildings), would be the dominant source of noise during the construction period. Construction activities will be limited to normal daylight working hours.

The use of construction barriers, quieted portable engine generators and diesel equipment, as well as other noise attenuating equipment and measures are anticipated to mitigate construction noise impacts. Proper equipment and vehicle maintenance are also anticipated to minimize noise levels.

As with air quality, limited noise generated by agricultural operations is acknowledged by the MPA.

7. **Scenic and Open Space Resources**

The school master plan has been developed to provide for the efficient use of land while considering topographic, drainage, site and use parameters. Design and placement of new buildings will be conducted to ensure compatibility in mass and scale with the existing dormitory facilities. Landscape designs will be integrated with the building site plan to ensure that the project will provide a coherent visual context for the campus. The subject property is not considered part of, or in proximity to, a scenic corridor.

B. IMPACTS TO THE COMMUNITY SETTING

1. **Economy**

On a short-term basis, the proposed project will support construction and construction-related employment, as well as have a beneficial impact on the local economy during the construction period. The proposed project will address current demands for educational access and capacity.

2. **Fire, Police and Medical Services**

The proposed project will not adversely affect regional public fire, police and medical services. The proposed project will not extend the service areas limits for emergency services.

3. **Recreation**

The proposed school is not anticipated to have adverse impacts to recreational facilities. In the short term, physical education requirements will be met by ball fields and open spaces. As the school master plan is implemented, on-site recreational support facilities will be increased to include a full gymnasium and tennis courts, as well as additional athletic fields to meet student

requirements.

4. **Education Facilities**

As noted in Chapter I of this document, the MPA is intended to provide new educational opportunities for the West Maui Community. With an ultimate enrollment projection of 360 by the year 2009, the school will provide added educational system capacity for the region. In its first year of operation, approximately 110 students are expected in grades K through 3 and 6 through 8. With a rigorous college preparatory curriculum integrated with the Lahainaluna Agricultural Internship Program and the Earth University/University of Hawaii Agriculture Entrepreneur Program, the MPA will provide a needed educational option for the community.

C. **IMPACTS TO THE INFRASTRUCTURE**

1. **Roadways**

A Traffic Impact Assessment Report (TIAR) was prepared for the proposed project by the Wilson Okamoto Corporation in April 2004. See Appendix "E". This report was based upon a maximum enrollment of 540 students, which is greater than the currently planned final enrollment of 360 students. The traffic engineer has confirmed that the TIAR's analytical basis of 540 students is applicable to the revised 360 student enrollment projection. Refer to Appendix "E-1".

The proposed project would be accessed via the mauka or east leg of Napilihau Street at its intersection with Honoapiilani Highway. Napilihau Street, between Lower Honoapiilani Road and Honoapiilani Highway, is a two-lane, two-way, County of Maui roadway with a posted speed limit of 20 miles per hour (mph).

Honoapiilani Highway is a two-lane, two-way, undivided State highway with a posted speed limit of 45 mph. Honoapiilani Highway serves as the primary arterial roadway for all of West Maui. Other roadways considered in the TIAR include Hoohui Road, generally a two-way, two-lane, County roadway with a posted speed limit of 20 mph, and Akahele Street, a generally two-way, two-lane, County roadway with a posted speed limit of 30 mph.

The TIAR's highway capacity analysis is based upon procedures presented in the "Highway Capacity Manual", Transportation Research Board, 2000, and the "Highway Capacity Software" developed by the Federal Highway Administration. The analysis uses the existing morning (AM) and afternoon (PM) peak hour traffic volumes and operating traffic conditions in the intersections surrounding the proposed project. These are assessed using Level of Service (LOS) ratings "A" through "F", in which LOS "A" represents ideal or free-flowing traffic operating conditions and LOS "F" represents unacceptable or potentially congested traffic operating conditions. The analyzed intersections are as follows:

- Honoapiilani Highway and Napilihau Street
- Honoapiilani Highway and Hoohui Road
- Honoapiilani Highway and Akahele Street

All intersections are signalized with varying lane designations for through-traffic and turning-traffic. The TIAR analyzes LOS for these intersections during both peak AM and PM periods. The peak AM period is 7.00 to 8.00 AM, while the peak PM period is 3.30 to 4.30 PM.

At present, the critical traffic movements at both the intersection of Honoapiilani Highway and Napilihau Street and the intersection of Honoapiilani Highway and Hoohui Road generally operate at LOS "C" during both peak periods. At the Honoapiilani Highway and Napilihau Street intersection, eastbound, right-turning traffic operates at LOS "D" during the PM peak. North- and southbound, right-turning traffic at the Honoapiilani Highway and Hoohui Road intersection operates at LOS "B" during both peak periods.

The Honoapiilani Highway and Akahahele Street intersection generally operates at LOS "D". Northbound, through traffic operates at LOS "C" during the AM peak, while north- and southbound, right-turning traffic operates at LOS "B" during both peak periods.

The TIAR analyzes the anticipated traffic flows in Year 2005, both with and without the proposed project. The analysis is based upon historical traffic count data obtained from the State Department of Transportation. Growth factors were then applied to obtain forecasts for traffic demands for the Years 2005, 2008, and 2013. The anticipated LOS at each of the years assumes that no mitigation measures have been implemented.

The proposed project is not anticipated to substantially impact Year 2005 traffic operations. The one exception anticipated would cause degradation within one (1) level of service difference from those anticipated without the project. Westbound traffic flows at the Honoapiilani Highway and Napilihau Street intersection during the PM peak hours are anticipated to operate at LOS "C" without the project and LOS "D" with the project. All other traffic operations

are anticipated to operate in Year 2005 at the same LOS with or without the proposed project.

The TIAR also forecasts for Years 2008 and 2013 with the project, though not without. The westbound traffic operations discussed above remain at LOS "D" into Year 2013. Southbound, right-turning traffic operations at that same intersection are anticipated to improve from LOS "C" to LOS "B" during the AM peak hours at Year 2008 and during the PM peak hours at Year 2013.

All eastbound operations at the Honoapiilani Highway and Hoohui Road intersection are anticipated to change during the PM peak hours at Year 2013 from LOS "C" to LOS "D". So too are west and northbound, left-turning and through traffic; and southbound, through traffic.

The TIAR makes several recommendations for each of the analyzed years to mitigate traffic impacts. These recommendations provide a basis to improve traffic service not just as a result of the proposed project, but for the overall growth of the region. For Year 2005, the following recommendations are made:

- Provide safe and accessible pedestrian facilities accessing the school by maintaining provisions for pedestrian crossings of the north leg of the Honoapiilani Highway and Napilihau Street intersection.
- Consider the implementation of a school bus service which would reduce traffic demands upon the roadways. School roadways and highways intersections would need to be designed to accommodate bus service and pedestrian safety.
- Provide two (2) new approach lanes on Napilihau Street to

the intersection with Honoapiilani Highway. An exclusive westbound, left-turn lane and a shared through and right-turn lane would mitigate traffic impacts.

For Year 2008, the following recommendations are made:

- Modify the traffic signal timing at both the Honoapiilani Highway and Napilihau Street intersection and the Honoapiilani Highway and Akahele Street intersection so as to increase the capacity of the intersections.
- Provide an acceleration lane on Honoapiilani Highway for the southbound movements from Napilihau Street. Also provide a right-turn deceleration lane on the northbound approach of Honoapiilani Highway at that intersection so as to maintain through traffic flow.

For the Year 2013, the report recommends the provision of an additional northbound, left-turn lane on the northbound approach of Honoapiilani Highway at its intersection with Napilihau Street.

By itself, and without the traffic recommendations, the proposed project is anticipated to have minimal negative impacts upon the area roadways and some positive impact.

2. Water

The average daily water demand for the proposed project is calculated at approximately 25,000 gallons per day, using the Department of Water Supply's Domestic Consumption Guidelines. See Appendix "F". Fire flow demands for schools are 2,000 gallons per minute for a two (2) hour duration.

The existing 12-inch waterline from the Kahana Ridge Reservoir is capable of providing the required water demands of the project. Fire hydrants will be installed with a maximum spacing of 250 feet.

3. **Wastewater**

A Preliminary Engineering Report was carried out by Otomo Engineering. Refer to Appendix "F". The project is estimated to generate 8,908 gallons of wastewater per day. An on-site sewer collection system is being designed to accommodate this flow. It will consist of a gravity sewer system which will divert the wastewater to an on-site pump station. This will transport the wastewater through a force main into the existing sewer system.

The applicant will be working with the Wastewater Reclamation Division to upgrade existing facilities which are not adequate to accommodate the wastewater generated from the project.

4. **Drainage and Erosion Control**

a. **Drainage Analysis**

A detailed analysis of the drainage improvements for the project can be found in Appendix "G". The runoff from the proposed project is estimated to be 40.2 cfs, an increase of 21.0 cfs over existing conditions. This runoff will be collected by catch basins located at appropriate intervals along the project roadways and landscaped areas and diverted by drain lines to on-site detention basins. No additional runoff will be released into the existing drainageways, detention basins, or adjacent or downstream properties, including Honoapiilani Highway.

b. **Clean Water Act Considerations**

The subject property is located upstream of Kaopala Bay. The bay is identified as a class A, marine waterbody. There are no existing National Pollutant Discharge Elimination System (NPDES) permits associated with the subject property. There are no planning documents which include specific prescriptions for water quality management for the proposed Maui Preparatory School site.

5. **Solid Waste**

The proposed school will utilize the private waste collection services. There are no adverse impacts to the County's solid waste collection and disposal system anticipated as a result of the proposed action.

As appropriate, construction and operational waste recycling will be considered with the following possible management options:

- Recycling of green-waste during clear and grub activities;
- Recycling of construction and demolition wastes;
- Use of locally produced compost in landscaping;
- Use of recycled content building materials;
- Provision of recycling facilities in the design of the project.

Further, the contractor will be responsible for directing solid waste generated during project construction to a Department of Health permitted solid waste disposal or recycling facility.

6. **Electrical and Telephone Services**

The proposed project will be served by lines that connect to existing nearby facilities. The new electrical system will tie into the lines that now deliver power to the adjoining Maui Pineapple

Baseyard. The new telephone system and new cable television system will tie into these lines.

Chapter IV

***Relationship to Governmental
Plans, Policies and Controls***

IV. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

A. STATE LAND USE DISTRICTS

Pursuant to Chapter 205, Hawaii Revised Statutes, all lands in the State have been placed into one (1) of four (4) land use districts by the State Land Use Commission. These land use districts have been designated "Urban", "Rural", "Agricultural", and "Conservation". The project site is classified "Agricultural". See Figure 10. The proposed action involves a request for reclassification from the "Agricultural" District to the "Urban" District.

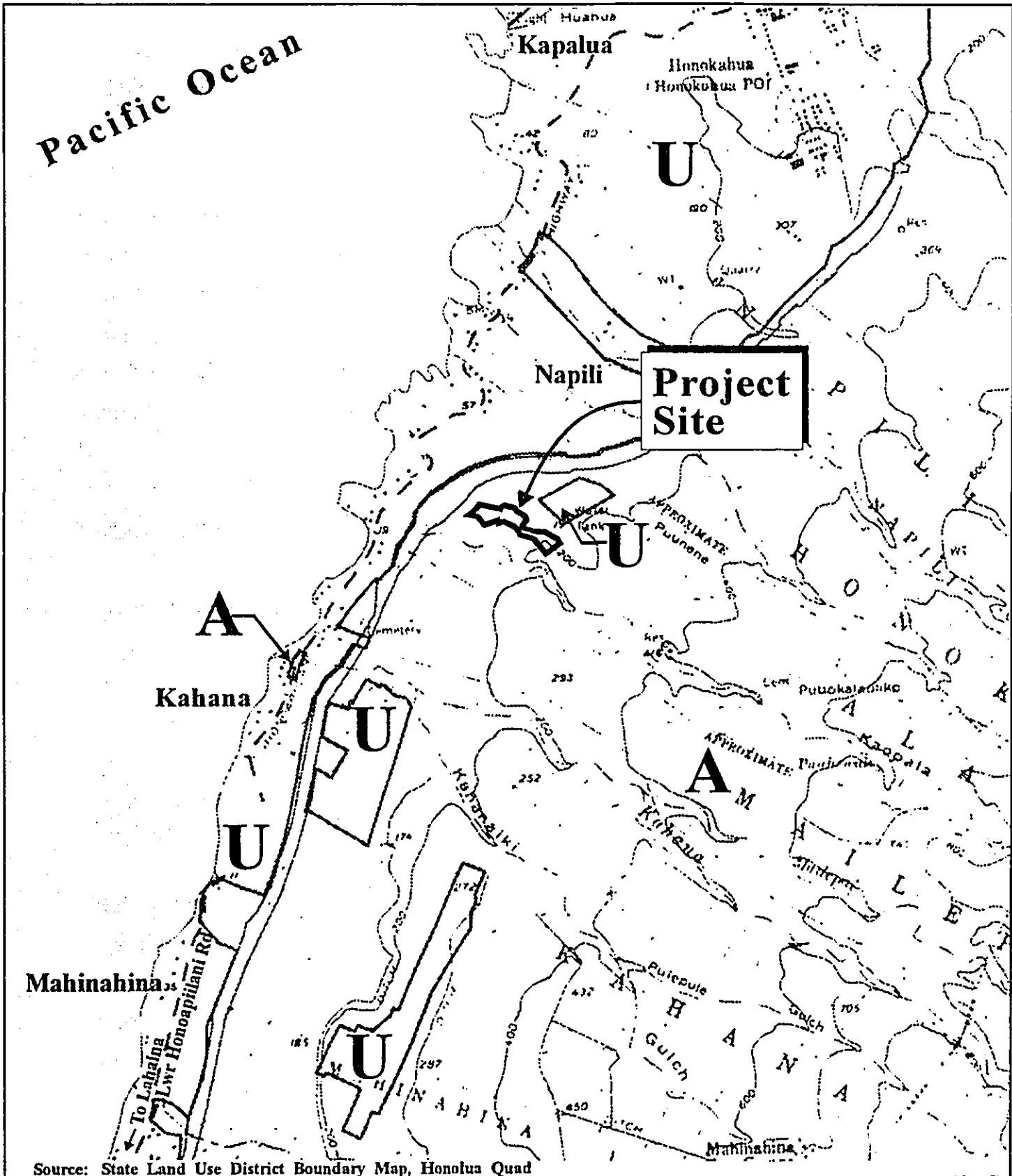
B. LAND USE COMMISSION RULES, CHAPTER 15-15, HAWAII ADMINISTRATIVE RULES

The proposed reclassification of the subject property is in conformance with the following standards of the Urban District set forth in Chapter 15-15-18, Hawaii Administrative Rules:

Chapter 15-15-18

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

Comment: The subject property is located adjacent to the MLP's Honolulu Baseyard. Adjacent to the baseyard to the north is an approximately 10-acre Urban-designated parcel. Lands across Honoapiilani Highway to the west are within the State Urban district as well. These lands are currently in commercial, multi-family, single-family and public/quasi-public uses. In this context, the subject property is in immediate proximity to "city-like" concentrations of people, structures, streets and urban levels of service.



Source: State Land Use District Boundary Map, Honolua Quad

Figure 10 Proposed Maui Preparatory Academy
State Land Use Classifications



Prepared for: Maui Preparatory Academy

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

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

Comment: The property is located in close proximity to centers of trading and employment. The Honolua Baseyard serves approximately 170 Maui Land and Pineapple Company employees. The nearby Napili Plaza shopping center, as well as the Kahana Gateway center and smaller resort-related commercial outlets are also located in the project area. The Kapalua resort community is located approximately one (1) mile to the north of the property while the Kaanapali resort community is located approximately four (4) miles to the south of the property.

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

Comment: Provision of infrastructure and public services to the site can be provided without burdening governmental resources. Water, wastewater and drainage systems will be provided in accordance with County design standards. Solid waste disposal services will be provided by a private refuse collection company. Roadway and access improvements will be implemented to ensure efficient vehicular operations while providing a safe pedestrian environment. Public services, such as police and fire protection, are not anticipated to be adversely affected by the proposed reclassification. The proposed action is intended to improve educational services and opportunities to the West Maui Community.

(C) Sufficient reserve areas for foreseeable urban growth.

Comment: The area of the proposed reclassification encompasses approximately 14.9 acres. Use of the subject property for school purposes should address a demand for public/quasi-public areas without significantly affecting reserve areas for urban growth.

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

Comment: Portions of the property are already developed with dormitory facilities. Additional school facilities are envisioned within the property and will be developed in recognition of physical planning constraints (e.g., topography). Refer to Figure 5. There are no adverse conditions relating to flooding, tsunami hazards, unstable soils or other potentially damaging geologic conditions which affect the subject property.

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

Comment: In light of the property's adjacency to urban uses and its partially developed status as a former dormitory facility, the proposed school use is considered appropriate. Conversion of the existing facilities to classroom uses and the master planning for future classroom and educational support spaces in the context of surrounding land uses is consistent with the criteria for land use contiguity.

- (5) It shall include lands in appropriate locations for new urban concentrations and shall give consideration to areas of urban

growth as shown on the state and county general plans.

Comment: The subject property is an appropriate location for an Urban district classification, given its proximity to centers of trade and employment, such as the adjacent baseyard and Napili Plaza, as well as the overall "city-like" concentrations of population and infrastructure in the vicinity.

- (6) It may include lands which do not conform to the standards in paragraphs (1) to (5):
- A. When surrounded by or adjacent to existing urban development; and
 - B. Only when those lands represent a minor portion of this district

Comment: It is noted that the subject property is located in the near vicinity of surrounding urban uses and represents less than 15 acres out of an estimated 245,777 acres classified as Agricultural District on Maui (Maui County Data Book, 2003).

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

Comment: The proposed action does not contribute to scattered spot urban development. Not only is it in the near vicinity to existing urban uses, but the proposed project calls for the development of educational facilities. No unreasonable public investment in infrastructural facilities or support services will be required.

- (8) It may include lands with a general slope of twenty percent or more if the commission finds that those lands are desirable and suitable

for urban purposes and that the design and construction controls, as adopted by any federal, state or county agency, are adequate to protect the public health, welfare and safety, and the public's interest in the aesthetic quality of the landscape.

Comment: The proposed action will largely utilize existing facilities for initial school operations. Lands for future facilities are characterized by slopes of less than 20 percent. The design and construction controls will protect the public health, welfare, and safety. There are no anticipated substantial impacts to the scenic quality of the landscape.

C. CHAPTER 226, HRS, HAWAII STATE PLAN

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

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

1. Objectives and Policies of the Hawaii State Plan

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

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

226-5(a), HRS: It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter.

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

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

226-6(a)(1), HRS: Increased and diversified employment opportunities to achieve full employment, increased income and job choices, and improved living standards for Hawaii's people.

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

Chapter 226-21, HRS, Objectives and Policies for Socio-Cultural Advancement – Education

226-21(a), HRS: 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.

226-21(b)(2), HRS: Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.

226-21(b)(8), HRS: Emphasize quality educational programs in Hawaii's institutions to promote academic excellence.

2. Priority Guidelines of the Hawaii State Plan

The proposed action is in keeping with the following guidelines of the Hawaii State Plan.

Chapter 226-107, HRS, Quality Education

226-107(4), HRS: Promote increased opportunities for greater autonomy and flexibility of educational institutions in their decision-making responsibilities.

226-107(8), HRS: Explore alternatives for funding and delivery of educational services to improve the overall quality of education.

D. STATE FUNCTIONAL PLAN FOR EDUCATION

The Hawaii State Plan includes twelve (12) Functional Plans to more specifically manage and coordinate implementation of the State Plan. One of these is the State Functional Plan for Education. The proposed project is in concert with the following objectives and policies of the State Functional Plan for Education:

A. Acquiring Basic Skills

A.1.1.: Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.

B. Enhancing Personal Development

B.1.1.: Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.

E. Recognizing the Major Sources of Income to Hawaii's Economy

E.1.4.: Foster attitudes and activities conducive to maintaining agriculture as a major sector of Hawaii's economy.

E.1.5.: Increase the attractiveness and opportunities for agricultural education and livelihood.

K. Emphasizing Quality Educational Programs to Promote Excellence

K.1.1.: Emphasize quality educational programs in Hawaii's institutions to promote academic excellence.

E. MAUI COUNTY GENERAL PLAN

The 1990 update of the Maui County General Plan establishes broad objectives and policies to guide the long-range development of the County. As indicated by the Maui County Charter, the purpose of the General Plan shall be to:

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

The Maui County General Plan developed five (5) major themes that focus on the overall goals of the plan. These themes were devised to reflect the "big picture" outlook the Maui County General Plan proscribes to. Of the five (5) themes, the proposed project responds to the following:

* * *

Theme Number 2

Prepare a directed and managed growth plan

Amendments to the General Plan will preserve a desired quality of life where areas of urban settlement must be

managed and directed within a framework that consistently and concurrently balances growth demands against human service needs and physical infrastructure supply.

* * *

Theme Number 4

Maintain a viable economy that offers diverse employment opportunities for residents

Amendments to the General Plan recognize the need to maintain a healthy economy and broaden our economic base so that we are not so dependent on tourism.

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

POPULATION

Objective:

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

Policy:

- Provide for population density and distribution patterns within the appropriate community plans which balance with the County's fiscal ability to provide necessary essential services.

LAND USE

Objective:

To preserve for present and future generations existing geographic, cultural and traditional community lifestyles by limiting and managing growth through environmentally sensitive and effective use of land in

accordance with the individual character of the various communities and regions of the County.

Policy:

- Formulate a directed land use growth strategy which will encourage the redevelopment and infill of existing communities allowing for mixed land uses, where appropriate.

AGRICULTURE

Objective:

To foster growth and diversification of agriculture and aquaculture throughout Maui County.

Policy:

- Support educational and training programs and advocacy that provide existing farmers and our youth with knowledge and skills for use in diversified tropical agricultural pursuits.

URBAN DESIGN

Objective:

To see that all developments are well designed and are in harmony with their surroundings.

Policy:

- Require that appropriate principles of urban design are to be observed in the planning of all new developments.

Objective:

To encourage developments which reflect the character and the culture of Maui County's people.

Policies:

- Establish urban design guidelines and standards which will reflect the unique traditional architectural values of each community plan area.
- Encourage community design which establishes a cohesive identity.

EDUCATION

Objective:

To provide Maui residents with continually improving quality educational opportunities which can help them better understand themselves and their surroundings and help them realize their ambitions.

Policies:

- Require that quality educational facilities and services be available to all residents.
- Seek continual improvement in the quality of education at all levels for all residents.
- Encourage the completion of a quality high school education by all students.

F. WEST MAUI COMMUNITY PLAN

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

Land use guidelines are established by the West Maui Community Plan

land use map. The project site is designated for "Agricultural" use by the Community Plan's land use map. See Figure 11. An amendment to the West Maui Community Plan is proposed to establish the "Public/Quasi-Public" land use designation.

The West Maui Community Plan sets forth goals which are statements identifying preferred conditions. Goals, objectives, policies, and planning standards associated with the development of the proposed project include the following:

GOALS, OBJECTIVES AND POLICIES

Goal (Social Infrastructure):

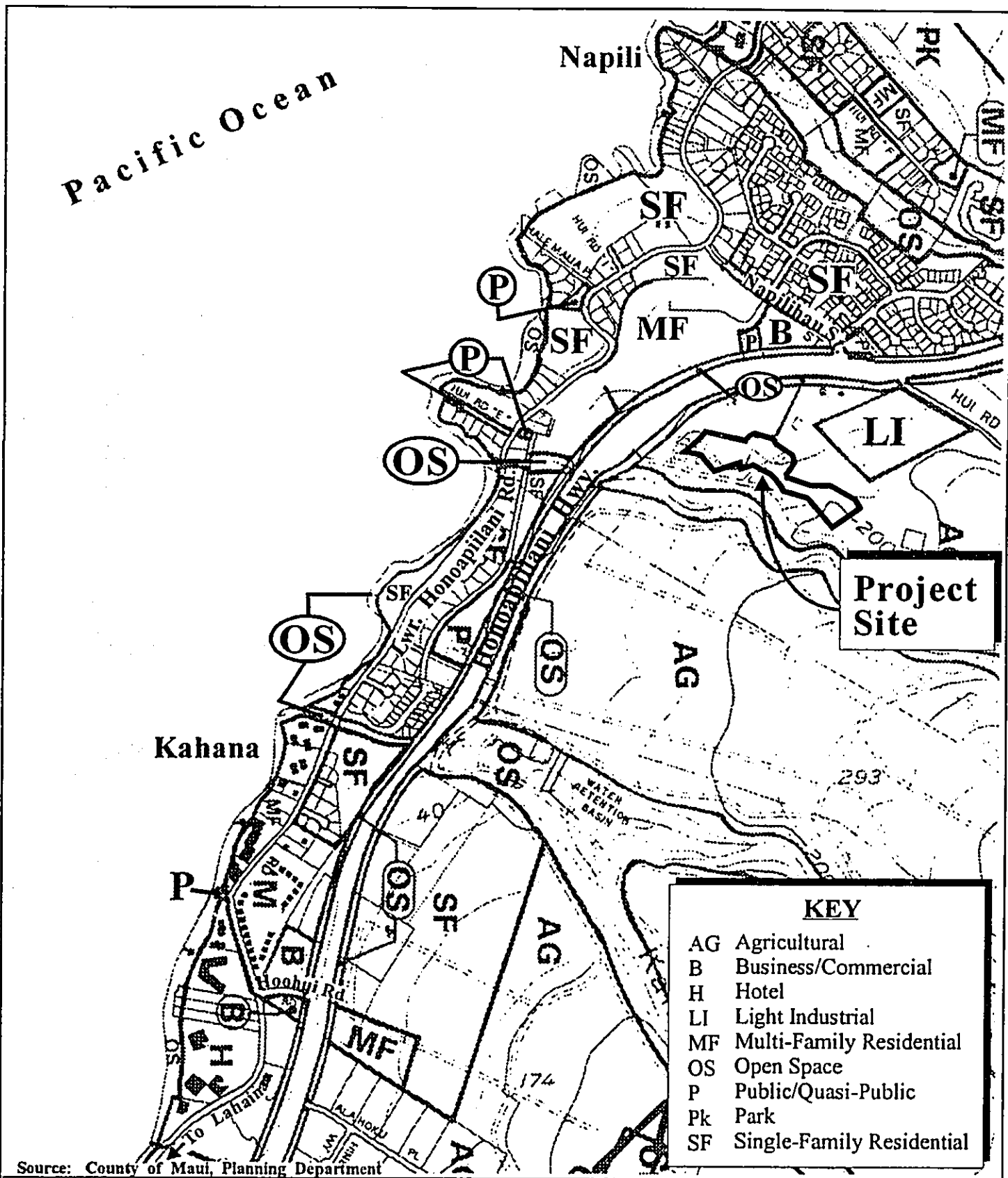
Develop and maintain an efficient and responsive system of public services which promotes a safe, healthy, and enjoyable lifestyle, and offers opportunities for self-improvement and community well-being.

Objectives and Policies (Education):

1. Ensure adequate school facilities and educational opportunities within the region.
* * *
4. Support school/community-based management programs and innovative educational programs.
* * *
6. Provide for additional elementary schools at Napilihau and in conjunction with major residential developments.

G. ZONING

The subject property is zoned Agricultural by the County of Maui. The proposed land use entitlement action initiated by the County Council would establish the "Public/Quasi-Public" zoning district for the property. Schools are a permitted use within this zoning category.



Source: County of Maui, Planning Department

Figure 11 Proposed Maui Preparatory Academy
West Maui Community Plan
Land Use Designations



Prepared for: Maui Preparatory Academy

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Pursuant to Section 19.30A.020 of the Maui County Code, the subject property qualifies as lands to be given highest priority for retention in the Agricultural district. The relevant criteria met by the subject property are as follows:

- A. *Agricultural Lands of Importance to the State of Hawai'i (ALISH);*
- C. *Lands which have seventy-five (75) percent or more of their boundaries contiguous to lands within the Agricultural district.*

However, it is suggested that mitigating factors apply which would argue for the approval of the proposed project. In particular, a significant portion of the project site is not nor shall be involved in agricultural production. The dormitory facilities toward the makai side of the project site, while theoretically corollary to agricultural production, are not involved with actual production and/or will no longer be used by MLP. Similarly, the storage and ball field area at the mauka extent of the property is not involved in agricultural production, but functions a storage site for discarded concrete and metal materials. In all, it is estimated that approximately 2.0 acres of the site are available for agricultural production.

Furthermore, while the Maui County Code cited above does call for the retention of Agricultural lands, the County General Plan and West Maui Community Plan both call for the development of educational opportunities for residents of the County as a whole and the West Maui community, respectively. When considering the agricultural productivity value of the property in the context of the larger community interest (as represented by the General Plan and West Maui Community Plan) the proposed Change in Zoning request is deemed appropriate.

H. COASTAL ZONE MANAGEMENT AREA OBJECTIVES AND POLICIES

The Hawaii Coastal Zone Management Program (HCZMP), as formalized in Chapter 205A, HRS, establishes objectives and policies for the preservation, protection, and restoration of natural resources of Hawaii's coastal zone. Pursuant to Chapter 205A, HRS, and the Rules and Regulations of the Planning Commission of the County of Maui, projects located within the Special Management Area (SMA) are evaluated with respect to SMA objectives, policies and guidelines.

Although the subject property is not located within the SMA, this section addresses the project's relationship to applicable coastal zone management considerations, as set forth in Chapter 205A and the Rules and Regulations of the Planning Commission.

1. Recreational Resources

Objective: Provide coastal recreational resources accessible to the public.

Policies:

- a. Improve coordination and funding of coastal recreation planning and management; and
- b. Provide adequate, accessible and diverse recreational opportunities in the coastal zone management area by:
 - i. Protecting coastal resources uniquely suited for recreation activities that cannot be provided in other areas;
 - ii. Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sandy beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when

replacement is not feasible or desirable;

- iii. Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;
- iv. Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;
- v. Ensuring public recreational use of County, State, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;
- vi. Adopting water quality standards and regulating point and non-point sources of pollution to protect and where feasible, restore the recreational value of coastal waters; and
- vii. Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, county planning commissions, and crediting such dedication against the requirements of Section 46-6 of the Hawaii Revised Statutes.

Response: The proposed school is not anticipated to have an adverse impact on coastal recreational resources. Public access to and along the shoreline will not be affected by the project.

2. **Historical/Cultural Resources**

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

Policies:

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

Response: The archaeological assessment conducted for the parcel did not reveal any significant sites. Should artifacts be discovered during earth moving activities, work shall cease at once in the immediate area of the find, and the find shall be protected from further damage. The State Historic Preservation Division shall be immediately notified and procedures for the treatment of inadvertently discovered human remains shall be implemented pursuant to Chapter 6E, HRS.

3. Scenic and Open Space Resources

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

Policies:

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

Response: The proposed project will not impact coastal scenic and open space resources and will not affect scenic view corridors.

4. **Coastal Ecosystems**

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

Policies:

- a. Improve the technical basis for natural resource management;
- b. Preserve valuable coastal ecosystems of significant biological or economic importance;
- c. Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and
- d. Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.

Response: The proposed improvements are not anticipated to affect coastal ecosystems. Appropriate Best Management Practices will be implemented to mitigate the impacts of soil erosion and stormwater runoff during the construction of future phases of the school.

5. **Economic Uses**

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

- a. Concentrate coastal dependent development in appropriate areas;
- b. Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor facilities and energy-generating facilities are located, designed, and constructed to minimize adverse social, visual and environmental impacts in the coastal zone management area; and
- c. Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:
 - i. Utilization of presently designated locations is not feasible;
 - ii. Adverse environmental effects are minimized; and
 - iii. The development is important to the State's economy.

Response: The proposed project will have a beneficial short-term impact on the local economy during construction by providing construction-related employment. Additionally, the proposed school will have a positive long-term impact on the economy through the provision of educational services (e.g., employment of teachers and support staff). The proposed action is not contrary to the objective and policies for economic uses.

6. **Coastal Hazards**

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

Policies:

- a. Develop and communicate adequate information about

storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

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

Response: The project site is situated in Zone C, areas of minimal flooding. The proposed drainage system improvements will be designed in accordance with the Drainage Standards of the County of Maui and will address storm runoff generated by the development of school facilities. No adverse drainage impacts to adjoining and downstream properties are anticipated as a result of the proposed action.

7. **Managing Development**

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

Policies:

- a. Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;
- b. Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and
- c. Communicate the potential short and long-term impacts of

proposed significant coastal developments early in their life-cycle and in terms understandable to the general public to facilitate public participation in the planning and review process.

Response: The objective and policies for managing development are being addressed through the project review process required by the Maui County Council and Maui Planning Commission. Agency review, as well as information dissemination to the public is being undertaken in connection with the processing of the Environmental Assessment, as required by Chapter 343, Hawaii Revised Statutes.

8. **Public Participation**

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

Policies:

- a. Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program;
- b. Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and
- c. Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Response: Public discussion of the proposed project has been conducted as part of the Maui County Council's deliberation of the Council-initiated land use requests. This process will also involve public hearings by the Maui Planning Commission, as well as

additional County Council review of the Planning Commission's recommendations.

9. **Beach Protection**

Objective: Protect beaches for public use and recreation.

Policies:

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

Response: The proposed project will not affect natural beach processes or interfere with existing shoreline recreational activities.

10. **Marine Resources**

Objective: Implement the State's ocean resources management plan.

Policies:

- a. Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;
- b. Assure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;
- c. Coordinate the management of marine and coastal

resources and activities management to improve effectiveness and efficiency;

- d. Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;
- e. Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and
- f. Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Response: In using Best Management Practices, the applicant will ensure that marine resources are not affected during the construction phase of work for future school facilities. The proposed action will not adversely impact marine resources.

Chapter V

***Summary of Adverse
Environmental Effects
Which Cannot Be Avoided***

V. SUMMARY OF ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The proposed improvements will result in temporary construction-related impacts as described in Chapter III, Potential Impacts and Mitigation Measures.

Potential effects include noise-generated impacts occurring from site preparation and construction activities. In addition, there may be temporary air quality impacts associated with dust generated from construction activities, and exhaust emissions discharged by construction equipment. These impacts are short term in nature and are not expected to create adverse environmental effects.

Chapter VI

***Alternatives to the
Proposed Action***

VI. ALTERNATIVES TO THE PROPOSED ACTION

A. PREFERRED ALTERNATIVE

The proposed project represents the preferred alternative. This alternative provides a needed educational alternative for the West Maui community while taking advantage of a unique opportunity to use already existing structures and donated lands.

B. ALTERNATIVES CONSIDERED

Planning for the Maui Preparatory Academy has been ongoing since the year 2000. Site selection has been a key element of the project planning phase of work and has included investigation of sites in Kapalua and Launiupoko. These locations, however, do not provide existing infrastructure (such as the dormitory facilities at the proposed project location) which would enable the timely and cost effective implementation of the proposed school. The proposed site is considered ideal as it offers a unique opportunity for partnering with MLP to provide an educational option which involves the adaptive reuse of existing facilities.

Educational program alternatives have also been considered during the planning stages for the project. Program alternatives relate to grade level implementation as related to facilities development. The phasing program described in Chapter I of this report was determined to be most appropriate from an educational needs standpoint. The master plan, while conceptual in nature, establishes the basis for achieving a full enrollment of 360 students from grades kindergarten to 12.

C. NO ACTION ALTERNATIVE

The no action alternative would see no new school facility in West Maui and the continued underutilized nature of the project site. Use of the

dormitory facilities will be phased out by the MLP and the pineapple fields represent a very small fraction of operating agricultural lands. The no action alternative would forego this unique combination of existing structures and available land; an opportunity that is unlikely to present itself again.

Chapter VII

***Irreversible and Irretrievable
Commitments of Resources***

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Implementation of the proposed school will involve commitment of funds and resources for construction. The land will be committed for educational facility use. While these commitments are irreversible and irretrievable, they will not result in adverse impacts to the general community well-being.

Chapter VIII

***List of Permits
and Approvals***

VIII. LIST OF PERMITS AND APPROVALS

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

State of Hawaii

1. State Land Use Commission district boundary amendment
2. Requirements of the State of Hawaii Department of Health:
 - a. As applicable, project activities shall comply with the Administrative Rules of the Department of Health:
 - Chapter 11-39, Air Conditioning and Ventilation;
 - Chapter 11-45, Radiation Control;
 - Chapter 11-46, Community Noise Control;
 - Chapter 11-501, Asbestos Requirements;
 - Chapter 11-502, Asbestos-Containing Materials in Schools;
 - Chapter 11-503, Fees for Asbestos Removal and Certification;
 - Chapter 11-504, Asbestos Abatement Certification Program;
 - Chapter 11-62, Wastewater Systems;
 - Chapter 11-60.1-33, Fugitive Dust;
 - Chapter 11-20, Rules Relating to Potable Water Systems;
 - Chapter 11-21, Cross-Connection and Backflow Control;
 - Chapter 11-23, Underground Injection Control;
3. National Pollution Discharge Elimination System (NPDES) Permit. (Coordination with the U.S. Department of the Army has been undertaken.)

County of Maui

1. County change in zoning
2. County community plan amendment
3. Subdivision approval
4. Construction permits

Chapter IX

***Anticipated Determination
and Findings and Reasons
Supporting the Determination***

IX. ANTICIPATED DETERMINATION AND FINDINGS AND REASONS SUPPORTING THE DETERMINATION

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

1. **No Irrevocable Commitment to Loss or Destruction of any Natural or Cultural Resource Would Occur as a Result of the Proposed Project**

The project will not result in any significant adverse environmental impacts. There are no known, rare, endangered or threatened species of flora, fauna or avifauna located within the project site.

The archaeological assessment carried out by Xamanek Researches uncovered no sites of significance within the project site. Refer to Appendix "C". In addition, the property is not used for traditional cultural gathering, access, or religious practice.

Should any artifacts or human remains be encountered during construction, work will stop in the immediate vicinity of the find and the SHPD and/or the Maui/Lanai Island Burial Council will be appropriately and immediately notified to establish an appropriate mitigation strategy.

2. **The Proposed Action Would Not Curtail the Range of Beneficial Uses of the Environment**

The use of the subject property for school purposes is deemed appropriate as it provides for new and needed educational opportunities. The proposed project and the commitment of land resources will not curtail the range of beneficial uses of the environment.

3. **The Proposed Action Does Not Conflict with the State's Long-term Environmental Policies or Goals or Guidelines as Expressed in Chapter 344, Hawaii Revised Statutes**

The State's Environmental Policy and Guidelines are set forth in Chapter 344, Hawaii Revised Statutes. The proposed action is not contrary to these policies and guidelines.

4. **The Economic or Social Welfare of the Community or State Would Not be Substantially Affected**

The proposed project would have a direct beneficial effect on the local economy during construction. In the long term, the proposed project will support the local economy through employment of teachers and support staff services. The additional educational options offered will benefit the social welfare for the community. The economic and social welfare needs of the community will not be adversely impacted by the proposed school.

5. **The Proposed Action Does Not Affect Public Health**

No impacts to the public's health and welfare are anticipated as a result of the proposed project.

6. **No Substantial Secondary Impacts, Such as Population Changes or Effects on Public Facilities are Anticipated**

No significant population changes are anticipated as a result of the proposed project. The new school will help to meet existing educational needs in the West Maui area.

The proposed school improvements will include hookup to existing County water and wastewater systems. Appropriate design coordination will be undertaken with responsible State and County agencies to ensure service availability. On-site and off-site surface runoff are expected to be accommodated by drainage system improvements. The project is not

expected to significantly impact public services such as police, fire, and medical services. Impacts upon recreational and solid waste collection and disposal facilities and resources are considered minimal.

7. **No Substantial Degradation of Environmental Quality is Anticipated**

During the construction phase of the project, there will be short-term air quality and noise impacts as a result of the project. In the long term, effects upon air quality and ambient noise levels should be minimal. The project is not anticipated to significantly affect the open space and scenic character of the area. Moreover, no adverse effects to flora, fauna, streams and wetlands are anticipated.

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

8. **The Proposed Action Does Not Involve a Commitment to Larger Actions, Nor Would Cumulative Impacts Result in Considerable Effects on the Environment**

The proposed school will be implemented over the next several years, with an ultimate enrollment of 360 students by the year 2009. The school master plan, as reflected in Figure 5, represents the entire project. The proposed action is not part of a larger action and does not result in cumulative impacts which result in considerable effects on the environment.

9. **No Rare, Threatened or Endangered Species or Their Habitats Would be Adversely Affected by the Proposed Action**

There are no rare, threatened or endangered species of flora, fauna, avifauna or their habitats on the subject property.

10. **Air Quality, Water Quality or Ambient Noise Levels Would Not be Detrimentially Affected by the Proposed Project**

Construction activities will result in short-term air quality and noise impacts. Dust control measures, such as regular watering and sprinkling, will be implemented to minimize wind-blown emissions. Noise impacts will occur primarily from construction-related activities. It is anticipated that construction will be limited to daylight working hours. Water quality is not expected to be affected.

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

11. **The Proposed Project Would Not Affect Environmentally Sensitive Areas, Such as Flood Plains, Tsunami Zones, Erosion-prone Areas, Geologically Hazardous Lands, Estuaries, Fresh Waters or Coastal Waters**

The project is not located within and would not affect environmentally sensitive areas. The project site is not subject to flooding or tsunami inundation. Soils of the project site are not erosion-prone. There are no geologically hazardous lands, estuaries, or coastal waters within or adjacent to the project site.

12. **The Proposed Action Would Not Substantially Affect Scenic Vistas and Viewplanes Identified in County or State Plans or Studies**

The project site is not identified as a scenic vista or viewplane. The proposed project will not affect public scenic corridors and coastal scenic and open space resources.

13. *The Proposed Action Would Not Require Substantial Energy Consumption*

The proposed project will involve the short-term commitment of fuel for equipment, vehicles, and machinery during construction activities. However, this use is not anticipated to result in a substantial consumption of energy resources. In the long term, the project will create an additional demand for electricity. However, this demand is not deemed substantial or excessive within the context of the region's overall energy consumption.

In light of the foregoing, it is anticipated that the Chapter 343, HRS, environmental review process will be concluded with a Finding of No Significant Impact (FONSI).

Chapter X

***Agencies and Organizations
Consulted in the Preparation
of the Draft Environmental
Assessment***

X. AGENCIES AND ORGANIZATIONS CONSULTED IN THE PREPARATION OF THE DRAFT ENVIRONMENTAL ASSESSMENT

The following agencies and organizations were consulted in the preparation of the Draft Environmental Assessment. Written comments received and responses to substantive comments are incorporated in this chapter.

1. Neal Fujiwara, Soil Conservationist
Natural Resources Conservation Service
U.S. Department of Agriculture
210 Imi Kala Street, Suite 209
Wailuku, Hawaii 96793-2100
2. George Young, P.E.
Department of the Army
U.S. Army Engineer District, Hnl.
Attn: Regulatory Branch
Building 230
Fort Shafter, Hawaii 96858-5440
3. Robert P. Smith
Pacific Islands Manager
U. S. Fish and Wildlife Service
P.O. Box 50167
Honolulu, Hawaii 96850
4. Chiyome L. Fukino, M.D., Director
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801
5. Herbert Matsubayashi
District Environmental Health
Program Chief
State of Hawaii
Department of Health
54 High Street
Wailuku, Hawaii 96793
6. Peter T. Young, Chairperson
State of Hawaii
Department of Land and Natural
Resources
P. O. Box 621
Honolulu, Hawaii 96809
7. Patricia Hamamoto, Superintendent
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804
8. P. Holly McEldowney, Administrator
State of Hawaii
Department of Land and Natural
Resources
State Historic Preservation Division
601 Kamokila Blvd., Room 555
Kapolei, Hawaii 96707
9. Fred Cajigal, Maui District Engineer
State of Hawaii
Department of Transportation
Highways Division
650 Palapala Drive
Kahului, Hawaii 96732
10. Clyde Namu'o, Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813
11. Carl Kaupololo, Chief
County of Maui
Department of Fire Control
200 Dairy Road
Kahului, Hawaii 96732
12. Alice Lee, Director
Department of Housing and
Human Concerns
200 South High Street
Wailuku, Hawaii 96793

-
13. Michael W. Foley, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793
 14. Glenn Correa, Director
County of Maui
**Department of Parks and
Recreation**
700 Hali'a Nako'a Street, Unit 2
Wailuku, Hawaii 96793
 15. Tom Phillips, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, Hawaii 96793
 16. Gilbert Coloma-Agaran, Director
County of Maui
**Department of Public Works
and Environmental Management**
200 South High Street
Wailuku, Hawaii 96793
 17. George Tengan, Director
County of Maui
Department of Water Supply
200 South High Street
Wailuku, Hawaii 96793
 18. Honorable Dain Kane, Chair
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
 19. Ezekiel I. Kalua, Executive Assistant
West Maui Taxpayers Association
P.O. Box 10338
Lahaina, Hawaii 96761
 20. Maui Electric Company, Ltd.
P.O. Box 398
Kahului, Hawaii 96733



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96850-5440

MAR 26 2004

REPLY TO
ATTENTION OF

March 24, 2004

Regulatory Branch

Mr. Michael T. Munekiyo, A.I.C.P.
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Munekiyo:

This responds to your request dated March 11, 2004, for comments to be included in a draft Environmental Assessment for the Maui Preparatory Academy (TMK 4-3-01:01), Napili, Maui Island. Based on the information provided, I have determined that this location is in an upland area, and outside the limit of our jurisdiction. Therefore, a Department of Army (DA) permit will not be required. However, should the construction activities necessitate the side-casting or placement of fill material into the adjacent, and lower in elevation, Kaopala Gulch, consultation should take place with this office to determine if a Department of Army (DA) permit may be required.

File Number 200400234 has been assigned to this project. Please feel free to contact Mr. Farley Watanabe of my staff at 808-438-7701, if you have additional questions.

Sincerely,

GEORGE P. YOUNG, P.E.
Chief, Regulatory Branch



July 27, 2004

George P. Young, P.E.
Chief, Regulatory Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-05440

SUBJECT: Maui Preparatory Academy

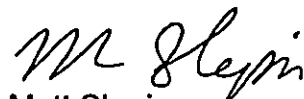
Dear Mr. Young:

Thank you for your letter of March 24, 2004 responding to our request for early consultation comments for the proposed Maui Preparatory Academy (MPA). We confirm that work will be limited to upland areas, outside the limits of jurisdiction for the Department of the Army.

To ensure continuing coordination with your department, a copy of the Draft EA will be provided to your office for review and comment.

Thank you again for your timely response to our request for comments.

Very truly yours,


Matt Slepian
Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/army.res

MAR 26 2004

United States Department of Agriculture

USDA

 NRCS Natural Resources
Conservation Service

Our People...Our Islands...In Harmony
210 Iml Kala Street, Suite #209, Wailuku, HI 96793-2100

Date: March 25, 2004

Mr. Michael T. Munekiyo, A.I.C.P.
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

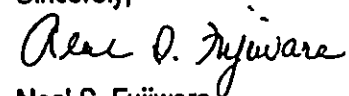
Dear Mr. Munekiyo,

SUBJECT: EA per Maui Preparatory Academy; TMK: 4-3-001: por. 001

The subject parcel is bounded on both sides by drainage basins and a waterway. Fencing on both sides or throughout the perimeter of the property will provide a safety net for the school.

Thank you for the opportunity to comment on this early consultation of the subject matter.

Sincerely,


Neal S. Fujiwara
District Conservationist



July 27, 2004

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

SUBJECT: Maui Preparatory Academy

Dear Mr. Fujiwara:

Thank you for your letter of March 25, 2004 responding to our request for early consultation comments for the proposed Maui Preparatory Academy (MPA). In response to your suggestion, placement of perimeter fencing will be considered during the renovation design phase of work. The MPA has indicated that student safety will be a primary consideration in developing the overall master plan for the proposed school.

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

Thank you again for your timely response to our request for comments.

Very truly yours,

Matt Slepín
Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy

mpa@poko.nrcs.res

LINDA LINGLE
GOVERNOR



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

APR 05 2004

PATRICIA HAMAMOTO
SUPERINTENDENT

OFFICE OF THE SUPERINTENDENT

April 2, 2004

Mr. Michael T. Munekiyo, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai'i 96793

Dear Mr. Munekiyo:

Subject: Early Consultation for Maui Preparatory Academy
Napili, Maui TMK: 4-3-001: por. 001

The Department of Education (DOE) is responding to your request for early consultation comments for a college preparatory school to be located in Napili, Maui. Plans are for full enrollment of 540 students by 2013, in grades pre-kindergarten through 12.

The DOE has no comment at this preliminary stage and looks forward to the opportunity to review the forthcoming documents on the project. If you have any questions, please call Rae M. Loui, Assistant Superintendent of the Office of Business Services, at 586-3444 or Heidi Meeker of the Facilities and Support Services Branch at 733-4862.

Very truly yours,

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

Patricia Hamamoto
Superintendent

PH:mp

Attachment

c: Rae M. Loui, OBS
Allen Ashitomi, CAS/Hana, Lahaina, Lanai, Molokai Complexes

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER



July 27, 2004

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

SUBJECT: Maui Preparatory Academy
Napili, Maui, TMK: 4-3-001:por. 001

Dear Ms. Hamamoto:

Thank you for your letter of April 2, 2004 responding to our request for early consultation comments for the proposed Maui Preparatory Academy (MPA) at TMK: 4-3-001:001, Napili, Maui.

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

Please feel free to contact me should you have any comments or questions at (808) 244-2015.

Very truly yours,

Matt Slepik
Planner

MS:tn

cc: Tom Dinoto, Maui Preparatory Academy
mpa/poko/doe.res

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

MAR 25 2004

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

In reply, please refer to:
EPO-04-057

March 22, 2004

Michael T. Munekiyo, A.I.C.P.
Munekiyo & Hiraga, INC.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Munekiyo:

SUBJECT: Environmental Assessment Early Consultation Request for Proposed
Maui Preparatory Academy, Napili, Maui, Hawaii
TMK: 4-3-001:01

Thank you for allowing us to review and comment on the subject document. We have the enclosed standard comments to offer. If you have any questions about the standard comments please contact Ryan Davenport at 586-4346.

Sincerely,

June F. Harrigan-Lum

JUNE F. HARRIGAN-LUM, MANAGER
Environmental Planning Office

Enclosures

c: CAB
EPO
SHWB
NRAIQ
CWB
WWB
HEER

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 bodies¹.

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 Ryan Davenport at 586-4346.

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 I 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



July 27, 2004

June F. Harrigan-Lum, Manager
State of Hawaii
Environmental Planning Office
Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801-3378

SUBJECT: Proposed Maui Preparatory Academy


Dear Ms. Harrigan-Lum:

Thank you for your letter of March 22, 2004 responding to our request for early consultation comments on the proposed Maui Preparatory Academy (MPA).

We have reviewed the standard comments offered and will address applicable requirements in the Draft Environmental Assessment. Upon completion of the Draft Environmental Assessment, a copy will be forwarded to your office for review and comment.

Thank you for your timely response to our request for comments.

Very truly yours,


Matt Slepik
Planner

MS:lfm

cc: Tom DiNoto, Maui Preparatory Academy
mpa\poko\dohepores.ec

305 High Street, Suite 104 • Wailuku, Hawaii 96793 • ph: (808)244-2015 • fax: (808)244-8729 • planning@mhinconline.com

environment
planning
government

APR 16 2004

LINDA LINGLE
GOVERNOR OF HAWAII



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

CHYOME L. FUJINO, M. D.
DIRECTOR OF HEALTH

LORRIN W. FANG, M. D., M. P.
DISTRICT HEALTH OFFICER

April 13, 2004

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

Dear Mr. Munekiyo:

Subject: Environmental Assessment Early Consultation for the
Proposed Maui Preparatory Academy
TMK: (2) 4-3-01:01 (por.)

Thank you for the opportunity to participate in the early consultation process for the environmental assessment. The following comments are offered:

1. Wastewater from the school should be disposed of in the County sewer system.
2. There is an abandoned sewage treatment plant that should be removed from the property.

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

Sincerely,

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

Herbert S. Matsubayashi
District Environmental Health Program Chief



July 27, 2004

Herbert Matsubayashi
Department of Health
Maui District Health Office
54 South High Street
Wailuku, Hawaii 96793

SUBJECT: Proposed Maui Preparatory Academy, Napili, Maui; TMK 4-3-001:por.001

Dear Mr. Matsubayashi:

Thank you for your letter of April 13, responding to our request for early consultation comments for the proposed Maui Preparatory Academy (MPA) at TMK: 4-3-001:001, Napili, Maui. In response to your comments we note the following:

1. Wastewater generated by the proposed school will be disposed of in the County sewer system.
2. The shafts of the sewage pump facility were filled in by concrete by Maui Land and Pineapple and the facility is thus inoperative. The applicant will be considering a course of action regarding this facility, whether to keep it fenced off and inaccessible, as it is now, or remove it entirely.

Thank you again for your response. A copy of the Draft EA will be provided to your office for review and comment. Please feel free to contact me should you have any comments or questions at (808) 244-2015.

Very truly yours,

Matt Slepín
Planner

MS:lfm

cc: Tom DiNoto, Maui Preparatory Academy
mpa\poko@dohmaui.res

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 6, 2004

APR 09 2004

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

LD-NAV
MAUIACADEMY.RCM

Munekiyo and Hiraga, Inc.
Michael T. Munekiyo, A.I.C.P.
Project Manager
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Munekiyo:

SUBJECT: Pre-Consultation Assessment for the Preparation of a Draft
Environmental Assessment for the Proposed Maui Preparatory Academy
Napili, Island of Maui, Hawaii - TMK: (2) 4-3-01: 01 (Por.)

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

The Department of Land and Natural Resources' (DLNR) Land Division
distributed a copy of your letter dated March 11, 2004 (summary of the project)
and site map to the following DLNR Divisions for their review and comment:

- Division of Forestry and Wildlife
- Na Ala Hele Trails
- Division of State Parks
- Engineering Division
- Commission on Water Resource Management
- Office of Conservation and Coastal Lands
- Land-Maui District Land Office
- Land-Planning and Development

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.

If 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,

A handwritten signature in black ink, appearing to read "Dierdre S. Mamiya".

DIERDRE S. MAMIYA
Administrator

C: MDLO

LINDA LINGLE
GOVERNOR OF HAWAII



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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER



2004 MAR 30 A 9:59

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
COMMISSION ON WATER RESOURCE MANAGEMENT
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

AQUATIC RESOURCES
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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

March 24, 2004
LD/NAV
MUNEKIYO&HIRAGA

MAUIACADEMY.CMT
Suspense Date: 4/2/04

MEMORANDUM:

TO:

- Division of Aquatic Resources
- XXX Division of Forestry & Wildlife
- XXX Na Ala Hele Trails
- XXX Engineering Division
- XXX Division of State Parks
- Division of Boating and Ocean Recreation
- XXX Commission on Water Resource Management
- XXX Office of Conservation and Coastal Lands
- XXX Land-Maui District Land Office
- XXX Land-Planning and Development

FR:

TO:

FROM:

Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Consultation Assessment for the Preparation of a Draft Environmental Assessment for Proposed Maui Preparatory Academy

Applicant: Maui Land and Pineapple Company, Inc.
Location: Napili, Maui, Hawaii
Consultant: Munekiyo & Hiraga, Inc. (808-244-2015)
TMK: 2nd/ 4-3-001: Portion of 001
Authority: County of Maui Department of Planning

Please review the attached letter dated March 11, 2004 (project description) pertaining to the subject matter and submit your comment (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384. 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: CWRM

Signed: Edwin T. Sakoda

Date: 3/29/04

Print Name: Edwin T. Sakoda

LINDA LINGLE
GOVERNOR OF HAWAII

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LAND DIVISION



DEPT. T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
DAN DAVIDSON
DEPUTY DIRECTOR - LAND
ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER



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DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

AQUATIC RESOURCES
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KUHOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

March 24, 2004
LD/NAV
MUNEKIYO&HIRAGA

MAUITACADEMY.CMT
Suspense Date: 4/2/04

MEMORANDUM:

TO: Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Na Ala Hele Trails
XXX Engineering Division
XXX Division of State Parks
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Maui District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Consultation Assessment for the Preparation of a Draft
Environmental Assessment for Proposed Maui Preparatory
Academy

Applicant: Maui Land and Pineapple Company, Inc.
Location: Napili, Maui, Hawaii
Consultant: Munekiyo & Hiraga, Inc. (808-244-2015)
TMK: 2nd/ 4-3-001: Portion of 001
Authority: County of Maui Department of Planning

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the suspense date.

Should you have any questions, please contact Nicholas A.
Vaccaro at ext.: 7-0384. 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: MDLO

Signed: Jason K. Koga

Date: 4-1-04

Print Name: Jason K. Koga

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MAR 31 P 1:13

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PETER T. YOUNG
CHAIRPERSON
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COMMISSION ON WATER RESOURCE MANAGEMENT

DAH DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
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BUREAU OF CONVEYANCES
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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

March 24, 2004
LD/NAV
MUNEKIYO&HIRAGA

MAUIACADEMY.CMT
Suspense Date: 4/2/04

MEMORANDUM:

TO: Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Na Ala Hele Trails
XXX Engineering Division
XXX Division of State Parks
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Maui District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator *Dierdre S. Mamiya*
Land Division

SUBJECT: Pre-Consultation Assessment for the Preparation of a Draft
Environmental Assessment for Proposed Maui Preparatory
Academy
Applicant: Maui Land and Pineapple Company, Inc.
Location: Napili, Maui, Hawaii
Consultant: Munekiyo & Hiraga, Inc. (808-244-2015)
TMK: 2nd/ 4-3-001: Portion of 001
Authority: County of Maui Department of Planning

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the suspense date.

Should you have any questions, please contact Nicholas A.
Vaccaro at ext.: 7-0384. 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-Planning & Devpt Signed: *KCC*

Date: 3-31-04 Print Name: KEITH CHUN

LINDA LINGLE
GOVERNOR OF HAWAII

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2004 MAR 31 A 9:42

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

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STATE PARKS

March 24, 2004
LD/NAV
MUNEKIYO&HIRAGA

MAUIACADEMY.CMT
Suspense Date: 4/2/04

MEMORANDUM:

TO: Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Na Ala Hele Trails
XXX Engineering Division
XXX Division of State Parks
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Maui District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator *Dierdre S. Mamiya*
Land Division

SUBJECT: Pre-Consultation Assessment for the Preparation of a Draft
Environmental Assessment for Proposed Maui Preparatory
Academy

Applicant: Maui Land and Pineapple Company, Inc.
Location: Napili, Maui, Hawaii
Consultant: Munekiyo & Hiraga, Inc. (808-244-2015)
TMK: 2nd/ 4-3-001: Portion of 001
Authority: County of Maui Department of Planning

Please review the attached letter dated March 11, 2004
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your comment (if any) on Division letterhead signed and dated by
the suspense date.

Should you have any questions, please contact Nicholas A.
Vaccaro at ext.: 7-0384. 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: _____

Signed: *[Signature]*

Date: MAR 25 2004

Print Name: **MICHAEL G. BUCK, ADMINISTRATOR**
DIVISION OF FORESTRY AND WILDLIFE

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GOVERNOR OF HAWAII

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2004 MAR 30 P 2:05

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
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STATE OF HAWAII
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HONOLULU, HAWAII 96809

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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LAND
STATE PARKS

March 24, 2004
LD/NAV
MUNEKIYO&HIRAGA

MAUIACADEMY.CMT
Suspense Date: 4/2/04

MEMORANDUM:

TO: Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Na Ala Hele Trails
XXX Engineering Division
XXX Division of State Parks
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Maui District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator *Dierdre S. Mamiya*
Land Division

SUBJECT: Pre-Consultation Assessment for the Preparation of a Draft
Environmental Assessment for Proposed Maui Preparatory
Academy
Applicant: Maui Land and Pineapple Company, Inc.
Location: Napili, Maui, Hawaii
Consultant: Munekiyo & Hiraga, Inc. (808-244-2015)
TMK: 2nd/ 4-3-001: Portion of 001
Authority: County of Maui Department of Planning

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the suspense date.

Should you have any questions, please contact Nicholas A.
Vaccaro at ext.: 7-0384. 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: Engineering
Date: 3/30/04

Signed: *Eric T. Hirano*
Print Name: ERIC T. HIRANO, CHIEF ENGINEER

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LANAI

Ref: MUNEKIYO AHIRAGA

COMMENTS

- () We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ____.
- Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone C.
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.
- () Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyan-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 Sin Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
- () Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
- () Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
- () Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

- () The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.
- () The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

- () Additional Comments: _____
- () Other: _____

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

Signed: Eric T. Hirano
ERIC T. HIRANO, CHIEF ENGINEER

Date: 3/30/04



July 27, 2004

Dierdre S. Mamiya, Administrator
State of Hawaii
Department of Land and Natural Resources
Land Division
PO Box 621
Honolulu, HI 96809

SUBJECT: Maui Preparatory Academy
Napili, Maui, TMK: 4-3-001:por. 001

Dear Ms. Mamiya:

Thank you for your letter of April 6, 2004, responding to our request for early consultation comments for the proposed Maui Preparatory Academy at TMK: 4-3-001:001, Napili, Maui. We acknowledge the information regarding the Flood Zoning of the proposed project site.

Thank you again for providing your input to the proposed action. A copy of the Draft EA will be provided to your office for review and comment. Should you have any questions or concerns, please feel free to contact me at (808) 244-2015.

Very truly yours,

Matt Slepik
Planner

MS:tn
cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/dnr.res

LINDA LINGLE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
MAUI DISTRICT
650 PALAPALA DRIVE
KAHULUI, HAWAII 96732-2321

March 26, 2004


MAR 30 2004
RODNEY K. HARAGA
DIRECTOR

DEPUTY DIRECTOR
BRUCE Y. MATSUI
LINDEN H. JOESTING
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:
HWY-M 2.128-04

MEMORANDUM

TO: Michael Munekiyo
Munekiyo & Hiraga, Inc.

FROM: Paul M. Chung 
State Highways

SUBJECT: Maui Preparatory Academy
TMK: 4-3-01: Portion of 01
ME 04-20

Thank you for the opportunity to review and provide early comments as part of the environmental assessment process. Based upon our review of the submittal, we will defer comments until receipt of the Environmental Assessment Application, which should include a Traffic Impact Analysis Report, Drainage Report and other related submittals.

If there are any questions or concerns, please call me at 873-3535.

/pmc



July 27, 2004

Paul Chung
State of Hawaii
Department of Transportation
650 Palapala Drive
Kahului, Hawaii 96732-2321

Subject: Maui Preparatory Academy

Dear Mr. Chung:

Thank you for your memorandum of March 26, 2004, responding to our request for early consultation comments on the proposed Maui Preparatory Academy. In response to your comments, the Draft Environmental Assessment (EA) will include a traffic impact analysis report and drainage report.

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

Thank you again for your timely response to our request for comments.

Very truly yours,

Matt Slepik
Planner

MS:yp

cc: Tom DiNoto, Maui Preparatory Academy
mpa@pokoltdot.res

305 High Street, Suite 104 • Wailuku, Hawaii 96793 • ph: (808)244-2015 • fax: (808)244-8729 • planning@mhinconline.com

planning environment
government

PHONE (808) 594-1888

APR 14 2004
FAX (808) 594-1865



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

HRD04/1326

April 8, 2004

Michael T. Munekiyo, AICP
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

**RE: Environmental Assessment Early Consultation Request for Proposed Maui
Preparatory Academy, Napili, Maui, TMK 4-3-001:001 (Portion)**

Dear Michael T. Munekiyo,

The Office of Hawaiian Affairs is in receipt of your March 11, 2004, request for comments on the above project. We have no comments currently and will await the forthcoming Draft Environmental Assessment.

We do, however, request assurances that 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, please contact Heidi Guth at 594-1962 or e-mail her at heidig@oha.org.

Sincerely,

A handwritten signature in cursive script, appearing to read "Clyde W. Namu'o".

Clyde W. Namu'o
Administrator



July 27, 2004

Clyde Namu`o
State of Hawaii
Office of Hawaiian Affairs
711 Kapi`olani Boulevard, Suite 500
Honolulu, Hawaii 96813

SUBJECT: Maui Preparatory Academy
Napili, Maui, TMK: 4-3-001:001

Dear Mr. Namu`o:

Thank you for your letter of April 8, 2004, responding to our request for early consultation comments for the proposed Maui Preparatory Academy (MPA) at TMK: 4-3-001:001 (por.), Napili, Maui. In response to your comments, please note that all proper measures will be taken to ensure that Native Hawaiian physical and cultural artifacts will be protected and the appropriate agencies informed if they are uncovered.

A copy of the Draft EA will be provided to your office for review and comment. Please feel free to contact me should you have any comments or questions at (808) 244-2015.

Very truly yours,


Matt Slepik
Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/oha.res

ALAN M. ARAKAWA
MAYOR



APR 14 2004
CARL M. KAUPALOLO
CHIEF
NEAL A. BAL
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE AND PUBLIC SAFETY

200 DAIRY ROAD
KAHULUI, MAUI, HAWAII 96732
(808) 270-7561
FAX (808) 270-7919

April 12, 2004

Munekiyo & Hiraga, Inc.
Michael T. Munekiyo, Project Manager
350 High Street, Suite 104
Wailuku, HI 96793

Subject: Maui Preparatory Academy, TMK 4-3-001:001 Napili, HI

Dear Mr. Munekiyo,

I have reviewed your request to comment on the subject property. At this time, the Department of Fire & Public Safety does not have any concerns. We will review the construction plan in detail in the future during the plan review process. Please feel free to contact me if you have any questions at 270-7568.

Sincerely,

A handwritten signature in cursive script that reads "Valeriano F. Martin".

Valeriano F. Martin
Captain
Fire Prevention Bureau



July 27, 2004

Valeriano Martin, Captain
County of Maui
Department of Fire and Public Safety
200 Dairy Road
Kahului, HI 96732

SUBJECT: Maui Preparatory Academy, Napili, Maui, TMK: 4-3-001:001 (por.)

Dear Mr. Martin:

Thank you for your letter of April 12, 2004, responding to our request for early consultation comments for the proposed Maui Preparatory Academy at TMK: 4-3-001:001 (por.), Napili, Maui. A copy of the Draft Environmental Assessment (EA) will be provided to your office for review and comment.

Please feel free to contact me at 244-2015 should you have any questions.

Very truly yours,


Matt Slepín
Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy

mpa/poko/mtd.res



DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

ALAN M. ARAKAWA
Mayor

ALICE L. LEE
Director

HERMAN T. ANDAYA
Deputy Director

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

March 15, 2004

Mr. Michael Munekiyo, A.I.C.P.
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Munekiyo:

**SUBJECT: ENVIRONMENTAL ASSESSMENT EARLY CONSULTATION
REQUEST FOR PROPOSED MAUI PREPARATORY
ACADEMY AT TAX MAP KEY (TMK) 4-3-01:01 (POR.),
NAPILI, MAUI, HAWAII**

This is in response to your March 11, 2004 letter and enclosures.

Please indicate in the draft Environmental Assessment, whether faculty housing and/or student housing will be provided at the Maui Preparatory Academy at any time in the future. If so, please describe the type of housing that will be provided.

Thank you for the opportunity to comment.

Very truly yours,


ALICE L. LEE
Director

ETO:hs

c: Housing Administrator



July 27, 2004

Alice L. Lee, Director
County of Maui
Department of Housing and
Human Concerns
200 S. High Street
Wailuku, Hawaii 96793

SUBJECT: Proposed Maui Preparatory Academy

Dear Ms. Lee:

Thank you for your letter of March 15, 2004 responding to our request for early consultation comments on the proposed Maui Preparatory Academy (MPA). In response to your comments, we note that MPA will provide living quarters to house up to ten (10) students, faculty and invitees. Existing dormitory facilities or a new small dormitory facility will be used for this purpose.

Upon completion of the Draft Environmental Assessment, a copy will be forwarded to your office for review and comment.

Your timely response to our request for comments is appreciated.

Very truly yours,

Matt Slepik
Planner

MS:lfm

cc: Tom DiNoto, Maui Preparatory Academy
mpa\poko\dhcres.ec

ALAN M. ARAKAWA
Mayor



MAR 22 2004

GLENN T. CORREA
Director

JOHN L. BUCK III
Deputy Director

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

DEPARTMENT OF PARKS & RECREATION

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

March 16, 2004

Mr. Michael T. Munekiyo, AICP
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Munekiyo:

SUBJECT: Environmental Assessment Early Consultation Request for Proposed Maui Preparatory Academy at TMK 4-3-01:01 (Por.), Napili, Maui, Hawaii

We have reviewed the proposed action for the subject project and have no comments to offer at this time.

Thank you for the opportunity to review and comment. Should there be any questions, please contact Mr. Patrick Matsui, Chief of Parks Planning and Development, at 270-7387.

Sincerely,

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

GLENN T. CORREA
Director

c: Patrick Matsui, Chief of Planning and Development

ALAN M. ARAKAWA
Mayor

MICHAEL W. FOLEY
Director

WAYNE A. BOTEILHO
Deputy Director

APR 07 2004



COUNTY OF MAUI
DEPARTMENT OF PLANNING

April 6, 2004

Mr. Michael Munekiyo, AICP
Munekiyo & Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Munekiyo:

RE: Pre-Consultation for the Environmental Assessment
Prepared for the Proposed Maui Preparatory Academy at Tax Map
Key No. 4-3-001: 001 (portion), Napili, Island of Maui, Hawaii
(LTR 2004/0912)

The Maui Planning Department (Department) is in receipt of your request for comments in the preparation of a Draft Environmental Assessment for the Maui Preparatory Academy and provides the following comments:

1. The attached maps indicate that the proposed property is part of a larger agricultural lot.
 - a. Explain the purpose of the unusual configuration for the proposed lot?
 - b. Why does the school propose to acquire 14.9 acres of land?
 - c. What are the other proposed uses master planned for the property?
2. Discuss the justification for spot zoning the proposed lot.
3. Provide a discussion as to the potential impacts of converting agricultural lands. The discussion should include, at a minimum, the loss of productive agricultural lands, the pressure for more urban

Mr. Michael Munekiyo, AICP
April 6, 2004
Page 2

development in the area, and conflicts with the existing agricultural operations in the area.

4. Discuss how the project complies with the Agricultural District Ordinance recommendation of maintaining lands that should be kept in agriculture (e.g., ALISH classification, 75% contiguous to agricultural lands, etc.).
5. Provide an analysis of the potential impact of stormwater runoff from the mauka lands to the makai properties. The existing mauka basin was part of a settlement agreement between Kahana Sunset and Napilihau Villages. Discuss the potential impacts of urban development (e.g., structures, paved surfaces, etc.) and increased stormwater runoff on the drainage patterns of the area.
6. Discuss the potential impacts the school and proposed expansion will have on the traffic in the area.
7. Discuss the infrastructure improvements (i.e., water, sewer, roads, drainage, etc.) that will be required for operation of the school.
8. Provide a cultural and archaeological assessment for the property, including the undeveloped areas. The cultural assessment should include the use of the site by the plantation.
9. Discuss potential impacts of historical usage of pesticides for the cultivation of crops.
10. As indicated, the proposed action involves the renovation of existing buildings. Identify the age of the structures and the presence of regulated building materials (i.e., asbestos, lead-based paint, and arsenic-containing canec board). If regulated building materials are present, discuss the mitigative measures proposed during renovation activities.

Please remit two (2) copies of the Draft EA to this office for review. Upon approval, the Department will process the document and request copies as necessary for transmittal. The Draft EA and Community Plan Amendment will be transmitted concurrently to agencies for comment. However, please note that the Community Plan Amendment will be held in abeyance pending the completion of the Chapter 343, HRS, process.

Mr. Michael Munekiyo, AICP
April 6, 2004
Page 3

Thank you for the opportunity to comment. Should you require additional clarification, please contact Ms. Kivette A. Caigoy, Environmental Planner, at 270-7735.

Sincerely,



MICHAEL W. FOLEY
Planning Director

MWF:KAC:lar

c: Wayne Boteilho, Deputy Planning Director
Kivette A. Caigoy, Environmental Planner
Colleen Suyama, Staff Planner
General File
K:\WP_DOCS\PLANNING\EA\2004\vox_MauiPrepatorySchool\preconsultation.wpd



July 27, 2004

Michael W. Foley, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Proposed Maui Preparatory Academy (TMK 4-3-001:001 Por.)

Dear Mr. Foley:

Thank you for your letter of April 6, 2004 providing early consultation comments on the proposed Maui Preparatory Academy at Napili, Maui, Hawaii. We provide the following information to address the points raised in your letter. To better organize the presentation of our responses, we have labeled each response to correspond with the number and letter designations for each comment provided in your letter.

1.a. Purpose of Configuration

The configuration of the proposed 14.9-acre school parcel is defined by a combination of factors which include school facility spatial requirements, site topographic constraints, and agricultural access and operational needs. For example, the somewhat elongated shape of the parcel provides for a level area at the eastern most extent of the property which is most suited for school facility uses. Other surrounding areas are fairly steep and would be more costly from a site development standpoint. Operational needs for Maui Land and Pineapple Company (MLP) were also considered. The proposed configuration defines field areas which are most easily segregated for school use without potential disruption to field operations of adjacent cultivated areas.

1.b. Area Requirement of 14.9 Acres

The master plan for the school is based on a pre-kindergarten to grade 12 enrollment plan. School facility requirements for this enrollment objective required an area of approximately 12 to 14 acres. The school master plan will be presented in the Draft EA.

1.c. Other Proposed Uses

The site will be used for school and related uses only. In addition to classroom and cafeteria facilities, support facilities for administration, and limited onsite dormitory rooms for students and/or faculty will be provided.

2. Spot Zoning

The eastern one-half of the school site is already developed with dormitory and support facilities which can be efficiently converted to school use. The retrofitting of these facilities for school purposes is considered an appropriate objective, in keeping with the MLP's anticipated phase-out of the dormitories from its operations. As a public/quasi-public use, the proposed use of the site will not impact or burden governmental services or infrastructure. An assessment of the proposed action relative to applicable State Land Use Commission criteria will be included in the Draft EA.

3. Agricultural Impacts

Impacts to MLP's operations will be discussed in the Draft EA.

4. Compliance with Agricultural District Ordinance

The district criteria set forth in Chapter 19.30.A will be addressed in the Draft EA.

5. Storm Water Runoff

Impacts on drainage will be included in the Draft EA. A licensed civil engineer is currently preparing the preliminary drainage report for the project.

6. Traffic Impacts

Traffic impacts will be addressed in the Draft EA. A traffic impact analysis report is currently being prepared by a licensed traffic engineer.

7. Infrastructure Improvements

A preliminary engineering report is being prepared by the civil engineer. The report will address infrastructure requirements for the proposed school.

Michael W. Foley, Director
July 27, 2004
Page 3

8. **Cultural and Archaeological Assessments**

An archaeological inventory report has been completed for the parcel. Findings of the report will be included in the Draft EA. A cultural assessment will also be provided in the Draft EA. Informant data from those familiar with the site's history will be included as part of the assessment.

9. **Pesticide Use**

A Phase I environmental assessment is being undertaken for the property. Results of the study will be included in the Draft EA.

10. **Regulated Building Materials**

Information regarding regulated building materials will be included in the Draft EA.

Two (2) copies of the Draft EA will be submitted to the Planning Department for review.

We look forward to working with your Department and the Maui Planning Commission in the processing of the EA document and the requests for land use amendments.

If there are further questions regarding the proposed action, please do not hesitate to call.

Very truly yours,



Matt Slepik
Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/plann.res

JUN 16 2004

ALAN M. ARAKAWA
Mayor

GILBERT S. COLOMA-AGARAN
Director

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

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



COUNTY OF MAUI
**DEPARTMENT OF PUBLIC WORKS
AND ENVIRONMENTAL MANAGEMENT**
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

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

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

JOHN D. HARDER
Solid Waste Division

June 9, 2004

Mr. Michael T. Munekiyo, A.I.C.P.
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Mr. Munekiyo:

**SUBJECT: ENVIRONMENTAL ASSESSMENT EARLY
CONSULTATION
MAUI PREPARATORY ACADEMY
TMK: (2) 4-3-001:001**

We reviewed the subject early consultation request and have the following comments:

1. Include solid waste management plan addressing solid waste/recycling.
2. A final detailed drainage master plan and erosion-control plan including, but not limited to hydrologic and hydraulic calculations and scheme for controlling erosion and disposal of runoff water shall be submitted to the Department of Public Works and Environmental Management, Engineering Division, for its review and approval. The drainage master plan shall provide verification that the grading and runoff water generated by the project will not have an adverse effect on the adjacent and downstream properties. In addition, the developer shall contribute his pro-rata share to drainage improvements to be determined by the County and the drainage master plan. An agreement to the above prepared for filing with the State's Bureau of Conveyances shall be submitted by the applicant.


3. The applicant shall contribute his pro-rata share to traffic improvements to be determined by the County and traffic master plans. A detailed Traffic Master Plan for the entire development shall be submitted for our review and approval. An agreement to the above prepared for filing with the State's Bureau of Conveyances shall be submitted by the developer.
4. Vehicular access to this site is critical to the placement of this development. There are also major drainage concerns that need to be addressed. Developer should schedule a meeting with the Engineering Division to discuss these issues when master plans are completed and submitted for review.
5. Although wastewater system capacity is currently available as of April 20, 2004, the developer should be informed that wastewater system capacity cannot be ensured until the issuance of the building permit. (Lahaina Wastewater Reclamation Facility [WWRF])
6. Provide discussion and calculations (sewer impact study) to substantiate that the existing wastewater system is adequate to serve this project.
7. Wastewater contribution calculations are required before building permit is issued.
8. Developer is not required to pay assessment fees for this area at the current time.
9. Developer is required to fund any necessary off-site improvements to collection system and wastewater pump stations.
10. Plans should show the installation of a single service lateral and advance riser for each lot.
11. Indicate on the plans the ownership of each easement (in favor of which party). Note: County will not accept sewer easements that traverse private property.
12. Kitchen facilities within the proposed project shall comply with pre-treatment requirements (including grease interceptors, sample boxes, screens, etc.).

Mr. Michael T. Munekiyo, A.I.C.P.
June 9, 2004
Page 3

13. Non-contact cooling water, condensate, etc. should not drain to the wastewater system.
14. Hold-Harmless Agreement should be executed. Signed agreement required before Wastewater Reclamation Division will give recommendations for final subdivision approval.
15. The project site is adjacent to the Kaopala Gulch. We would recommend that fencing be provided along the upper bank to prevent students from accidentally falling into the gulch.
16. The County maintains a soil erosion-control facility within Kaopala Gulch adjacent to the site. We will require continued access through the project site to maintain this facility.
17. The school should be advised that there will be occasions where we will need to utilize noisy heavy construction equipment to maintain the Kaopala Gulch drainage facility. Measures for sound proofing buildings may be required.
18. All roads shall be developed to County standards.
19. The Napili Plaza shopping complex lies across the street from this proposed development. A concern would be for the safety of students crossing the street to access this shopping area. Suggest review of alternatives such as a pedestrian overpass for students to safely cross Honoapiilani Highway.
20. No violations exist on this tax map key.

If you have any questions regarding this letter, please call Milton Arakawa at 270-7845.

Sincerely,


GILBERT S. COLOMA-AGARAN
Director



July 28, 2004

Gilbert S. Coloma-Agaran, Director
Department of Public Works and
Environmental Management
County of Maui
200 South High Street
Wailuku, Hawaii 96793

**SUBJECT: Environmental Assessment (EA) for Maui Preparatory Academy;
Napili, Maui; TMK 4-3-001:por.001**

Dear Mr. Coloma-Agaran:

Thank you for your letter of June 9, 2004, responding to our request for early consultation comments for the proposed Maui Preparatory Academy (MPA) at TMK: 4-3-001:001, Napili, Maui. The following numbered responses correspond to the comments listed in the Department's letter:

1. The Draft Environmental Assessment (EA) will address solid waste management parameters. A solid waste management plan will be prepared by project designers for review by the Department.
2. Preliminary drainage plans are being prepared as part of the EA process and will be submitted to your office as part of that document. As applicable, formulation of cost sharing agreements to address requirements for roadway improvements for off-site drainage improvements will be coordinated with the Department.
3. A traffic impact analysis report for the project has been prepared and will be incorporated in the Draft EA.
4. Preliminary engineering and access plans for the project will be addressed in the Draft EA.
5. The applicant understands the situation regarding wastewater system capacity.
6. Wastewater generation information will be included in the Draft EA.
7. Wastewater calculations will be submitted with applications for building permit.

8. The applicant acknowledges that assessment fees will not be levied at the current time.
9. The applicant will coordinate with the Department to address requirements for off-site wastewater improvements.
10. As required, engineering designs for the project will comply with County service lateral and riser standards.
11. The lands of the project site are currently owned by Maui Land and Pineapple and will be donated to the Maui Preparatory Academy. Subdivision plans will indicate applicable easement information.
12. The kitchen facilities will comply with all necessary requirements concerning grease interceptors and the like.
13. Non-contact cooling water and condensation will not be discharged into the wastewater system.
14. Appropriate subdivision hold harmless agreements will be executed and recorded, as necessary.
15. Student safety is of great concern to the applicant, both on school grounds and in regards to entering and leaving the grounds. The applicant acknowledges your concerns regarding the Kaopala Gulch and Napili Plaza. The Draft EA will discuss these issues both in terms of the plans of the school grounds and broader, pedestrian and vehicular safety.
16. The applicant is aware of the soil-erosion control facility. The design of the school buildings and access roads will take this into account.
17. The applicant understands that maintenance operations within Kaopala Gulch is required.
18. Access roads will be designed to County standards.
19. Refer to response number 15.
20. The applicant confirms that no violation exists on the subject tax parcel.



ALAN M. ARAKAWA
MAYOR

OUR REFERENCE
YOUR REFERENCE

POLICE DEPARTMENT
COUNTY OF MAUI

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

March 30, 2004

APR 07 2004



THOMAS M. PHILLIPS
CHIEF OF POLICE

KEKUHAUPIO R. AKANA
DEPUTY CHIEF OF POLICE

Mr. Michael T. Munekiyo, A.I.C.P.
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Munekiyo:

SUBJECT: Environmental Assessment Early Consultation Request for Proposed
Maui Preparatory Academy at Tax Map Key (TMK) 4-3-01: 01 (Por.),
Napili, Maui, Hawaii

Thank you for your letter of March 11, 2004, requesting comments on the above
subject.

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

Very truly yours,

Assistant Chief Sydney Kikuchi
for: Thomas M. Phillips
Chief of Police

Enclosure

c: Michael W. Foley, Dept. of Planning

TO : THOMAS M. PHILLIPS, CHIEF OF POLICE
VIA : CHANNELS *[Handwritten signature]*
FROM : RICKY C. UEDOJ, SERGEANT, LAHAINA PATROL DIVISION
SUBJECT : PROPOSED MAUI PREPARATORY ACADEMY

Sir, I have reviewed the letter sent by Michael Munekiyo, Project Manager, for the proposal of building a Maui Preparatory Academy School in Napili.

The Maui Preparatory Academy and Maui Land & Pineapple Company, Inc. propose a collaborative undertaking to implement a new independent, non-profit, non sectarian college preparatory school in Napili. The proposed property encompasses an area of approximately 14.90 acres, which lies mauka of Honoapiilani Highway and is located adjacent to Maui Land and Pineapple's Honolua Baseyard facility. Access to this proposed project would be via the Honoapiilani Highway/Napilihau Street intersection.

The project's site currently has existing dormitory facilities encompassing approximately 18,000 square feet, which will be converted to classroom and school support facilities to accommodate the initial grades and classes. An enrollment of 90 students is projected for grades six through eight during the school's first year of operation starting in the fall of 2005. The school will add a grade level each succeeding year and hope to have a fully enrolled school of Kindergarten to grade 12 by the year 2013, with an enrollment of 540 students.

During the infancy stages of this project, I do not see any impact or concerns for the police department, however with the continuing trend of building in the west Maui area, I foresee the need to increase our patrol manpower in the Lahaina district and perhaps create an additional beat for the Napili/Kapalua area.

There are no other concerns at this time for this project and I would recommend that the project move forward.

*AGREE WITH SER. UEDOJ'S
ASSESSMENT. EARLY STAGES
OF PROJECT SHOULD NOT AFFECT
POLICE SERVICES HOWEVER IN THE
FUTURE, WOULD NEED TO DO
& RE-ASSESSMENT.*

*ALY. [Signature] 1208
3/24/04*

Respectfully submitted,

[Signature]
Sgt. Ricky C. Uedoi #1512
Lahaina Patrol Division
March 22, 2004 @ 1400 hours

*PEDESTRIAN TRAFFIC ACROSS
SIGNAL INTERSECTIONS AND THE
COLLECTOR LANES ENTERING THE
SITE IS A REAL CONCERN.
THESE ISSUES SHOULD BE RESOLVED
BEFORE THE SCHOOL OPENS.
ALAN V. [Signature]*



July 27, 2004

Thomas M. Philips, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, HI 96793

SUBJECT: Maui Preparatory Academy
Napili, Maui, TMK: 4-3-001:por. 001

Dear Chief Philips:

Thank you for your letter of March 30, 2004, responding to our request for early consultation comments for the proposed Maui Preparatory Academy at TMK: 4-3-001:001, Nepal, Maui. In response to your comments, we note that traffic impacts and pedestrian access considerations will be addressed as part of the Environmental Assessment (EA) process.

Thank you again for providing your input to the proposed action. A copy of the Draft EA will be provided to your office for review and comment. Should you have any questions or concerns, please feel free to contact me at (808) 244-2015.

Very truly yours,

Matt Slepín
Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/mpd.res

MAR 25 2004



March 22, 2004

Mr. Michael T. Munekiyo, A.I.C.P., Project Manager
Munekiyo & Hiraga, Inc.
305 S. High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Munekiyo:

Subject: Environmental Assessment Early Consultation Request for Proposed Maui
Preparatory Academy at Tax Map key (TMK) 4-3-01:01 (por.), Napili, Maui, Hawaii

Thank you for allowing us to comment on the subject project.

In reviewing the information transmitted and our records, we have no objection to the subject project. For future development of the property, we encourage the applicant's electrical consultant to meet with us as soon as practical to verify the project's electrical requirements so that service can be provided on a timely basis.

If you have any questions or concerns, please call Dan Takahata at 871-2385.

Sincerely,

A handwritten signature in cursive script that reads "Neal Shinyama". The signature is written in black ink and is positioned above the printed name.

Neal Shinyama
Manager, Engineering

NS/dt:ikh



July 27, 2004

Neal Shinyama
Manager, Engineering
Maui Electric Company, Ltd.
P. O. Box 398
Kahului, Hawaii 96733-6898

SUBJECT: Proposed Maui Preparatory Academy

Dear Mr. Shinyama:

Thank you for your letter of March 22, 2004 responding to our request for early consultation comments on the proposed Maui Preparatory Academy (MPA). The MPA will direct its electrical engineering consultant to meet with you early in the plans preparation phase of work to ensure timely provision of electrical service.

Upon completion of the Draft Environmental Assessment, a copy will be forwarded to your office for review and comment.

Your timely response to our request for comments is appreciated.

Very truly yours,

Matt Slepni
Planner

MS:lfm

cc: Tom DiNoto, Maui Preparatory Academy

mpa\poko\meco\ec

305 High Street, Suite 104 • Wailuku, Hawaii 96793 • ph: (808)244-2015 • fax: (808)244-8729 • planning@mhincolline.com

planning environment
government

Chapter XI

***Letters Received During the
Draft Environmental Assessment
Public Comment Period and
Responses to Substantive
Comments***

XI. LETTERS RECEIVED DURING THE DRAFT ENVIRONMENTAL ASSESSMENT PUBLIC COMMENT PERIOD AND RESPONSES TO SUBSTANTIVE COMMENTS

A Draft Environmental Assessment for the subject project was filed and published in the Office of Environmental Quality Control's The Environmental Notice on September 23, 2004. During the 30-day public comment period, agencies were provided the opportunity to comment on the proposed action. This section incorporates the comments received during the 30-day comment period between September 23, 2004 and October 23, 2004. Responses to the substantive comments are also incorporated herein.

United States Department of Agriculture



Our People...Our Islands...In Harmony

210 Iml Kala Street, Suite #209, Wailuku, HI 96783-2100

September 27, 2004

Ms Kivette Caigoy, Staff Planner
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96783

04 SEP 28 P 4:14
DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

Dear Ms Caigoy,

SUBJECT.: EA 2004/0005, Ciz 2004/0012, CPA 2004/0005, DBA 2004/0007
TMK: (2) 4-9-001:001
PROJECT NAME: Maui Preparatory Academy
APPLICANT: Maui Preparatory Academy

We recommend that an operations and maintenance plan be developed for the project's drainage system to maintain the integrity of the proposed drainage system.

Thank you for the opportunity to comment.

Sincerely,

Ranae Ganske-Cerizo
District Conservationist



October 29, 2004

Ranae Ganske-Cerizo, District Conservationist
U.S. Department of Agriculture
Natural Resource Conservation Service
210 Ima Kala Street, Suite 209
Wailuku, Hawaii 96783

SUBJECT: Proposed Maui Preparatory Academy, Napili, Maui
(TMK (2) 4-3-01:01 (por.))

Dear Ms. Ganske-Cerizo,

Thank you for your letter of September 27, 2004, responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui, at TMK (2) 4-3-01:01 (por.). In response to your comments, we note that an operations and maintenance plan will be developed for the Maui Preparatory Academy's on-site drainage system.

Thank you again for your input into the proposed action.

Very truly yours,

Matthew Slepina, Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/nrcs2.res



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 223
FORT SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF: CEPOH-EC-T

September 30, 2004

'04 OCT -1 P12:35

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

Civil Works Technical Branch

Mr. Kivette A. Calgoy, Staff Planner
County of Maui
Department of Planning
250 South High Street
Wailuku, Maui, Hawaii 96793

Dear Mr. Calgoy:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Maui Preparatory Academy, Maui (TMK 4-3-1: 1). The following comments are provided in accordance with Corps of Engineers authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

a. Our Regulatory Branch provided your office with previous comments that were included in the DEA. As stated, the project is located in an upland area and outside the limit of our jurisdiction. Therefore, a DA permit will not be required. However, should the construction activities necessitate the side-casting or placement of fill material into the adjacent lower elevation of Kaopala Gulch, consultation should take place with our office. For further information regarding the DA permit assessment, please contact Mr. Farley Watanabe at (808) 438-7701.

b. We concur with the flood hazard information provided on page 16 of the DEA.

Should you require additional information, please contact Ms. Jessie Dobinchick of my staff at (808) 438-8876.

Sincerely,

James Pennaz, P.E.
Chief, Civil Works
Technical Branch



October 29, 2004

James Pennaz, Chief
Department of the Army
Civil Works Technical Branch
Building 230
Fort Shafter, Honolulu, Hawaii 96858-5440

SUBJECT: Proposed Maui Preparatory Academy, Napili, Maui
(TMK (2) 4-3-01:01 (por.))

Dear Mr. Pennaz,

Thank you for your letter of September 30, 2004, responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui, at TMK (2) 4-3-01:01 (por.). In response to your comments, we note that consultation with your office shall be undertaken should construction activities require side-casting or placement of fill material into the adjacent lower elevation of Kaopala Gulch.

Thank you again for your input into the proposed action.

Very truly yours,

Matthew Slepina, Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/army2.res

LINDA LINGLE
GOVERNOR



RUSS K. HATO
Comptroller
KATHERINE IL THOMASON
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING
AND GENERAL SERVICES
SURVEY DIVISION
P.O. BOX 119
HONOLULU, HAWAII 96810-0119

'04 OCT -1 12:33
DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

September 30, 2004

MEMORANDUM

TO: Michael W. Foley, Planning Director
Maui County Planning Department

ATTN: Kivette A. Caigoy, Environmental Planner

FROM: Melvin M. Masuda, Acting State Land Surveyor *mm*
DAGS, Survey Division

SUBJECT: I.D.: EA 2004/0005, CIZ 2004/0012, CPA 2004/0005,
DBA 2004/0007
TMK: (2) 4-3-001:001
Project Name: Maui Preparatory Academy
Applicant: Maui Preparatory Academy

The subject proposal has been reviewed and confirmed that no Government Survey Triangulation Stations or Benchmarks are affected. Survey has no objections to the proposed project.

LINDA LINGLE
GOVERNOR OF HAWAII



OCT 22 2004

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

October 20, 2004

Mr. Michael Foley
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Foley:

Subject: Draft EA for Maui Preparatory Academy

Thank you for the opportunity to review the subject document. We have the following comments.

1. Please consult with adjacent neighbors.
2. Please describe the wastewater facilities that need to be upgraded to accommodate this project.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,

Genevieve Salmonson
Genevieve Salmonson
Director

c: Munekiyo & Hiraga, Inc.



October 29, 2004

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

SUBJECT: Proposed Maui Preparatory Academy,
Napili, Maui (TMK (2) 4-3-01:01 (por.))

Dear Ms. Salmonson:

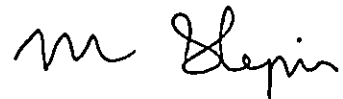
Thank you for your letter of October 20, 2004, responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui, at TMK (2) 4-3-01:01 (por.). In response to your comments, we note the following:

1. The directors of the proposed Maui Preparatory Academy are engaged in a variety of community meetings concerned with the school and the nature of its operation. In addition, public meetings (at the site and at the County Council Chambers) have been conducted by the Council's Planning and Land Use Committee. Further, public input opportunity was available at the Maui Planning Commission's meeting of October 12, 2004, at which time the Commission reviewed the Draft EA document. We note there are no immediate residential neighbors to the property.
2. The existing infrastructure is described briefly in the Preliminary Engineering Report. As detailed engineering design for the project has not yet been concluded, further study of the existing wastewater system will be undertaken in the course of coordination with the County of Maui.

Genevieve Slamonson, Director
October 29, 2004
Page 2

Thank you again for your input into the proposed action.

Very truly yours,

A handwritten signature in black ink, appearing to read "M Slepina". The signature is fluid and cursive.

Matthew Slepina, Planner

MS:yp

cc: Tom DiNoto, Maui Preparatory Academy
mpa\ipokotoe@c.deares

LINDA LINGLE
GOVERNOR

OCT 04 2004

ANTHONY J.H. CHING
EXECUTIVE OFFICER



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

September 28, 2004

Mr. Michael W. Foley, Planning Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793


Subject: Draft Environmental Assessment (DEA) for the Proposed Maui Preparatory Academy
EA 2004/0005, CIZ 2004/0012, CPA 2004/0005, DBA 2004/0007
Napili, Kaanapali, Maui
Tax Map Key: 4-3-01: por. 1

We have reviewed the subject DEA forwarded by your transmittal dated September 20, 2004, and confirm that the project site, as generally represented on Figure 10, is located within the State Land Use Agricultural District. We understand that the acreage and configuration of the 14.9-acre project site is a result of various factors, including school facility spatial requirements, site topographic constraints, and agricultural access and operational needs.

Given the location, scope, and nature of the proposed activity, the State Land Use Commission defers to the judgment of the County of Maui in this matter. We have no further comments to offer at this time.

Thank you for the opportunity to comment on the subject DEA. Please feel free to contact Bert Saruwatari of my office at 587-3822, should you require clarification or any further assistance.

Sincerely,


ANTHONY J. H. CHING
Executive Officer

c: Office of Environmental Quality Control
✓ Matthew Slepín, Munekiyo & Hiraga, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII



October 8, 2004
CIZ 2004-0012.RCM2

Honorable Michael W. Foley
Planning Director
County of Maui, Planning Department
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Foley:

Subject: I.D. Nos.: CIZ 2004-0012; CPA 2004/005; BDA 2004/0007
EA 2004/0005
Applicant: Maui Preparatory Academy
Authority: County of Maui Department of Planning
TMK: (2) 4-3-001: 001

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division made available or distributed a copy of the document pertaining to the subject matter to the following DLNR 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-Maui District Land Office

Enclosed please find a copy of the Engineering Division; Land Division Maui District Land Office and Commission on Water Resource Management response.

The Department of Land and Natural Resources has no other comment to offer on the subject matter. If 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,

DIERDRE S. MAMIYA
Administrator

C: MDLO



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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

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

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

04 OCT 13 P 1:24
LD-NAV

LINDA LINGLE
GOVERNOR OF HAWAII



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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

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

September 24, 2004
CIZ 2004-0012.CMT
MAUIPREPACADEMYU

LD/NAV
Suspense Date: 10/1/04

MEMORANDUM:

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

FROM: Dierdre S. Mamiya, Administrator *[Signature]*
Land Division

SUBJECT: I.D. Nos.: CIZ 2004-0012; CPA 2004/0005; BDA 2004/0007;
EA 2004/0005
Applicant: Maui Preparatory Academy
Project: Maui preparatory Academy
TMK: 2nd/ 4-3-001: 001
Authority: County of Maui Department of Planning

Please review the document pertaining to the subject matter and submit your comment (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384. 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-MAUI District Signed: Cecil Santos

Date: 9/24/04

Print Name: CECIL SANTOS

CS

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION



2004 OCT -5 P 3:41

DEPT. OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
STATE OF HAWAII

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

PETER T. YOUNG
CHAIRPERSON

MEREDITH J. CHING
CLAYTON W. DELA CRUZ
JAMES A. FRAZIER
CHIYOME L. FUKINO, M.D.
LAWRENCE H. MIKE, M.D., J.D.
STEPHANIE A. WHALEN

YVONNE Y. IZU
DEPUTY DIRECTOR

October 5, 2004

TO: Ms. Dede Mamiya, Administrator
Land Division

FROM: Yvonne Y. Izu, Deputy Director ^Y
Commission on Water Resource Management (CWRM)

SUBJECT: Maui Preparatory Academy Draft EA, Alaeloa, Lahaina

FILE NO.: CIZ 2004-0012.CMT

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

- We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.
- We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
- A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.
- The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.
- Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.
- If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).
- If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.
- OTHER:

If there are any questions, please contact Charley Ice at 587-0251.

LINDA LINGLE
GOVERNOR OF HAWAII

SEP 24 2004 10:46 AM



RECEIVED
LAND DIVISION

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

2004 SEP 28 A 10:23



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

LAND DIVISION
NATURAL RESOURCES
STATE OF HAWAII

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

September 24, 2004
CIZ 2004-0012.CMT
MAUIPREPACADEMYU

LD/NAV
Suspense Date: 10/1/04

MEMORANDUM:

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

FROM: Dierdre S. Mamiya, Administrator *[Signature]*
Land Division

SUBJECT: I.D. Nos.: CIZ 2004-0012; CPA 2004/0005; BDA 2004/0007;
EA 2004/0005
Applicant: Maui Preparatory Academy
Project: Maui preparatory Academy
TMK: 2nd/ 4-3-001: 001
Authority: County of Maui Department of Planning

Please review the document pertaining to the subject matter and submit your comment (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

additional
(X) We have no comments. *Per previous comment to the pre-consultation Assessment for the Preparation of DEA was incorporated and attached in the DEA documents.* () Comments attached.
Division: Engineering Signed: *[Signature]*

Date: 9/27/04

Print Name: FRICT HIRANO, CHIEF ENGINEER

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED



RECEIVED
LAND DIVISION

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER



04 SEP 24 AIO: 37

2004 OCT -5 P 3:41

STATE OF HAWAII
COMMISSION DEPARTMENT OF LAND AND NATURAL RESOURCES &
RESOURCE MANAGEMENT LAND DIVISION NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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
KAMOLELE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

September 24, 2004
CIZ 2004-0012.CMT
MAUI PREP ACADEMY

LD/NAV
Suspense Date: 10/1/04

MEMORANDUM:

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

FROM: Dierdre S. Mamiya, Administrator *[Signature]*
Land Division

SUBJECT: I.D. Nos.: CIZ 2004-0012; CPA 2004/0005; BDA 2004/0007;
EA 2004/0005
Applicant: Maui Preparatory Academy
Project: Maui preparatory Academy
TMK: 2nd/ 4-3-001: 001
Authority: County of Maui Department of Planning

Please review the document pertaining to the subject matter and submit your comment (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384. 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: _____

Signed: _____

Date: _____

Print Name: _____



October 29, 2004

Deirdre Mamiya, Administrator
State of Hawaii
Department of Land and Natural Resources
Post Office Box 621
Honolulu, Hawaii 96809

SUBJECT: Proposed Maui Preparatory Academy, Napili, Maui
(TMK (2) 4-3-01:01 (por.))

Dear Ms. Mamiya,

Thank you for your letter of October 8, 2004, responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui, at TMK (2) 4-3-01:01 (por.). In response to your comments, we note that the Maui Preparatory Academy will coordinate with the County of Maui throughout the development and construction process, which includes coordination with the Department of Water Supply.

Thank you again for your input into the proposed action.

Very truly yours,

Matthew Slepín, Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/dtnr2.res

LINDA LINGLE
GOVERNOR OF HAWAII



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

October 18, 2004

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

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

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

04 OCT 20 18:57

Mr. Michael W. Foley
Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawai'i 96793

Attention: Kivette A. Caigoy

Dear Mr. Foley:

Subject: **Maui Preparatory Academy**
TMK: (2) 4-3-001:001
EA 2004/0005, CIZ 2004/0012, CPA 2004/0005, DBA 2004/0007

Thank you for the opportunity to comment on the proposed Maui Preparatory Academy. The concerns expressed in the early consultation phase of the Environmental Assessment process have been address. We have no further comments to offer.

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

Sincerely,

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

Herbert S. Matsubayashi
District Environmental Health Program Chief

ALAN M. ARAKAWA
Mayor

GILBERT S. COLOMA-AGARAN
Director

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

Telephone: (808) 270-7845
Fax: (808) 270-7855



COUNTY OF MAUI
**DEPARTMENT OF PUBLIC WORKS
AND ENVIRONMENTAL MANAGEMENT**
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

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

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

04 OCT 22 P 1:02
LOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

RECEIVED
JOHN D. HARDER
Solid Waste Division

October 22, 2004

MEMO TO: MICHAEL W. FOLEY, PLANNING DIRECTOR

FROM: *for* GILBERT S. COLOMA-AGARAN, DIRECTOR OF PUBLIC WORKS
AND ENVIRONMENTAL MANAGEMENT *Milton Arakawa*

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
MAUI PREPARATORY ACADEMY
TMK: (2) 4-3-001:001
EA 2004/0005, CIZ 2004/0012, CPA 2004/0005, DBA 2004/0007

We reviewed the subject application and have the following comments:

1. Section C.5, Page 47, addresses solid waste issues. Submit plan for review and approval.
2. Although wastewater system capacity is currently available as of October 5, 2004, the developer should be informed that wastewater system capacity cannot be ensured until the issuance of the building permit.
3. Wastewater contribution calculations are required before building permit is issued.
4. Developer is not required to pay assessment fees for this area at the current time.
5. Developer is required to fund any necessary off-site improvements to collection system and wastewater pump stations.
6. Plans should show the installation of a service manhole near the property line prior to connection to the County sewer.

Memo to Michael W. Foley, Planning Director
October 22, 2004
Page 2

7. Kitchen Facilities within the proposed project shall comply with pre-treatment requirements (including grease interceptors, sample boxes, screens etc.).
8. Non-contact cooling water, condensate, etc. should not drain to the wastewater system.
9. Indicate on the plans the ownership of each easement (in favor of which party). Note: County will not accept sewer easements that *traverse private property*.
10. Hold-Harmless Agreement should be executed. Signed agreement required before the Wastewater Reclamation Division (WWRD) will give recommendations for final subdivision approval.
11. The proposed wastewater system shall be privately owned and maintained.
12. All grading/grubbing work for the subject project shall comply with Chapter 20.08 (Soil Erosion and Sedimentation Control) of the Maui County Code. Best Management Practices shall be implemented to the maximum extent practicable to prevent pollutants including dust and sediment from discharging off the project site.
13. The subject project shall comply with the "Rules for the Design of Storm Drainage Facilities in the County of Maui".
14. The subject project may be required to comply with Section 16.26.3304 (Improvements to Public Streets) of the Maui County Code.
15. The subject project may be required to comply with Section 18.04.470 (Subdivision) of the Maui County Code which states in part, ". . . the construction of four or more dwelling units on a lot, parcel, or site shall be subject to the provisions of this title".

If you have any questions regarding this memorandum, please call Milton Arakawa at 270-7845.

GSCA:MA:da
S:\LUCA\ICZM\Maui_Prep_Academy_ea_ciz_cps_dba_43001001_da.wpd



October 29, 2004

Gilbert Coloma-Agaran, Director
County of Maui
Department of Public Works
and Environmental Management
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Proposed Maui Preparatory Academy,
Napili, Maui (TMK (2) 4-3-01:01 (por.))

Dear Mr. Coloma-Agaran:

Thank you for your memo of October 22, 2004, responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui. We have the following responses, numbered to match those in your letter:


1. Appropriate coordination will be undertaken with the Department of Public Works and Environmental Management's Solid Waste Division to ensure that solid waste management considerations are incorporated in project planning and implementation.
2. Maui Preparatory Academy (MPA) acknowledges that wastewater system capacity cannot be ensured until the issuance of the building permits.
3. MPA acknowledges that wastewater contribution calculations are required before the building permits are issued.
4. MPA acknowledges that no assessment fees are required at this time.
5. MPA acknowledges that it may be required to fund necessary offsite improvements to the collection system and wastewater pump stations.
6. Plans submitted for permits will show any service manholes installed prior to connection to the County sewer line.

Gilbert Coloma-Agaran, Director
October 29, 2004
Page 2

7. Kitchen facilities within the proposed school will comply with applicable pre-treatment requirements, such as grease interceptors and sample boxes.
8. Neither non-contact cooling water nor condensate will drain into the wastewater system.
9. Plans indicating the ownership of each easement will be submitted.
10. MPA acknowledges that an executed, Hold-Harmless Agreement is required before the Wastewater Reclamation Division will provide recommendations for final subdivision approval.
11. The proposed onsite wastewater system will be privately owned and maintained.
12. All grading and grubbing work for the proposed school will comply with Chapter 20.08, of the Maui County Code. Best Management Practices will also be implemented to the maximum extent practicable to mitigate air and water quality impacts due to construction activities.
13. The proposed school will comply with the "Rules for the Design of Storm Drainage Facilities in the County of Maui."
14. MPA will acknowledge that compliance with Section 16.26.3304, of the Maui County Code, may be required.
15. Although there are no dwelling units anticipated for the initial, phase I development, MPA will coordinate with the appropriate agencies to determine if and how it needs to comply with Section 18.04.470, of the Maui County Code, when plans for dormitories are developed.

Thank you again for your input into the proposed action.

Very truly yours,



Matthew Slepina, Planner

MS:yp

cc: cc: Tom DiNoto, Maui Preparatory Academy
mpa\ok\dpwem.deares



DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

ALAN M. ARAKAWA
Mayor

ALICE L. LEE
Director

HERMAN T. ANDAYA
Deputy Director

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

04 SEP 27 P2:43

September 24, 2004

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

TO: KIVETTE A. CAIGOY, Staff Planner
Department of Planning

FROM: ALICE L. LEE, Director
Director of Housing and Human Concerns

SUBJECT: I.D.: EA 2004/0005; CIZ 2004/0012;
CPA 2004/0005 & DBA 2004/0007
TMK: (2)4-3-001:001
Project Name: Maui Preparatory Academy
Applicant: Maui Preparatory Academy

In response to your September 20, 2004 memo and attachment regarding the subject project, we would like to offer the following comments:

1. Your transmittal memo indicated that the material being sent to us involved an Environmental Assessment, a Change-In-Zoning, a Community Plan Amendment and a District Boundary Amendment. However, the only document we received was the Draft Environmental Assessment (DEA).
2. We would like to offer the following comments regarding the DEA:
 - a. The project name should be changed to Maui Preparatory Academy-Phase I, so that it is clear that the DEA is only for phase I and that there will be more to the Maui Preparatory Academy Project in future phase(s).
 - b. Section I.C. (Proposed Improvements) of the DEA should include more detail about the faculty dormitories.

Thank you for the opportunity to comment.

ETO:bp

c: Housing Administrator



October 29, 2004

Alice Lee, Director
County of Maui
Department of Housing and Human Concerns
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Proposed Maui Preparatory Academy, Napili, Maui
(TMK (2) 4-3-01:01 (por.))

Dear Ms. Lee,

Thank you for your letter of September 24, 2004, responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui, at TMK (2) 4-3-01:01 (por.). In response to your comments, we note the following:

1. Appendix "A" to the Final EA document will include the Maui County Council resolution concerning the proposed land use changes.
- 2.a. Although a thorough explanation of the start-up phase of the school was provided, the scope of the EA is intended to address all phases of the project, up to ultimate build-out.
- 2.b. The proposed faculty dormitories have been identified as a possible future component of the school. Details regarding the functional parameters of the proposed dormitory facilities will be better defined once the school becomes operational.

Thank you again for your input into the proposed action.

Very truly yours,

Matthew Slepik, Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/dhnc.res



ALAN M. ARAKAWA
MAYOR

OUR REFERENCE
YOUR REFERENCE

POLICE DEPARTMENT COUNTY OF MAUI

55 MAHALANI STREET
WAILUKU, HAWAII 96783
(808) 244-6400
FAX (808) 244-6411



THOMAS M. PHILLIPS
CHIEF OF POLICE

KEKUHAUPIO R. AKANA
DEPUTY CHIEF OF POLICE

October 4, 2004

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED
04 OCT 11 09:56

MEMORANDUM

TO : MICHAEL W. FOLEY, PLANNING DIRECTOR


FROM : THOMAS M. PHILLIPS, CHIEF OF POLICE

SUBJECT : I.D. : EA 2004/0005; CIZ 2004/0012; CPA
2004/0005; DBA 2004/0007
TMK : (2) 4-3-001:001
Project
Name : Maui Preparatory Academy
Applicant : Maui Preparatory Academy

No recommendation or comment to offer.

Refer to enclosed comments and/or recommendations.

Thank you for giving us the opportunity to comment on this project. We are returning the Special Management Area application which was submitted for our review.


Assistant Chief Sydney Kikuchi
For: THOMAS M. PHILLIPS
Chief of Police

Enclosures

COPY

TO : THOMAS PHILLIPS, CHIEF OF POLICE
VIA : CHANNELS *10/04/04*
FROM : RICKY UEDO, SERGEANT, LAHAINA PATROL DIVISION
SUBJECT : ENVIRONMENTAL ASSESSMENT MAUI PREPARATORY ACADEMY

Sir, this form of communication is being forwarded to your office regarding the environmental assessment for the Maui Preparatory Academy.

Back on March 22, 2004, I submitted my comments regarding the early consultation for this project. At this time, I still stand by my comments previously submitted regarding this project.

I would recommend that this project moves forward.

Done:
M. Carr. [Signature]
10/01/04 @ 1430

Respectfully submitted,

[Signature]
Sgt. Ricky C. Uedoi #1512
Lahaina Patrol Division
October 1, 2004 @ 1330 hours

COPY

TO : THOMAS M. PHILLIPS, CHIEF OF POLICE
VIA : CHANNELS *[Signature]*
FROM : RICKY C. UEDOJ, SERGEANT, LAHAINA PATROL DIVISION
SUBJECT : PROPOSED MAUI PREPARATORY ACADEMY

Sir, I have reviewed the letter sent by Michael Munekiyo, Project Manager, for the proposal of building a Maui Preparatory Academy School in Napili.

The Maui Preparatory Academy and Maui Land & Pineapple Company, Inc. propose a collaborative undertaking to implement a new independent, non-profit, non sectarian college preparatory school in Napili. The proposed property encompasses an area of approximately 14.90 acres, which lies mauka of Honoapiilani Highway and is located adjacent to Maui Land and Pineapple's Honolulu Baseyard facility. Access to this proposed project would be via the Honoapiilani Highway/Napilihau Street intersection.

The project's site currently has existing dormitory facilities encompassing approximately 18,000 square feet, which will be converted to classroom and school support facilities to accommodate the initial grades and classes. An enrollment of 90 students is projected for grades six through eight during the school's first year of operation starting in the fall of 2005. The school will add a grade level each succeeding year and hope to have a fully enrolled school of Kindergarten to grade 12 by the year 2013, with an enrollment of 540 students.

During the infancy stages of this project, I do not see any impact or concerns for the police department, however with the continuing trend of building in the west Maui area, I foresee the need to increase our patrol manpower in the Lahaina district and perhaps create an additional beat for the Napili/Kapalua area.

There are no other concerns at this time for this project and I would recommend that the project move forward.

*AGREE WITH SER. UEDOJ'S
ASSESSMENT. EARLY STAGES
OF PROJECT SHOULD NOT AFFECT
POLICE SERVICES HOWEVER IN THE
FUTURE, WOULD NEED TO DO
A RE-ASSESSMENT*

*M.L. [Signature] 1008
3/24/04*

Respectfully submitted,

[Signature]
Sgt. Ricky C. Uedoi #1512
Lahaina Patrol Division
March 22, 2004 @ 1400 hours

*PEDESTRIAN TRAFFIC ACROSS
SIGNAL INTERSECTION AND THE
COLLECTOR LANES ENTERING THE
SITE IS A REAL CONCERN.
THESE ISSUES SHOULD BE RESOLVED
BEFORE THE SCHOOL OPENS.
MAMTV. [Signature]*



October 29, 2004

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

SUBJECT: Proposed Maui Preparatory Academy, Napili, Maui
(TMK (2) 4-3-01:01 (por.))

Dear Chief Phillips,

Thank you for your letter of October 4, 2004, responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui, at TMK (2) 4-3-01:01 (por.). We appreciate the recommendation that the project move forward.

In response to your comments, we note that the Napilihau Street/Honoapiilani Highway intersection is signalized with a cross-walk. Further, owing to the relative scarcity of residential areas in the immediate vicinity of the proposed school, Maui Preparatory Academy anticipates that a substantial majority of the student population will be driven to school.

Thank you again for your input into the proposed action.

Very truly yours,

Matthew Slepina, Planner

MS:tn

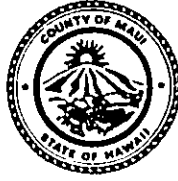
cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/mpd2.res

AUG 26 2004

ALAN M. ARAKAWA
Mayor

MICHAEL W. FOLEY
Director

WAYNE A. BOTEILHO
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

August 24, 2004

Mr. Michael Munekiyo, AICP
Munekiyo & Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Munekiyo:

RE: Draft Environmental Assessment Prepared for the Proposed Maui Preparatory Academy at Tax Map Key: 4-3-001: 001 (portion), Napili, Island of Maui, Hawaii (EA 2004/0005) (CIZ 2004/0012) (CPA 2004/0005) (DBA 2004/0007)

The Maui Planning Department (Department) has reviewed the Draft Environmental Assessment for the Maui Preparatory Academy. Please provide the following supplemental information to the Draft EA prior to transmittal:

1. Attach a copy of the Maui County Council Resolution of the Community Plan Amendment, District Boundary Amendment, and Change in Zoning as an appendix to the Draft EA.
2. Chapter I - Project Overview
 - a. Expand the discussion of the proposed phased development as indicated on the Long Range Master Plan in Figure 5.
 - b. List milestone years of the project and describe the proposed improvements with each phase of development.
 - c. Page 8 of the report indicates 360 students in grades kindergarten to 12 for the year 2009. However, the TIAR indicates 90 students in grades 6, 7, and 8 for Fall of 2005; 162 students for the year 2007; 198 students for the year 2008; and 540 students by year 2013. Clarify the projected number of students enrolled for each milestone year of development.

- d. What is the estimated cost for each phase of development?
 - e. Identify the funding source for each phase of development.
 - f. Include any floor plans, elevations, or drawings for facilities renovated in the first phase of development, and if available, subsequent phases of development.
 - g. According to the description, the school curriculum includes a course of study in agricultural sciences. However, the master plan does not include an agricultural component to the school. Classrooms, sports facilities, dorms, etc. are identified, but there is no area designated for agricultural training programs. Discuss the relationship between the school and agriculture that justifies the proposed location.
3. Chapter II - Description of the Existing Environment
- a. Section II.A.19 - Renovation of existing buildings with suspect building materials containing asbestos, lead-based paint, and arsenic-containing compounds may pose a potential impact to the existing environment, including air quality, if disturbed. A discussion of these potential impacts and the proposed mitigative measures should be included in Chapter III of the report.
4. Chapter III - Potential Impacts and Mitigative Measures
- a. Clarify whether the discussion of potential impacts and proposed mitigative measures were analyzed for Phase I of the school or for the full build-out as indicated on the Long Range Master Plan in Figure 5.
 - b. Section III.A.6 - The MPA acknowledges potential noise impacts by agricultural operations. The Department of Public Works and Environmental Management (DPWEM) recommends sound proofing the buildings as a mitigative measure. Discuss whether this measure will be incorporated into the project's design.

- c. Section III.C.1 - The TIAR recommends the consideration of a school bus service and safe pedestrian crossings for year of 2005. Provide a discussion as to the proposed mitigative measures to address these comments. Further include a discussion in response to the pre-consultation comments which recommend a pedestrian overpass at the Honoapiilani Highway and Napilihau Street intersection.
- d. Section III.C.2 - The average daily water demand for the proposed project is calculated at approximately 32,000 gallons per day.
 - i. Clarify whether this calculation is based on the first phase of development or full build-out as indicated in the Long Range Master Plan.
 - ii. Does this calculation include water for irrigation? Will the irrigation system be designed to use reclaimed water should such service be provided at a later date?
- e. Section III.C.4 - Comments from DPWEM (No. 4) states that vehicular access to the site is critical to the placement of the development and that major drainage concerns need to be addressed. How does the proposed project address these concerns?
- f. Discuss proposed energy conservation measures incorporated into the project's design.
- g. Provide a discussion within this section of the impacts the proposed project has on the loss of prime agricultural lands, including a discussion of the following:
 - i. Discuss how the proposed project affects the existing pineapple operations of Maui Land & Pineapple (MLP).
 - ii. Discuss the cumulative impacts the proposed project has on the loss of agricultural lands when considered in respect to other proposed developments such as, Kapalua Mauka, Pulelehua Community, the relocation of MLP Corporate Offices to Napili, Puunoa III, etc.

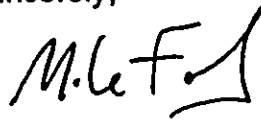
- iii. As indicated, the plantation formerly imported seasonal workers who used the dormitory for housing purposes. Does the plantation currently import seasonal workers, or does the plantation rely solely on local residents to work the fields? If seasonal workers are imported, where are the employees housed?
 - iv. Discuss how the proposed project addresses the piecemeal urbanization of agricultural lands. Are there other urban developments forecasted for this area?
 - v. Discuss how the project addresses the criteria for lands that should remain in County agriculture.
- h. A portion of the roadway appears to be located on the Napili Trade Center site (Parcel 33). How does this affect the proposed project?
- i. Traffic Impact Report
- i. Appendix C contains the Draft Traffic Impact Report. Provide a finalized Traffic Impact Report and, if needed, an updated discussion within the body of the Draft EA.
 - ii. Identify other proposed projects included within the analysis. Did the analysis include the larger proposed projects such as, Pulelehua Community and Kapalua Mauka?
 - iii. Identify the responsible party for implementing the recommended mitigation measures. Discuss the timing schedule of these measures.
 - iv. Discuss how school children will safely cross Honoapiilani Highway with the proposed project.
 - v. According to the TIAR, the intersection at Napilihau Street would experience a reduced LOS (D) for westbound traffic with the proposed project. Discuss whether the proposed mitigation is sufficient enough to maintain a higher LOS.

Mr. Michael Munekiyo, AICP
August 24, 2004
Page 5

- j. Include schematic plans of the proposed infrastructure improvements in addition to the written descriptions.

Thank you for your cooperation. Should you require additional clarification, please contact Ms. Kivette A. Caigoy, Environmental Planner, at 270-7735.

Sincerely,



MICHAEL W. FOLEY
Planning Director

MWF:KAC:do

c: Wayne Boteilho, Deputy Planning Director
Clayton I. Yoshida, AICP, Planning Program Administrator
Kivette A. Caigoy, Environmental Planner (2)
Colleen Suyama, Staff Planner (2)
General File
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October 29, 2004

Michael Foley, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Proposed Maui Preparatory Academy, Napili, Maui
(TMK (2) 4-3-01:01 (por.))

Dear Mr. Foley:

Thank you for your letter of August 24, 2004, responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui, at TMK (2) 4-3-01:01 (por.). The responses which follow are numbered to correspond with the numbered comments in the Department's comment letter.

1. The EA will include a copy of the Maui County Council Resolution No. 04-62 as Appendix "A".
- 2.a. Maui Preparatory Academy is continuing an intensive schedule of community meetings and internal discussion in order to determine the optimum configuration of starting classes and build-out. The specifics of the phased development are thus tentative owing to the nature of the funding and student enrollment projections. The Final EA, however, will include the plans for the intervening phases, so that the best estimate concerning the phased development will be clearer.
- 2.b. See 2.a. above.
- 2.c. The original plans envisioned pre-kindergarten classes, as well as more classes in each grade level. The TIAR was undertaken using this structure. However, the ultimate enrollment plans were modified after the TIAR was completed, dropping the pre-kindergarten classes and reducing the total enrollment overall. The TIAR in the Final EA will address the disjunction. The maximum student enrollment as described in the project overview is the correct projection.
- 2.d. Costs are extremely speculative, owing to the time allotted for build-out and uncertainties regarding the broader economic climate. The best estimate at this time is

Michael Foley, Director

October 29, 2004

Page 2

approximately \$6 million for Phase I, \$2 million for Phase 2, and \$7 million for Phase 3.

- 2.e. Initial funding sources for Phase I can be identified as some combination of donations, taxable bond offering, and bank financing. Secondary funding will likely be provided by grants from foundations.
- 2.f. Owing again to the potential variability of the phasing schedule, detailed facility plans are not available at this time. However, a typical school room elevation plan will be included in the Final EA.
- 2.g. Agricultural studies will be incorporated into the broader curriculum and will be taught in the science classrooms. There is no agricultural studies building as such; rather they will be an integral part of the Maui Preparatory Academy's course of study with the intention of encouraging agriculture and agricultural entrepreneurship in the coming generations of Maui students. Maui Land and Pineapple Company (MLP) feels that such a school system will be positive for their efforts and have thus donated land otherwise largely unused in support of it.
- 3. The Phase I, Environmental Site Assessment carried out by Vuich Environmental Consultants, Inc, and included in the EA, documented the potential for hazardous materials contained in the existing structures and that these materials must be appropriately dealt with during renovation or demolition. Vuich will prepare a mitigation plan when Maui Preparatory Academy applies for the building and demolition permits. This will be discussed in the Final EA.
- 4.a. The EA documents the entire project and not only Phase I. The discussions concerning potential impacts and the mitigation therefore address the master plan reflected in Figure 5 of the EA document.
- 4.b. Maui Preparatory Academy anticipates the construction of standard classrooms, without special insulation or sound-proofing. It is not anticipated that outside noise impacts will be above acceptable levels for a school.
- 4.c. Maui Preparatory Academy anticipates that the majority of its student body will be driven to school, owing to the relative scarcity of residential areas in the immediate vicinity. Those few students who do walk to school, can use the cross-walk at the signalized intersection of Napilihau Street and Honoapiilani Highway. The provision of a pedestrian overpass for such few users is not considered feasible. The provision of school bus service will be a function of demand from parents and students: if a

substantial body of parents request such a service and agree to provide funding, Maui Preparatory Academy will arrange for it.

- 4.d.i. The calculated water usage that appears in the DEA was based upon a full build-out with a maximum student enrollment of 540 students. Project modifications have now reduced the total maximum enrollment to 360, which will be reflected in the Preliminary Engineering Report.
- 4.d.ii. The water usage calculations do not include water for irrigation, but only for domestic consumption. The irrigation system is not yet designed, but will be designed so as to accommodate reclaimed water, should sources of such become available in the future.
- 4.e. The Department of Public Works and Environmental Management was presented with a copy of the DEA for review and comment. Preparation of access road and drainage designs for the property will be coordinated with the Department to ensure that applicable standards are addressed.
- 4.f. While construction documents have not yet been finalized, the project will incorporate energy conservation measures to the extent practicable.
- 4.g.i. The proposed action will not substantially impact the agricultural operations of MLP. Not only is the 14.9 acres a small fraction of MLP's holdings, but the majority is the site is currently unused, with no plans for any future operations. The dormitory facilities are in the process of being shut down and while the mauka portion of the property is used for storage. Approximately 2 acres of land in mid-section portion of the property are available cultivation. Based on the master plan, this area will ultimately be utilized for parking, vehicular access and field areas.
- 4.g.ii. In the context of other agricultural lands which may be removed from production based on other project proposal, the impacts to agricultural productivity from the proposed Maui Preparatory Academy is not considered significant. We note that the agricultural curriculum focus of the school is in part, designed to educate students to more effectively and efficiently manage agricultural lands.
- 4.g.iii. MLP is discontinuing use of the existing dormitories to house agricultural workers. MLP's human resources policies have not been discussed with the Maui Preparatory Academy.
- 4.g.iv. Maui Preparatory Academy believes that the proposed school will meet a significant community need and that the unique circumstances relating to the donation of lands

having tangible asset value to meet this need is an important consideration in reviewing the request for reclassification. It is noted that the property is located adjacent to the MLP's baseyard and across the street from Urban-designated lands. In addition, infrastructure services to meet the needs of the project are or will be made available. Maui Preparatory Academy is not aware of other proposals for urban use projects in the vicinity of the property.

- 4.g.v. See 4.g.iv., above, and Chapter IV, Section G of the EA.
- 4.h. The Napilihau Street roadway realignment and access road to the school, although necessary for the proposed action, are not being undertaken by the Maui Preparatory Academy, but by MLP. The plans for the roadway modifications do not involve lands other than those currently owned by MLP, including Parcel 33.
- 4.i.i. The Final EA will contain an appendix supplementing the traffic report so as to address the revised maximum enrollment figures. The traffic engineer has indicated that the traffic report can stand as it is, since it addresses regional issues not derived solely from the proposed school and as it provides a conservative assessment of traffic impacts based on the initial, higher enrollment projection.
- 4.i.ii. As described in the TIAR, travel forecast was based on linear regression techniques to obtain annual average growth rates. From an analytical standpoint, specific projects such as Pulelehua and Kapalua Mauka are assumed to be factored in the regression-derived growth rates.
- 4.i.iii. Maui Preparatory Academy will be working with MLP to ensure that proposed project-related traffic mitigation measures are implemented in accordance with the State Department of Transportation and County of Maui requirements. Regional mitigation measures cited in the traffic study are not deemed the sole responsibility of Maui Preparatory Academy or MLP. Fair share assessment mechanisms would need to be formulated and implemented by the Department of Transportation to appropriately address regional mitigation measures.
- 4.i.iv. See 4.c. above.
- 4.i.v. In regards to westbound traffic at Napilihau Street, the mitigation discussed in the TIAR would result in an anticipated improvement of traffic conditions to LOS "C", or potentially higher.

Michael Foley, Director
October 29, 2004
Page 5

- 4.j. Infrastructure design concepts are currently being addressed for the master plan. Utility services will be designed in accordance with County of Maui standards. Available information regarding access road design will be included in the Final EA.

Thank you again for your input into the proposed action.

Very truly yours,



Matthew Slepín, Planner

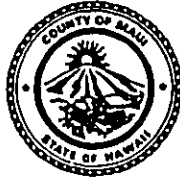
MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa@poko/planning.res

ALAN M. ARAKAWA
Mayor

MICHAEL W. FOLEY
Director

WAYNE A. BOTEILHO
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

October 14, 2004

Mr. Michael Munekiyo, AICP
Munekiyo & Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Munekiyo:

RE: Draft Environmental Assessment Prepared for the Proposed Maui Preparatory Academy at Tax Map Key: 4-3-001: 001 (portion), Napili, Island of Maui, Hawaii (EA 2004/0005), (CIZ 2004/0012) (CPA 2004/0005), (DBA 2004/0007)

At its regular meeting on October 12, 2004, the Maui Planning Commission (Commission) reviewed the above-referenced document and provides the following comments:

1. Discuss whether the proposed project will use surface water and the estimated quantity.

Thank you for your cooperation. Should you require additional clarification, please contact Ms. Kivette A. Caigoy, Environmental Planner, at 270-7735.

Sincerely,

Handwritten signature of Michael W. Foley in black ink.

MICHAEL W. FOLEY
Planning Director

MWF:KAC:dm

c: Wayne Boteilho, Deputy Planning Director
Clayton I. Yoshida, AICP, Planning Program Administrator
Kivette A. Caigoy, Environmental Planner
Colleen Suyama, Staff Planner
General File
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October 29, 2004

Michael Foley, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Proposed Maui Preparatory Academy, Napili, Maui
(TMK (2) 4-3-01:01 (por.))

Dear Mr. Foley:

Thank you for your letter of October 14, 2004, responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui, at TMK (2) 4-3-01:01 (por.). In response to the Planning Commission's comments, we note that proposed Maui Preparatory will not use surface water. Water sources and estimated usage have been incorporated in the Final EA.

Thank you again for your input into the proposed action.

Very truly yours,

Matthew Slepina, Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/planning2.res

LINDA LINGLE
GOVERNOR



PATRICIA HAMAMOTO
SUPERINTENDENT

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

'04 OCT 28 PM 2:31

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

OFFICE OF THE SUPERINTENDENT

October 28, 2004

Mr. Michael W. Foley, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

Attention: Kivette A. Caigoy, Staff Planner

Dear Mr. Foley:

Subject: Draft Environmental Assessment for Maui Preparatory Academy
Napili, Maui, TMK: 4-3-001: por. 001

The Department of Education (DOE) has reviewed the Draft Environmental Assessment (DEA) for a college preparatory school to be located in Napili, Maui. Plans are for full enrollment of 360 students by 2009, in grades kindergarten through 12.

The DOE has no comment or concern with the plans outlined in the DEA. If you have any questions, please call Rae M. Loui, Assistant Superintendent of the Office of Business Services, at 586-3444 or Heidi Meeker of the Facilities and Support Services Branch at 733-4862.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Patricia Hamamoto".

Patricia Hamamoto
Superintendent

PH:mp

c: Rae M. Loui, OBS
Ron Okamura, CAS, Hana/Lahainaluna/Lanai Complex Area

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUMIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707
HAWAII HISTORIC PRESERVATION
DIVISION REVIEW

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

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

Log No.: 2004.3237

Doc No.: 0410CD46

Received: 24 September 2004

Applicant/Agency: Mr. Michael Foley, Planning Director
Address: County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Chapter 6E-42 Historic Preservation Review - Draft Environmental Assessment,
Change in Zoning, Community Plan Amendment, District Boundary Amendment
for the Proposed Maui Preparatory Academy (Subject I.D.: EA 2004/0005;
CIZ 2004/0012; CPA 2004/005; DBA 2004/0007) [County/Planning]

Ahupua'a: Alaeloa
District, Island: Lahaina, Maui
TMK: (2) 4-3-001:001

1. We believe there are no historic properties present, because:

- a) intensive cultivation has altered the land
 b) residential development/urbanization has altered the land
 c) previous grubbing/grading has altered the land
 d) an acceptable archaeological assessment or inventory survey found no historic properties
(Xamanek 2004; SHPD DOC NO.: 0405MK14/LOG NO.: 2004.1485).
 e) other:

2. This project has already gone through the historic preservation review process, and mitigation has been completed ____.

Thus, we believe that "no historic properties will be affected" by this undertaking

In the event that historic sites (human skeletal remains, etc.) are identified during the construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the State Historic Preservation Office needs to be contacted immediately at 243-5169, on Maui, or at (808) 692-8023, on O'ahu.

Staff: Cathleen A. Dagher Date: 28 October 2004
Cathleen A. Dagher, Assistant Maui/Lana'i Island Archaeologist, (808) 692-8023



November 24, 2004

Cathleen Dagher
State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

SUBJECT: Proposed Maui Preparatory Academy, Napili, Maui
(TMK (2) 4-3-01:01 (por.))

Dear Ms. Dagher:

Thank you for your letter responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui, at TMK (2) 4-3-01:01 (por.). We acknowledge your determination that there are no historic properties present at the project site and that, therefore, none will be affected by the proposed project. We also note that should any evidence of traditional or cultural remains be uncovered during the implementation of the proposed project, all work will be immediately halted, SHPD will be notified, and all required procedures implemented.

Thank you again for your input into the proposed action.

Very truly yours,

Matthew Slepina, Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/shpd.res

PHONE (808) 594-1888

FAX (808) 594-1865



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

'04 NOV 10 P12:18

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

HRD04/1590

November 8, 2004

Ms. Kivete A. Caigoy
Staff Planner
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Re: Maui Preparatory Academy, Napili, Ka'anapali District, Island of Maui TMK: (2)
4-3-001:001

Dear Ms. Caigoy:

The Office of Hawaiian Affairs (OHA) is in receipt of your October 20, 2004, renewed request for review and comments on the aforementioned project, which is a proposal to construct the Maui Preparatory Academy (MPA) on approximately 14.9 acres. OHA apologizes for the delayed response and offers the following comments and concerns.

After reviewing the Draft Environmental Assessment (DEA) for the project, OHA has concerns, comments and suggestions in the following areas of Historical and Cultural Sites.

Historical and Cultural Sites

Although an archaeological assessment was performed by Xamanek Researches in March of 2004, the report regarding the assessment noted that few archaeological studies have been done in the *ahupua'a* of Alaeloa, the site of the proposed MPA. The report did note at least four *heiau* in the general vicinity of this project and that the area was most likely utilized for permanent and temporary habitation and agricultural purposes.

No significant findings occurred during the pedestrian surface survey, but given the extensive utilization of the project area for previous construction and agricultural purposes, no recognizable surface architecture was expected to be found.

It has been shown on Maui that intensive agricultural usage of an area can leave intact and undisturbed cultural deposits present below the surface. Thusly, OHA would recommend that an

Ms. Kivette A. Caigoy
November 8, 2004
Page 2

archaeological inventory survey occur in the project area, at a minimum, in the areas proposed for development and ground disturbance. A good cross section of backhoe trenches may reveal the presence or absence of any cultural layers in the area, including burial sites, which survived previous activities on the parcel.

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



November 24, 2004

Clyde Namu'o, Administrator
State of Hawaii
Office of Hawaiian Affairs
711 Kapi'olani Boulevard, Suite 500
Honolulu, Hawaii 96813

SUBJECT: Proposed Maui Preparatory Academy, Napili, Maui
(TMK (2) 4-3-01:01 (por.))

Dear Mr. Namu'o,

Thank you for your letter of November 8, 2004, responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui, at TMK (2) 4-3-01:01 (por.).

In response to your comments, we note that the Maui Preparatory Academy shares your concerns regarding the preservation of traditional and cultural artifacts. The Department of Land and Natural Resources, State Historic Preservation Division (SHPD), has reviewed both the Environmental Assessment and the Archaeological Assessment and registered no objections or concerns in this matter. A letter from SHPD to that effect will be included in the Final EA.

It should be noted that although the Archaeological Assessment does, indeed, state that few archaeological studies have been performed in the *ahupua'a* of Alaeloa, this does not mean that the project site has not been studied, as evidenced by the report prepared by Xamanek Researches and approved by SHPD. We also note that should any evidence of traditional or cultural remains be uncovered during the implementation of the proposed project, all work will be immediately halted, SHPD will be notified, and all required procedures implemented.

Clyde Namu`o, Administrator
November 24, 2004
Page 2

Thank you again for your input into the proposed action.

Very truly yours,



Matthew Slepina, Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/oha2.res

ALAN M. ARAKAWA
MAYOR



CARL M. KAUPALOLO
CHIEF

NEAL A. BAL
DEPUTY CHIEF

'04 OCT 32 10:57

COUNTY OF MAUI
DEPARTMENT OF FIRE AND PUBLIC SAFETY

200 DAIRY ROAD
KAHULUI, MAUI, HAWAII 96732
(808) 270-7561
FAX (808) 270-7919

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

October 26, 2004

KIVETTE A. CAIGOY, Staff Planner
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

Subject: EA 2004/0005; CIZ 2004/0012; CPA 2004/0005; DBA 2004/0007
Maui Preparatory Academy TMK 4-3-001:001

Dear Kivette,

I have had the opportunity to review the application for the proposed Maui Preparatory Academy. Our main concerns are proper access as related to fire apparatus needs and the fire protection requirements regarding *Life Safety* as found in NFPA 101. The details will be worked out with the applicant during the permit process.

A final review will be conducted when the detailed plans are submitted to our office during the permit process. Please contact Lt. Scott English at 270-7122 if there are any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeff Drechsel".

Jeff Drechsel
Fire Inspector
Fire Prevention Bureau



November 24, 2004

Jeff Drechsel, Fire Inspector
County of Maui
Department of Fire and Public Safety
Fire Prevention Bureau
200 Dairy Road
Kahului, Hawaii 96732

SUBJECT: Proposed Maui Preparatory Academy, Napili, Maui
(TMK (2) 4-3-01:01 (por.))

Dear Mr. Drechsel,

Thank you for your letter of October 26, 2004, responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui, at TMK (2) 4-3-01:01 (por.). In response to your comments, we note that coordination will be undertaken with your office regarding proper access and other fire safety issues during the building permit process.

Thank you again for your input into the proposed action.

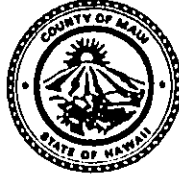
Very truly yours,

Matthew Slepina, Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/fire.res

NOV 18 2004



DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 South High Street
WAILUKU, MAUI, HAWAII 96793
Telephone (808) 270-7816 • Fax (808) 270-7833

November 15, 2004

Mr. Michael W. Foley, Director
County of Maui
Planning Department
250 S High Street
Wailuku HI 96793
ATTN: Ms. Kivette A. Caigoy

Dear Mr. Foley:

SUBJECT: Project Name: Maui Preparatory Academy
TMK: 4-3-001:001
I.D: EA 2004/0005; CIZ 2004/0012; CPA 2004/0005; DBA 2004/0007

Thank you for the opportunity to provide comments on this project proposal.

Source Availability and Consumption

The project area is served by the Lahaina system. As of September 2004, pending projects in West Maui at some stage of discretionary review total roughly 14.5 MGD, of which about 5.6 MGD plan to connect to the county system. DWS does NOT grant or imply any guarantee of water until an application for water meter has been received and reviewed. Should additional meter be required for this project, water availability will be determined at time of meter application.

Existing facilities on the property uses an average of 5,200 gpd. Based on system standard guidelines anticipated increase in usage is approximately 20,000 gpd.

System Infrastructure

The project site is served by two 12-inch waterlines which run along the south side of the parcel, 1½-inch water and two fire hydrants on the northwest side.

Domestic, irrigation and fire flow calculations prepared, signed and stamped by a certified engineer or architect will be required to determine meter capacity and adequate fire protection. Domestic and irrigation calculations should include peak demand of existing irrigation as well as peak demand of new development. Actual fire demand for structures is determined by fire flow calculations. The approved fire flow calculation methods for use include - Guidance for Determination of Fire Flow - Insurance Service Office, 1974 and Fire Flow - Hawaii Insurance Bureau, 1991. Installation of reduced pressure back-flow prevention approved by the Department will likewise be required if one does not already exist. The applicant should submit construction plans to our Engineering Division for review.

Conservation

We suggest that the applicant consider the following water conservation measures and integrate them in the project design and construction:

Use of brackish and/or reclaimed water sources for all non-potable water uses, including irrigation and dust control during construction, if such alternative sources are available. Reclaimed water is readily available at the Lahaina Wastewater Facility.

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

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

Use Climate-adapted Plants: We encourage the applicant to consider the use of appropriate native and non invasive species and to avoid the use of potentially invasive plants in the landscape plan. Native plants adapted to the area conserve water and protect the watershed from degradation due to invasive alien species. The project is located in Maui Planting Plan-Plant Zone 3 & 5. A list of appropriate plants for the zone as well as potentially invasive plants to avoid was provided to the applicant during the early consultation process.

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

Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day.

Prevent Over-Watering By Automated Systems: Provide rain-sensors on all automated irrigation controllers. Check and reset controllers at least once a month to reflect the monthly changes in evapotranspiration rates at the site. As an alternative, provide the more automated, soil-moisture sensors on controllers.

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

Pollution Prevention

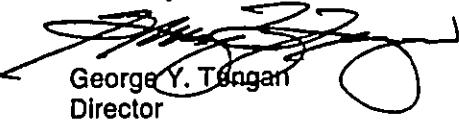
The project overlies the Honolua Aquifer which has a sustainable yield of 8 mgd. In order to protect surface and groundwater resources, we encourage the applicant to use best management practices (BMPs) to minimize infiltration and runoff from all construction and vehicle operations. We recommend the implementation of the following mitigation measures during construction:

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

Page 3
Maui Preparatory Academy
Mr. Michael W. Foley
November 15, 2004

Should you have any questions regarding system infrastructure and requirements, please call our Engineering Division at 270-7835 and any questions on source availability or conservation and resource matters, please contact our Water Resources and Planning Division at 270-7199.

Sincerely,



George Y. Tongan
Director

eam
c:: engineering division
applicant, with attachments
"The Costly Drip"
Maui County Planting Plan- Plant Zones 3 & 5 -Saving Water in the Yard- What & How to plant in your Area"
Selected BMPs from "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Water"- U S EPA
Water Conservation for Schools and Public Buildings

By Water, All Things Find Life

"THE COSTLY DRIP"



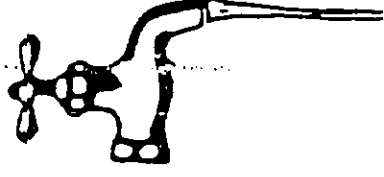
Slowly Dripping
Spigot Wastes
15 Gallons a day.



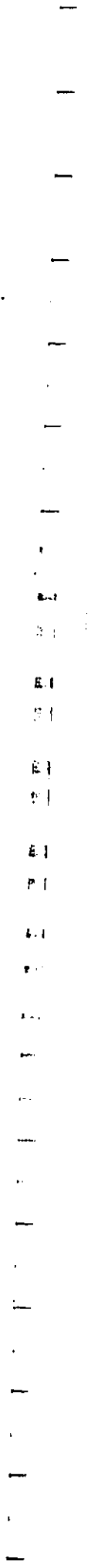
1/32" Leak Wastes
25 Gallons a day.



1/16" Stream Wastes
100 Gallons a Day.



1/8" Stream Wastes
400 Gallons a day.



ORDINANCE NO. 2108

BILL NO. 6 (1992)

Draft 1

A BILL FOR AN ORDINANCE AMENDING
CHAPTER 16.20 OF THE MAUI COUNTY
CODE, PERTAINING TO THE PLUMBING CODE

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

SECTION 1. Title 16 of the Maui County Code is amended by adding a new section to Chapter 10 of the Uniform Plumbing Code to be designated and to read as follows:

"16.20.675 Section 1050 added. Chapter 10 of the Uniform Plumbing Code is amended by adding a new section, pertaining to low-flow water fixtures and devices, to be designated and to read as follows:

Sec. 1050 Low-flow water fixtures and devices. (a) This section establishes maximum rates of water flow or discharge for plumbing fixtures and devices in order to promote water conservation.

(b) For the plumbing fixtures and devices covered in this section, manufacturers or their local distributors shall provide proof of compliance with the performance requirements established by the American National Standards Institute (ANSI) and such other proof as may be required by the director of public works. There shall be no charge for this registration process.

(c) Effective December 31, 1992, only plumbing fixtures and devices specified in this section shall be offered for sale or installed in the County of Maui, unless otherwise indicated in this section. All plumbing fixtures and devices which were installed before December 31, 1992, shall be allowed to be used, repaired or replaced after December 31, 1992.

(1) Faucets (kitchen): All kitchen and bar sink faucets shall be designed, manufactured, installed or equipped with a flow control device or aerator which will prevent a water flow rate in excess of two and two-tenths gallons per minute at sixty pounds per square inch of water pressure.

(2) Faucets (lavatory): All lavatory faucets shall be designed, manufactured, installed or equipped with a flow control device or aerator which will prevent a water flow rate in excess of two and two tenths gallons per minute at sixty pounds per square inch of water

pressure.

(3) Faucets (public rest rooms): In addition to the lavatory requirements set forth in paragraph (2), lavatory faucets located in rest rooms intended for use by the general public shall be of the metering or self-closing types.

(4) Hose bibbs: Water supply faucets or valves shall be provided with approved flow control devices which limit flow to a maximum three gallons per minute.

EXCEPTIONS: (A) Hose bibbs or valves not used for fixtures or equipment designated by the director of public works.

(B) Hose bibbs, faucets, or valves serving fixed demand, timing, or water level control appliances, and equipment or holding structures such as water closets, pools, automatic washers, and other similar equipment.

(5) Showerheads: Showerheads, except where provided for safety or emergency reasons, shall be designed, manufactured, or installed with a flow limitation device which will prevent a water flow rate in excess of two and one-half gallons per minute at eighty pounds per square inch of water pressure. The flow limitation device must be a permanent and integral part of the showerhead and must not be removable to allow flow rates in excess of two and one-half gallons per minute or must be mechanically retained requiring force in excess of eight pounds to remove.

(6) Urinals: Urinals shall be designed, manufactured, or installed so that the maximum flush will not exceed one gallon of water. Adjustable type flushometer valves may be used provided they are adjusted so the maximum flush will not exceed one and six tenths gallons of water.

(7) Water closets (toilets): Water closets shall be designed, manufactured, or installed so that the maximum flush will not exceed one and six tenths gallons of water.

(d) Beginning December 31, 1992, it is unlawful to sell or install any plumbing fixtures or devices not specified in this section, except as permitted under this section.


(e) The director of public works may exempt the use of low-flow water fixtures and devices if there is a finding that the use of such fixtures and devices would not be consistent with accepted engineering practices and would be detrimental to the public health, safety and welfare.

(f) Any person violating this section shall be fined \$250 for each violation and shall correct all instances of non-compliance for which a citation is issued. Violation of this section shall constitute a violation as defined in section 701-107 Hawaii Revised Statutes and shall be enforceable by employees of the department of public works. The foregoing fine may also be imposed in a civil, administrative proceeding pursuant to Rules and Regulations adopted by the department of public works in accordance with chapter 91 Hawaii Revised Statutes."

SECTION 2. New material is underscored. In printing this bill, the County Clerk need not include the underscoring.

SECTION 3. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM
AND LEGALITY:



HOWARD M. FUKUSHIMA
Deputy Corporation Counsel
County of Maui
c:\wp51\ords\flows4\pk

WE HEREBY CERTIFY that the foregoing BILL NO. 6 (1992), Draft 1

1. Passed FINAL READING at the meeting of the Council of the County of Maui, State of Hawaii, held on the 1st day of May, 1992, by the following votes:

Howard S. KIHUNE Chair	Patrick S. KAWANO Vice-Chair	Vince G. BAGOYO, Jr.	Goro HOKAMA	Alice L. LEE	Ricardo MEDINA	Wayne K. NISHIKI	Joe S. TANAKA	Leinasis TERUYA DRUMMOND
Aye	Aye	Excused	Excused	Aye	Aye	Aye	Aye	Aye

2. Was transmitted to the Mayor of the County of Maui, State of Hawaii, on the 1st day of May, 1992.

DATED AT WAILUKU, MAUI, HAWAII, this 1st day of May, 1992.

RECORDED

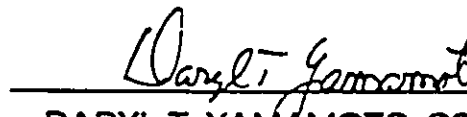

HOWARD S. KIHUNE, CHAIR
Council of the County of Maui


DARYL T. YAMAMOTO, COUNTY CLERK
County of Maui

THE FOREGOING BILL IS HEREBY APPROVED THIS 5th DAY OF MAY, 1992.


LINDA CROCKETT LINGLE, MAYOR
County of Maui

I HEREBY CERTIFY that upon approval of the foregoing BILL by the Mayor of the County of Maui, the said BILL was designated as ORDINANCE NO. 2108 of the County of Maui, State of Hawaii.


DARYL T. YAMAMOTO, COUNTY CLERK
County of Maui

Passed First Reading on January 17, 1992.
Effective date of Ordinance May 5, 1992.

I HEREBY CERTIFY that the foregoing is a true and correct copy of Ordinance No. 2108, the original of which is on file in the Office of the County Clerk, County of Maui, State of Hawaii.

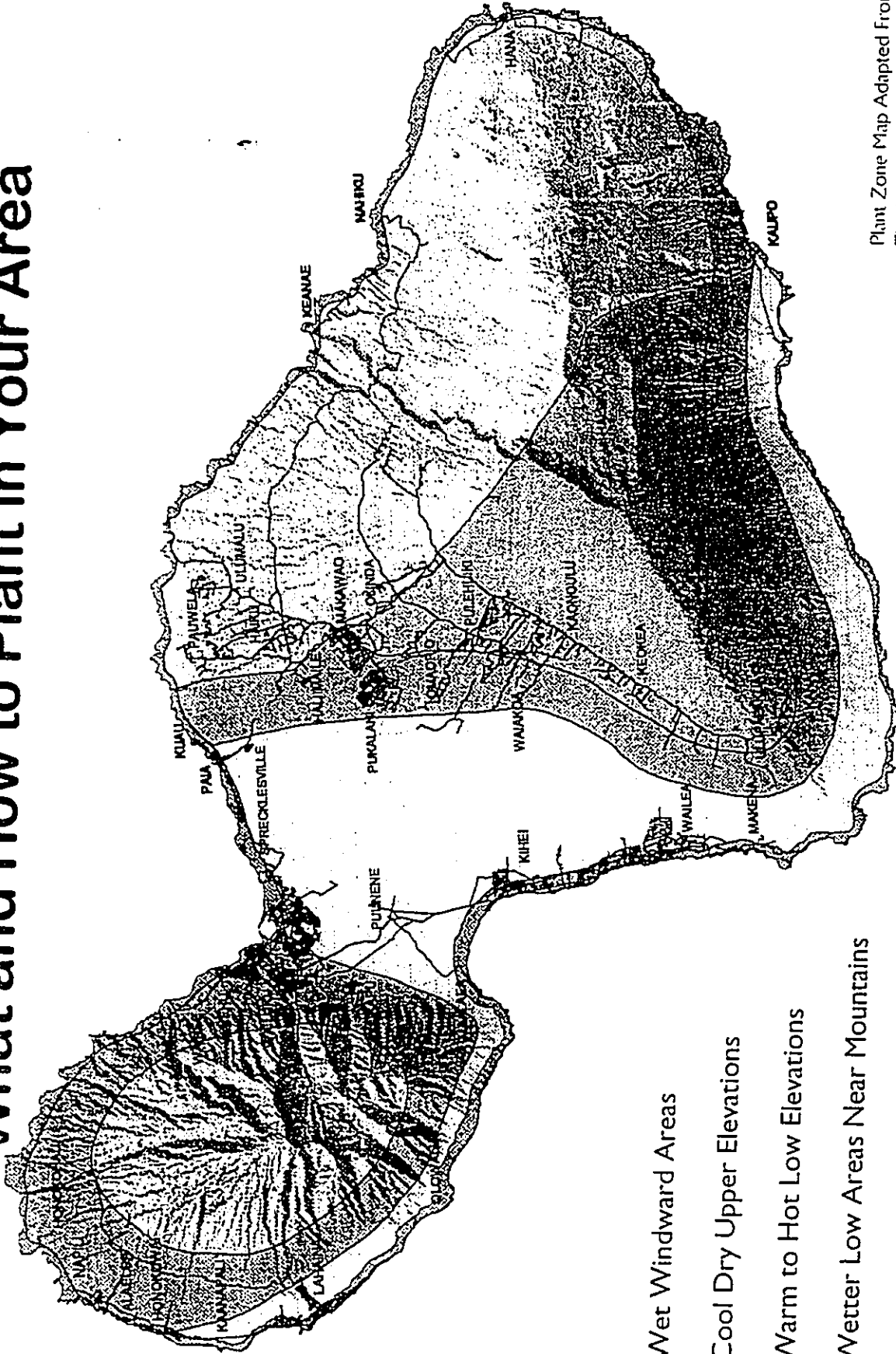
Dated at Wailuku, Hawaii, on

County Clerk, County of Maui

RECORDED

Saving Water in The Yard

What and How to Plant in Your Area



- 1 Wet Windward Areas
- 2 Cool Dry Upper Elevations
- 3 Warm to Hot Low Elevations
- 4 Wetter Low Areas Near Mountains
- 5 Windward Coastal Salt Spray Zones

Plant Zone Map Adapted From
The Maui County Planting Plan

Tips From The Maui County Department of Water Supply
By 'Water-All Things Find Life

Zone-specific Native and Polynesian plants for Maui County

Zone 3

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	<i>Argemone glauca</i> var. <i>decipiens</i>	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	<i>Bidens mauiensis</i>	ko'oko'olau	1'	3'	sea to 1,000'	Dry to Medium
Sh	<i>Bidens menziesii</i> ssp. <i>menziesii</i>	ko'oko'olau	1'	3'		
Sh	<i>Bidens micrantha</i> ssp. <i>micrantha</i>	ko'oko'olau	1'	3'		
Sh	<i>Chenopodium oahuense</i>	'aheahea, 'aweoweo	6'		sea to higher	Dry to Medium
Sh	<i>Dianella sandwicensis</i>	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	<i>Gossypium tomentosum</i>	mao, Hawaiian cotton	5'	8'	sea to 1,000'	Dry to Medium
Sh	<i>Hedyotis</i> spp.	au, pilo	3'	2'	1,000' to 3,000'	Dry to Wet
Sh	<i>Lipochaeta lavarum</i>	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	<i>Osteomeles anthyllifolia</i>	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	<i>Scaevola sericea</i>	naupaka, naupaka-kahakai	6'	8'	sea to 1,000'	Dry to Medium
Sh	<i>Senna gaudichaudii</i>	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	<i>Solanum nelsonii</i>	'akia, beach solanum	3'	3'	sea to 1,00'	Dry to Medium
Sh	<i>Styphelia lamelamelae</i>	pukiawe	6'	6'	1,000' to higher	Dry to Medium
Sh	<i>Vifex rotundifolia</i>	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	<i>Wikstroemia uva-ursi</i> <i>kauaiensis</i> <i>kauaiensis</i>	'akia, Molokai osmanthus				
Sh - Tr	<i>Broussonetia papyrifera</i>	wauke, paper mulberry	8'	6'	sea to 1,000'	Dry to Medium
Sh - Tr	<i>Myoporum sandwicense</i>	nalo, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	<i>Notofrichium sandwicense</i>	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh-Tr	<i>Dodonaea viscosa</i>	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	<i>Aleurites moluccana</i>	candlenut, kukur	50'	50'	sea to 3,000'	Medium to Wet
Tr	<i>Calophyllum inophyllum</i>	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	<i>Canthium odoratum</i>	'Alahe'e, 'ohe'e, walahe'e	12'	8'	sea to 3,000'	Dry to Medium
Tr	<i>Cordia subcordata</i>	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	<i>Diospyros sandwicensis</i>	lama	12'	15'	sea to 3,000'	Dry to Medium
Tr	<i>Erythrina sandwicensis</i>	wiliwili	20'	20'	sea to 1,000'	Dry
Tr	<i>Metrosideros polymorpha</i> var. <i>macrophylla</i>	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 5

TYPE: F Fern G Grass Gr Ground Cover Sh Shrub P Palm S Sedge V Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water
G	<i>Colubrina asiatica</i>	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	<i>Eragrostis variabilis</i>	'emo-foa	1'	2'	sea to 3,000'	Dry to Medium
G	<i>Fimbristylis cymosa</i> ssp. <i>spathacea</i>	mau'u 'aki'aki fimbri-stylis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	<i>Boerhavia repens</i>	alena	0.5'	4'	sea to 1,000'	Dry to Medium
Gr	<i>Chamaesyce celastroides</i> var. <i>laehiensis</i>	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	<i>Cressa truxillensis</i>	cressa	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	<i>Heliotropium anomalum</i> var. <i>argenteum</i>	hinahina ku kahakai	1'	2'	sea to 1,000'	Dry to Medium
Gr	<i>Jacquemontia ovalifolia</i> ssp. <i>sandwicensis</i>	pa'u o hi'aka	0.5'	6'	sea to 1,000'	Dry to Medium
Gr	<i>Lipochaeta integrifolia</i>	nehe	1'	5'	sea to 1,000'	Dry to Medium
Gr	<i>Sesuvium portulacastrum</i>	'akulikuli, sea-purslane	0.5'	2'	sea to 1,000'	Dry to Wet
Gr	<i>Sida fallax</i>	'ilima	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	<i>Tephrosia purpurea</i> var. <i>purpurea</i>	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	<i>Hibiscus calyphyllus</i>	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	<i>Lycium sandwicense</i>	'ohelo-kai, 'ae'ae	2'	2'	sea to 1,000'	Dry to Medium
P	<i>Cocos nucifera</i>	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	<i>Pritchardia hillebrandii</i>	to'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	<i>Marsicus javanicus</i>	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	<i>Argemone glauca</i> var. <i>decipiens</i>	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	<i>Artemisia australis</i>	'ahinahina	2'	3'	sea to 3,000'	Dry to Medium
Sh	<i>Bidens hillebrandiana</i> ssp. <i>hillebrandiana</i>	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	<i>Bidens mauiensis</i>	ko'oko'olau	1'	3'	sea to 1,000'	Dry to Medium
Sh	<i>Chenopodium oahuense</i>	'aheahea, 'aweoweo	6'	6'	sea to higher	Dry to Medium
Sh	<i>Dianella sandwicensis</i>	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	<i>Gossypium tomentosum</i>	mao, Hawaiian cotton	5'	8'	sea to 1,000'	Dry to Medium

Zone 5

Zone-specific Native and Polynesian plants for Maui County

Type	Scientific Name	Common Name	Height	Spread	Elevation	Moisture
Sh	Hedyotis spp.	au, pilo	3'	2'	1,000 to 3,000'	Dry to Wet
Sh	Lipochaeta lavarum	nehē	3'	3'	Sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllifolia	'ulei, eluehe	4'	6'	Sea to 3,000'	Dry to Medium
Sh	Scaevola sericea	naupaka, naupaka-kahakai	6'	8'	Sea to 1,000'	Dry to Medium
Sh	Senna gaudichaudii	kolomana	5'	5'	Sea to 3,000'	Dry to Medium
Sh	Solanum nelsonii	'akia, beach solanum	3'	3'	Sea to 1,000'	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	Sea to 1,000'	Dry to Medium
Sh	Wikstroemia uva-ursi kawaiensis kawaiensis	'akia, Molokai osmanthus				
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'		
Sh-Tr	Dodonaea viscosa	'a'ali'	6'	8'	Sea to 1,000'	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	Sea to 1,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	Sea to 3,000'	Medium to Wet
Tr	Cordia subcordata	kou	30'	25'	Sea to 1,000'	Dry to Wet
Tr	Hibiscus furcellatus	'akiohala, hau-hele	8'			
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	Sea to 1,000'	Dry to Wet
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	Sea to 1,000'	Dry to Wet
Tr	Thespesia populnea	milo	30'	30'	Sea to 3,000'	Dry to Wet
V	Ipomoea pes-caprae	beach morning glory, pohuehue	1'			

DO NOT PLANT THESE PLANTS !!!

Common name	Scientific name	Plant family
black wattle	Acacia mearnsii	Mimosaceae
blackberry	Rubus argutus	Rosaceae
blue gum	Eucalyptus globulus	Myrtaceae
bocconia	Bocconia frutescens	Papaveraceae
broad-leaved cordia	Cordia alliodora	Boraginaceae
broomsedge, yellow bluestem	Andropogon virginicus	Poaceae
buffelgrass	Cenchrus ciliaris	Poaceae
butterfly bush, smoke bush	Buddleia madagascariensis	Buddleiaceae
cats claw, Mysore thorn, wait-a-bit	Caesalpinia decapetala	Caesalpinaceae
common ironwood	Casuarina equisetifolia	Casuarinaceae
common velvet grass, Yorkshire fog	Holcus lanatus	Poaceae
fiddlewood	Citharexylum spinosum	Verbenaceae
fire tree, lava tree	Myrica faya	Myricaceae
glorybower	Clerodendrum laponicum	Verbenaceae
hairy cat's ear, gosmore	Hypochoeris radicata	Asteraceae
haole koa	Leucaena leucocephala	Fabaceae
ivy gourd, scarlet-fruited gourd	Coccinia grandis	Cucurbitaceae
juniper berry	Citharexylum caudatum	Verbenaceae
kahili flower	Grevillea banksii	Proteaceae
klu, popinac	Acacia farnesiana	Mimosaceae
logwood, bloodwood tree	Haematoxylon campechianum	Caesalpinaceae
loquat	Eriobotrya japonica	Rosaceae
meadow ricegrass	Ehrharta stipoides	Poaceae
melaleuca	Melaleuca quinquenervia	Myrtaceae
nicotiana, velvet leaf	Miconia calvenscens	Melastomataceae
narrow-leaved carpetgrass	Axonopus fissifolius	Poaceae
oleaster	Elaeagnus umbellata	Elaeagnaceae
oriental mangrove	Bruguiera gymnorhiza	Rhizophoraceae
padang cassia	Cinnamomum burmannii	Lauraceae
palmgrass	Selaria palmifolia	Poaceae
pearl flower	Heterocentron subtripplinervium	Melastomataceae
quinine tree	Cinchona pubescens	Rubiaceae
salin leaf, cainmitillo	Chrysophyllum oliviforme	Sapotaceae
silkwood, Queensland maple	Flindersia brayleyana	Rutaceae
silky oak, silver oak	Grevillea robusta	Proteaceae
strawberry guava	Psidium cattleianum	Myrtaceae
swamp oak, saltmarsh, longleaf ironwood	Casuarina glauca	Casuarinaceae
sweet vernalgrass	Anthoxanthum odoratum	Poaceae
tree of heaven	Alnus altissima	Simaroubaceae
trumpet tree, guarumo	Cecropia obtusifolia	Cecropiaceae
white ginger	Hedychium coronarium	Zingiberaceae
white mono	Heliocarpus popayanensis	Tiliaceae
yellow ginger	Hedychium flavescens	Zingiberaceae

DO NOT PLANT THESE PLANTS !!!

Common name	Scientific name	Plant family
	<i>Jasminum fluminense</i>	Oleaceae
	<i>Arthrostelema ciliatum</i>	Melastomataceae
	<i>Dissothis rotundifolia</i>	Melastomataceae
	<i>Erigeron karvinskianus</i>	Asteraceae
	<i>Eucalyptus robusta</i>	Myrtaceae
	<i>Hedychium gardnerianum</i>	Zingiberaceae
	<i>Juncus planifolius</i>	Juncaceae
	<i>Lophoslemon confertus</i>	Myrtaceae
	<i>Medinilla cunningii</i>	Melastomataceae
	<i>Medinilla magnifica</i>	Melastomataceae
	<i>Medinilla venosa</i>	Melastomataceae
	<i>Melastoma candidum</i>	Melastomataceae
	<i>Melinis minutiflora</i>	Poaceae
	<i>Olea europaea</i>	Melastomataceae
	<i>Oxyspora paniculata</i>	Poaceae
	<i>Panicum maximum</i>	Poaceae
	<i>Paspalum urvillei</i>	Poaceae
	<i>Passiflora edulis</i>	Passifloraceae
	<i>Phormium tenax</i>	Agavaceae
	<i>Pinus taeda</i>	Pinaceae
	<i>Prosopis pallida</i>	Fabaceae
	<i>Pterolepis glomerata</i>	Melastomataceae
	<i>Rhodomyrtus tomentosa</i>	Myrtaceae
	<i>Schefflera acinophylla</i>	Araliaceae
	<i>Syzygium jambos</i>	Myrtaceae
	<i>Acacia melanoxylon</i>	Mimosaceae
Australian blackwood	<i>Cyathea cooperi</i>	Cyatheaceae
Australian tree fern	<i>Sphaeropteris cooperi</i>	Cyatheaceae
Australian tree fern	<i>Bidens pilosa</i>	Asteraceae
Beggar's tick, Spanish needle	<i>Bracharia mutica</i>	Poaceae
California grass	<i>Ficus microcarpa</i>	Moraceae
Chinese banyon, Maylayan banyon	<i>Asystasia gangetica</i>	Acanthaceae
Chinese violet	<i>Schinus terebinthifolius</i>	Anacardiaceae
Christmasberry, Brazilian pepper	<i>Acacia confusa</i>	Mimosaceae
Formosan koa	<i>Senecio mikanioides</i>	Asteraceae
German ivy	<i>Lonicera japonica</i>	Caprifoliaceae
Japanese honeysuckle	<i>Cleidemia hirta</i>	Melastomataceae
Koster's curse	<i>Lantana camara</i>	Verbenaceae
Lantana	<i>Furcraea foetida</i>	Agavaceae
Mauritius hemp	<i>Fraxinus uhdei</i>	Oleaceae
Mexican ash, tropical ash	<i>Hunnemannia fumarifolia</i>	Papaveraceae
Mexican tulip poppy	<i>Angioperis evecta</i>	Marattiaceae
Mules foot, Madagascar tree fern	<i>Corynocarpus laevigatus</i>	Corynocarpaceae
New Zealand laurel, karakaranut	<i>Lepiospernum scoparium</i>	Myrtaceae
New Zealand tea	<i>Cordia jubata</i>	Poaceae
Pampas grass	<i>Castilleja elastica</i>	Moraceae
Panama rubber tree, Mexican rubber tree	<i>Ardisia elliptica</i>	Myrsinaceae
Shoebulton ardisia	<i>Passiflora mollissima</i>	Passifloraceae
banana poka		

Selection

As a general rule, it is best to select the largest and healthiest specimens. However, be sure to note that they are not pot-bound. Smaller, younger plants may result in a low rate of plant survival.¹ When selecting native species, consider the site they are to be planted in, and the space that you have to plant. For example: Mountain species such as koa and maile will not grow well in hot coastal areas exposed to strong ocean breezes. Lowland and coastal species such as wiliwili and Kou require abundant sunshine and porous soil. They will not grow well with frequent cloud cover, high rainfall and heavy soil.

Consider too, the size that the species will grow to be. It is not wise to plant trees that will grow too large.² Overplanting tends to be a big problem in the landscape due to the underestimation of a species' height, width or spread.

A large, dense canopied tree such as the kukui is a good shade tree for a lawn. However, its canopy size and density of shade will limit what can be planted in the surrounding area. Shade cast by a koa and ohia lehua is relatively light and will not inhibit growth beneath it.

Keep seasons in mind when you are selecting your plants. Not all plants look good year round, some plants such as ilima will look scraggly after they have flowered and formed seeds. Avoid planting large areas with only one native plant. Mixing plants which naturally grow together will ensure the garden will look good all year round.³ Looking at natural habitats helps to show how plants grow naturally in the landscape.

When planting an area with a mixed-ecosystem, keep in mind the size and ecological requirements of each plant. Start with the hardiest and most easily grown species, but allow space for fragile ones in subsequent plantings.

Acquiring natives

Plants in their wild habitat must be protected and maintained. It is best and easiest to get your plants from nurseries (see list), or friend's gardens. Obtain proper permits from landowners and make sure you follow a few common sense rules:

- ▶ collect sparingly from each plant or area.
- ▶ some plants are on the state or Federal Endangered Species list. Make sure you get permits (see app. A,B)

¹ K. Nagata, P.6

² K. Nagata, P.9

³ Nagata, P.9

Soil

Once you have selected your site and the plants you wish to establish there, you must look at the soil conditions on the site. Proper soil is necessary for the successful growth of most native plants, which perform poorly in hard pan, clay or adobe soils. If natives are to be planted in these types of soil, it would be wise to dig planting holes several times the size of the rootball and backfill with 50-75% compost.⁴ A large planting hole ensures the development of a strong root system. The plant will have a headstart before the roots penetrate the surrounding poor soil.³

It is recommended that native plants not be planted in ground that is more dense than potting soil. If there is no alternative, dig a hole in a mound of soil mixed with volcanic cinder which encourages maximum root development. Fill the hole with water, if the water tends to puddle or drain too slowly, dig a deeper hole until the water does not puddle longer than 1 or 2 minutes.⁶ Well-drained soil is one of the most important things when planting natives as you will see in the next section.

Irrigation

Most natives do very poorly in waterlogged conditions. Do not water if the soil is damp. Water when the soil is dry and the plants are wilting. Once established, a good soaking twice a week should suffice. Deep soaking encourages the development of stronger, and deeper root systems. This is better than frequent and shallow watering which encourage weaker, more shallow root systems.

The following is a watering schedule from Kenneth Nagata's Booklet, *How To Plant A Native Hawaiian Garden*:

WATER REQUIREMENT

Heavy
Moderate
Light

WATERING FREQUENCY

3x / week
2x / week
1x / week

Red clay soils hold more water for a longer period of time than sandy soils do. If your area is very sunny or near a beach, things will dry out faster. Even in the area of one garden, there are parts that will need more or less water. Soils can vary and amount of shade and wind differ. After plants are established (a month or two for most plants, up to a year for some trees), you can back off watering.

⁴ Nagata, p. 6

³ Nagata, p. 8

⁶ Nagata, p. 8

Automatic sprinkler systems are expensive to install and must be checked and adjusted regularly. Above-ground systems allow you to monitor how much water is being put out, but you lose a lot due to malfunctioning of sprinkler heads and wind. The most efficient way to save water and make sure your plants get enough water, is to hand-water. This way you are getting our precious water to the right places in the right amounts.⁷

Fertilizer

An all-purpose fertilizer 10-10-10 is adequate for most species. They should be applied at planting time, 3 months later, and 6 months thereafter. Use half the dosage recommended for ornamentals and pay special attention to native ferns which are sensitive to strong fertilizers. Use of organic composts and aged animal manures is suggested instead of chemical fertilizers.- In addition, use of cinders for providing trace minerals is strongly recommended.⁸

Natives are plants which were here hundreds of years before the polynesians inhabited the Hawaiian Islands. They were brought here by birds, or survived the harsh ocean conditions to float here. They are well-adapted to Hawaii's varying soil and environmental conditions. This is why they make prime specimens for a xeriscape garden. However, natives will not thrive on their own, especially under harsh conditions. On the other hand, like any other plant, if you over-water and over-fertilize them, they will die. Follow the instructions given to you by the nursery you buy the plant from, or from this booklet. Better yet, buy a book (suggested readings can be found in the bibliography in the back of this pamphlet), read it, and learn more about native plants. I guarantee that you will be pleased with the results.

⁷ Bornhorst, p. 19-20

⁸ Nagata, p. 6

Propagation

There are many ways to propagate and plant-out native Hawaiian species. One of the most thorough and helpful book is Heidi Bornhorst's book, *Growing Native Hawaiian Plants*. The easiest, and best way to obtain natives for the novice gardener is to get them from a reputable nursery (see appendix c). That way all you will have to do is know how to transplant (if necessary) and plant-out when you are ready. These are the two methods I have listed here.

Transplanting

1. Use pots that are one size bigger than the potted plant is in
2. Get your potting medium ready

Good potting medium is a ½, ½ mixture of peat moss and perlite. If the plant is from a dry or coastal area, add chunks of cinder or extra perlite. If it is a wet forest species, add more peat moss or compost. Be aware that peat moss is very acidic and certain plants react severely to acidity.

If the plant is to eventually be planted into the ground, make a mix of equal parts peat moss, perlite, and soil from the area in which the plant is to be planted. Slow-release fertilizer can be mixed into the potting medium.

3. Once pots, potting medium, fertilizer and water are ready, you can begin re-potting. Keep the plant stem at the same depth it was in the original pot. Avoid putting the plant in too large a pot, as the plant may not be able to soak up all the water in the soil and the roots may drown and rot.

Mix potting medium and add slow-release fertilizer at this time. Pre-wet the medium to keep dust down and lessen shock to the plant. Put medium in bottom of pot. Measure for the correct depth in the new pot. Make sure there is from ½ to 2 inches from the top of the pot so the plant can get adequate water. Try to stand the plant upright and center the stem in the middle of the pot.

Water the plant thoroughly after transplanting. A vitamin B-1 transplanting solution can help to lessen the transplant shock. Keep the plant in the same type of environment as it was before, sun or shade. If roots were broken, trim off some of the leaves to compensate for the loss.⁹

Planting out

1. Plant most native Hawaiian plants in a sunny location in soil that is well-drained.
2. Make the planting hole twice as wide as the root ball or present pot, and just as deep. If the soil is clay-like, and drains slowly, mix in some coarse red or bland cinder, coarse perlite or

⁹ Bornhorst, p.20-21

coarse compost. Place some slow-release fertilizer at the bottom of the hole.

3. Carefully remove the plant from the container and place it in the hole.

The top of the soil should be at the same level as the top of the hole, if it is too high or too low, adjust the soil level so that the plant is at the right depth.

4. Water thoroughly after you transplant.

Mulch

Most natives cannot compete with weeds, and therefore must be weeded around constantly in order to thrive. Mulch is a practical alternative, which discourages and prevents weeds from growing.

Hawaii's hot, humid climate leads to the breaking down of organic mulches. Thick organic mulches such as wood chips and leaves, may also be hiding places for pests.

Stone mulches are attractive, permanent and can help to improve soil quality. Red or black cinder, blue rock chips, smooth river rocks and coral chips are some natural choices.¹⁰ Macadamia nut hulls are also easy to find and can make a nice mulch.¹¹

Never pile up mulch right next to the stem or trunk of a plant, keep it a few inches away.

¹⁰ Bornhorst, p. 24

¹¹ Nagata, p. 7

ZONES

The Maui County Planting Plan has compiled a system of 5 zones of plant growth for Maui County. The descriptions of zones and maps for these zones are as follows:

Zone 1:

Wet areas on the windward side of the island. More than 40 inches of rain per year. Higher than 3,000 feet.

Zone 2:

Cool, dry areas in higher elevations (above 1,000 feet). 20 to 40 inches of rain per year.

Zone 3:

Low, drier areas, warm to hot. Less than 20 inches of rain per year. Sea level to 1,000 feet.

Zone 4:

Lower elevations which are wetter due to proximity of mountains. 1,000 to 3,000 feet.

Zone 5:

Salt spray zones in coastal areas on the windward side.

These zones are to be used as a general guide to planting for Maui County. In addition to looking at the maps, read the descriptions of the zones and decide which zone best fits your area. Plants can be listed in more than one zone and can be planted in a variety of conditions. For best results, take notes on the rainfall, wind, sun and salt conditions of your site. Use the zones as a general guide for selection and read about the plants to decide which best fits your needs as far as care and or function.

PLACES TO SEE NATIVES ON:

The following places propagate native Hawaiian plants from seeds and/or cuttings. Their purpose is to protect and preserve these native plants. Please contact them before going to view the sites, they can provide valuable information and referral to other sources.

Maui:

1. Hoolawa Farms, P.O. Box 731, Haiku, Hawaii, 96708 572-4835
2. The Hawaiian Collection, 1127 Manu St., Kula, Hawaii, 96790 878-1701
3. Kula Botanical Gardens, RR 4, Box 228, Kula, Hawaii, 96790 878-1715
4. Maui Botanical Gardens, Kanaloa Avenue across from stadium 243-7337
5. Kula Forest Reserve, access road at the end of Waipouli Rd.
Call the Maui District Forester 984-8100
6. Wailea Point, Private Condominium residence, 4000 Wailea Alanui,
public access points at Four Seasons Resort or Polo Beach 875-9557
7. Kahanu Gardens, National Tropical Botanical Garden,
Alau Pl, Hana, Hawaii, 96713 248-8912
9. Kahului Library Courtyard, 20 School Street, Kahului, Hawaii 873-3097

United States
Environmental Protection
Agency

Office of Water
Washington, DC 20460

840-B-92-002
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Guidance Specifying Management Measures For Sources Of Nonpoint Pollution In Coastal Waters

Issued Under the Authority of
Section 6217(g) of the Coastal Zone Act
Reauthorization Amendments of 1990.

III. CONSTRUCTION ACTIVITIES

A. Construction Site Erosion and Sediment Control Management Measure

- (1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction, and
- (2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

1. Applicability

This management measure is intended to be applied by States to all construction activities on sites less than 5 acres in areas that do not have an NPDES permit³ in order to control erosion and sediment loss from those sites. This management measure does not apply to: (1) construction of a detached single family home on a site of 1/2 acre or more or (2) construction that does not disturb over 5,000 square feet of land on a site. (NOTE: All construction activities, including clearing, grading, and excavation, that result in the disturbance of areas greater than or equal to 5 acres or are a part of a larger development plan are covered by the NPDES regulations and are thus excluded from these requirements.) Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformity with this management measure and will have flexibility in doing so. The application of management measures by States is described more fully in *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

2. Description

The goal of this management measure is to reduce the sediment loadings from construction sites in coastal areas that enter surface waterbodies. This measure requires that coastal States establish new or enhance existing State erosion and sediment control (ESC) programs and/or require ESC programs at the local level. It is intended to be part of a comprehensive land use or watershed management program, as previously detailed in the Watershed and Site Development Management Measures. It is expected that State and local programs will establish criteria determined by local conditions (e.g., soil types, climate, meteorology) that reduce erosion and sediment transport from construction sites.

Runoff from construction sites is by far the largest source of sediment in urban areas under development (York County Soil and Water Conservation District, 1990). Soil erosion removes over 90 percent of sediment by tonnage in urbanizing areas where most construction activities occur (Canning, 1988). Table 4-14 illustrates some of the

³ On May 27, 1992, the United States Court of Appeals for the Ninth Circuit invalidated EPA's exemption of construction sites smaller than 5 acres from the storm water permit program in *Natural Resources Defense Council v. EPA*, 965 F.2d 759 (9th Cir. 1992). EPA is conducting further rulemaking proceedings on this issue and will not require permit applications for construction activities under 5 acres until further rulemaking has been completed.

measured sediment loading rates associated with construction activities found across the United States. As seen in Table 4-14, erosion rates from natural areas such as undisturbed forested lands are typically less than one ton/acre/year, while erosion from construction sites ranges from 7.2 to over 1,000 tons/acre/year.

Table 4-14. Erosion and Sediment Problems Associated With Construction

Location	Problem	Reference
United States	Sediment loading rates vary from 36.5 to 1,000 ton/ac/yr. These are 5 to 500 times greater than those from undeveloped land. Approximately 600 million tons of soil erodes from developed sites each year. Construction site sediment in runoff can be 10 to 20 times greater than that from agricultural lands.	York County Soil and Water Conservation District, 1990
Franklin County, FL	Sediment yield (ton/ac/yr): forest < 0.5 rangeland < 0.5 tilled 1.4 construction site 30 established urban < 0.5	Franklin County, FL
Wisconsin	Erosion rates range from 30 to 200 ton/ac/yr (10 to 20 times those of cropland).	Wisconsin Legislative Council, 1991
Washington, DC	Erosion rates range from 35 to 45 ton/ac/yr (10 to 100 times greater than agriculture and stabilized urban land uses).	MWCOG, 1987
Anacostia River Basin, VA, MD, DC	Sediment yields from portions of the Anacostia Basin have been estimated at 75,000 to 132,000 ton/yr.	U.S. Army Corps of Engineers, 1990
Washington	Erosion rates range from 50 to 500 ton/ac/yr. Natural erosion rates from forests or well-sodded prairies are 0.01 to 1.0 ton/ac/yr.	Washington Department of Ecology, 1989
Anacostia River Basin, VA, MD, DC	Erosion rates range from 7.2 to 100.8 ton/ac/yr.	USGS, 1978
Alabama	1.4 million tons eroded per year.	Woodward-Clyde, 1991
North Carolina	6.7 million tons eroded per year.	
Louisiana	5.1 million tons eroded per year.	
Oklahoma	4.2 million tons eroded per year.	
Georgia	3.8 million tons eroded per year.	
Texas	3.5 million tons eroded per year.	
Tennessee	3.3 million tons eroded per year.	
Pennsylvania	3.1 million tons eroded per year.	
Ohio	3.0 million tons eroded per year.	
Kentucky	3.0 million tons eroded per year.	

Eroded sediment from construction sites creates many problems in coastal areas including adverse impacts on water quality, critical habitats, submerged aquatic vegetation (SAV) beds, recreational activities, and navigation (APWA, 1991). For example, the Miami River in Florida has been severely affected by pollution associated with upland erosion. This watershed has undergone extensive urbanization, which has included the construction of many commercial and residential buildings over the past 50 years. Sediment deposited in the Miami River channel contributes to the severe water quality and navigation problems of this once-thriving waterway, as well as Biscayne Bay (SFWMD, 1988).

ESC plans are important for controlling the adverse impacts of construction and land development and have been required by many State and local governments, as shown in Table 4-13 (in the Site Development section of this chapter). An ESC plan is a document that explains and illustrates the measures to be taken to control erosion and sediment problems on construction sites (Connecticut Council on Soil and Water Conservation, 1988). It is intended that existing State and local erosion and sediment control plans may be used to fulfill the requirements of this management measure. Where existing ESC plans do not meet the management measure criteria, inadequate plans may be enhanced to meet the management measure guidelines.

Typically, an ESC plan is part of a larger site plan and includes the following elements:

- Description of predominant soil types;
- Details of site grading including existing and proposed contours;
- Design details and locations for structural controls;
- Provisions to preserve topsoil and limit disturbance;
- Details of temporary and permanent stabilization measures; and
- Description of the sequence of construction.

ESC plans ensure that provisions for control measures are incorporated into the site planning stage of development and provide for the reduction of erosion and sediment problems and accountability if a problem occurs (York County Soil and Water Conservation District, 1990). An effective plan for urban runoff management on construction sites will control erosion, retain sediments on site, to the extent practicable, and reduce the adverse effects of runoff. Climate, topography, soils, drainage patterns, and vegetation will affect how erosion and sediment should be controlled on a site (Washington State Department of Ecology, 1989). An effective ESC plan includes both structural and nonstructural controls. Nonstructural controls address erosion control by decreasing erosion potential, whereas structural controls are both preventive and mitigative because they control both erosion and sediment movement.

Typical nonstructural erosion controls include (APWA, 1991; York County Soil and Water Conservation District, 1990):

- Planning and designing the development within the natural constraints of the site;
- Minimizing the area of bare soil exposed at one time (phased grading);
- Providing for stream crossing areas for natural and man-made areas; and
- Stabilizing cut-and-fill slopes caused by construction activities.

Structural controls include:

- Perimeter controls;
- Mulching and seeding exposed areas;
- Sediment basins and traps; and
- Filter fabric, or silt fences.

Some erosion and soil loss are unavoidable during land-disturbing activities. While proper siting and design will help prevent areas prone to erosion from being developed, construction activities will invariably produce conditions where erosion may occur. To reduce the adverse impacts associated with construction, the construction management measure suggests a system of nonstructural and structural erosion and sediment controls for incorporation into an

ESC plan. Erosion controls have distinct advantages over sediment controls. Erosion controls reduce the amount of sediment transported off-site, thereby reducing the need for sediment controls. When erosion controls are used in conjunction with sediment controls, the size of the sediment control structures and associated maintenance may be reduced, decreasing the overall treatment costs (SWRPC, 1991).

3. Management Measure Selection

This management measure was selected to minimize sediment being transported outside the perimeter of a construction site through two broad performance goals: (1) reduce erosion and (2) retain sediment onsite, to the extent practicable. These performance goals were chosen to allow States and local governments flexibility in specifying practices appropriate for local conditions.

While several commentors responding to the draft (May 1991) guidance expressed the need to define "more measurable, enforceable ways" to control sediment loadings, other commentors stressed the need to draft management measures that do not conflict with existing State programs and allow States and local governments to determine appropriate practices and design standards for their communities. These management measures were selected because virtually all coastal States control construction activities to prevent erosion and sediment loss.

The measures were specifically written for the following reasons:

- (1) Predevelopment loadings may vary greatly, and some sediment loss is usually inevitable;
- (2) Current practice is built on the use of systems of practices selected based on site-specific conditions; and
- (3) The combined effectiveness of erosion and sediment controls in systems is not easily quantified.

4. Erosion Control Practices

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

Erosion controls are used to reduce the amount of sediment that is detached during construction and to prevent sediment from entering runoff. Erosion control is based on two main concepts: (1) disturb the smallest area of land possible for the shortest period of time, and (2) stabilize disturbed soils to prevent erosion from occurring.

a. *Schedule projects so clearing and grading are done during the time of minimum erosion potential.*

Often a project can be scheduled during the time of year that the erosion potential of the site is relatively low. In many parts of the country, there is a certain period of the year when erosion potential is relatively low and construction scheduling could be very effective. For example, in the Pacific region if construction can be completed during the 6-month dry season (May 1 - October 31), temporary erosion and sediment controls may not be needed. In addition, in some parts of the country erosion potential is very high during certain parts of the year such as the spring thaw in northern areas. During this time of year, melting snowfall generates a constant runoff that can erode soil. In addition, construction vehicles can easily turn the soft, wet ground into mud, which is more easily washed offsite. Therefore, in the north, limitations should be placed on grading during the spring thaw (Goldman et al., 1986).

b. Stage construction.

Avoid areawide clearance of construction sites. Plan and stage land disturbance activities so that only the area currently under construction is exposed. As soon as the grading and construction in an area are complete, the area should be stabilized.

By clearing only those areas immediately essential for completing site construction, buffer zones are preserved and soil remains undisturbed until construction begins. Physical markers, such as tape, signs, or barriers, indicating the limits of land disturbance, can ensure that equipment operators know the proposed limits of clearing. The area of the watershed that is exposed to construction is important for determining the net amount of erosion. Reducing the extent of the disturbed area will ultimately reduce sediment loads to surface waters. Existing or newly planted vegetation that has been planted to stabilize disturbed areas should be protected by routing construction traffic around and protecting natural vegetation with fencing, tree armoring, retaining walls, or tree wells.

c. Clear only areas essential for construction.

Often areas of a construction site are unnecessarily cleared. Only those areas essential for completing construction activities should be cleared, and other areas should remain undisturbed. Additionally, the proposed limits of land disturbance should be physically marked off to ensure that only the required land area is cleared. Avoid disturbing vegetation on steep slopes or other critical areas.

d. Locate potential nonpoint pollutant sources away from steep slopes, waterbodies, and critical areas.

Material stockpiles, borrow areas, access roads, and other land-disturbing activities can often be located away from critical areas such as steep slopes, highly erodible soils, and areas that drain directly into sensitive waterbodies.

e. Route construction traffic to avoid existing or newly planted vegetation.

Where possible, construction traffic should travel over areas that must be disturbed for other construction activity. This practice will reduce the area that is cleared and susceptible to erosion.

f. Protect natural vegetation with fencing, tree armoring, and retaining walls or tree wells.

Tree armoring protects tree trunks from being damaged by construction equipment. Fencing can also protect tree trunks, but should be placed at the tree's drip line so that construction equipment is kept away from the tree. The tree drip line is the minimum area around a tree in which the tree's root system should not be disturbed by cut, fill, or soil compaction caused by heavy equipment. When cutting or filling must be done near a tree, a retaining wall or tree well should be used to minimize the cutting of the tree's roots or the quantity of fill placed over the tree's roots.

g. Stockpile topsoil and reapply to revegetate site.

Because of the high organic content of topsoil, it cannot be used as fill material or under pavement. After a site is cleared, the topsoil is typically removed. Since topsoil is essential to establish new vegetation, it should be stockpiled and then reapplied to the site for revegetation, if appropriate. Although topsoil salvaged from the existing site can often be used, it must meet certain standards and topsoil may need to be imported onto the site if the existing topsoil is not adequate for establishing new vegetation.

h. Cover or stabilize topsoil stockpiles.

Unprotected stockpiles are very prone to erosion and therefore stockpiles must be protected. Small stockpiles can be covered with a tarp to prevent erosion. Large stockpiles should be stabilized by erosion blankets, seeding, and/or mulching.

i. Use wind erosion controls.

Wind erosion controls limit the movement of dust from disturbed soil surfaces and include many different practices. Wind barriers block air currents and are effective in controlling soil blowing. Many different materials can be used as wind barriers, including solid board fence, snow fences, and bales of hay. Sprinkling moistens the soil surface with water and must be repeated as needed to be effective for preventing wind erosion (Delaware DNREC, 1989); however, applications must be monitored to prevent excessive runoff and erosion.

j. Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drain.

Earth dikes, perimeter dikes or swales, or diversions can be used to intercept and convey runoff above disturbed areas. An earth dike is a temporary berm or ridge of compacted soil that channels water to a desired location. A perimeter dike/swale or diversion is a swale with a supporting ridge on the lower side that is constructed from the soil excavated from the adjoining swale (Delaware DNREC, 1989). These practices should be used to intercept flow from denuded areas or newly seeded areas to keep the disturbed areas from being eroded from the uphill runoff. The structures should be stabilized within 14 days of installation. A pipe slope drain, also known as a pipe drop structure, is a temporary pipe placed from the top of a slope to the bottom of the slope to convey concentrated runoff down the slope without causing erosion (Delaware DNREC, 1989).

k. On long or steep, disturbed, or man-made slopes, construct benches, terraces, or ditches at regular intervals to intercept runoff.

Benches, terraces, or ditches break up a slope by providing areas of low slope in the reverse direction. This keeps water from proceeding down the slope at increasing volume and velocity. Instead, the flow is directed to a suitable outlet, such as a sediment basin or trap. The frequency of benches, terraces, or ditches will depend on the erodibility of the soils, steepness and length of the slope, and rock outcrops. This practice should be used if there is a potential for erosion along the slope.

l. Use retaining walls.

Often retaining walls can be used to decrease the steepness of a slope. If the steepness of a slope is reduced, the runoff velocity is decreased and, therefore, the erosion potential is decreased.

m. Provide linings for urban runoff conveyance channels.

Often construction increases the velocity and volume of runoff, which causes erosion in newly constructed or existing urban runoff conveyance channels. If the runoff during or after construction will cause erosion in a channel, the channel should be lined or flow control BMPs installed. The first choice of lining should be grass or sod since this reduces runoff velocities and provides water quality benefits through filtration and infiltration. If the velocity in the channel would erode the grass or sod, then riprap, concrete, or gabions can be used.

n. Use check dams.

Check dams are small, temporary dams constructed across a swale or channel. They can be constructed using gravel or straw bales. They are used to reduce the velocity of concentrated flow and, therefore, to reduce the erosion in

a swale or channel. Check dams should be used when a swale or channel will be used for a short time and therefore it is not feasible or practical to line the channel or implement flow control BMPs (Delaware DNREC, 1989).

■ o. *Seed and fertilize.*

Seeding establishes a vegetative cover on disturbed areas. Seeding is very effective in controlling soil erosion once a dense vegetative cover has been established. However, often seeding and fertilizing do not produce as thick a vegetative cover as do seed and mulch or netting. Newly established vegetation does not have as extensive a root system as existing vegetation and therefore is more prone to erosion, especially on steep slopes. Care should be taken when fertilizing to avoid untimely or excessive application. Since the practice of seeding and fertilizing does not provide any protection during the time of vegetative establishment, it should be used only on favorable soils in very flat areas and not in sensitive areas.

■ p. *Use seeding and mulch/mats.*

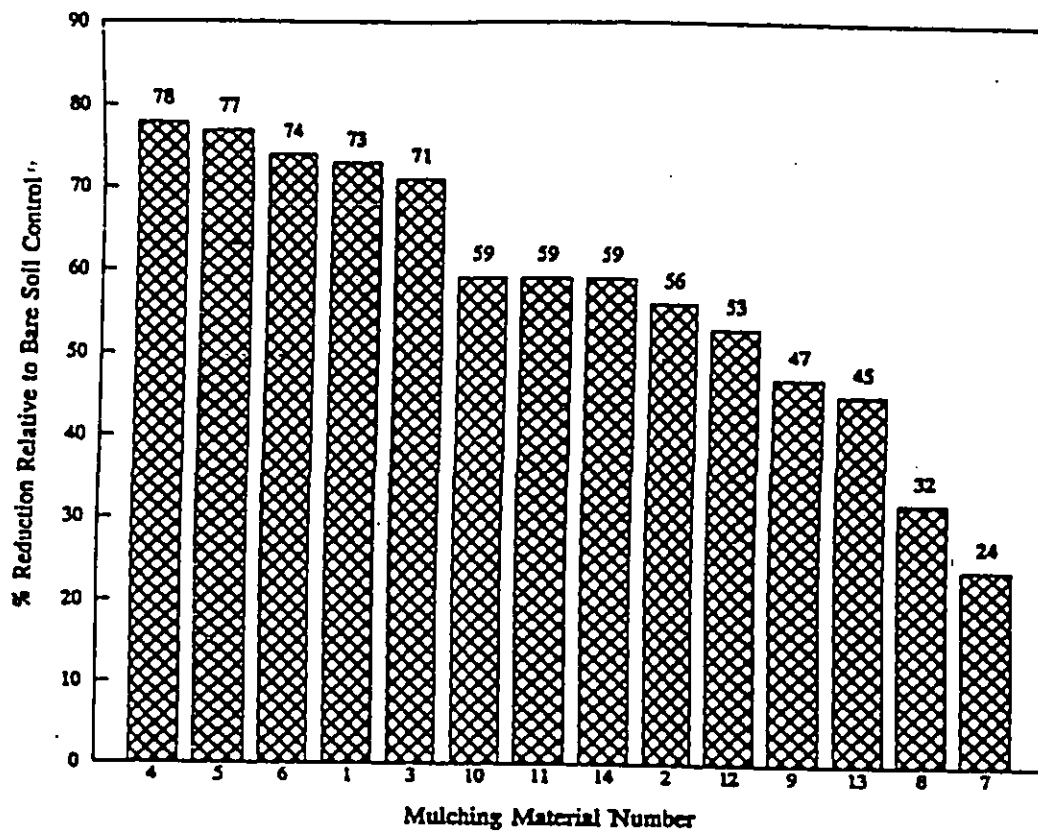
Seeding establishes a vegetative cover on disturbed areas. Seeding is very effective in controlling soil erosion once the vegetative cover has been established. The mulching/mats protect the disturbed area while the vegetation becomes established.

The management of land by using ground cover reduces erosion by reducing the flow rate of runoff and the raindrop impact. Bare soils should be seeded or otherwise stabilized within 15 calendar days after final grading. Denuded areas that are inactive and will be exposed to rain for 30 days or more should also be temporarily stabilized, usually by planting seeds and establishing vegetation during favorable seasons in areas where vegetation can be established. In very flat, non-sensitive areas with favorable soils, stabilization may involve simply seeding and fertilizing. Mulching and/or sodding may be necessary as slopes become moderate to steep, as soils become more erosive, and as areas become more sensitive.

■ q. *Use mulch/mats.*

Mulching involves applying plant residues or other suitable materials on disturbed soil surfaces. Mulchs/mats used include tacked straw, wood chips, and jute netting and are often covered by blankets or netting. Mulching alone should be used only for temporary protection of the soil surface or when permanent seeding is not feasible. The useful life of mulch varies with the material used and the amount of precipitation, but is approximately 2 to 6 months. Figure 4-5 shows water velocity reductions that could be expected using various mulching techniques. Similarly, Figure 4-6 shows reductions in soil loss achievable using various mulching techniques. During times of year when vegetation cannot be established, soil mulching should be applied to moderate slopes and soils that are not highly erodible. On steep slopes or highly erodible soils, multiple mulching treatments should be used. On a high-elevation or desert site where grasses cannot survive the harsh environment, native shrubs may be planted. Interlocking ceramic materials, filter fabric, and netting are available for this purpose. Before stabilizing an area, it is important to have installed all sediment controls and diverted runoff away from the area to be planted. Runoff may be diverted away from denuded areas or newly planted areas using dikes, swales, or pipe slope drains to intercept runoff and convey it to a permanent channel or storm drain. Reserved topsoil may be used to revegetate a site if the stockpile has been covered and stabilized.

Consideration should be given to maintenance when designing mulching and matting schemes. Plastic nets are often used to cover the mulch or mats; however, they can foul lawn mower blades if the area requires mowing.



Mulch Material	Characteristics
1	100% wheat straw/top net
2	100% wheat straw/two nets
3	70% wheat straw/30% coconut fiber
4	70% wheat straw/30% coconut fiber
5	100% coconut fiber
6	Nylon monofilament/two nets
7	Nylon monofilament/rigid/bonded
8	Vinyl monofilament/flexible/bonded
9	Curled wood fibers/top net
10	Curled wood fibers/two nets
11	Antiwash netting (jute)
12	Interwoven paper and thread
13	Uncrimped wheat straw - 2,242 kg/ha
14	Uncrimped wheat straw - 4,484 kg/ha

Figure 4-5. Water velocity reductions for different mulch treatments (adapted from Harding, 1990).

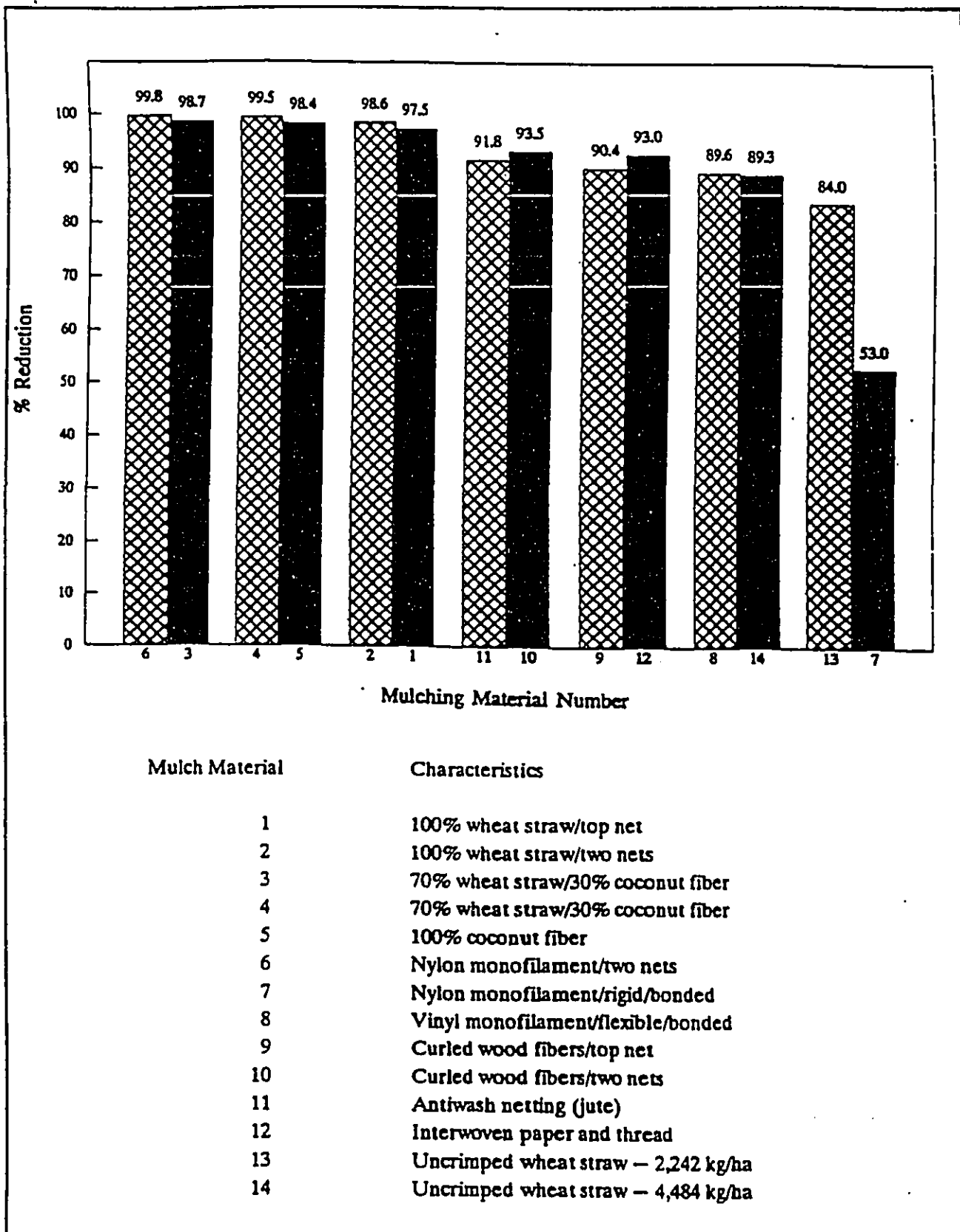


Figure 4-6. Actual soil loss reductions for different mulch treatments (adapted from Harding, 1990).

r. Use sodding.

Sodding permanently stabilizes an area. Sodding provides immediate stabilization of an area and should be used in critical areas or where establishment of permanent vegetation by seeding and mulching would be difficult. Sodding is also a preferred option when there is a high erosion potential during the period of vegetative establishment from seeding.

s. Use wildflower cover.

Because of the hardy drought-resistant nature of wildflowers, they may be more beneficial as an erosion control practice than turf grass. While not as dense as turfgrass, wildflower thatches and associated grasses are expected to be as effective in erosion control and contaminant absorption. Because thatches of wildflowers do not need fertilizers, pesticides, or herbicides, and watering is minimal, implementation of this practice may result in a cost savings (Brash et al., undated). In 1987, Howard County, Maryland, spent \$690.00 per acre to maintain turfgrass areas, compared to only \$31.00 per acre for wildflower meadows (Wilson, 1990).

A wildflower stand requires several years to become established; maintenance requirements are minimal once the area is established (Brash et al., undated).

5. Sediment Control Practices⁴

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

Sediment controls capture sediment that is transported in runoff. Filtration and detention (gravitational settling) are the main processes used to remove sediment from urban runoff.

a. Sediment Basins

Sediment basins, also known as silt basins, are engineered impoundment structures that allow sediment to settle out of the urban runoff. They are installed prior to full-scale grading and remain in place until the disturbed portions of the drainage area are fully stabilized. They are generally located at the low point of sites, away from construction traffic, where they will be able to trap sediment-laden runoff.

Sediment basins are typically used for drainage areas between 5 and 100 acres. They can be classified as either temporary or permanent structures, depending on the length of service of the structure. If they are designed to function for less than 36 months, they are classified as "temporary"; otherwise, they are considered permanent structures. Temporary sediment basins can also be converted into permanent urban runoff management ponds. When sediment basins are designed as permanent structures, they must meet all standards for wet ponds.

b. Sediment Trap

Sediment traps are small impoundments that allow sediment to settle out of runoff water. Sediment traps are typically installed in a drainageway or other point of discharge from a disturbed area. Temporary diversions can be

⁴Adapted from Goldman (1986).

used to direct runoff to the sediment trap. Sediment traps should not be used for drainage areas greater than 5 acres and typically have a useful life of approximately 18 to 24 months.

■ c. Filter Fabric Fence

Filter fabric fence is available from many manufacturers and in several mesh sizes. Sediment is filtered out as urban runoff flows through the fabric. Such fences should be used only where there is sheet flow (i.e., no concentrated flow), and the maximum drainage area to the fence should be 0.5 acre or less per 100 feet of fence. Filter fabric fences have a useful life of approximately 6 to 12 months.

■ d. Straw Bale Barrier

A straw bale barrier is a row of anchored straw bales that detain and filter urban runoff. Straw bales are less effective than filter fabric, which can usually be used in place of straw bales. However, straw bales have been effectively used as temporary check dams in channels. As with filter fabric fences, straw bale barriers should be used only where there is sheet flow. The maximum drainage area to the barrier should be 0.25 acre or less per 100 feet of barrier. The useful life of straw bales is approximately 3 months.

■ e. Inlet Protection

Inlet protection consists of a barrier placed around a storm drain drop inlet, which traps sediment before it enters the storm sewer system. Filter fabric, straw bales, gravel, or sand bags are often used for inlet protection.

■ f. Construction Entrance

A construction entrance is a pad of gravel over filter cloth located where traffic leaves a construction site. As vehicles drive over the gravel, mud, and sediment are collected from the vehicles' wheels and offsite transport of sediment is reduced.

■ g. Vegetated Filter Strips

Vegetated filter strips are low-gradient vegetated areas that filter overland sheet flow. Runoff must be evenly distributed across the filter strip. Channelized flows decrease the effectiveness of filter strips. Level spreading devices are often used to distribute the runoff evenly across the strip (Dillaha et al., 1989).

Vegetated filter strips should have relatively low slopes and adequate length and should be planted with erosion-resistant plant species. The main factors that influence the removal efficiency are the vegetation type, soil infiltration rate, and flow depth and travel time. These factors are dependent on the contributing drainage area, slope of strip, degree and type of vegetative cover, and strip length. Maintenance requirements for vegetated filter strips include sediment removal and inspections to ensure that dense, vigorous vegetation is established and concentrated flows do not occur. Maintenance of these structures is discussed in Section II.A of this chapter.

6. Effectiveness and Cost Information

■ a. Erosion Control Practices

The effectiveness of erosion control practices can vary based on land slope, the size of the disturbed area, rainfall frequency and intensity, wind conditions, soil type, use of heavy machinery, length of time soils are exposed and unprotected, and other factors. In general, a system of erosion and sediment control practices can more effectively reduce offsite sediment transport than can a single system. Numerous nonstructural measures such as protecting natural or newly planted vegetation, minimizing the disturbance of vegetation on steep slopes and other highly

erodible areas, maximizing the distance eroded material must travel before reaching the drainage system, and locating roads away from sensitive areas may be used to reduce erosion.

Table 4-15 contains the available cost and effectiveness data for some of the erosion controls listed above. Information on the effectiveness of individual nonstructural controls was not available. All reported effectiveness data assume that controls are properly designed, constructed, and maintained. Costs have been broken down into annual capital costs, annual maintenance costs, and total annual costs (including annualization of the capital costs).

b. Sediment Control Practices

Regular inspection and maintenance are needed for most erosion control practices to remain effective. The effectiveness of sediment controls will depend on the size of the construction site and the nature of the runoff flows. Sediment basins are most appropriate for drainage areas of 5 acres or greater. In smaller areas with concentrated flows, silt traps may suffice. Where concentrated flow leaves the site and the drainage area is less than 0.5 ac/100 ft of flow, filter fabric fences may be effective. In areas where sheet flow leaves the site and the drainage area is greater than 0.5 acre/100 ft of flow, perimeter dikes may be used to divert the flow to a sediment trap or sediment basin. Urban runoff inlets may be protected using straw bales or diversions to filter or route runoff away from the inlets.

Table 4-16 describes the general cost and effectiveness of some common sediment control practices.

c. Comparisons

Figure 4-7 illustrates the estimated TSS loading reductions from Maryland construction sites possible using a combination of erosion and sediment controls in contrast to using only sediment controls. Figure 4-8 shows a comparison of the cost and effectiveness of various erosion control practices. As can be seen in Figure 4-8, seeding or seeding and mulching provide the highest levels of control at the lowest cost.

Table 4-15. ESC Quantitative Effectiveness and Cost Summary

Practice	Design Constraints of Purpose	Percent Removal of TSS	Useful Life (years) ^a	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Sod	Intermediate erosion protection where there is high erosion potential during vegetative establishment.	Average: 99% Observed range: 98% - 99% References: Minnesota Pollution Control Agency, 1989; Pennsylvania, 1983 cited in USEPA, 1991	2	Average: \$0.2 per ft ² (\$11,300 per acre) Range: \$0.1 - \$1.1 References: SWRPC, 1991; Schueler, 1987; Virginia, 1980	Average: 5% Range: 5% Reference: SWRPC, 1991	\$0.20 per ft ² \$7,500 per acre
Seed	Establish vegetation on disturbed area.	After vegetation established- Average: 90% Observed range: 50% - 100% References: SCS, 1985 cited in EPA, 1991; Minnesota Pollution Control Agency, 1989; Oberlis, 1984 cited in City of Austin, 1988; Delaware Department of Natural Resources, 1989	2	Average: \$400 per acre Range: \$200 - \$1000 per acre References: Wisconsin DOT cited in SWRPC, 1991; SWRPC, 1991; Goldman, 1988; Virginia, 1980	Average: 20% Range: 15% - 25% References: Wisconsin DOT cited in SWRPC, 1991; SWRPC, 1991	\$300 per acre
Seed and Mulch	Establish vegetation on disturbed area.	After vegetation established- Average: 90% Observed range: 50% - 100% References: SCS, 1985 cited in EPA, 1991; Minnesota Pollution Control Agency, 1989; Oberlis, 1984 cited in City of Austin, 1988; Delaware Department of Natural Resources, 1989	2	Average: \$1,500 per acre Range: \$800 - \$3,500 per acre References: Goldman, 1988; Washington DOT, 1990; NC State, 1990; Schueler, 1987; Virginia, 1980; SWRPC, 1991	Average: NA ^b Range: NA References: None	\$1,100 per acre

Table 4-15. (Continued)

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years) ^a	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Terraces	Break up long or steep slopes.	<p>Observed range: Land Slope 1-12% 12-18% 18-24%</p> <p>Reduction in Erosion 70% 60% 55%</p> <p>Additionally, if the slope steepness is halved, while other factors are held constant, the soil loss potential decreases 2-1/2 times. If both the slope and length are halved, the soil loss potential is decreased 4 times. References: Goldman, 1986; Beasley, 1972</p>	2	Average: \$5 per lin ft Range: \$1 - \$12 References: SWRPC, 1991; Goldman, 1986; Virginia, 1991	Average: 20% Range: 20% Reference: SWRPC, 1991	\$4 per lin ft
All Erosion Controls	Reduce amount of sediment entering runoff.	<p>Average: 85% Observed range: 85% Reference: Schueler, 1980</p>	--	Varies but typically low	Varies but typically low	Varies but typically low

NA - Not available.
^a Useful life estimated as length of construction project (assumed to be 2 years).
^b For Total Annual Cost, assume Annual Maintenance Cost = 2% of construction cost.

Table 4-16. ESC Quantitative Effectiveness and Cost Summary for Sediment Control Practices

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years) ^a	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Sediment basin	Minimum drainage area = 5 acres, maximum drainage area = 100 acres	Average: 70%	2	Less than 50,000 ft ³ storage	Average: 25%	Less than 50,000 ft ³ storage
		Observed range: 55% - 100%; References: Schueler, 1990; Engle, BW and Jarrett, AR, 1990; Baumann, 1990		Average: \$0.60 per ft ³ storage	Range: 25% References: Denver COG cited in SWRPC, 1991; SWRPC, 1991	\$0.40 per ft ³ storage \$700 per drainage acre ^b
Sediment trap	Maximum drainage area = 5 acres	Average: 60%	1.5	Greater than 50,000 ft ³ storage	Average: 20%	Greater than 50,000 ft ³ storage
		Observed range: (-7%) - 100% References: Schueler, et al., 1990; Tahoe Regional Planning Agency, 1989; Baumann, 1990		Average: \$0.60 per ft ³ storage	Range: 20% References: Denver COG cited in SWRPC, 1991; SWRPC, 1991; Goldman, 1986	\$0.20 per ft ³ storage \$800 per drainage acre ^c
Filter Fabric Fence	Maximum drainage area = 0.5 acre per 100 feet of fence. Not to be used in concentrated flow areas.	Average: 70% Observed range: 0% - 100% sand; 80% - 99% silt-loam; 50% - 80% silt-clay-loam; 0% - 20%	0.5	Average: \$3 per lin ft (\$700 per drainage acre ^c) Range: \$1 - \$8 per lin ft References: Wisconsin DOT cited in SWRPC, 1991; SWRPC, 1991; Goldman, 1986; Virginia, 1991; NC State, 1980	Average: 100% Range: 100% References: SWRPC, 1991	\$7 per lin ft \$850 per drainage acre ^c

Table 4-16. (Continued)

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years) ^a	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Straw Bale Barrier	Maximum drainage area = 0.25 acre per 100 feet of barrier. Not to be used in concentrated flow areas.	Average: 70% Observed Range: 70% References: Virginia, 1980 cited in EPA, 1991	0.25	Average: \$4 per lin ft (\$1,600 per drainage acre ^d) Range: \$2 - \$8 per lin ft References: Goldman, 1986; Virginia, 1991	Average: 100% Range: 100% References: SWRPC, 1991	\$17 per lin ft \$6,000 per drainage acre ^d
Inlet Protection	Protect storm drain inlet.	Average: NA Observed Range: NA References: None	1	Average: \$100 per inlet Range: \$50 - \$150 References: SWRPC, 1991; Denver COG cited in SWRPC, 1991; Virginia, 1991; EPA cited in SWRPC, 1991	Average: 60% Range: 20% - 100% References: SWRPC, 1991; Denver COG cited in SWRPC, 1991	\$150 per inlet
Construction Entrance	Removes sediment from vehicles wheels.	Average: NA Observed Range: NA References: None	2	Average: \$2,000 each Range: \$1,000 - \$4,000 References: Goldman, 1986; NC State, 1990	Average: NA ^e Range: NA References: None	\$1,500 each
	With washrack:			Average: \$3,000 each Range: \$1,000 - \$5,000 References: Virginia, 1991		\$2,200 each

Table 4-16. (Continued)

Practice	Design Constraints or Purpose	Percent Removal of TSS	Useful Life (years) ^a	Construction Cost	Annual Maintenance Cost (as % construction cost)	Total Annual Cost
Vegetative Filter Strip	Must have sheet flow.	Average: 70% Observed Range: 20% - 80% References: Hayes and Hairston, 1983 cited in Casman, 1990; Dillaha et al., 1989, cited in Glick et al., 1991; Virginia Department of Conservation, 1987; Nonpoint Source Control Task Force, 1983 cited in Minnesota PCA, 1989; Schueler, 1987	2	Established from existing vegetation- Average: \$0 Range: \$0 References: Schueler, 1987	Average: NA Range: NA References: None	NA
				Established from sod- Average: \$11,300 per acre Range: \$4,500 - \$48,000 per acre References: Schueler, 1987; SWRPC, 1991		

NA - Not available.

- a. Useful life estimated as length of construction project (assumed to be 2 years)
- b. For Total Annual Cost, assume Annual Maintenance Cost=20% of construction cost.
- c. Assumes trap volume = 1800 cu/ac (0.5 inches runoff per acre).
- d. Assumes drainage area of 0.5 acre per 100 feet of fence (maximum allowed).
- e. Assumes drainage area of 0.25 acre per 100 feet of barrier (maximum allowed).

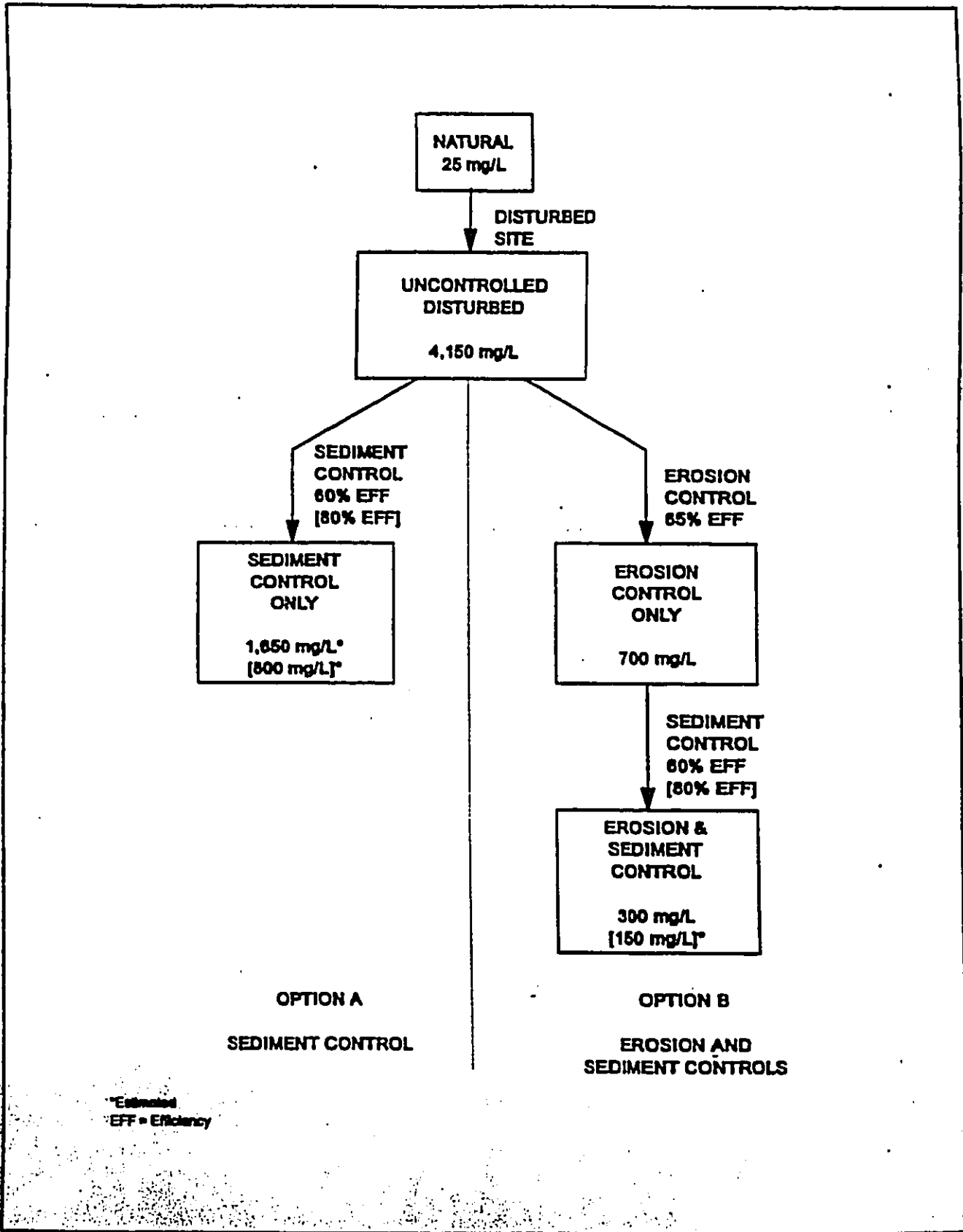


Figure 4-7. TSS concentrations from Maryland construction sites (Schueler, 1987).

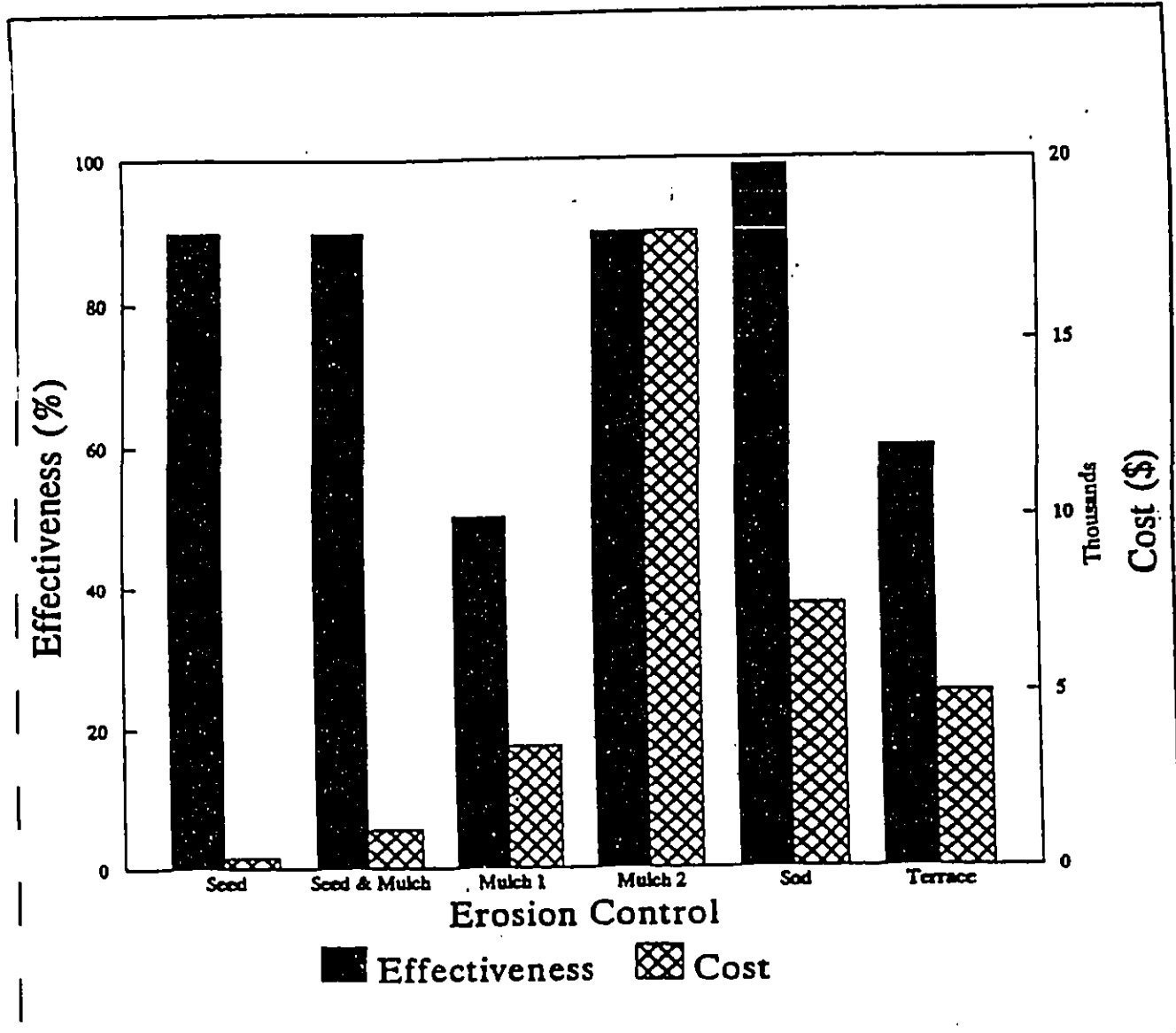


Figure 4-8. Comparison of cost and effectiveness for erosion control practices (based on information in Tables 4-15 and 4-16).

B. Construction Site Chemical Control Management Measure

- (1) Limit application, generation, and migration of toxic substances;
- (2) Ensure the proper storage and disposal of toxic materials; and
- (3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

1. Applicability

This management measure is intended to be applied by States to all construction sites less than 5 acres in area and to new, resurfaced, restored, and reconstructed road, highway, and bridge construction projects. This management measure does not apply to: (1) construction of a detached single family home on a site of 1/2 acre or more or (2) construction that does not disturb over 5,000 square feet of land on a site. (NOTE: All construction activities, including clearing, grading, and excavation, that result in the disturbance of areas greater than or equal to 5 acres or are a part of a larger development plan are covered by the NPDES regulations and are thus excluded from these requirements.) Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformance with this management measure and will have flexibility in doing so. The application of management measures by States is described more fully in *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

2. Description

The purpose of this management measure is to prevent the generation of nonpoint source pollution from construction sites due to improper handling and usage of nutrients and toxic substances, and to prevent the movement of toxic substances from the construction site.

Many potential pollutants other than sediment are associated with construction activities. These pollutants include pesticides (insecticides, fungicides, herbicides, and rodenticides); fertilizers used for vegetative stabilization; petrochemicals (oils, gasoline, and asphalt degreasers); construction chemicals such as concrete products, sealers, and paints; wash water associated with these products; paper, wood; garbage; and sanitary wastes (Washington State Department of Ecology, 1991).

The variety of pollutants present and the severity of their effects are dependent on a number of factors:

- (1) The nature of the construction activity. For example, potential pollution associated with fertilizer usage may be greater along a highway or at a housing development than it would be at a shopping center development because highways and housing developments usually have greater landscaping requirements.
- (2) The physical characteristics of the construction site. The majority of all pollutants generated at construction sites are carried to surface waters via runoff. Therefore, the factors affecting runoff volume,

such as the amount, intensity, and frequency of rainfall; soil infiltration rates; surface roughness; slope length and steepness; and area denuded, all contribute to pollutant loadings.

- (3) The proximity of surface waters to the nonpoint pollutant source. As the distance separating pollutant-generating activities from surface waters decreases, the likelihood of water quality impacts increases.

a. Pesticides

Insecticides, rodenticides, and herbicides are used on construction sites to provide safe and healthy conditions, reduce maintenance and fire hazards, and curb weeds and woody plants. Rodenticides are also used to control rodents attracted to construction sites. Common insecticides employed include synthetic, relatively water-insoluble chlorinated hydrocarbons, organophosphates, carbamates, and pyrethrins.

b. Petroleum Products

Petroleum products used during construction include fuels and lubricants for vehicles; for power tools, and for general equipment maintenance. Specific petroleum pollutants include gasoline, diesel oil, kerosene, lubricating oils, and grease. Asphalt paving also can be particularly harmful since it releases various oils for a considerable time period after application. Asphalt overloads might be dumped and covered without inspection. However, many of these pollutants adhere to soil particles and other surfaces and can therefore be more easily controlled.

c. Nutrients

Fertilizers are used on construction sites when revegetating graded or disturbed areas. Fertilizers contain nitrogen and phosphorus, which in large doses can adversely affect surface waters, causing eutrophication.

1. Solid Wastes

Solid wastes on construction sites are generated from trees and shrubs removed during land clearing and structure installation. Other wastes include wood and paper from packaging and building materials, scrap metals, sanitary wastes, rubber, plastic and glass, and masonry and asphalt products. Food containers, cigarette packages, leftover food, and aluminum foil also contribute solid wastes to the construction site.

2. Construction Chemicals

Chemical pollutants, such as paints, acids for cleaning masonry surfaces, cleaning solvents, asphalt products, soil additives used for stabilization, and concrete-curing compounds, may also be used on construction sites and carried in runoff.

3. Other Pollutants

Other pollutants, such as wash water from concrete mixers, acid and alkaline solutions from exposed soil or rock, and alkaline-forming natural elements, may also be present and contribute to nonpoint source pollution.

Revegetation of disturbed areas may require the use of fertilizers and pesticides, which, if not applied properly, may become nonpoint source pollutants. Many pesticides are restricted by Federal and/or State regulations.

Hydroseeding operations, in which seed, fertilizers, and lime are applied to the ground surface in a one-step operation, are more conducive to nutrient pollution than are the conventional seedbed-preparation operations, in which fertilizers and lime are tilled into the soil. Use of fertilizers containing little or no phosphorus may be required by

local authorities if the development is near sensitive waterbodies. The addition of lime can also affect the pH of sensitive waters, making them more alkaline.

Improper fueling and servicing of vehicles can lead to significant quantities of petroleum products being dumped onto the ground. These pollutants can then be washed off site in urban runoff, even when proper erosion and sediment controls are in place. Pollutants carried in solution in runoff water, or fixed with sediment crystalline structures, may not be adequately controlled by erosion and sediment control practices (Washington Department of Ecology, 1991). Oils, waxes, and water-insoluble pesticides can form surface films on water and solid particles. Oil films can also concentrate water-soluble insecticides. These pollutants can be nearly impossible to control once present in runoff other than by the use of very costly water-treatment facilities (Washington Department of Ecology, 1991).

After spill prevention, one of the best methods to control petroleum pollutants is to retain sediments containing oil on the construction site through use of erosion and sediment control practices. Improved maintenance and safe storage facilities will reduce the chance of contaminating a construction site. One of the greatest concerns related to use of petroleum products is the method for waste disposal. The dumping of petroleum product wastes into sewers and other drainage channels is illegal and could result in fines or job shutdown.

The primary control method for solid wastes is to provide adequate disposal facilities. Erosion and sediment control structures usually capture much of the solid waste from construction sites. Periodic removal of litter from these structures will reduce solid waste accumulations. Collected solid waste should be removed and disposed of at authorized disposal areas.

Improperly stored construction materials, such as pressure-treated lumber or solvents, may lead to leaching of toxics to surface water and ground water. Disposal of construction chemicals should follow all applicable State and local laws that may require disposal by a licensed waste management firm.

3. Management Measure Selection

This management measure was selected based on the potential for many construction activities to contribute to nutrient and toxic NPS pollution.

This management measure was selected because (1) construction activities have the potential to contribute to increased loadings of toxic substances and nutrients to waterbodies; (2) various States and local governments regulate the control of chemicals on construction sites through spill prevention plans, erosion and sediment control plans, or other administrative devices; (3) the practices described are commonly used and presented in a number of best management practice handbooks and guidance manuals for construction sites; and (4) the practices selected are the most economical and effective.

4. Practices

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

■ a. Properly store, handle, apply, and dispose of pesticides.

Pesticide storage areas on construction sites should be protected from the elements. Warning signs should be placed in areas recently sprayed or treated. Persons mixing and applying these chemicals should wear suitable protective clothing, in accordance with the law.

Application rates should conform to registered label directions. Disposal of excess pesticides and pesticide-related wastes should conform to registered label directions for the disposal and storage of pesticides and pesticide containers set forth in applicable Federal, State, and local regulations that govern their usage, handling, storage, and disposal. Pesticides and herbicides should be used only in conjunction with Integrated Pest Management (IPM) (see Chapter 2). Pesticides should be the tool of last resort; methods that are the least disruptive to the environment and human health should be used first.

Pesticides should be disposed of through either a licensed waste management firm or a treatment, storage, and disposal (TSD) facility. Containers should be triple-rinsed before disposal, and rinse waters should be reused as product.

Other practices include setting aside a locked storage area, tightly closing lids, storing in a cool, dry place, checking containers periodically for leaks or deterioration, maintaining a list of products in storage, using plastic sheeting to line the storage area, and notifying neighboring property owners prior to spraying.

b. Property store, handle, use, and dispose of petroleum products.

When storing petroleum products, follow these guidelines:

- Create a shelter around the area with cover and wind protection;
- Line the storage area with a double layer of plastic sheeting or similar material;
- Create an impervious berm around the perimeter with a capacity 110 percent greater than that of the largest container;
- Clearly label all products;
- Keep tanks off the ground; and
- Keep lids securely fastened.

Oil and oily wastes such as crankcase oil, cans, rags, and paper dropped into oils and lubricants should be disposed of in proper receptacles or recycled. Waste oil for recycling should not be mixed with degreasers, solvents, antifreeze, or brake fluid.

c. Establish fuel and vehicle maintenance staging areas located away from all drainage courses, and design these areas to control runoff.

Proper maintenance of equipment and installation of proper stream crossings will further reduce pollution of water by these sources. Stream crossings should be minimized through proper planning of access roads. Refer to Chapter 3 for additional information on stream crossings.

d. Provide sanitary facilities for construction workers.

e. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff of pollutants and contamination of ground water.

f. Develop and implement a spill prevention and control plan. Agencies, contractors, and other commercial entities that store, handle, or transport fuel, oil, or hazardous materials should develop a spill response plan.

Post spill procedure information and have persons trained in spill handling on site or on call at all times. Materials for cleaning up spills should be kept on site and easily available. Spills should be cleaned up immediately and the contaminated material properly disposed of. Spill control plan components should include:

- Stop the source of the spill.
- Contain any liquid.
- Cover the spill with absorbent material such as kitty litter or sawdust, but do not use straw. Dispose of the used absorbent properly.

■ *g. Maintain and wash equipment and machinery in confined areas specifically designed to control runoff.*

Thinners or solvents should not be discharged into sanitary or storm sewer systems when cleaning machinery. Use alternative methods for cleaning larger equipment parts, such as high-pressure, high-temperature water washes, or steam cleaning. Equipment-washing detergents can be used, and wash water may be discharged into sanitary sewers if solids are removed from the solution first. (This practice should be verified with the local sewer authority.) Small parts can be cleaned with degreasing solvents, which can then be reused or recycled. Do not discharge any solvents into sewers.

Washout from concrete trucks should be disposed of into:

- A designated area that will later be backfilled;
- An area where the concrete wash can harden, can be broken up, and then can be placed in a dumpster; or
- A location not subject to urban runoff and more than 50 feet away from a storm drain, open ditch, or surface water.

Never dump washout into a sanitary sewer or storm drain, or onto soil or pavement that carries urban runoff.

■ *h. Develop and implement nutrient management plans.*

Properly time applications, and work fertilizers and liming materials into the soil to depths of 4 to 6 inches. Using soil tests to determine specific nutrient needs at the site can greatly decrease the amount of nutrients applied.

■ *i. Provide adequate disposal facilities for solid waste, including excess asphalt, produced during construction.*

■ *j. Educate construction workers about proper materials handling and spill response procedures. Distribute or post informational material regarding chemical control.*

**A Checklist of Water Conservation Ideas
For**

Schools and Colleges

This checklist provides water conservation tips successfully implemented by industrial and commercial users. This list has been revised from the original copy first published and distributed by the Los Angeles Department of Water and Power.

General suggestions

Increase employee, faculty, and student awareness of water conservation.

Conduct contests for employees and students (e.g., posters, slogans, or conservation ideas).

Seek employee and student suggestions on water conservation; locate suggestion boxes in prominent areas.

Install signs in all restrooms encouraging water conservation.

When cleaning with water is necessary, use budgeted amounts.

Read water meter weekly to monitor success of water conservation efforts.

Assign an employee to monitor water use and waste.

Determine the quantity and purpose of water being used.

Determine other methods of water conservation.

Building maintenance

Check water supply system for leaks.

Turn off any unnecessary flows.

Repair dripping faucets and showers and continuously-running or leaking toilets.

Install flow reducers and faucet aerators in all plumbing fixtures where possible.

Reduce the water used in toilet flushing by either adjusting the vacuum flush mechanism or installing toilet tank displacement devices (dams, bottles, or bags).

As appliances or fixtures wear out, replace them with water-saving models.

Shut off water supply to equipment rooms not in use.

Minimize the water used in cooling equipment, such as air compressors, in accordance with manufacturer recommendations.

Reduce the load on air conditioning units by shutting air conditioning off when and where it is not needed.

Keep hot water pipes insulated.

Avoid excessive boiler and air conditioner blow down. (Monitor total dissolved solids levels, and blow down only when needed.)

Instruct clean-up crews to use less water for mopping.

Change window cleaning schedule from periodic to an on-call/as-required basis.

Kitchen and laundry areas

Turn off the continuous flow used to clean the drain trays of the coffee/milk/soda beverage island; clean the trays only as needed.

Turn dishwasher off when not in use. Wash full loads only.

Replace spray heads to reduce water flow.

Recycle rinse water from the dishwasher or recirculate it to the garbage disposer.

Do not use running water to melt ice or frozen foods. If necessary, use ponded water.

Use water conserving ice makers.

Presoak utensils and dishes in ponded water instead of using a running water rinse.

Wash vegetables in ponded water; do not let water run in preparation sink.

Use water from steam tables in place of fresh water to wash down cooking area.

Reprogram washing machines to eliminate a rinse or suds cycle when possible and if not restricted by health regulations.

Reduce water levels, where possible, to minimize water required per load of washing.

Only wash full loads of clothes.

Evaluate wash formula and machine cycles for water use efficiency.

Pool

Lower pool water to reduce amount of water splashed out.

Use a pool cover to reduce evaporation when pool is not being used.

Reduce amount of water used to clean pool filters.

Exterior areas

Convert from high-water using lawns, trees, and shrubs to xeriscape -- Landscape design incorporating plants providing beautiful color and requiring less water. In the future, design landscapes that require less water.

Inventory outdoor water use for landscaped areas.

Water landscape only when needed; two-to-three times a week is usually sufficient.

Wash autos, buses, and trucks less often.

Discontinue using water to clean sidewalks, driveways, loading docks, and parking lots. Consider using brooms or motorized sweepers.

Avoid landscape fertilizing and pruning stimulating excessive growth.

Remove weeds and unhealthy plants so remaining plants can benefit from the water saved.

In many cases, older, established plants require only infrequent irrigation. Look for indications of water needs such as wilt, change of color, or dry soils.

Install soil moisture overrides or timers on sprinkler systems.

Time watering, when possible, to occur in the morning or evening when evaporation is lowest.



November 24, 2004

George Tengan, Director
County of Maui
Department of Water Supply
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Proposed Maui Preparatory Academy, Napili, Maui
(TMK (2) 4-3-01:01 (por.))

Dear Mr. Tengan,

Thank you for your letter responding to our request for comments on the Draft Environmental Assessment (EA) concerning the proposed Maui Preparatory Academy, located in Napili, Maui, at TMK (2) 4-3-01:01 (por.). In response to your comments, we note the following:

1. Maui Preparatory Academy acknowledges that water availability is not granted or guaranteed until an application for water meters has been received and reviewed.
2. Domestic and irrigation water calculations, along with fire flow calculations, will be submitted to your department in order to determine adequacy during the building permit process. These will include peak demands for both existing conditions and for the proposed development.
3. Maui Preparatory Academy acknowledges that reduced pressure back-flow prevention may be required for the improved facility if one does not already exist. Construction plans will be submitted to your Engineering Division during the building permit process.
4. Maui Preparatory Academy acknowledges your recommendations regarding water conservation measures and will consider the feasibility and applicability of those suggestions.
5. Best Management Practices will be utilized to minimize runoff and protect area water sources.

George Tengan, Director
November 24, 2004
Page 2

Thank you again for your input into the proposed action.

Very truly yours,

A handwritten signature in black ink, appearing to read "M Slepina".

Matthew Slepina, Planner

MS:tn

cc: Tom DiNoto, Maui Preparatory Academy
mpa/poko/dws.res

ALAN M. ARAKAWA
Mayor



GLENN T. CORREA
Director

JOHN L. BUCK III
Deputy Director

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

DEPARTMENT OF PARKS & RECREATION

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

September 23, 2004

04 SEP 27 AM 9:38
DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

MEMO TO: Michael W. Foley, Planning Director

FROM:  GLENN T. CORREA, Director

SUBJECT: **DRAFT ENVIRONMENTAL ASSESSMENT
PROPOSED MAUI PREPARATORY ACADEMY**

We have reviewed the subject application and have no comments or objections to the proposed action.

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

c: Patrick Matsui, Chief of Planning and Development



'04 OCT -7 P1:25

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

October 5, 2004

Ms. Kivette A. Caigoy
Staff Planner
County of Maui
Department of Planning
250 S. High Street
Wailuku, HI 96793


Dear Ms. Caigoy:

Subject: Maui Preparatory Academy
TMK: (2) 4-3-001:001
I.D.: EA 2004/0005, CIZ 2004/0012, CPA 2004/0005, DBA 2004/0007

Thank you for allowing us to comment on the subject project.

Please refer to our letter dated March 22, 2004 to Munekiyo & Hiraga, Inc. for our comments about the subject project included in the Draft Environmental Assessment. If you have any questions or concerns, please call Dan Takahata at 871-2385.

Sincerely,


Neal Shinyama
Manager, Engineering

NS/dt:ikh

References

References

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Appendices

Appendix A

Resolution No. 04-62

Resolution

No. 04-62

REFERRING TO THE MAUI PLANNING COMMISSION BILLS TO, RESPECTIVELY, ENACT A COMMUNITY PLAN AMENDMENT, A CHANGE IN ZONING, AND A STATE LAND USE DISTRICT CLASSIFICATION AMENDMENT FOR PROPERTY SITUATED AT NAPILI, MAUI, HAWAII FOR THE PROPOSED MAUI PREPARATORY ACADEMY

WHEREAS, the Council is considering a Community Plan Amendment from Agricultural to Public/Quasi-Public District, a Change in Zoning from Agricultural District to P-1 Public/Quasi-Public District, and a State Land Use District Classification Amendment from Agricultural to Urban for approximately 14.990 acres of property situated at Napili, Maui, Hawaii, identified for real property tax purposes by Tax Map Key Number: (2) 4-3-001:001 (portion); and

WHEREAS, Sections 8-8.4 and 8-8.6 of the Revised Charter of the County of Maui (1983), as amended, require that the appropriate planning commission review proposed land use ordinances and amendments to the General Plan and provide findings and recommendations to the Council; now, therefore,

BE IT RESOLVED by the Council of the County of Maui:

1. That it hereby refers the proposed bill entitled "A BILL FOR AN ORDINANCE TO AMEND THE WEST MAUI COMMUNITY PLAN FROM AGRICULTURAL TO PUBLIC/QUASI-PUBLIC FOR PROPERTY SITUATED AT NAPILI, MAUI, HAWAII FOR THE PROPOSED MAUI PREPARATORY ACADEMY", a copy of which is attached hereto as Exhibit "A" and made a part hereof, to the Maui Planning Commission pursuant to sections 8-8.4 and 8-8.6 of the Revised Charter of the County of Maui (1983), as amended; and
2. That it hereby refers the proposed bill entitled "A BILL FOR AN ORDINANCE TO CHANGE THE ZONING FROM AGRICULTURAL DISTRICT TO P-1 PUBLIC/QUASI-PUBLIC DISTRICT FOR PROPERTY SITUATED AT NAPILI, MAUI, HAWAII FOR THE PROPOSED MAUI PREPARATORY ACADEMY", a copy of which is attached hereto as Exhibit "B" and made a part hereof, to the Maui Planning Commission pursuant to sections 8-8.4 and 8-8.6 of the Revised Charter of the County of Maui (1983), as amended; and

Resolution No. 04-62

3. That it hereby refers the proposed bill entitled "A BILL FOR AN ORDINANCE TO AMEND THE STATE LAND USE DISTRICT CLASSIFICATION FROM AGRICULTURAL TO URBAN FOR PROPERTY SITUATED AT NAPILI, MAUI, HAWAII FOR THE PROPOSED MAUI PREPARATORY ACADEMY", a copy of which is attached hereto as Exhibit "C" and made a part hereof, to the Maui Planning Commission pursuant to Sections 8-8.4 and 8-8.6 of the Revised Charter of the County of Maui (1983), as amended; and
4. That it respectfully requests that the Maui Planning Commission transmit its findings and recommendations to the Council as expeditiously as possible; and
5. That certified copies of this resolution be transmitted to the Mayor, the Planning Director, and the Maui Planning Commission.

APPROVED AS TO FORM
AND LEGALITY:



DUDLEY G. AKAMA
Deputy Corporation Counsel
County of Maui

S:\CLERICAL\LJN\Reso\Maui\prereso.wpd

ORDINANCE NO. _____

BILL NO. _____ (2004)

A BILL FOR AN ORDINANCE TO AMEND THE WEST MAUI
COMMUNITY PLAN FROM AGRICULTURAL TO PUBLIC/QUASI-PUBLIC
FOR PROPERTY SITUATED AT NAPILI, MAUI, HAWAII
FOR THE PROPOSED MAUI PREPARATORY ACADEMY

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

SECTION 1. Pursuant to Chapter 2.80B, Maui County Code, the West Maui Community Plan and Land Use Map is hereby amended from Agricultural to Public/Quasi-Public for property situated at Napili, Maui, Hawaii, and identified for real property tax purposes by Tax Map Key Number (2)4-3-001:001(portion), comprising approximately 14.990 acres, and more particularly described in Exhibits "1" and "2", attached hereto and made a part hereof, and in Community Plan Amendment Map No. CP-_____, which is on file in the Office of the County Clerk of the County of Maui, and by reference made a part hereof.

SECTION 2. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM
AND LEGALITY:



DUDLEY G. AKAMA
Deputy Corporation Counsel
County of Maui

S:\CLERICAL\LN\ORD\CPA\43001001cpa.wpd

EXHIBIT "A"

DESCRIPTION

MAUI PREPARATORY ACADEMY
LOT 1

being a portion of Royal Patent 1663, Land Commission Award 5524, Part 3 to L. Konia situated at Alaeloa, Lahaina, Island and County of Maui, State of Hawaii.

Beginning at the Westerly corner of this lot, on the Southeasterly side of Honoapiilani Highway [F.A.P. No. RF-030-1(15)] the coordinates of said point of beginning referred to Government Survey Triangulation Station "MANINI" being:

19,512.70 feet North

7,151.37 feet West

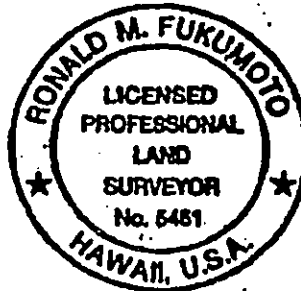
and running by azimuths measured clockwise from True South:

1. 228° 15' 11" 283.77 feet along the Southeasterly side of Honoapiilani Highway [F.A.P. No. RF-030-1(15)];
2. 216° 27' 50" 63.20 feet along same;
3. 284° 30' 499.97 feet along the remainder of Royal Patent 1663, Land Commission Award 5524, Part 3 to L. Konia;
4. 217° 30' 75.86 feet along same;
5. 253° 05' 65.00 feet along same;
6. 280° 45' 90.00 feet along same;
7. 290° 20' 150.57 feet along same;
8. 326° 00' 94.75 feet along same;
9. 304° 17' 255.33 feet along same;
10. Thence along same on a curve to the right with a radius of 667.00 feet, the chord azimuth and distance being:
82° 50' 22" 189.36 feet;
11. 91° 00' 207.46 feet along same;

END

12. Thence along same on a curve to the left with a radius of 833.00 feet, the chord azimuth and distance being:
81° 00' 289.30 feet;
13. 71° 00' 205.74 feet along same;
14. Thence along same on a curve to the right with a radius of 467.00 feet, the chord azimuth and distance being:
77° 22' 55.5" 103.82 feet;
15. 142° 00' 262.49 feet along same;
16. 103° 07' 202.03 feet along same to the point of beginning and containing an area of 7.900 Acres.

This work was prepared by me
or under my supervision.



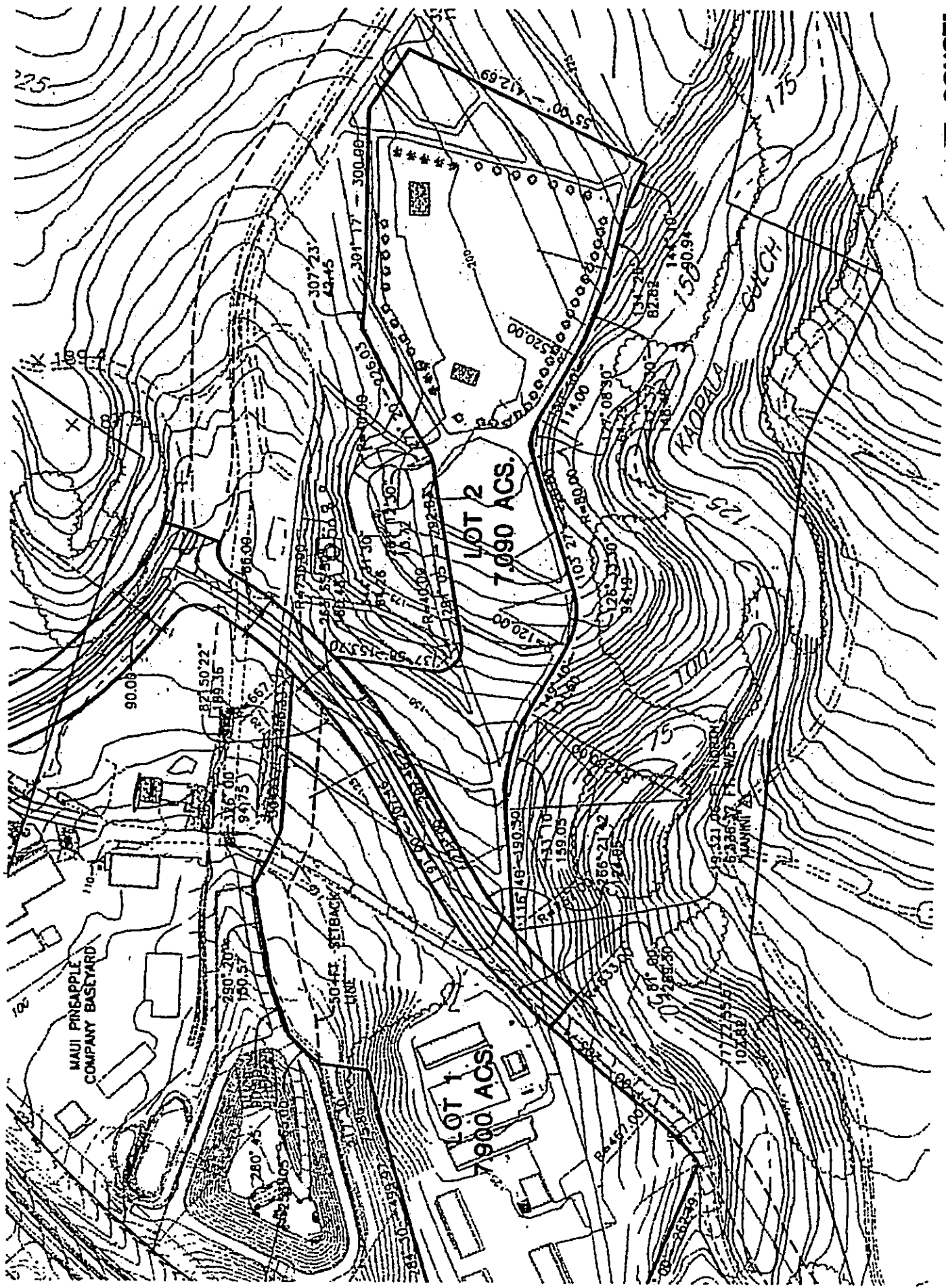
RONALD M. FUKUMOTO ENGINEERING, INC:

Ronald M. Fukumoto

Ronald M. Fukumoto
Licensed Professional Land Surveyor
Certificate Number 5451

1721 Wili Pa Loop, Suite 203
Wailuku, Hawaii 96793
February 12, 2004

MLP03



DESCRIPTION

MAUI PREPARATORY ACADEMY
LOT 2

Being a portion of Royal Patent 1663, Land Commission Award 5524, Part 3 to L. Konia situated at Ala'aloa, Lahaina, Island and County of Maui, State of Hawaii.

Beginning at the Westerly corner of this lot, the coordinates of said point of beginning referred to Government Survey Triangulation Station "MANINI" being:

19,321.06 feet North

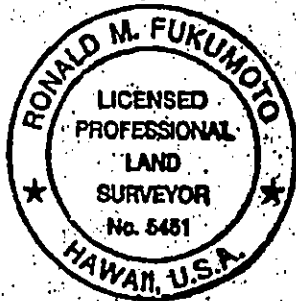
6,336.37 feet West

and running by azimuths measured clockwise from True South:

1. Thence along the remainder of Royal Patent 1663, Land Commission Award 5524, Part 3 to L. Konia on a curve to the right with a radius of 767.00 feet, the chord azimuth and distance being:
266° 21' 42" 124.05 feet;
2. 271° 00' 207.46 feet along same;
3. Thence along same on a curve to the left with a radius of 733.00 feet, the chord azimuth and distance being:
263° 55' 50" 180.42 feet;
4. 37° 58' 153.70 feet along same;
5. Thence along same on a curve to the left with a radius of 40.00 feet, the chord azimuth and distance being:
344° 31' 30" 64.26 feet;
6. 291° 05' 292.83 feet along same;
7. Thence along same on a curve to the left with a radius of 40.00 feet, the chord azimuth and distance being:
281° 12' 30" 13.72 feet;
8. 271° 20' 226.03 feet along same;
9. 307° 23' 42.45 feet along same;
10. 301° 17' 300.00 feet along same;

11. 334° 50' 113.92 feet along same;
12. 55° 00' 412.69 feet along same;
13. 144° 10' 90.94 feet along same;
14. 134° 25' 82.82 feet along same;
15. Thence along same on a curve to the right with a radius of 520.00 feet, the chord azimuth and distance being:
142° 37' 30" 148.48 feet;
16. 150° 50' 114.00 feet along same;
17. Thence along same on a curve to the left with a radius of 80.00 feet, the chord azimuth and distance being:
127° 08' 30" 64.29 feet;
18. 103° 27' 220.00 feet along same;
19. Thence along same on a curve to the right with a radius of 120.00 feet, the chord azimuth and distance being:
126° 33' 30" 94.19 feet;
20. 149° 40' 121.50 feet along same;
21. Thence along same on a curve to the left with a radius of 280.00 feet, the chord azimuth and distance being:
133° 10' 159.05 feet;
22. 116° 40' 190.30 feet along same to the point of beginning and containing an area of 7.090 Acres.

This work was prepared by me
or under my supervision.



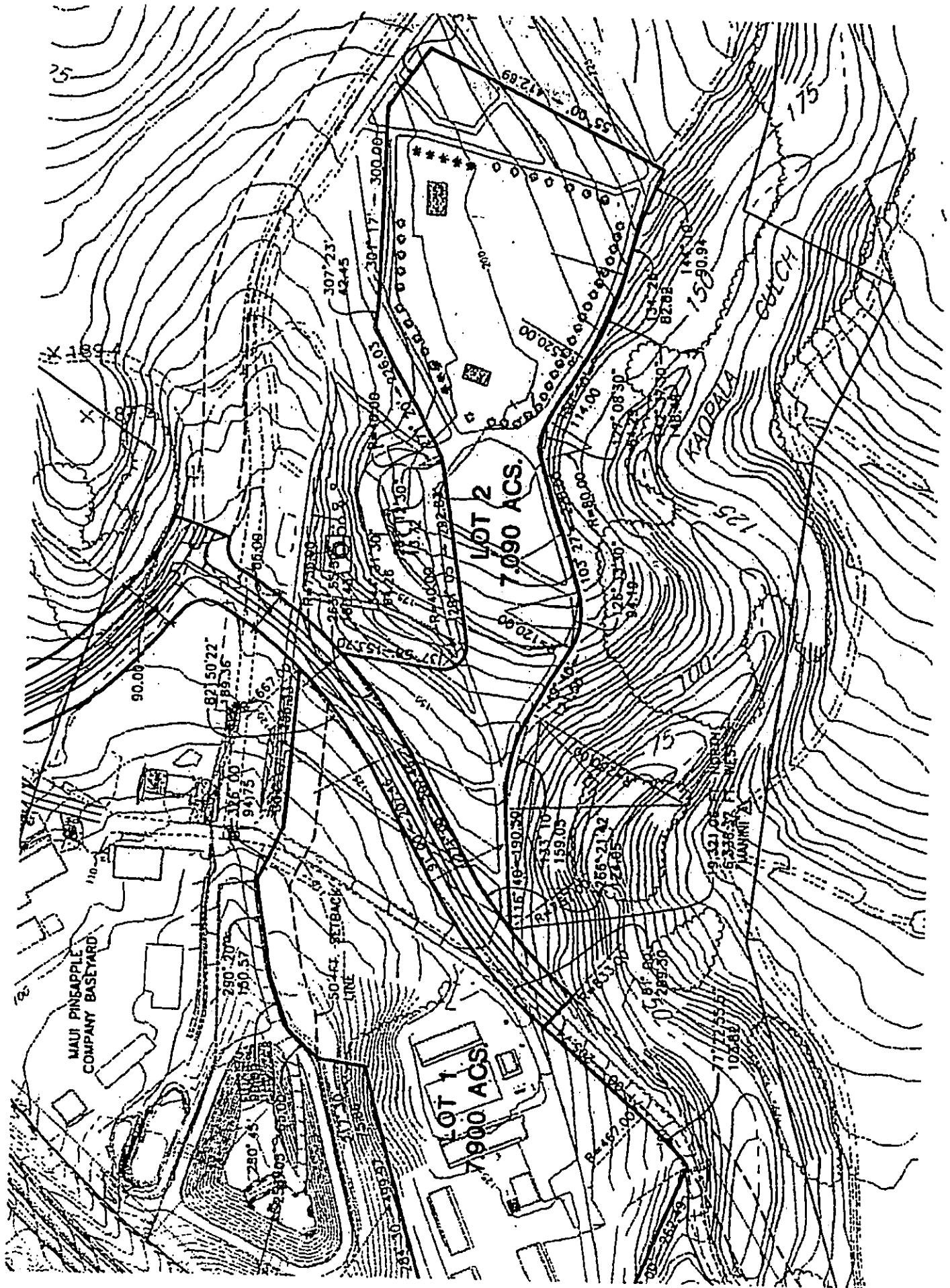
RONALD M. FUKUMOTO ENGINEERING, INC.

Ronald M. Fukumoto

Ronald M. Fukumoto
Licensed Professional Land Surveyor
Certificate Number 5451

721 Wili Pa Loop, Suite 203
Vailuku, Hawaii 96793
February 12, 2004

LP03



ORDINANCE NO. _____

BILL NO. _____ (2004)

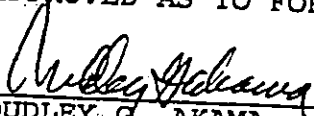
A BILL FOR AN ORDINANCE TO CHANGE THE ZONING FROM AGRICULTURAL DISTRICT TO P-1 PUBLIC/QUASI-PUBLIC DISTRICT FOR PROPERTY SITUATED AT NAPILI, MAUI, HAWAII FOR THE PROPOSED MAUI PREPARATORY ACADEMY

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

SECTION 1. Pursuant to Chapters 19.31 and 19.510, Maui County Code, a change in zoning from Agricultural District to P-1 Public/Quasi-Public District is hereby granted for that certain parcel of land situated at Napili, Maui, Hawaii, and identified for real property tax purposes by Tax Map Key Number (2)4-3-001:001 (portion), comprising approximately 14.990 acres, and more particularly described in Exhibits "1" and "2", attached hereto and made a part hereof, and in Land Zoning Map No. _____, which is on file at the Office of the Clerk of the County of Maui, and by reference made a part hereof.

SECTION 2. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM AND LEGALITY


DUDLEY G. AKAMA
Deputy Corporation Counsel
County of Maui

S:\CLERICAL\LJN\ORD\C12\43001001c12.wpd.wpd

EXHIBIT " B "

DESCRIPTION

MAUI PREPARATORY ACADEMY
LOT 1

ing a portion of Royal Patent 1663, Land Commission Award 5524, Part 3 to L. Konia
ated at Alaeloa, Lahaina, Island and County of Maui, State of Hawaii.

ginning at the Westerly corner of this lot, on the Southeasterly side of Honoapiilani Highway
A.P. No. RF-030-1(15)] the coordinates of said point of beginning referred to Government
rvey Triangulation Station "MANINI" being:

19,512.70 feet North

7,151.37 feet West

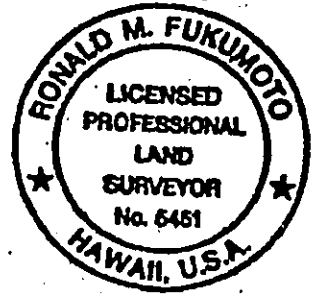
d running by azimuths measured clockwise from True South:

- | | |
|--------------|---|
| 228° 15' 11" | 283.77 feet along the Southeasterly side of Honoapiilani Highway [F.A.P. No. RF-030-1(15)]; |
| 216° 27' 50" | 63.20 feet along same; |
| 284° 30' | 499.97 feet along the remainder of Royal Patent 1663, Land Commission Award 5524, Part 3 to L. Konia; |
| 217° 30' | 75.86 feet along same; |
| 253° 05' | 65.00 feet along same; |
| 280° 45' | 90.00 feet along same; |
| 290° 20' | 150.57 feet along same; |
| 326° 00' | 94.75 feet along same; |
| 304° 17' | 255.33 feet along same; |
| 0. | Thence along same on a curve to the right with a radius of 667.00 feet, the chord azimuth and distance being:
82° 50' 22" 189.36 feet; |
| 1. | 91° 00' 207.46 feet along same; |

REPORT "1"

- 12. Thence along same on a curve to the left with a radius of 833.00 feet, the chord azimuth and distance being:
81° 00' 289.30 feet;
- 13. 71° 00' 205.74 feet along same;
- 14. Thence along same on a curve to the right with a radius of 467.00 feet, the chord azimuth and distance being:
77° 22' 55.5" 103.82 feet;
- 15. 142° 00' 262.49 feet along same;
- 16. 103° 07' 202.03 feet along same to the point of beginning and containing an area of 7.900 Acres.

This work was prepared by me
or under my supervision.



RONALD M. FUKUMOTO ENGINEERING, INC.

Ronald M. Fukumoto

Ronald M. Fukumoto
Licensed Professional Land Surveyor
Certificate Number 5451

1721 Wili Pa Loop, Suite 203
Wailuku, Hawaii 96793
February 12, 2004

MLP03

DESCRIPTION

MAUI PREPARATORY ACADEMY
LOT 2

being a portion of Royal Patent 1663, Land Commission Award 5524, Part 3 to L. Konia
located at Alaeloa, Lahaina, Island and County of Maui, State of Hawaii.

beginning at the Westerly corner of this lot, the coordinates of said point of beginning referred to
Government Survey Triangulation Station "MANINI" being:

19,321.06 feet North

6,336.37 feet West

and running by azimuths measured clockwise from True South:

Thence along the remainder of Royal Patent 1663, Land Commission Award 5524, Part 3
to L. Konia on a curve to the right with a radius of
767.00 feet, the chord azimuth and distance being:
266° 21' 42" 124.05 feet;

271° 00' 207.46 feet along same;

Thence along same on a curve to the left with a radius of 733.00 feet, the chord azimuth
and distance being:
263° 55' 50" 180.42 feet;

37° 58' 153.70 feet along same;

Thence along same on a curve to the left with a radius of 40.00 feet, the chord azimuth
and distance being:
344° 31' 30" 64.26 feet;

291° 05' 292.83 feet along same;

Thence along same on a curve to the left with a radius of 40.00 feet, the chord azimuth
and distance being:
281° 12' 30" 13.72 feet;

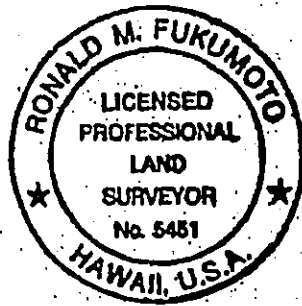
271° 20' 226.03 feet along same;

307° 23' 42.45 feet along same;

301° 17' 300.00 feet along same;

11. 334° 50' 113.92 feet along same;
12. 55° 00' 412.69 feet along same;
13. 144° 10' 90.94 feet along same;
14. 134° 25' 82.82 feet along same;
15. Thence along same on a curve to the right with a radius of 520.00 feet, the chord azimuth and distance being:
142° 37' 30" 148.48 feet;
16. 150° 50' 114.00 feet along same;
17. Thence along same on a curve to the left with a radius of 80.00 feet, the chord azimuth and distance being:
127° 08' 30" 64.29 feet;
18. 103° 27' 220.00 feet along same;
19. Thence along same on a curve to the right with a radius of 120.00 feet, the chord azimuth and distance being:
126° 33' 30" 94.19 feet;
20. 149° 40' 121.50 feet along same;
21. Thence along same on a curve to the left with a radius of 280.00 feet, the chord azimuth and distance being:
133° 10' 159.05 feet;
22. 116° 40' 190.30 feet along same to the point of beginning and containing an area of 7.090 Acres.

This work was prepared by me
or under my supervision.



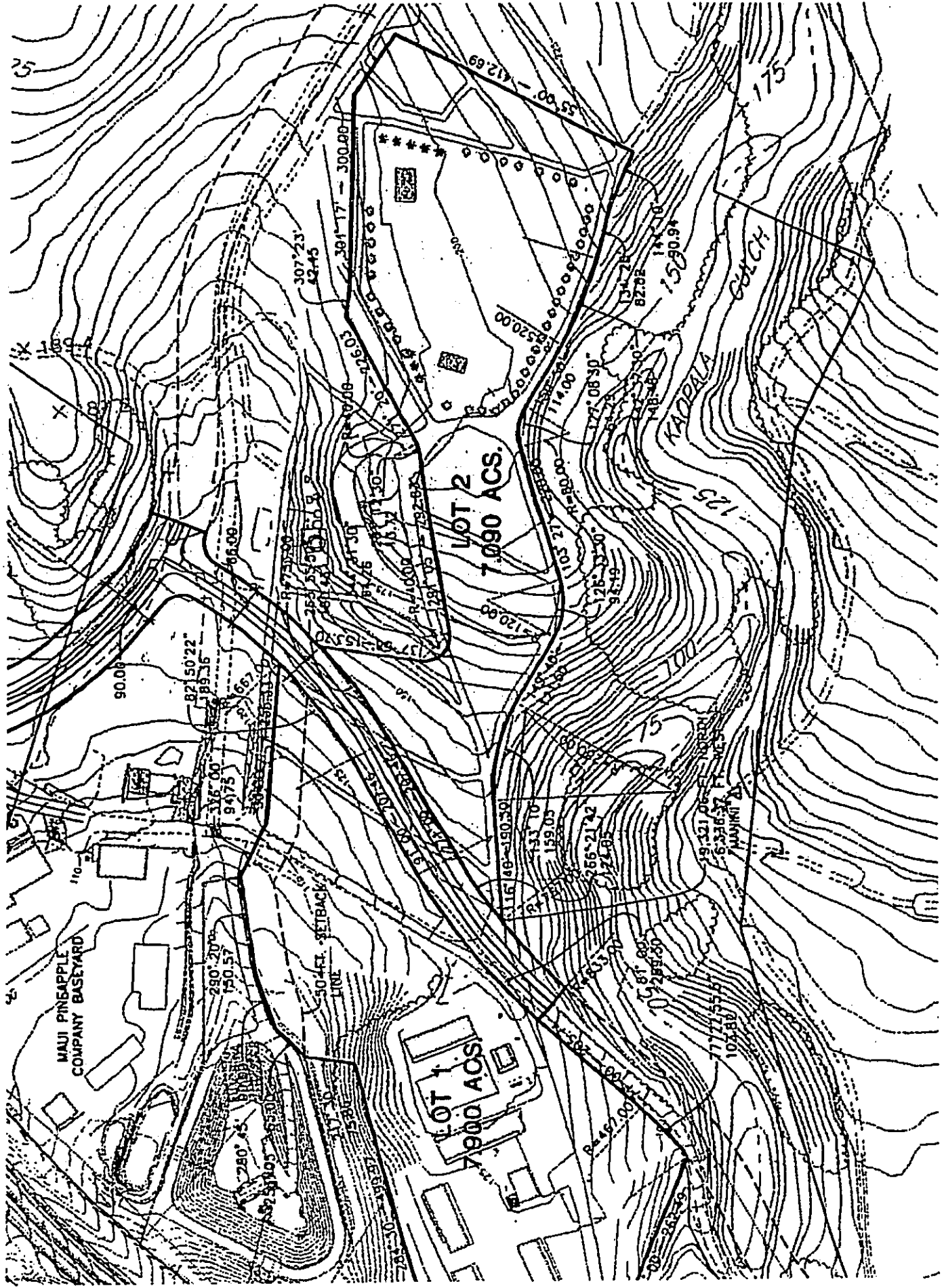
RONALD M. FUKUMOTO ENGINEERING, INC.

Ronald M. Fukumoto

Ronald M. Fukumoto
Licensed Professional Land Surveyor
Certificate Number 5451

21 Wili Pa Loop, Suite 203
Miluku, Hawaii 96793
January 12, 2004

103



ORDINANCE NO. _____

BILL NO. _____ (2004)

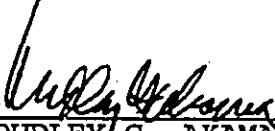
A BILL FOR AN ORDINANCE TO AMEND THE STATE LAND USE DISTRICT CLASSIFICATION FROM AGRICULTURAL TO URBAN FOR PROPERTY SITUATED AT NAPIILI, MAUI, HAWAII FOR THE PROPOSED MAUI PREPARATORY ACADEMY

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

SECTION 1. Pursuant to Chapter 205-3.1, Hawaii Revised Statutes, and Chapter 19.68, Maui County Code, the State Land Use District classification is reclassified from the Agricultural District to the Urban District for that certain parcel of land located at Napili, Maui, Hawaii, and identified for real property tax purposes by Tax Map Key No. (2)4-3-001:001 (portion), comprising approximately 14.990 acres, and more particularly described in Exhibits "1" and "2", attached hereto and made a part hereof, and in District Boundary Amendment Map No. DB-_____, which is on file in the Office of the County Clerk of the County of Maui, and by reference made a part hereof.

SECTION 2. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM
AND LEGALITY:



DUDLEY G. AKAMA
Deputy Corporation Counsel
County of Maui
S:\CLERICAL\LJN\ORD\Oba\43001001dba.wpd

EXHIBIT " C "

DESCRIPTION

MAUI PREPARATORY ACADEMY
LOT 1

ing a portion of Royal Patent 1663, Land Commission Award 5524, Part 3 to L. Konia
ated at Alaeloa, Lahaina, Island and County of Maui, State of Hawaii.

ginning at the Westerly corner of this lot, on the Southeasterly side of Honoapiilani Highway
A.P. No. RF-030-1(15)] the coordinates of said point of beginning referred to Government
rvey Triangulation Station "MANINI" being:

19,512.70 feet North

7,151.37 feet West

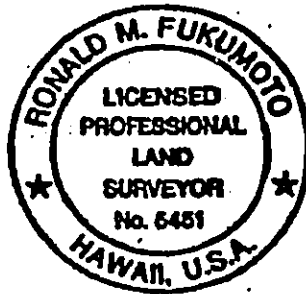
and running by azimuths measured clockwise from True South:

- | | |
|--------------|---|
| 228° 15' 11" | 283.77 feet along the Southeasterly side of Honoapiilani Highway [F.A.P. No. RF-030-1(15)]; |
| 216° 27' 50" | 63.20 feet along same; |
| 284° 30' | 499.97 feet along the remainder of Royal Patent 1663, Land Commission Award 5524, Part 3 to L. Konia; |
| 217° 30' | 75.86 feet along same; |
| 253° 05' | 65.00 feet along same; |
| 280° 45' | 90.00 feet along same; |
| 290° 20' | 150.57 feet along same; |
| 326° 00' | 94.75 feet along same; |
| 304° 17' | 255.33 feet along same; |
| 10. | Thence along same on a curve to the right with a radius of 667.00 feet, the chord azimuth and distance being:
82° 50' 22" 189.36 feet; |
| 11. | 91° 00' 207.46 feet along same; |

ENCLOSURE "L"

12. Thence along same on a curve to the left with a radius of 833.00 feet, the chord azimuth and distance being:
81° 00' 289.30 feet;
13. 71° 00' 205.74 feet along same;
14. Thence along same on a curve to the right with a radius of 467.00 feet, the chord azimuth and distance being:
77° 22' 55.5" 103.82 feet;
15. 142° 00' 262.49 feet along same;
16. 103° 07' 202.03 feet along same to the point of beginning and containing an area of 7.900 Acres.

This work was prepared by me
or under my supervision.



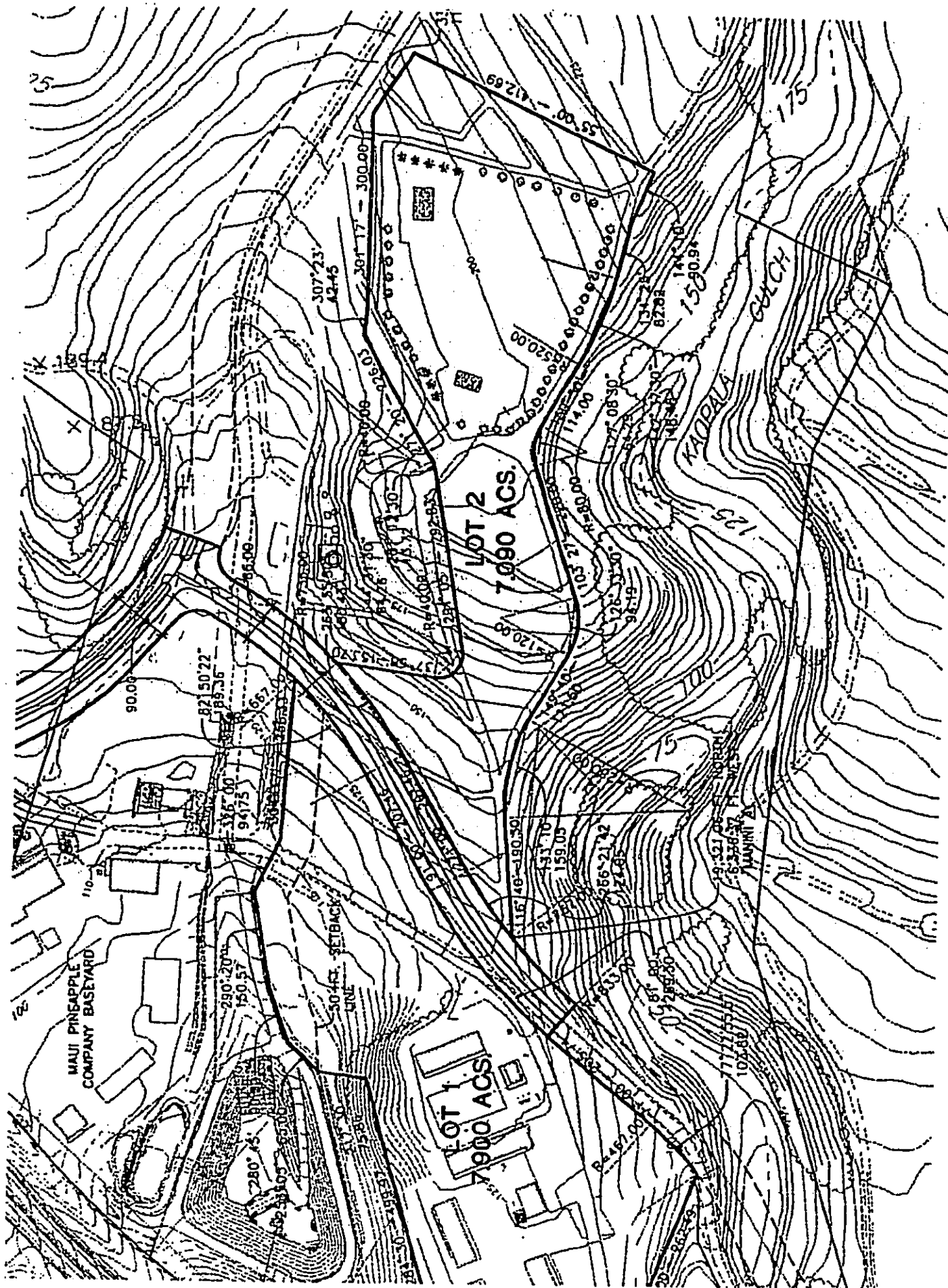
RONALD M. FUKUMOTO ENGINEERING, INC.

Ronald M. Fukumoto

Ronald M. Fukumoto
Licensed Professional Land Surveyor
Certificate Number 5451

1721 Wili Pa Loop, Suite 203
Wailuku, Hawaii 96793
February 12, 2004

MLP03



DESCRIPTION

MAUI PREPARATORY ACADEMY
LOT 2

being a portion of Royal Patent 1663, Land Commission Award 5524, Part 3 to L. Konia
located at Alaeloa, Lahaina, Island and County of Maui, State of Hawaii.

beginning at the Westerly corner of this lot, the coordinates of said point of beginning referred to
Government Survey Triangulation Station "MANINI" being:

19,321.06 feet North

6,336.37 feet West

and running by azimuths measured clockwise from True South:

Thence along the remainder of Royal Patent 1663, Land Commission Award 5524, Part 3
to L. Konia on a curve to the right with a radius of
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266° 21' 42" 124.05 feet;

271° 00' 207.46 feet along same;

Thence along same on a curve to the left with a radius of 733.00 feet, the chord azimuth
and distance being:
263° 55' 50" 180.42 feet;

37° 58' 153.70 feet along same;

Thence along same on a curve to the left with a radius of 40.00 feet, the chord azimuth
and distance being:
344° 31' 30" 64.26 feet;

291° 05' 292.83 feet along same;

Thence along same on a curve to the left with a radius of 40.00 feet, the chord azimuth
and distance being:
281° 12' 30" 13.72 feet;

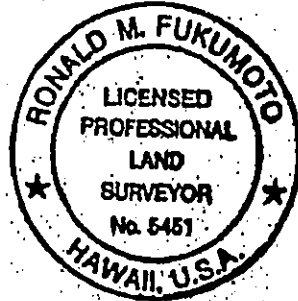
271° 20' 226.03 feet along same;

307° 23' 42.45 feet along same;

301° 17' 300.00 feet along same;

11. 334° 50' 113.92 feet along same;
12. 55° 00' 412.69 feet along same;
13. 144° 10' 90.94 feet along same;
14. 134° 25' 82.82 feet along same;
15. Thence along same on a curve to the right with a radius of 520.00 feet, the chord azimuth and distance being:
142° 37' 30" 148.48 feet;
16. 150° 50' 114.00 feet along same;
17. Thence along same on a curve to the left with a radius of 80.00 feet, the chord azimuth and distance being:
127° 08' 30" 64.29 feet;
18. 103° 27' 220.00 feet along same;
19. Thence along same on a curve to the right with a radius of 120.00 feet, the chord azimuth and distance being:
126° 33' 30" 94.19 feet;
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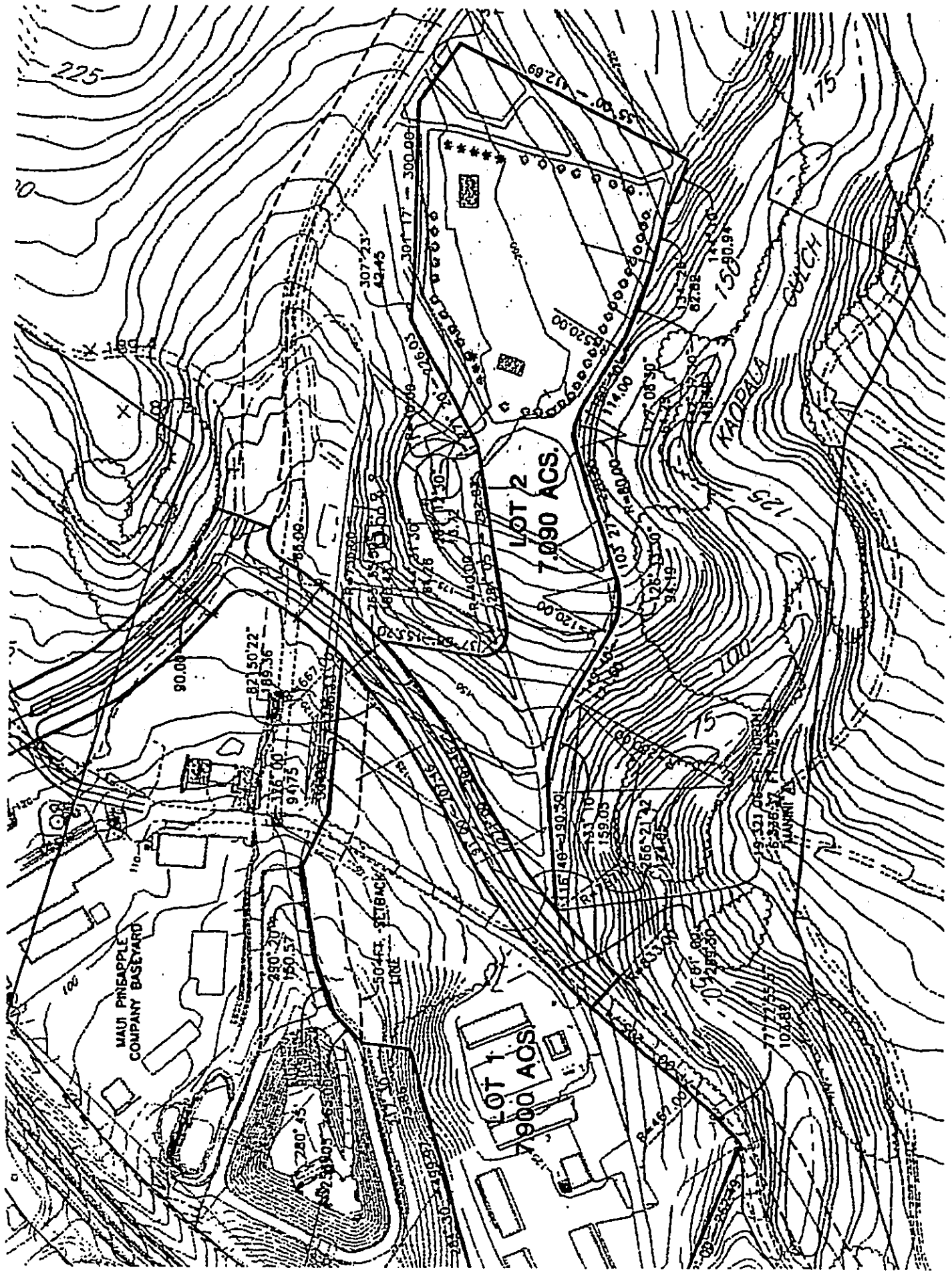
RONALD M. FUKUMOTO ENGINEERING, INC.

Ronald M. Fukumoto

Ronald M. Fukumoto
Licensed Professional Land Surveyor
Certificate Number 5451

21 Wili Pa Loop, Suite 203
Haleiwa, Hawaii 96793
February 12, 2004

P03



COUNCIL OF THE COUNTY OF MAUI

WAILUKU, HAWAII 96793

CERTIFICATION OF ADOPTION

It is HEREBY CERTIFIED that RESOLUTION NO. 04-62 was adopted by the Council of the County of Maui, State of Hawaii, on the 7th day of May, 2004, by the following vote:

MEMBERS	Dain P. KANE Chair	Robert CARROLL Vice-Chair	G. Riki HOKAMA	Jo Anne JOHNSON	Dennis A. MATEO	Michael J. MOLINA	Wayne K. NISHIO	Joseph PONTANILLA	Charmaine TAVARES
ROLL CALL	Aye	Aye	Aye	Aye	Aye	Aye	Excused	Aye	Aye



COUNTY CLERK

Appendix B

Schematic Access Roadway Improvement Plan



REINHOLD H. FINKBEINER & ASSOCIATES, INC.
1000 KAHALA DRIVE, SUITE 100
HONOLULU, HAWAII 96815
TEL: 832-1111
FAX: 832-1112

MAUI PREPARATORY ACADEMY SUBDIVISION
T.M.C. 4-2-001 001
LAWAIA, MAUI, HAWAII
CONCEPTUAL SUBDIVISION IMPROVEMENTS PLAN

NO.	DESCRIPTION
1	ENTRY STREET
2	SCHOOL STREET
3	SCHOOL STREET - ALTERNATE
4	MAUI PREPARATORY ACADEMY BUILDING
5	LOT 1 - 2,400 ACRES - APA PARCEL
6	LOT 2 - 1,200 ACRES - APA PARCEL
7	LOT 3 - 1,200 ACRES - APA PARCEL



Appendix C

***Archaeological
Assessment Report***

**AN ARCHAEOLOGICAL ASSESSMENT FOR THE
PROPOSED MAUI PREPARATORY ACADEMY,
A KALEOANAHUPUA A LAHAINA DISTRICT
ISLAND OF MAUI
(TMK: 4-3-01: Por. of 01)**

Prepared on behalf of

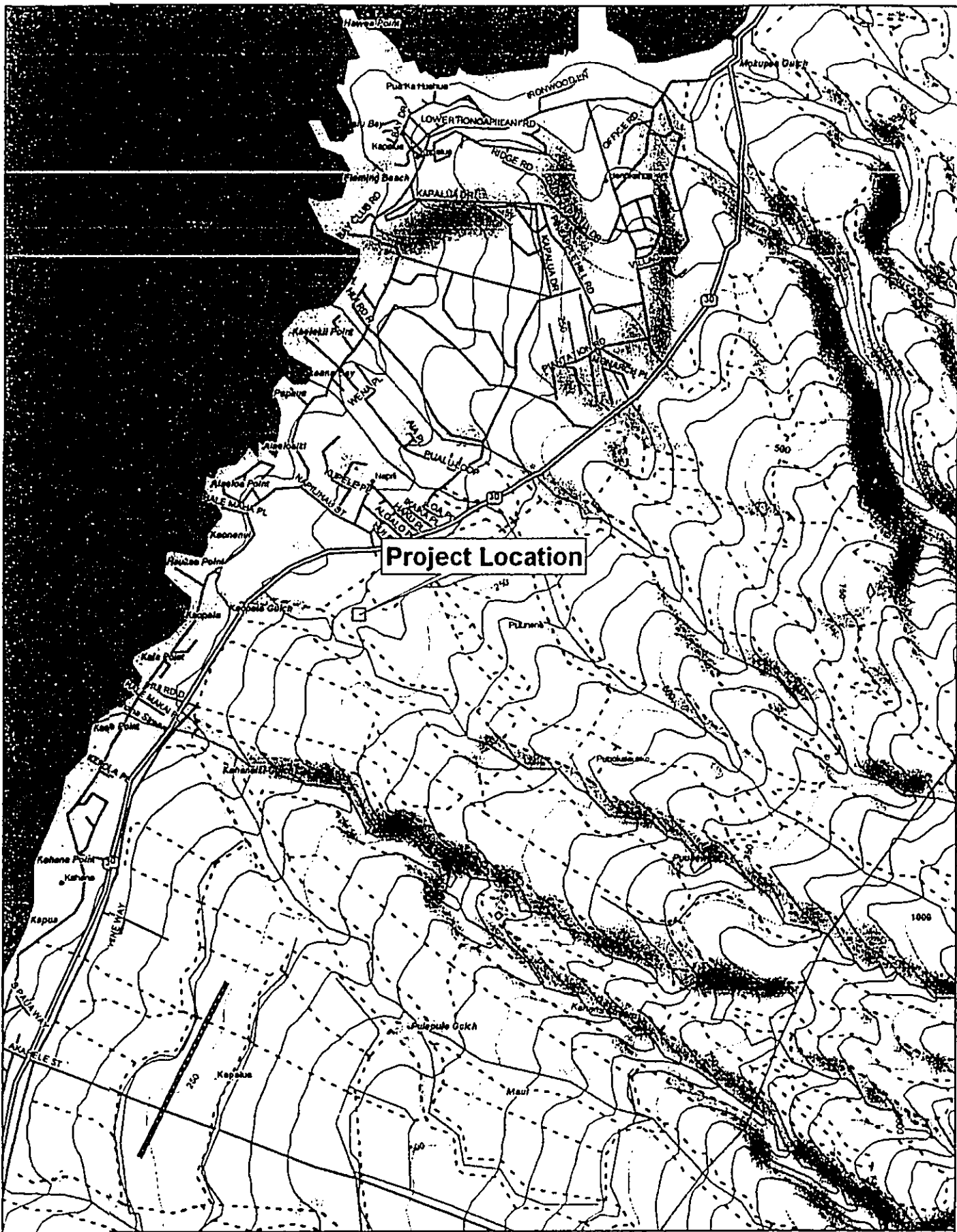
**Mr. Thomas DiNoto,
Napili, Maui**

Prepared by

**Xamanek Researches
Pukalani, Maui**

Erik Fredericksen

22 March 2004



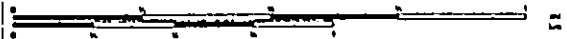
DELORME

© 2001 DeLorme, Topo USA® 3.0

Zoom Level: 13-1 Datum: WGS84

Scale 1 : 24,000

1" = 2,000.04 ft



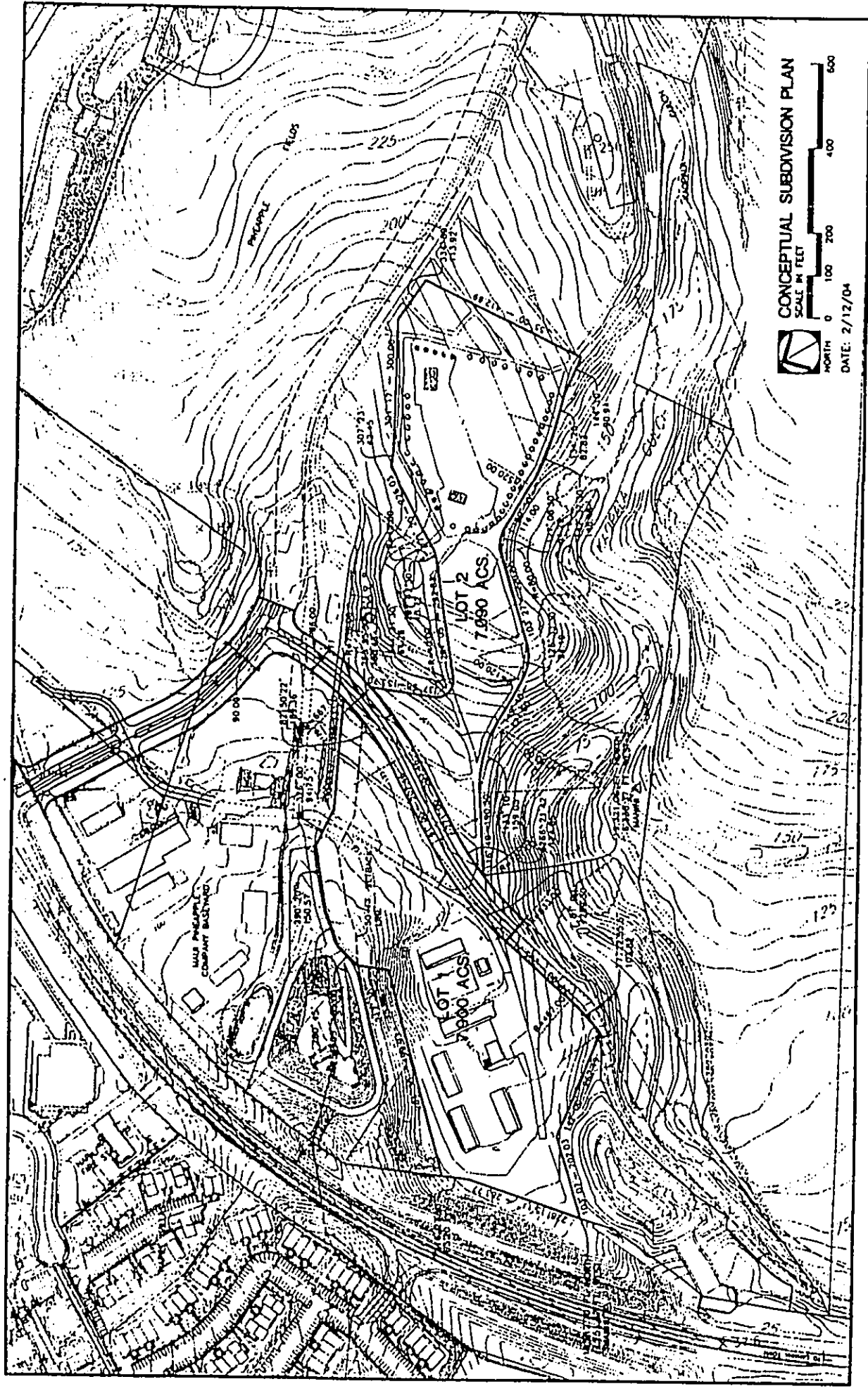


Figure 2—Plan of the Maui Preparatory Academy project area.

INTRODUCTION

Mr. Michael Munekiyo of Munekiyo & Hiraga, Inc. contacted Xamanek Researches about the proposed Maui Preparatory Academy (MPA) project in the summer of 2003 (TMK 4-3-01: Por. of 01). The project area was located in Napili, and consisted of two lots totaling c. 15 acres (Figures 1, 2 and 3). One parcel contained a Maui Pineapple Company, Ltd. workers' dormitory facility (Lot 1 – 7.90 acres), while a *mauka* parcel (Lot 2 – 7.090 acres) was composed of recently abandoned pineapple fields.¹ At the time, it was not known what level of work was necessary for the study parcel. Project plans included improvements to the existing dormitory facility, as well as necessary infrastructure improvements for the planned school—Maui Preparatory Academy. We contacted Dr. Melissa Kirkendall of the State Historic Preservation Division (SHPD), in order to discuss the appropriate level of study for the proposed project area. It was subsequently determined that an archaeological assessment would likely be sufficient, because the general area had been impacted by previous grading activities associated with the development of a dormitory facility, and the cultivation of pineapple over a number of years. However, Dr. Kirkendall indicated that due to the location of the proposed school campus, additional work might be required, pending results of the archaeological assessment. Mr. Munekiyo asked that we submit a proposal for the necessary work, and we were subsequently awarded the contract to carry out an archaeological assessment for the MPA project.

The proposed school project is located in Alaeloa *ahupua`a*, Lahaina District, Island of Maui (TMK 4-3-01: Por. of 01) [Figures 1-2]. As previously noted above, a portion of the study area is currently utilized for a workers' dormitory facility by Maui Pineapple Company, Ltd. (Lot 1), while a second portion of land consists of abandoned pineapple fields (Lot 2). The following report presents the results of our archaeological assessment for the Maui Preparatory Academy project area in Napili, Maui. This report has been prepared at the direction of Mr. Thomas DiNoto, President of the MPA Board of Directors.

¹ Lot 2 contains a level area that presently is partly obscured by imported fill material. Maui Pineapple Company, Ltd workers formerly utilized this area as a ball field.

THE STUDY AREA

Erik Fredericksen visited the project area on 18 March 2004 to inspect the existing Maui Pineapple Company, Ltd. dormitory facility (Lot 1 – 7.90 acres), as well as the abandoned *mauka* pineapple land (Lot 2 – 7.090 acres). The fieldwork for this archaeological assessment was conducted on the date noted above. At the time of the project inspection, it was possible to view all of the study area. In general, surface visibility ranged from good in developed areas to poor in the abandoned pineapple field and former ball field. It is estimated that the overall project area ranges from c. 110 feet to 220 feet AMSL. The study area is composed of sloping land, the majority of which has been impacted by earthmoving activities associated with the development of the existing dormitory facility (Lot 1) and the former cultivation of commercial pineapple crops (Lot 2) [Photos 1, 2 and 3].

The proposed Maui Preparatory Academy campus parcels lie adjacent to and north of Kaopala Gulch² and south of the Maui Pineapple Company, Ltd. facility (Photos 4 and 5). Honoapiʻilani Highway lies to the northwest and pineapple fields are located to the southeast (*mauka*). A field road transects the c. 15-acre project area.

Inspected portions of exposed surface areas in the abandoned pineapple field (Lot 2) were essentially comprised of rocky subsoil, consisting of reddish brown (5 YR 4/3) silty clay and weathered bedrock. Vegetation at the margins of the abandoned field consisted of alien grass and weed species. In addition, relatively recently planted Cook Island pine (*Araucaria columnaris*), and naturalized ironwood (*Casuarina equisetifolia*) trees were also noted. Undisturbed portions of land adjacent to the dormitory facility are relatively heavily vegetated with non-native species.

The bulk of the plants observed in the vicinity of the developed portion of the dormitory facility consisted of exotic species, including grasses and annual weeds near the ground surface, along with various landscaping trees on the dormitory grounds. Several varieties of landscaping plants—including avocado (*Persea americana*), mango (*Mangifera indica*) and Monkeypod (*Albizia saman*) trees—were noted on and near the facility grounds (Photo 6). Finally, Cook Island pine (*Araucaria columnaris*), and naturalized ironwood (*Casuarina equisetifolia*) trees were noted along the northern fringes of Lot 1, and the southern fringes of a portion of Lot 2.³

It was evident at the time of the surface walkover that the general area had been previously disturbed by the development of the dormitory facility as well as the

² This gulch is relatively substantial and contained a flowing stream at the time of the fieldwork. The proposed MPA project area does not extend into Kaopala Gulch.

³ Heavy vegetative cover begins about halfway along the southern, *mauka* side of Lot 2.

cultivation of commercial pineapple (Photos 1-3, 6 and 7). There are no construction proposals for the relatively heavily vegetated, undeveloped margins of the dormitory facility, due to the sloping landscape at the writing of this archaeological assessment report.

As previously noted in this report, a relatively substantial gulch lies to the south of the proposed MPA project area. Kaopala Gulch contains a stream that was flowing at the time of the site inspection (Photo 4). It is estimated that the general project area receives between 30 and 40 inches of annual precipitation.

BACKGROUND INFORMATION

Previous Archaeology in the general area

In general, there have been few archaeological investigations in the *ahupua`a* of Alaeloa. This portion of Maui has undergone extensive development in the coastal areas, beginning in the early 1960s, with essentially no archaeological work conducted on impacted areas. The inland portions of Alaeloa have largely been in commercial agricultural production (pineapple) for many decades.

Winslow Walker carried out the first systematic survey of this portion of Maui in 1930. He noted several *heiau* in the general vicinity. These included Site 12 at Kahana Point, which was destroyed by the time of his survey; Site 13 at Mailepai Point, which was washed away; and Site 14 (Hihiko), which was located along a County road near Kalaeokaea Point. Another *heiau*, Site 15, was located on the south side of a rocky cove between Alaeloa and Papaua Points. This structure was described as by Walker in the following manner: "Small rectangular enclosure measuring 50 by 66 feet. Has rough stone walls about 3 feet high with an opening at the west end. In the S.W. corner is what appears to be a platform of small stones and pebbles. Use unknown. Several people thought it was a cattle pen" (Walker, 1931, p. 118).

Subsequent archaeological work in the general area was conducted in 1975, when the Honoapi`ilani Highway corridor was surveyed by Griffin and Lovelace. This survey included portions of four *ahupua`a*—Mahinahina, Kahana, Mailepai, and Alaeloa. This study focused on the gulches, because the flat areas between the gulches had been heavily impacted by commercial agriculture over the years. Salvage work was subsequently carried out on Site 255 in Mahinahina Gulch, which lies well to the southwest of the MPA project area. This site consisted of an extensive subsurface habitation deposit, which was utilized by about the thirteenth century (Griffin and Lovelace, 1977).

Xamanek Researches mitigated an inadvertent burial find on Alaeloa Point in the summer of 1999. This burial was in a flexed position, and was associated with a cultural deposit that contained marine shellfish remains, *kukui* nutshell fragments, along with scattered coral pieces and charcoal flecking. This burial was interpreted as a Native Hawaiian individual and was designated SIHP No: 50-50-03-4784 (Fredericksen and Fredericksen, December 1999). This site lies an estimated 1.5 km to the west of the MPA project area.

Xamanek Researches conducted an archaeological inventory survey for the Lower Honoapi'ilani Road Improvements Project in 1999. This inventory survey examined a c. 2.2 km long corridor of coastal roadway in Alaeloa, Mailepai, and Kahana *ahupua`a*. A total of three previously unidentified sites were recorded, including a precontact coastal habitation area (Site 4797), and two retaining walls associated with the old Lower Honoapi'ilani Road (Sites 4798 and 4799). All three sites qualified for significance under Criterion "d" for their information content. Site 4797 (near the border of Alaeloa *ahupua`a*) yielded a precontact date range of AD 1420 to 1660 (Fredericksen and Fredericksen, 2000). This latter site is a rare example of a surviving coastal habitation site in this heavily developed portion of West Maui, and retains its significance.

Settlement Pattern and Land Use

Previous archaeological work in the general vicinity of the proposed MPA campus suggests that this portion of Maui was likely utilized in precontact times for permanent and temporary habitation, and agricultural purposes (Fredericksen and Fredericksen, 2000; Griffin and Lovelace, 1977; Kirch, 1985). The area has subsequently been heavily utilized for post-contact commercial pineapple cultivation and ranching.

Land Commission Award

The c. 15-acre project area is a portion of Royal Patent 1663, Land Commission Award 5524, Part 3 to L. Konia. This LCA encompassed the entire 823 acre area of Alaeloa *ahupua`a* (Fredericksen and Fredericksen, 2000, p. 4).

Expected Site Types in MPA Study Area

Given that the proposed MPA campus is located in an area that has been previously impacted by clearing actions associated with the development of the existing Maui Pineapple Company, Ltd. workers' dormitory and active commercial pineapple cultivation, we did not anticipate finding any above surface architectural remains, with the possible exception of remnants of trails, enclosures and/or ranch-era walls on the peripheral portions of the dormitory and in nearby gulch areas.

FIELD METHODS

As mentioned earlier in this report, the pedestrian inspection of the MPA project area was undertaken on 18 March 2004. Pedestrian sweeps were spaced c. 5 meters apart and followed the contour of the existing project area. Surface visibility ranged from good to poor, and was dependent upon vegetative cover. Written notes were kept and photographs were taken with a digital camera. Erik Fredericksen carried out the assessment-level fieldwork, and was also the project director for this archaeological study. There was no subsurface testing carried out for the Maui Preparatory Academy archaeological assessment study.

RESULTS

There were no significant material culture remains noted during the pedestrian inspection of the surface of the developed dormitory facility or the abandoned pineapple fields. In addition, there were no significant above ground structural remains observed in the proposed school project area. A possible rock alignment/terrace was noted well off of the study area in a *mauka* portion of Kaopala Gulch. This possible site lies well to the south of the proposed boundary at the top of the gulch and edge of the former pineapple field.⁴

⁴ This possible site lies an estimated 60 meters south of the MPA boundary line in a relatively flat section of the gulch. Other sites may well be located in this gulch. However, Kaopala Gulch is outside of the proposed project area, and, consequently, was not inspected.

SUMMARY AND CONCLUSIONS

Based on the heavily disturbed nature of the study area and the results of the walkover, it does not appear likely that significant material culture remains are contained in the proposed MPA project area. It is noteworthy that development plans for the Maui Preparatory Academy include adaptive reuse of the existing dormitory facility on Lot 1. In addition, future plans call for the construction of a possible preschool and/or kindergarten facility in a heavily disturbed section of Lot 1 (Photo 2). While plans are not finalized at this point in time, it appears that the Lot 2 area will eventually be utilized for school athletic fields and a possible agricultural extension program.

Mitigation Recommendations

No further work is recommended for the MPA project area, which has been heavily impacted by former pineapple cultivation and construction. However, it is important to note that at least one possible site lies in the adjacent Kaopala Gulch to the south of the project area. While the MPA project will not impact the gulch, it is recommended that the gulch be studied at the inventory level, should any future work be proposed in this drainage area.

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PHOTOGRAPHS

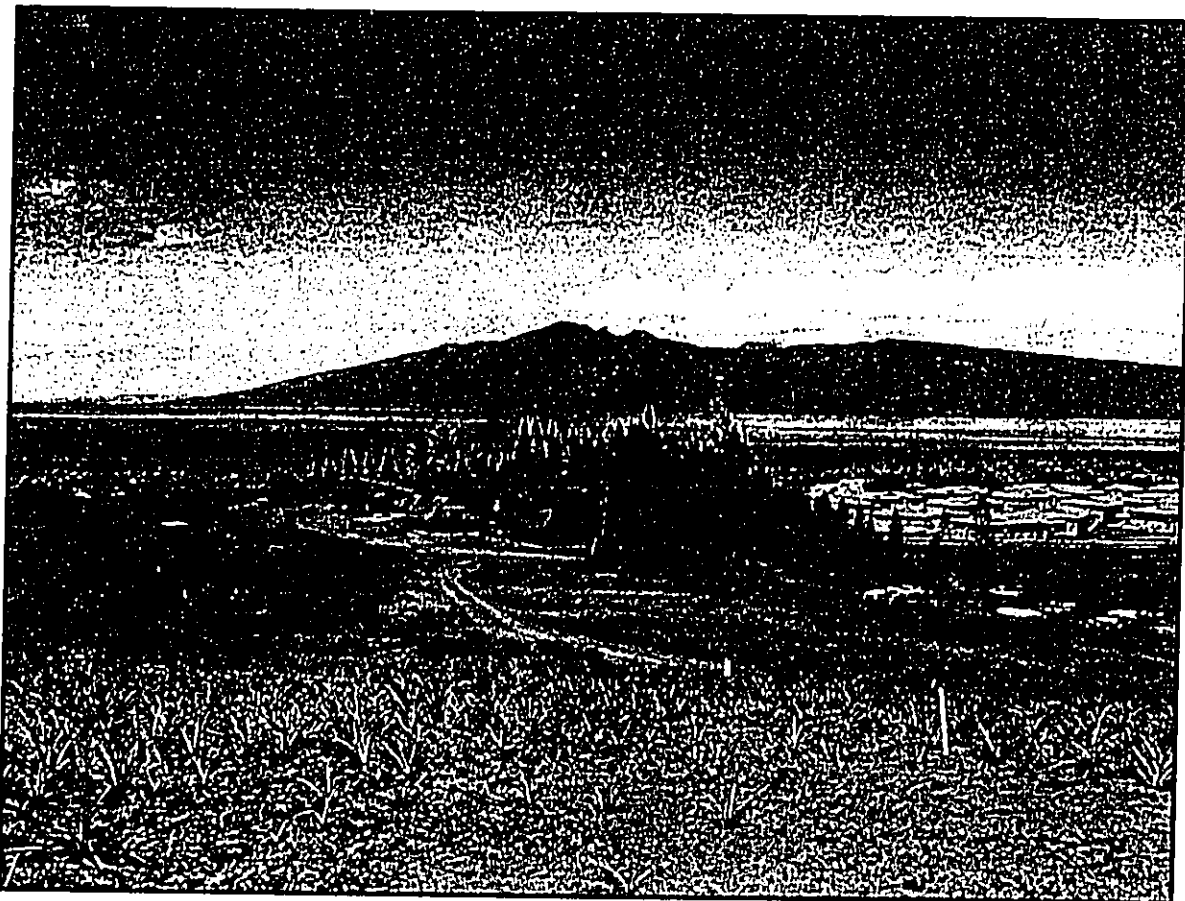


Photo 1 – View to the northwest across Lot 2; Lot 1 in center.

RECEIVED AS FOLLOWS

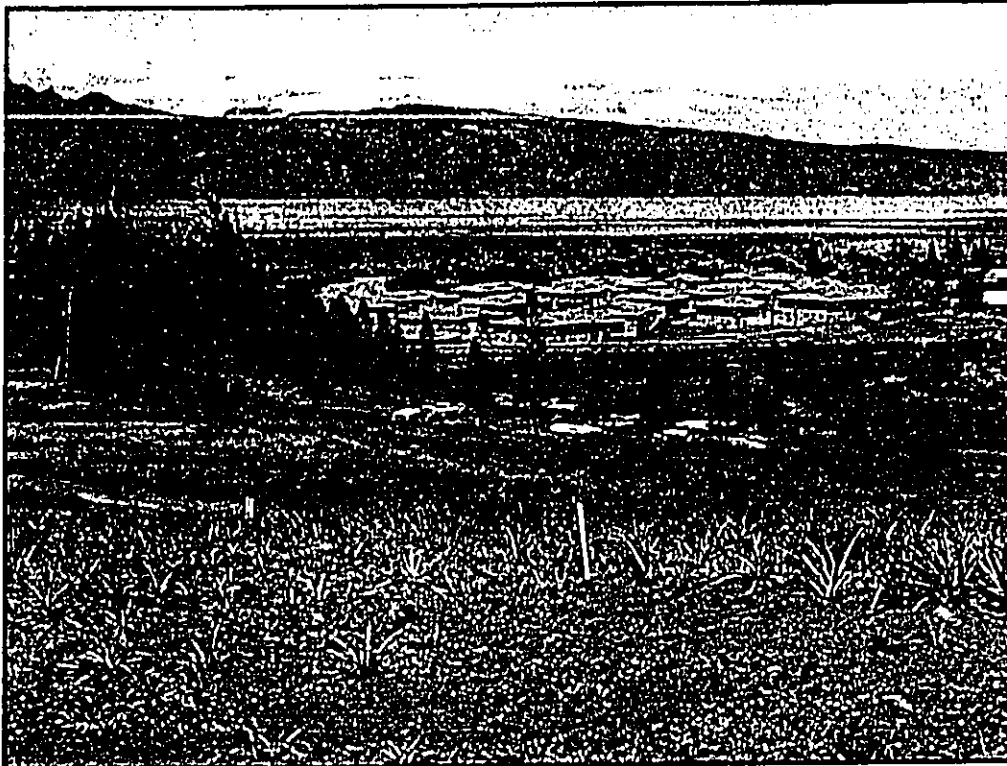


Photo 2 – View to the northwest across Lot 2: portion of Lot 1 in center. Abandoned vehicles on proposed preschool/kindergarten site.

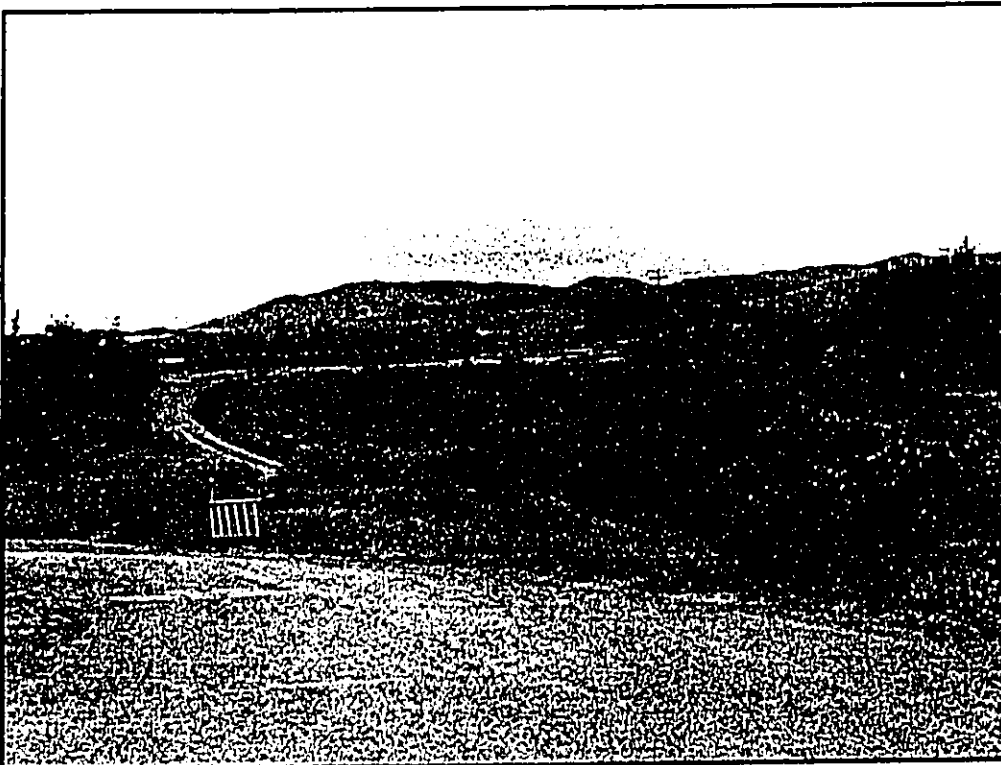


Photo 3 – View to the east of Lot 2; photo taken from dormitory parking lot.

RECEIVED AS FOLLOWS

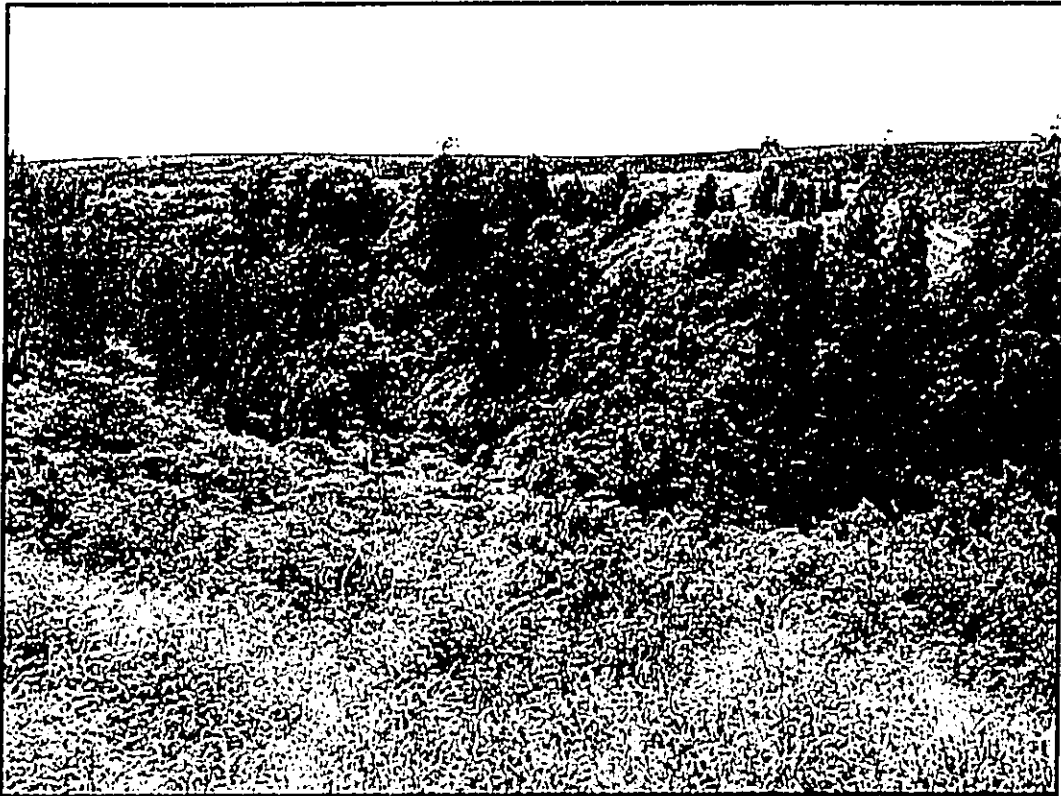


Photo 4 – General view to the southeast of Kaopala Gulch.

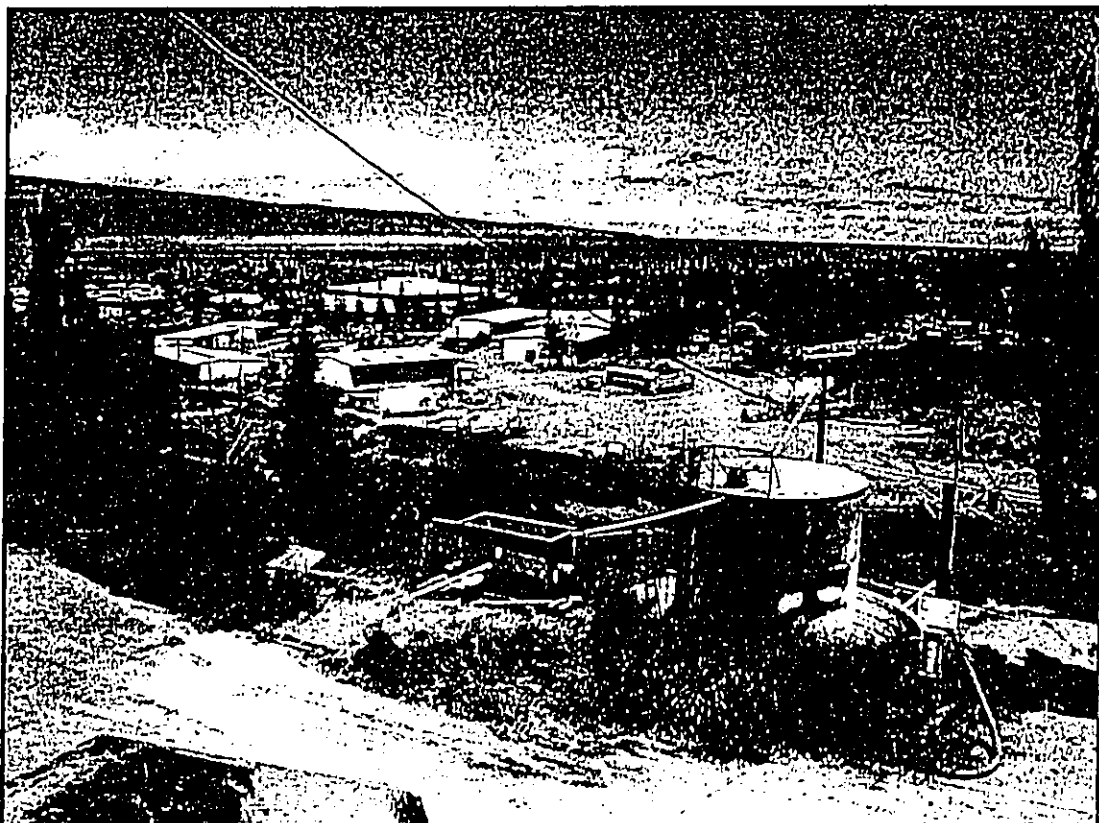


Photo 5 – View to the northwest of Maui Pineapple Company facility.

RECEIVED AS FOLLOWS



Photo 6 – View to the west of a portion of Lot 1 dormitory facility.

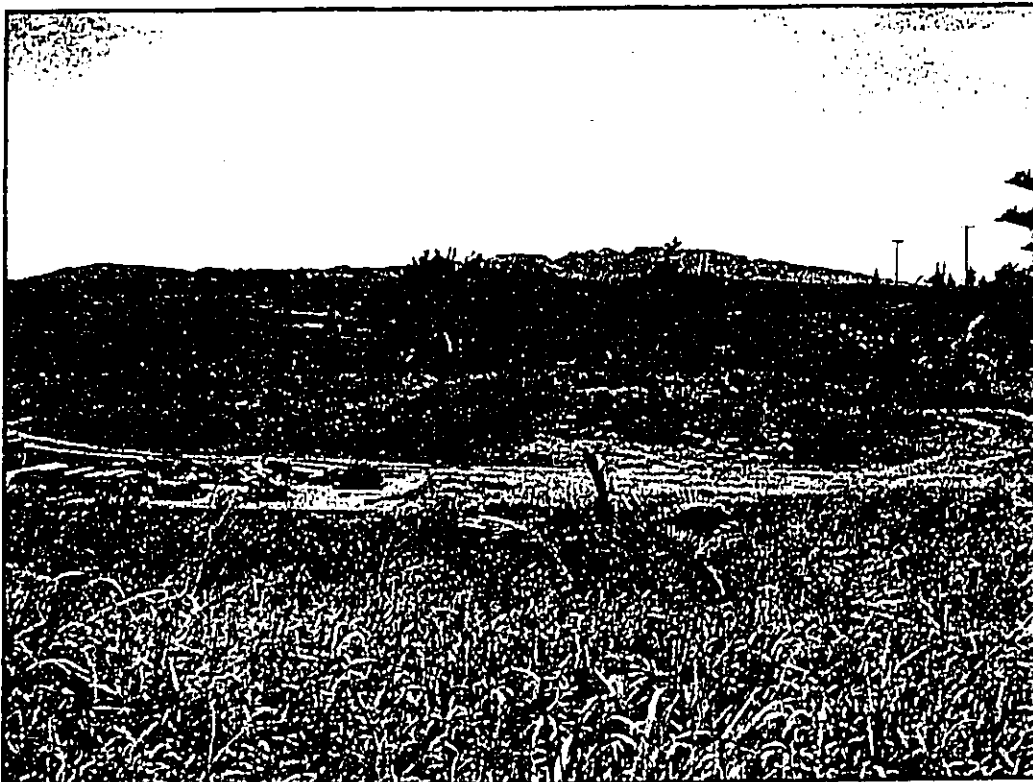


Photo 7 – View to the northeast across former ball field—Lot 2

Appendix D

***Phase I, Environmental
Site Assessment***



Consultants, Inc.

Environmental Site Assessment: *Phase I Investigation*



Subject Site:

PORTION OF MAUI PINEAPPLE
COMPANY'S HONOLUA PLANTATION
Honoapiilani Highway
Napili, Hawaii
T.M.K. (2) 4-3-01:01 (Portion)

Prepared for:

MAUI PREPARATORY ACADEMY
11 Hale Malia Place
Lahaina, HI 96761
Attn: Mr. Thomas DiNoto
and
MUNEKIYO AND HIRAGA
305 High St, Suite 104
Wailuku, HI 96793
Attn: Mr. Michael Munekiyo

Conducted and Compiled by:

Vuich Environmental Consultants, Inc.
VEC Project Number #0403-745.
April 23, 2004

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1498 Lower Main Street, Suite C • Wailuku, Hawaii 96793 • 808.249.2777 Phone • 808.249.2778 Fax



Consultants, Inc.

Environmental Site Assessment: Phase I Investigation



Property: PORTION OF MAUI PINEAPPLE
COMPANY'S HONOLUA PLANTATION
Honoapiilani Highway
Napili, Hawaii
T.M.K. (2) 4-3-01:01 (Portion)

Prepared for: MAUI PREPARATORY ACADEMY
11 Hale Malia Place
Lahaina, HI 96761
Attn: Mr. Thomas DiNoto

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been prepared by the investigator under direct supervision and provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

Joseph Baulieu, Site Investigator

4/14/04
Date

- > B.A. (Environmental Science and Geography)

Jeffrey E. Kermode, Project Manager

4/14/04
Date

- > B.A. (Geography), B.Tech. (Environmental Engineering)
- > Lead-Based Paint Inspector (EPA Accredited Course)
EPA Certification No. HI-03-0920045008
- > Asbestos Building Inspector (AHERA Accredited Course)
State of Hawaii Certification No. HIASB-0351

John S. Vuich, M.S., Project Supervisor

4/14/04
Date

- > Registered Environmental Assessor
Registration No. 1433 (State of California)



Consultants, Inc.

Environmental Site Assessment: Phase I Investigation



Property: PORTION OF MAUI PINEAPPLE
COMPANY'S HONOLUA PLANTATION
Honoapiilani Highway
Napili, Hawaii
T.M.K. (2) 4-3-01:01 (Portion)

Prepared for: MAUI PREPARATORY ACADEMY
11 Hale Malia Place
Lahaina, HI 96761
Attn: Mr. Thomas DiNoto

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been prepared by the investigator under direct supervision and provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

Joseph Baulieu, Site Investigator

4/14/04
Date

- > B.A. (Environmental Science and Geography)

Jeffrey E. Kermode, Project Manager

4/14/04
Date

- > B.A. (Geography), B.Tech. (Environmental Engineering)
- > Lead-Based Paint Inspector (EPA Accredited Course)
EPA Certification No. HI-03-0920045008
- > Asbestos Building Inspector (AHERA Accredited Course)
State of Hawaii Certification No. HIASB-0351

John S. Vuich, M.S., Project Supervisor

4/14/04
Date

- > Registered Environmental Assessor
Registration No. 1433 (State of California)

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Disclosure

This document contains the results of services performed on this Project by **Vuich Environmental Consultants, Inc. (VEC)** pursuant to Agreement. The results represent the application of a variety of scientific and analytical disciplines that have been rendered using the standard of care, skill, and diligence normally provided by professionals in the performance of similar services under similar circumstances.

VEC assessments are intended to reduce, but not eliminate, uncertainty regarding recognized environmental conditions in connection with the Subject Site, as conducted within reasonable limits of time and cost. A general consensus of EPA's guidance on landowner liability is that *no environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property.*

The use of this document and the results reported are limited to the services performed and areas examined as described in this document and no inferences are intended with respect to anything not described herein.

VEC is not responsible for conditions or consequences arising from relevant data, facts, and information that were concealed, missing, withheld, not fully disclosed, or not reasonably available at the time these services were performed. VEC is not responsible for any indirect, incidental, or consequential damages of any nature arising from any cause.

VEC has no beneficial economic interest in the Project other than as an independent professional organization performing the agreed services. VEC's warranties are as described above and there are no other warranties of any kind, expressed or implied, regarding the services.

Executive Summary

Introduction

This Phase I Environmental Site Assessment (ESA) has been prepared for Mr. Thomas DiNoto and Mr. Michael Munekiyo. It was conducted pursuant to Vuich Environmental Consultants, Inc.'s (VEC's) written proposal and contract accepted by Mr. DiNoto on March 1, 2004. This investigation and report format follows the guidelines of the American Society of Testing and Materials (ASTM) Publication E1527-00.

Site Description

The subject site is located on the east side of the Honoapiilani Highway, south of the intersection with Napilihou Street, in the community of Napili, Maui, Hawaii. It consists of two (2) lots of land, irregular in shape, measuring approximately 15 acres in total area. These lots are a subdivision of a parcel described on the Tax Maps of the State of Hawaii as Division 2, Zone 4, Section 3, Plat 01, Parcel 01 (See Tax Map, Appendix A). Property access is from Honoapiilani Highway.

Eight (8) building structures, ranging in area from approximately 1,152 to 4,160 square feet, are located on the subject property's lower lot. According to the Maui County property tax records, six (6) buildings were originally constructed in 1975. They are constructed on concrete foundations with wooden siding. The remainder of the lower lot and the upper lot contain former pineapple fields and areas of temporary storage of out of service vehicles and fill material (See Figure 2, Appendix A).

Current surrounding land use consists of Maui Land and Pineapple Company's base yard at Honolua to the north and their pineapple fields to the east. The Koapala Gulch borders the southern property line. Napili resort development is located west of the subject property across the Honoapiilani Highway. Historically, the subject property was used for agricultural purposes and as a dormitory campus for seasonal labor.

Napili is a seaside community located on the west coast of West Maui north of Ka'anapali. (See Figure 1, Appendix A).

Records Review

The purpose of a records review is to obtain and review records that will help identify *recognized environmental conditions* in connection with the subject property. The services of Environmental Data Resources, Inc. were utilized to compile the database listings.

Our records review did not discover any current investigation of the subject site under any programs conducted by a federal, state, or local environmental agency.

Site Reconnaissance

A site investigation focuses on obtaining information indicating the likelihood of identifying physical *recognized environmental conditions* in connection with the property and assessing the subject property in relation to surrounding land uses and natural surface features. It includes a physical inspection of the real property and any on-site facilities.

On March 22, 2004, VEC personnel, Mr. Joseph Beaulieu and Mr. Jeffrey Kermode, conducted an overall site inspection of the subject site. Accessible areas of the property were visually and physically inspected.

The following are significant observations of field conditions: (See Site Plan, Figure 2)

- Evidence of former pineapple cultivation was noted on-site;
- Twelve (12) inch square floor tiles and textured ceilings suspected of containing asbestos were noted;
- Several derelict vehicles, white goods and out of use pineapple harvesting equipment pieces were noted;
- One (1) operational sewer pump house was noted;
- One (1) large rock/fill pile and several areas of construction material storage were noted;

- Two (2) concrete helicopter landing pads were noted on the former recreation area of Lot2;
- A small amount of miscellaneous and landscape debris was noted along the perimeter of the subject property;
- Four (4) pole mounted electrical transformers are located on-site;
- One (1) large above ground propane tank is located on-site;
- Approximately fifteen (15) % of the subject site's total surface soils was not observable due to the presence of on-site building structures, tall grass, asphalt and concrete paved areas, and vehicles/equipment.
- One (1) former pesticide storage and three (3) fertilizer tanks are located on the northern adjoining property;

Conclusions

Recognized environmental conditions, as defined by ASTM Standard E1527-00, are the presence or likely presence of any hazardous substance or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. **Recognized environmental conditions** are described with regard to (1) the nature and extent of the environmental condition, (2) potential or actual environmental threat, (3) potential for transport (migration) of any environmental conditions, and (4) consideration for further investigation. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

VEC has performed this Phase I Environmental Site Assessment in conformance with the scope and limitations of the ASTM Practice E 1527-00 for the property located on the east side of the Honoapiilani Highway, south of the intersection with Napilihou Street, in the community of Napili, Maui, Hawaii (portion of TMK Number (2) 4-3-01:01), defined as the subject property. Any exceptions to or deletions from this practice are described in Section 1.4, Limitations and Exceptions, of this report. **This assessment has revealed no evidence of recognized environmental conditions in connection with the property, except for the following:**

- **Database Listings (See Section 4.0 & EDR Report, Appendix B).**

The subject site is not listed. It is VEC's opinion that the two (2) nearby sites (4 listings) do not have a reasonable potential to adversely impact the environmental condition of the subject property.

One (1) UST (underground storage tank) and two (2) LUST (leaking underground storage tanks) listings were located on an adjoining property. Due to the status of these sites and their downgradient location relative to the subject site, these sites are not considered to pose a significant concern to the subject property.

- **Current and Historic Use or Storage of Hazardous and Regulated Substances (See Section 5.3.1 & 5.3.2).**

There is no evidence of any historic misuse or significant spills of hazardous or regulated substances on the subject property.

Pineapple agriculture had been previously active on and adjacent to the subject property for several decades. Both pesticide and fertilizer use are related to the above noted activities.

While the use of pesticides and fertilizers on a property does not necessarily result in an adverse impact to the environmental condition of the subject site, it is possible (yet unlikely) for residual amounts of these substances to accumulate to concentrations that present a potential threat to human health or the environment. Soil and groundwater sampling and laboratory testing would provide additional information to evaluate potential environmental effects from these historic agricultural activities. There is, however, no regulatory requirement to conduct this sampling.

The concerns listed below may not be considered recognized environmental conditions by ASTM definition, however, they may be considered regulated under other environmental laws and ordinances and may present a potential liability to the property owner.

- **Solid Waste Management and Surface Fill Material:** (See Section 5.5.4)

The storage of derelict vehicles, harvesting equipment and construction and miscellaneous debris was evident on the subject property. Some regulated items were noted. Management of these wastes needs to be performed in a manner that complies with all local, state, and federal regulations as applicable to the waste type. Confirmation of unidentifiable materials may require sampling and laboratory analysis.

Due to some vegetated areas, the entire subject site and underlying soils were not visibly inspected. It is important to note that if additional clearing of the property commences and large amounts of construction debris or unidentifiable substances (containers) are further discovered, proper waste identification, testing and applicable waste handling/disposal procedures are followed.

- **Building Materials Management: ACM and Lead-Based Paint Materials** (See Section 5.6.1 and 5.6.2)

Due to the subject property's building structure's construction date (1974), it is possible that some of the building materials contain asbestos and lead based paint. This poses a concern to the subject property owner for any future planned renovation or demolition activities.

All worker safety, required notifications, and waste management concerns regarding the above-noted materials should be thoroughly addressed and undertaken during any future renovation activities.

- **Grease Interceptors** (See Section 5.4.3)

A grease interceptor that the County of Maui, Wastewater Reclamation Division is unaware of was located at the subject site's cafeteria building. In order to continue operation, VEC recommends that this interceptor meet the County of Maui's specifications.

- **Surface Waters and Area Aquifer Protection** (See Section 5.5.5)

Currently, the subject property is partially developed. If future land use includes further developing the land for residential or commercial use, the developer and property owner should be aware of the potential for contaminants to run off-site and into nearby storm water drains. Products of concern relating to any future development project or land-clearing activity would be earthen material (silt), paints, oils, antifreezes and other fluids from automobile or on-site machinery, or leaks from on-site stocked items.

Future land clearing of greater than one (1) acre will likely require both a County of Maui grading/grubbing permit and a National Pollution Discharge Elimination System (NPDES) General Permit (State of Hawaii, Department of Health).

In order to minimize the regulatory profiling of the subject site as a potential responsible party for any newly discovered soil, groundwater or surface water contamination, management should consider implementing conservative, proactive environmental policies to reduce and prevent releases on-site.

The conclusions stated above should not be construed to mean that any regulatory agency would have the same opinion as this author, nor is any implication proposed therefrom. The results of this environmental assessment are intended for general reference purposes only and are not intended as legal advice. The advice of legal counsel should be sought in regard to individual facts, circumstances and interpretation of environmental liability.

Environmental Site Assessment

Phase I Investigation

1.0 INTRODUCTION

A Phase I Environmental Site Assessment (ESA) is conducted to determine if a site may be contaminated with hazardous or toxic substances or wastes resulting from current or past site activities, unauthorized dumping or disposal, or migration of contaminants from adjacent or nearby properties. Its goal is to identify *recognized environmental conditions* on a property that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products. These release conditions apply to structures on the property as well as the soil, groundwater, or surface water of the property. The American Society of Testing and Materials (ASTM) Standard 1527-00, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, is used to "...define good commercial and customary practices for conducting an environmental site assessment of a parcel of commercial real estate".

1.1 Purpose

The study objectives are to characterize the environmental setting of the subject property, to identify any obvious activity of environmental concern that may have occurred at or near the site, and to evaluate potential migration pathways for any identified contaminants. It may also address any activities that affect future considerations for potential environmental impairment to the property.

Another function of this Phase I ESA is to conduct an *appropriate environmental inquiry* in response to the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, its amendments, and similar state and local regulations. An ESA "appropriate inquiry" may provide the buyer, receiver, or lender making a loan secured by the subject real property with a basis to qualify for the *innocent landowner defense* should any legal action be initiated for environmental impairment to the property.

1.2 Detailed Scope of Services

This Phase I Environmental Site Assessment (ESA) has been prepared for Mr. Thomas DiNoto and was conducted pursuant to Vuich Environmental Consultants, Inc.'s (VEC's) written proposal and contract accepted by Mr. DiNoto on March 1, 2004.

There were no other additional services requested of VEC by the client.

1.3 Significant Assumptions

The assessment of *recognized environmental conditions* relies on: 1) sources of actual knowledge, 2) thorough appropriate inquiry, 3) reviewing reasonably ascertainable documents and records, and 4) conducting a visual and olfactory reconnaissance. In conducting this ESA, VEC has relied on the truthfulness of its inquiry sources and the validity of reviewed records. If obvious indications or VEC actual knowledge contradicted the reported/reviewed information sources, it has been so stated in the appropriate sections of this report.

1.4 Limitations and Exceptions

The investigation performed for this report includes the components of an *appropriate inquiry* regarding the potential for contamination to exist or have occurred at this site. This investigation is also the basis of

an *appropriate inquiry* into the presence or likely presence, release or threatened release, of hazardous substances and petroleum products at this real property. This Phase I Environmental Site Assessment was prepared according to guidelines presented in the American Society of Testing and Materials Document entitled *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E-1527-00).

Since no ESA can eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with a property, the limiting intent of this investigation is to reduce the uncertainty to an appropriate level. Minimal requirements for the Phase I ESA include a review of historical records, a review of files and databases compiled by regulatory agencies, interviews with current owners and/or occupants of the property, and a field reconnaissance of the subject site and adjacent areas.

This ESA also takes into consideration the evaluation of other substances and products that are or may be interpreted as excluded under CERCLA. Commonly, these substances are of concern in commercial real estate transactions under current custom and usage and may include, but are not limited to, Radon, Lead-in-Drinking Water and Special Environmental Resources. Where appropriate, VEC has considered environmental concerns of other federal, state, and local regulations.

Some data base resources developed for Maui County are in their infancy or are not cross-referenced in a manner as to be readily discernible. The Maui County Fire Department maintains historical file material that is not on a database.

Databases and records utilized for this investigation were limited to those that are reasonably ascertainable; that is, they had to be publicly available, obtainable from its source within reasonable time and cost constraints, and practically reviewable with regard to volume, sorting, and organization. Additionally, the services of *Environmental Data Resources, Inc.* (EDR) were utilized to compile the environmental database listings. (See Appendix B).

1.5 Special Terms and Conditions

As a standard practice, a confidential client privilege was initiated by VEC for the work performed and contents of this report. VEC shall ensure that its officers, employees, agents, and independent contractors do not disclose this report or any information contained therein to any person without the proper knowledge and written consent from the Client (or as otherwise required by law). VEC shall ensure that each of its officers, employees, agents, and independent contractors understand and obey these requirements.

The information and opinions provided herein are intended as background data and planning guidance to interested parties. This should not be construed to mean that any regulatory agency would have the same opinion as VEC, nor is any implication proposed.

VEC has performed this study in a competent and professional manner. Since there may be hidden or unknown conditions that may be missed during this inspection, VEC cannot warrant the actual site conditions described in this report.



2.0 SITE AND REGIONAL DESCRIPTION

Refer to Figure 1, Regional Setting Map, in Appendix A, for a depiction of the general site setting of the subject site in relation to topographic features. Also depicted are the projected groundwater flows, regional surface water flows, and locations of other significant physical features or structures.

2.1 Location and Legal Description

The subject site is located approximately 1000 feet southwest of the intersection of the Honoapiilani Highway and Napilihou Street in the community of Napili, Maui, Hawaii. The property is accessed from this intersection by a driveway which goes through the baseyard of the Maui Land and Pineapple Company's Honolua Plantation. The site is further described on the Tax Maps of the State of Hawaii as a portion of Division 2, Zone 4, Section 3, Plat 01, Parcel 01 (See Tax Map, Appendix B).

2.2 Site and Vicinity General Characteristics

The property consists of two (2) parcels of land, irregular in shape, measuring approximately 15 acres in total area. Eight (8) building structures, measuring approximately 20,000 square feet in total area, are located on the upper portion of Lot 1 of the subject property.

The subject site is surrounded by predominantly agricultural land use. The northern adjoining property is the baseyard of the Maui Land and Pineapple Company's Honolua Plantation. The eastern and southern adjoining properties are pineapple fields and the western adjoining property is Napili Villas condominiums beyond Honoapiilani Highway (See Figure 2, Appendix A).

Napili is a small seaside community located on the western shore of West Maui. (See Figure 1, Appendix A). The Pacific Ocean is located approximately 1,200 feet northwest of the subject property.

2.3 Description of Structures, Roads, Other Improvements

According to Maui County Real Property Tax records, the building structures located on the subject property were constructed in 1975. They are single story, painted wood frame buildings on concrete foundations and range in area from approximately 4,160 to 1,200 square feet. Their roofs slope from a central ridge to overhangs on all sides. These buildings consist of three (3) dormitories, one (1) office, one (1) cafeteria, one (1) laundry, one (1) duplex apartment building and one (1) outdoor basketball court. There is a sewage treatment shed and pump located approximately 100 feet southeast of the Cafeteria across the driveway. The lower lot (Lot 1) includes these buildings and an area of perimeter landscaping. Lot 1 also has an area devoted to the temporary storage of materials and out of service vehicles. It is downhill from the dormitories and bordering the baseyard.

The upper lot (Lot 2) has a former recreation area that is currently used to store fill and construction materials. Also in this area are two (2) concrete heliopads and several large pieces out of service harvesting equipment. The remainder of the property consists of fallow pineapple fields. A driveway leads from the intersection of Honoapiilani Highway and Napilihou Street, through the baseyard up to the dormitory buildings. Several unpaved roads cover the property (See Figure 2, Appendix A).

2.4 Current Use of the Property

Eight (8) separate building structures are located on the subject site and are described in the following table (Table 1.0). The dormitories are currently occupied by pineapple workers. The Office houses Maui Land and Pineapple Company's Watershed Division. Pineapple cultivation no longer takes place on the subject property. Refer to Section 2.3, Description of Structures, Roads, and Other Improvements for a description of the buildings.

Building Number	Description of Use
1	Office and Storage
2	Laundry
3	Cafeteria
4	Duplex apartment
5	Dormitory
6	Dormitory
7	Dormitory
8	Sewage Treatment Shed

2.5 Current Uses of the Adjoining Properties

The current uses of the adjoining properties as observed by the investigators during the site reconnaissance are as follows (see Figure 2, Site Plan, in Appendix A):

- *North Adjoining Property:* Industrial – Maui Land & Pineapple Company's Honolua Plantation baseyard;
- *East Adjoining Property:* Agricultural – Maui Land & Pineapple Company's Honolua Plantation;
- *South Adjoining Property:* Agricultural – Maui Land & Pineapple Company's Honolua Plantation (beyond Kaopala Gulch);
- *West Adjoining Property:* Residential – Napili Villas Condominium complex (beyond Honoapiilani Highway);



3.0 USER PROVIDED INFORMATION

As a standard of practice, the following information was requested from the Client during the preliminary phases of this investigation:

- Title records and knowledge of environmental liens;
- Personal, specialized knowledge or experience in regard to *recognized environmental conditions* concerning the property; and
- If applicable, actual knowledge of a significant, low purchase price for the property, and explanation for the lower price.

The purpose of this information is to help identify the possibility of *recognized environmental conditions* in connection with the property. These tasks do not require the technical expertise of an environmental professional and are generally not performed by environmental professionals performing the Phase I ESA. VEC submits a Preliminary Environmental Investigation questionnaire to the Client for this information. The completed questionnaire is attached in appendix B.

According to information provided by the Client in the Preliminary Environmental Investigation, the Client is not aware of any environmental liens, proceedings, or investigations against the subject property as of the date of this ESA.



4.0 RECORDS REVIEW

The purpose of a record review is to obtain and review records that will help identify *recognized environmental conditions* in connection with the subject property. The service of Environmental Data Resources, Inc. (EDR) was utilized to compile the database listings.

4.1 Standard Environmental Record Sources

The subject property and properties within the minimum search distances were reviewed from the following record sources (see below). Risk sites, if any, that may be located on or adjacent to the subject property, or are within close proximity to the subject site are described. Refer to Appendix B, EDR Radius Map Report, for a complete listing and description of all sites located within the designated search distances, details, and government agency database release dates.

The EDR Report bases the location of the listed risk sites on longitude/latitude information provided by the respective government agency. VEC confirms the locations of risk sites within close proximity to the subject site during the site visit. When the VEC site visit contradicts the EDR Report, it has been so stated.

THE SUBJECT SITE (LOT 1 and 2) IS NOT LISTED ON ANY OF THE FOLLOWING FEDERAL OR STATE DATABASE LISTINGS OF THE EDR REPORT.

Federal Database Listings

- ▼ **National Priorities List (NPL or Superfund) and Proposed NPL, EPA.** The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program.
 - *The EDR database report indicates no listings within the one-mile search radius of the subject site.*
- ▼ **Comprehensive Environmental Response, Compensation and Liability Information System List (CERCLIS), EPA.** The CERCLIS list contains data on potentially hazardous waste sites that have been reported to EPA by states, municipalities, private companies and private persons, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites that are either proposed to or on the NPL and sites, which are in the screening and assessment phase for possible inclusion on the NPL.
 - *The EDR Report indicates no listing within the 1/2-mile search radius of the subject site.*
- ▼ **CERCLIS – No Further Remedial Action Planned (NFRAP), EPA.** NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.
 - *The EDR Report indicates no listing within the 1/4-mile search radius of the subject site.*
- ▼ **Corrective Action Report (CORRACTS), EPA.** The CORRACTS report lists hazardous waste handlers with RCRA corrective action activity.
 - *The EDR Report indicates no listings within the one-mile search radius of the subject site.*
- ▶ **Resource Conservation and Recovery Information System (RCRIS), EPA/NTIS.** RCRIS includes selective information on sites that generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).
 - *The EDR Report indicates no listings of RCRIS treatment, storage and disposal (TSD) site within the 1/2-mile search radius of the subject site.*

- The EDR Report indicates no listing for the subject property and no listing for a RCRIS large quantity generators within the 1/4-mile search radius of the subject site. Large quantity generators are entities that generate at least 1,000 kg/month of non-acutely hazardous waste or 1.0 kg/month of acutely hazardous waste (Lg. Quan. Gen. - LQG).
- The EDR Report indicates no listing for the subject property and one (1) listing for a RCRIS small quantity generator (Sm. Quan. Gen. - SQG) within 1/4-mile of the subject site. RCRIS small quantity generators are entities that generate less than 1,000 kg/month of non-acutely hazardous waste.

This property is listed as Chem Nuts, owned by Maui Pineapple Company, is located at the intersection of Honoapiilani Highway and Napilihou Street. Based on the limited quantities of waste generated at this site, it is our opinion that this site does not have a reasonable potential to adversely impact the environmental condition of the subject property. No violations are related to this listing.

▼ **Emergency Response Notification System (ERNS), EPA/NTIS.** Records and stores information on reported releases of oil and hazardous substances.

- The subject site is not listed.

State of Hawaii Database Listings

▼ **Sites List (SHWS), DOH.** A list of facilities, sites, or areas in which the Office of Hazard Evaluation and Emergency Response (HEER) has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

- The subject site is not listed.
- The EDR Report indicates no listings within the 1-mile search radius of the subject site.

▼ **Permitted Landfills in the State of Hawaii (SWF/LF), DOH.** An inventory of solid waste disposal facilities or landfills in the State of Hawaii. These may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

- The subject site is not listed.
- The EDR Report indicates no listings within the 1/2-mile search radius of the subject site.

▶ **Leaking Underground Storage Tank (LUST) database, DOH.** An inventory of reported leaking underground storage tank incidents.

- The subject site is not listed.
- The EDR Report indicates two (2) listings within a 1/4-mile radius of the subject site.

Both LUST sites are located at the Maui Land & Pineapple Company's Honolua Plantation baseyard (north adjoining property). The State of Hawaii DOH has listed these sites as "cleanup completed" as of July 12, 1994 and February 4, 1999. This status indicates remediation has been initiated and completed to the satisfaction of the DOH.

▶ **Underground Storage Tank (UST) database, DOH.** USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with DOH.

- The subject site is not listed.
- The EDR Report indicates one (1) listing within 1/4-mile of the subject property.

This listing is the third of three (3) USTs located at the Maui Land & Pineapple Company's Honolulu Plantation baseyard. Based on the status, permanently out of use, this tank should pose no significant threat to the subject property at this time.

It is our opinion, based on the distance and/or direction from the subject property, and on the status of the above listed tanks, that none of the listed UST sites have a reasonable potential to adversely impact the environmental condition of the subject property.

4.2 Additional Environmental Record Sources

The subject property and properties within the minimum search distances were reviewed from the following record sources. Refer to Appendix B, EDR Radius Map Report, for a complete listing and description of all sites located within the designated search distances, details, and database release dates.

Federal Database Listings

- ▼ **Superfund (CERCLA) Consent Decrees (CONSENT), EPA Regional Offices.** Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites.
 - *The subject site is not listed.*
 - *The EDR Report indicates no listings within the one-mile search radius of the subject site.*
- ▼ **Records of Decisions (ROD), EPA.** ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.
 - *The subject site is not listed.*
 - *The EDR Report indicates no listings within the one-mile search radius of the subject site.*
- ▼ **National Priority List Deletions (De-listed NPL), EPA.** A list of sites that have been deleted from the NPL where no further response is appropriate.
 - *The subject site is not listed.*
 - *The EDR Report indicates no listings within the one-mile search radius of the subject site.*
- ▼ **Facility Index System/Facility Identification Initiative Program Summary Report (FINDS), EPA.** Contains both facility information and 'pointers' to other sources that contain more detail.
 - *The subject site is not listed.*
- ▼ **Hazardous Materials Information Reporting System (HMIRS) DOT.** A list of hazardous material spill incidents reported to DOT.
 - *The subject site is not listed.*
- ▼ **Material Licensing Tracking System (MLTS), Nuclear Regulatory Commission (NRC).** A list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements.
 - *The subject site is not listed.*
- ▼ **Mines Master Index File (MINES), Department of Labor, Mine Safety and Health Administration.** Contains both facility information and 'pointers' to other sources that contain more detail.
 - *The subject site is not listed.*
 - *The EDR Report indicates no listings within the 1/4-mile search radius of the subject site.*
- ▼ **Federal Superfund Liens (NPL Liens), EPA.** A list of properties whereby the EPA has filed liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability.
 - *The subject site is not listed.*

- ▼ **PCB Activity Database System (PADS).** Identifies generators, transporters, commercial storers and/or brokers and disposers of PCBs who are required to notify EPA of such activities.
 - *The subject site is not listed.*
- ▼ **RCRA Administrative Action Tracking System (RAATS), EPA.** A historical archived database containing records on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by EPA. The database was discontinued on September 30, 1995.
 - *The subject site is not listed.*
- ▼ **Toxic Chemical Release Inventory System (TRIS), EPA.** A list of facilities which release toxic chemicals to the air, water, and land in reportable quantities under SARA Title III, Section 313.
 - *The subject site is not listed.*
- ▼ **Toxic Substances Control Act (TSCA), EPA.** Identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list.
 - *The subject site is not listed.*
- ▼ **Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA)/TSCA Tracking System (FTTS INSP and FTTS), EPA – Office of Prevention, Pesticides and Toxic Substances.** FTTS tracks administrative cases, pesticide enforcement actions, and compliance activities related to FIFRA, TSCA, and Emergency Planning and Community Right-to-Know Act (EPCRA).
 - *The subject site is not listed.*

State of Hawaii Database Listings

- ▼ **Release Notifications (SPILLS), DOH.** Releases of hazardous substances to the environment reported to the HEER Office. The following databases are included in the HEER Spill List:
 - Release Notification Report: a compilation of releases reported to HEER.
 - Hawaii Emergency Planning and Community Right-to-Know Act (HEPCRA): a list of facilities that have submitted Tier II and Form Rs as a reporting requirement.
 - *The subject site is not listed.*
- ▶ **Registered Wells and Dry Wells, DLNR.** (See Section 5.5.6). There are no registered wells listed for the subject property. (2002 DLNR data). VEC was informed of two (2) abandoned injection wells for sewage disposal located on the subject property by the State of Hawaii Department of Health Environmental Management Division's Safe Drinking Water Branch (See Section 5.5.7).
- ▼ **Air Quality Permit, DOH.** Current activities conducted on-site do not require an air quality permit.
- ▼ **Storm Water Discharge (NPDES) Permit, DOH.** Current activities conducted on-site do not require a NPDES permit.

County and Other Database Listings

Other local records of environmental interest that were reviewed or considered for review by VEC included:

- ▼ **Fire Department, County of Maui.** The Maui County Fire Department (MCFD) maintains file material that is not on a database. MCFD was contacted for an inquiry on the subject property.
- ▼ **Former Manufactured Gas (Coal Gas) Sites.** EDR provides exclusive information regarding the existence and location of Coal Gas sites.
 - The EDR Report indicates no listings within the one-mile search radius.

- ▼ **Grading/Grubbing Permit, County of Maui.** The current activities being conducted on-site do not require a grading/grubbing permit.
- ▼ **Hazardous Waste Disposal Documents.** VEC did not view documents related to the disposal of hazardous waste.
- ▶ **Maui Electric Company.** Maintains records on county power transformers regarding PCB-containing equipment and equipment maintenance. Four (4) pole-mounted electrical transformer were observed on the subject property near the dormitory buildings (See Site Plan, Figure 2, Appendix A).
- ▼ **Other Environmental Reports.** Environmental site assessment reports that were previously completed by VEC in close proximity to the subject site were reviewed.
- ▼ **Planning & Zoning, County of Maui.** According to the Maui County Department of Planning, the subject site's zoning is "Agricultural" and is not within the boundaries of the Special Management Area (SMA).
- ▼ **Property Tax Office, County of Maui.** The Maui County Property Tax Office maintains records of past ownership, maps, sketches and other information as it pertains to the subject property. (See also Section 7.1). The property owner is listed as Maui Land and Pineapple Company.
- ▼ **Wastewater Discharge Permit, County of Maui.** VEC did not identify any wastewater discharge permits registered to the subject property.

4.3 Physical Setting Source(s)

The following sources were reviewed for physical setting information (refer to Section 7.0 for a complete listing):

- Atlas of Hawaii;
- Civil Defense Tsunami Evacuation Map;
- Geologic and Topographic Map (Hawaii Atlas & Gazetteer);
- Groundwater Map and Water Quality Plan for State of Hawaii;
- U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, HI;
- U.S. Geological Survey, 7.5 Minute Topographic Map, Napili, 1983.

These data sources were used to provide information regarding physical characteristics of the subject site and surrounding area. This information is typically used in analysis of potential geological trends, which might impact environmental conditions of the subject site. Note that this investigation is not intended to identify geologic hazards associated with the subject property.

4.4 Historical Use Information Regarding the Property and Adjacent Properties

The following historical data sources were reviewed for this report (refer to Section 7.0 for a complete listing):

- Aerial Photographs;
- Department of Planning and Zoning, County of Maui;
- Maui County Fire Department (Fire Prevention Bureau / Hazardous Materials Division);
- Maui County Real Property Tax Records;
- Personal Interviews;
- Sanborn Maps (no coverage);
- State of Hawaii, Department of Health, Environmental Management Division;
- Environmental Data Resources (EDR).

Historic Aerial Photographs

A series of aerial photographs, which covered the subject property and surrounding area, were examined. See Figure 2, Site Plan, for clarification of specific locations.

Table 10: Historical Aerial Photograph Analysis	
Date	Aerial Photo Analysis
12/27/50	SS: Agricultural fields with no discernable crop; N: Agricultural field, orchard; E: Agricultural fields with no discernable crop; S: Agricultural fields beyond Kaopala Gulch; W: Agricultural fields with no discernable crop; RG: Mainly agricultural, limited residential development to the west along the Pacific coast.
12/23/61	SS: Undeveloped sparsely vegetated land; N: No significant changes noted; E: Undeveloped sparsely vegetated land; S: No significant changes noted; W: No significant changes noted; RG: No significant changes noted.
11/13/67	SS: Agricultural fields, pineapple; N: Agricultural fields, pineapple; E: Agricultural fields, pineapple; S: No significant changes noted; W: Agricultural fields, pineapple; RG: Mainly agricultural with continued residential development to the west along the Pacific coast.
5/4/78	SS: Five (5) building structures and a shed in present day configuration noted; N: Three (3) commercial structures noted; E: No significant changes noted; S: No significant changes noted; W: No significant changes noted; RG: No significant changes noted.
12/7/86	SS: All buildings in present day configuration noted; N: All buildings in present day configuration noted and chemical tanks are present; E: No significant changes noted; S: No significant changes noted; W: The Honoapiilani Highway noted; RG: The Honoapiilani Highway and increased residential development to the northwest noted.
7/29/93	SS: Present day landscaping apparent and recreational field noted; N: Baseyard activity is expanded and retention pond noted; E: No significant changes noted; S: No significant changes noted; W: No significant changes noted; RG: No significant changes noted.
1/24/00	SS: No significant changes noted; N: No significant changes noted; E: No significant changes noted; S: Present day concrete storm water controls under Honoapiilani Highway noted; W: No significant changes noted; RG: No significant changes noted.
Notes: SS: Subject Site N: Northern Adjoining Property E: Eastern Adjoining Property S: Southern Adjoining Property W: Western Adjoining Property RG: Regional Area	

VEC did not observe any features on aerial photographs examined that would suggest the presence of significant vegetation stress or soil staining.

5.0 SITE RECONNAISSANCE

Information regarding the storm water flow, property layout, physical characteristics, and adjoining property conditions are presented in Figure 2, Site Plan, and site photographs. (See Appendix A).

5.1 Methodology and Limiting Conditions

A site investigation focuses on obtaining information indicating the likelihood of identifying *recognized environmental conditions* in connection with the property and assessing the subject property in relation to surrounding land uses and natural surface features. It includes a physical inspection of the real property and any on-site building structures.

On March 15, 2004, VEC personnel, Mr. Jeffrey Kermode and Mr. Joseph Beaulieu, conducted an overall site inspection of the subject site. The method used to observe the subject property included: (1) walking the perimeter of the subject property and (2) observing exterior open areas; and (3) observing accessible interior and exterior areas of the on-site building structures.

Certain physical obstructions limited the investigators from observing the native surface soils of the entire property. Approximately five percent (5%) of the subject property's native surface soils were obscured by the building structures, tall grass, and asphalt paved areas.

Any environmental conditions reported here are not intended to include minimal conditions that 1) generally do not present a material risk of harm to public health or the environment and 2) generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

5.2 General Site Setting

5.2.1 Current and Past Use(s) of the Property

Current Uses

According to the Maui County Tax Office, the current owner is listed as the Maui Land and Pineapple Company, Ltd. The property is being used for residential (dormitory) and agricultural supporting activities (equipment and material storage).

Information presented here represents those items visually or physically observed or identified in the interviews or records review.

Past Uses

County Tax records indicate that historically the subject property was owned by Baldwin Packers, Ltd. and then by Maui Land and Pineapple Company, Ltd. The land was used for residential purposes with three (3) field worker dorms, one (1) cafeteria, one (1) office and one (1) apartment located on the western lot, Lot 1, of the subject property. The upper lot, Lot 2, was used for pineapple crops and a recreational field that was later turned into a storage area and a landing area for helicopters.

The knowledge of past uses of the property was primarily made from aerial photographs and interviews. Topographic maps and the Hawaii Atlas provided limited regional information.

5.2.2 Current and Past Uses(s) of the Adjoining Properties and Surrounding Area

VEC has researched current uses of adjoining properties and at its discretion, past uses of the adjoining properties and the surrounding areas. Information presented here represents those items visually or physically observed or identified in the interviews or records review. The information is described herein as items that may indicate *recognized environmental conditions* with adjoining properties and those conditions that may indicate a high probability of migration of hazardous substances or petroleum products to the subject property.

Adjoining Property	Period	Land/Property Use	Concerns	Comments
North of Subject Site	Past	Undeveloped land.	None.	None.
	Present	Maui Land and Pineapple Company's Honolua Plantation Baseyard.	<p>Improper management or use of regulated or petroleum substances.</p> <p>Leaking Underground Storage Tank (LUST)</p> <p>Historical pesticide and fertilizer application on pineapple crops leading to possible soil and groundwater contamination.</p> <p>Bulk storage of fertilizers and the fumigant, Telone, located immediately adjacent to the subject site.</p>	<p>No evidence was obtained indicating improper management or use of regulated or petroleum substances.</p> <p>Does not pose a significant concern due to its status and down gradient location.</p> <p>Pineapple cultivation had been active on this site for several decades up until the early 1990's. During this time agricultural pest control chemicals and fertilizers, which has been long recognized by the U.S. Environmental Protection Agency (EPA) for contributing to the potential contamination of surface soils and groundwater systems, have been used. Although chemicals used for pineapple crops could have been regularly used in significant quantities, they degrade with time in soil. Most agricultural chemical concerns typically arise when bulk (full strength) products leak or are spilled onto soils. However, it is possible that chemicals in long-term use remain at, or above, regulated levels.</p> <p>Bulk storage could have affected the subject property due to their close proximity.</p>
East of subject site	Past	Undeveloped land.	None.	None.
	Present	Pineapple fields.	Historical pesticide and fertilizer application on pineapple crops leading to possible soil and groundwater contamination.	See comments above.
South of subject site	Past	Undeveloped land.	None.	None.
	Present	Pineapple fields.	Historical pesticide and fertilizer application on pineapple crops leading to possible soil and groundwater contamination.	See comments above.
West of subject site	Past	Undeveloped land.	None.	None.
	Present	Napili Villas beyond Honoapiilani Highway.	None	None.

The development of past uses of the adjoining properties was primarily made from interviews, VEC site reconnaissance, and aerial photographs. Topographic maps and the Hawaii Atlas provided limited regional information.

5.2.3 Topography

The regional area lies on the western slopes of the West Maui Mountains. Its physiographic type feature is described as Napili Dissected Upland.

Locally, the elevation ranges from approximately one-hundred and ten (110) feet to two-hundred and ten (210) feet above mean sea level and is characterized by moderate topographic relief (10% slope) towards the west. On-site drainage directs storm water towards Kaopala Gulch located south of the subject property. Storm water also flows along the entrance driveway toward the baseyard in a northerly direction (See Figure 2, Appendix A).

The nearest prominent natural feature is the Pacific Ocean, located approximately 1,200 feet to the west and Kaopala Gulch located along the southern adjoining property boundary.

5.2.4 Geology and Soils

According to the U.S. Department of Agriculture, the following soil series underlies the subject site:

- Kahana silty clay, 7 to 15 percent slopes (KbC). In a representative profile the surface layer is dark reddish-brown silty clay about 14 inches thick. The subsoil is dark reddish-brown silty clay, about 50 inches thick. These soils are strongly acidic and very strongly acidic in the surface layer. Permeability is moderately rapid. Runoff is slow to medium, and erosion hazard is slight to moderate. This soil is often used for pineapple, sugarcane, and homesites.

Other common, surface geologic phenomena investigated in an environmental site assessment are faults, landslides, rock falls, and volcanic eruptions. After examination of the relevant data, it has been determined by VEC that these geologic phenomena are not a factor to the subject site.

In 1992, the USGS reevaluated the seismic hazards for the State of Hawaii, and Maui County was classified as Zone 2B. This indicates that in any given year within a 50-year period (average building life span) there is a 10% chance that a .20g (force of gravity) horizontal ground acceleration may take place during the peak wave of an earthquake. Engineering design codes for this area should have considered this acceleration prior to construction. Buildings not in compliance with the Uniform Building Code (UBC) seismic provisions may be subject to some level of damage from earthquakes that exceed the .20g acceleration.

However, it should be noted that this is not an investigation for geological hazards.

5.2.5 Hydrology

The subject site area has an annual average rainfall of approximately 32 inches. The average temperature range from the annual high to the annual low is 80 degrees and 60 degrees Fahrenheit, respectively. The pre-development vegetation zone within this temperature and rainfall range is characterized as kiawe and lowland shrubs. Characteristic plants consist of kiawe, koa haole, finger grass, and pili grass.

On-site drainage is in an northerly direction to an off site retention pond and in a southerly direction into Kaopala Gulch. Creek bed water flow within Kaopala Gulch is in a westerly direction. (See Figure 2, Site Plan).

The pertinent Federal Insurance Rate Map (FEMA FIRM MAP #15003 0138 B dated map on June 1, 1981) depicts the area as minimal flooding (Zone C).

The Civil Defense Tsunami Evacuation Maps indicate the subject property is **not** within the Tsunami reach-zone. The Pacific Ocean is located approximately 1,200 feet west of the subject site.

5.2.6 Hydrogeology

As with all islands of the United States, Maui is regulated by the Coastal Zone Management Act of the Clean Water Act. These two designations require protective comprehensive plans for groundwater management and limit the extent of certain types of development and land use. One important

management criterion is the disposal of wastewater. The Water Resources Research Center has designated the groundwater management area as the *Honolua Aquifer System* within the *Lahaina Aquifer Sector*. The groundwater underlying the subject site is defined as follows:

Table 4.0. Aquifer Classification of the subject site.						
Aquifer	Aquifer Type: Hydrology & Geology	Status of Groundwater				
		Development Status	Utility	Salinity (mg/l Cl)	Uniqueness	Vulnerability to Contamination
Upper	Unconfined, basal aquifer occurring in nonvolcanic lithology (Sedimentary).	No Potential Use	Neither	High	Replaceable	High
Lower	Confined basal aquifer occurring in horizontally extensive lavas (Flank)	No Potential Use	Neither	Moderate	Irreplaceable	Moderate

The following are descriptions of the aquifer classification codes, according to Water Quality Plan of 1992:

Aquifer Type Hydrogeology (basal, high level, unconfined, confined, or confined/unconfined): basal – freshwater in contact with seawater; *high level* – freshwater not in contact with seawater; *unconfined* – water table is the upper surface of the saturated aquifer; *confined* – aquifer is bounded by impermeable or poorly permeable formations; and *confined or unconfined* – the actual condition is uncertain.

Aquifer Type Geology: flank, dike, flank/dike, perched, dike/perched, and sedimentary.

Development Stage – currently used, potential use, no potential use: Aquifers are differentiated according to those already being used (currently used), those with potential utility (potential use), and those having no potential for development.

Utility – drinking, ecologically important, neither: Identifies aquifers by use.

Salinity – fresh, low, moderate, high and seawater: The gradation of groundwater from fresh to seawater is a feature of all basal aquifers in Hawaii. The upper limit of the standard for drinking water is 250 mg/l Chlorine (Cl) (fresh) and true seawater has a chloride content of 18,980 mg/l.

Uniqueness – irreplaceable and replaceable: The classes irreplaceable and replaceable are direct EPA derivatives. Virtually all-potable water in the state of Hawaii should be considered irreplaceable over the long term.

Vulnerability to Contamination – high, moderate, low, none: Because of the geographical limits of resources, interconnection among groundwater sources and the relatively rapid time of groundwater travel, aquifers can be described as being either vulnerable or not vulnerable to contamination.

The estimated depth to the basal groundwater ranges from approximately 90 to 180 feet below the ground surface, depending on the location on the subject property. The flow direction is expected to be in a north westerly direction.

The subject site is located makai (seaward) of the Underground Injection Control (UIC) line. The UIC line is the designated boundary that divides protected inland areas situated over drinking water sources from seaward areas located over non-potable water sources. Sites makai of the UIC line are not considered drinking water sources and permit limitations are imposed by Maui County, Clean Water Branch (CWB).

5.2.7 Potable Water Supply and Sewage Disposal System

The County of Maui provides the potable water supply and sewage disposal systems for the subject site. VEC can not confirm whether all wastewater connections to the county's system are made.

5.3 Interior and Exterior Observations

5.3.1 Hazardous/Regulated Substances and Petroleum Products in Connection with Identified Uses.

VEC identified the following hazardous/regulated substances and/or petroleum products in connection with identified current uses as visually and physically observed on the property at the time of the site visit:

- ▶ One (1) aboveground propane storage tank was observed and is currently used at the cafeteria building for cooking purposes. Refer to Figure 2 for the location and Section 5.3.4, Storage Tanks for more information.
- ▶ Temporary storage of 55 gallon aviation fuel drums. Maui Pineapple Company occasionally uses the heliopads. At these times they may bring in 55 gallon fuel drums for refueling. No drums were noted during the site inspection. No sign of staining or odors were noted in the vicinity of the heliopads.
- ▶ A small amount of consumer-sized containers of household cleaners and regulated materials were observed on the storage shelves of the cafeteria building. The containers were secure and no staining or spills were observed at the time of the site inspection.

5.3.2 Hazardous/Regulated Substances and Petroleum Products/Containers (not in Connection with Identified Uses).

VEC did not identify any hazardous/regulated substances and/or petroleum products that are not in connection with identified current uses as visually and physically observed on the property at the time of the site visit. There is no evidence of any historic misuse, improper bulk storage, or significant spills of hazardous or regulated substances on the subject property.

A review of the historical information identified the subject property to be part of the Maui Land and Pineapple Company's Honolua Plantation that has been operating in this area since the middle 1960's. Hazardous materials potentially associated with pineapple cultivation include pesticides and herbicides. The U.S. Environmental Protection Agency (EPA) has long recognized these chemicals as a contaminant to surface soils and ground water. Wes Nohara, former Plantation Supervisor at the Honolua Plantation has agreed to provide a list of chemicals used on site. As of the date of this report, VEC had not received any such information. Should significant and relevant information become available regarding the historic use of hazardous and regulated substances on the project site, VEC will forward the information to the client promptly.

The northern adjacent property has been a baseyard for pineapple cultivation in the area for the past two decades. VEC identified four (4) chemical bulk storage tanks located immediately adjacent to the northern property line of Lot 2 of the subject property. Agriculture chemical concerns typically arise when bulk (full strength) products leak or are spilled on soils. Historic migration of pesticides onto the subject property is possible.

5.3.3 Unidentified Substance Containers

VEC did not observe any unidentified substances suspected of being possible hazardous/regulated substances or petroleum products as visually and physically observed on the property at the time of the site visit.

5.3.4 Storage Tanks

No indication regarding the historic or current presence of underground storage tanks (USTs) on the subject site was obtained through our review of regulatory databases, interviews or through VEC's site reconnaissance.

One (1) aboveground propane tank (AST) was identified on the subject property near the cafeteria building (see Photo # 16 and Figure 2 in Appendix A). This AST appeared to be in good condition with no visible signs of damage or leaks at the time of the site visit.

Another tank (approximately 100 gallon capacity) that appeared to be used for portable fertilizer spraying purposes was located on Lot 2 in the former recreational field along the northern property line. The tank was empty and the ground underneath which was covered in tall grass, did not appear to be stained.

Out of service harvesting equipment with related fuel tanks were noted on Lot 2 as well. All tanks were empty with no visible signs of leaks or underlying surface soil staining.

5.3.5 Odors

VEC identified no suspect odors on the subject property.

5.3.6 Pools of Liquid

The investigator did not observe any pools or sumps of liquids likely to be hazardous substances or petroleum products to the extent visually and/or physically observed on the subject property at the time of the site visit or from interviews or records review.

5.3.7 Indications of PCBs

Pole or pad-mounted transformers numbered 7777 or above are considered non-PCB containing by the Maui Electric Company. Four (4) pole-mounted electrical transformer were observed on the subject property near the dormitory buildings. These transformers were determined to be non-PCB containing based on their ID numbers (See Photo # 16 in Appendix A). These transformers appeared to be in good condition with no sign of leaking or staining.

Background Information:

Polychlorinated biphenyls (PCBs) are groups of manufactured organic chemicals that contain 209 individual chlorinated chemicals (known as congeners) and were introduced in 1929. PCBs have been used widely as coolants and lubricants in transformers, capacitors, and other electrical equipment. Products containing PCBs are old fluorescent lighting fixtures, electrical appliances containing PCB capacitors, old microscope oil, and hydraulic fluids.

The manufacture of PCBs stopped in the United States in 1977 because of evidence that they build up in the environment and cause harmful effects. The distribution in commerce of PCB containing items was banned in 1979 (40 CFR 761.20). The EPA aggressively enforces regulations concerning PCB manufacturing, use, distribution, release and disposal under the Toxic Substance Control Act (TSCA). This federal agency extensively regulates the use, servicing, and disposal of PCBs in electrical equipment by enforcing marking, notification, inspection, and record keeping requirements.

5.4 Interior Observations

5.4.1 Heating and Cooling Systems of On-site Building Structures

Individual wall mounted air conditioning units were observed as cooling systems for some of the on-site building structures. A commercial refrigeration unit is also in use at the cafeteria operation. There were no heating systems identified.

5.4.2 Stains and Corrosion

There were no significantly stained or corroded areas observed at the time of the site inspection.

5.4.3 Indoor Wastewater Drains, Sumps and Grease Interceptors

Several indoor floor drains were observed at the time of VEC's inspection. Some of these drains located in the cafeteria building have been closed with cement. The open drains are likely to receive wash water with diluted amounts of detergents/disinfectants. The domestic wastewater is pumped to the county's sewer system by the on site pumping station.

One (1) grease interceptor was noted. According to Scott Rollins of the Maui County Wastewater Reclamation Division the grease interceptor is unregistered. This interceptor may require upgrading in order to be in compliance.

5.5 Exterior Observations

5.5.1 Pits, Ponds, and Lagoons

There were no areas identified as man-made or natural depressions that are, or would have been, likely to hold waste liquids or sludge from industrial operations or other activities.

5.5.2 Stained Soil or Pavement

No significant petroleum-like staining was noted on the subject property

5.5.3 Stressed Vegetation

There were no areas of stressed vegetation identified on the subject property at the time of the site visit that are, or would have been, likely caused from something other than insufficient water (or flooding).

5.5.4 Solid Waste

The storage of out-of-use vehicles, harvesting equipment and fill material was evident on the subject property. Some regulated items were noted. If any are discovered in the future, management of these wastes needs to be performed in a manner that complies with all local, state, and federal regulations as applicable to the waste type. Confirmation of unidentifiable materials may require sampling and laboratory analysis. VEC noted the following solid waste storage during the on site reconnaissance:

- One (1) on-site waste dumpster was inspected. This dumpster was essentially empty with no sign of improper disposal of regulated items. (See Photo # 16, Appendix A).
- Small piles of landscape and miscellaneous debris were noted along the perimeter of the Lot 1 (See Photo # 17 and Figure 2 in Appendix A).
- Fill material stockpiles consisting of rocks and dirt were located on the former recreation area of Lot 2 (See Photo # 19 and Figure 2 in Appendix A) and on the lower portion of Lot 1.
- Large pieces of harvesting equipment and piles of construction material were noted in the recreational field area of Lot 2 (See Photo # 20 and Figure 2 in Appendix A).
- Several out of service trucks and cars as well as farm equipment and construction materials were noted on the northern lower portion of Lot 1 near the baseyard (See Photo # 18 and Figure 2 in Appendix A).
- Special waste (i.e. derelict vehicles, engine parts, white goods, and automobile tires).

Some wastes may be considered "Special Wastes" according to the Hawaii Administrative Rules (HAR) on Solid Waste, Title 11, Chapter 58.1. Special wastes are those wastes that do not fit in the mixed municipal solid waste (MMSW) category, either by general nature or because of special handling requirements. Special waste categories include: asbestos, sludge, medical waste, used oil, batteries, agricultural wastes, tires, derelict vehicles and white goods (i.e., appliances). Locally, the County of Maui, Department of Public Works, Solid Waste Division administers the disposal of these materials. These wastes need to be disposed of in a permitted solid waste landfill such as the Maui County Central Landfill. Special wastes' management needs to be performed in a manner that complies with all local, state, and federal regulations as applicable to the specific waste type.

Due to on-site building structures, a significant number of out-of-service vehicles, fill material stockpiles, and heavily vegetated areas, the entire subject site and underlying soils were not visibly inspected. It is important to note that if additional clearing of the property commences and large amounts of construction debris or unidentifiable substances (containers) are further discovered, proper waste identification, testing and applicable waste handling/disposal procedures are followed.

5.5.5 Wastewater or Storm Water – Discharge Drains, Dry Wells, Drainage Ways, and Retention Basins

Storm water flows in a westerly direction from Lot 2 to the southern property line of Lot 1 then in a southerly direction to Kaopala Gulch. Storm water also flows in a northerly direction from Lot 1 along the western side of the access driveway (See Figure 1, Appendix A).

VEC identified an extensive concrete storm water channel and culvert as well as a retention pond immediately adjacent to the southwest property corner in the Kaopala Gulch. A second retention pond is located on the northern adjoining property (See Figure 2, Appendix A).

In order to minimize any potential regulatory profiling of the subject site as a potential responsible party for any newly discovered groundwater or surface water contamination, future management may consider practicing conservative, proactive environmental policies. These policies might include written environmental protection contracts with any future special-use commercial tenants and posted notices regarding any use, storage and handling of hazardous substances and/or petroleum product. Special attention should be addressed to storm water entering the nearby storm water discharge system.

5.5.6 Wells

Two (2) abandoned sewage injection wells were identified on the subject property near the sewage pump shed along the southern boundary of Lot 1. (See Figure 2, Site Plan, Appendix A). According to Norris Uehara of the State Department of Health, Safe Drinking Water Branch these wells were back filled and abandoned in 1992. A site plan provided by Mr. Uehara shows that the wastewater system consisted of a sewage treatment tank, a grease and trash tank, a clarifier and a chlorine contact tank. This system only serviced the dormitory operation, according to Wes Nohara of Maui Pineapple Company. Sludge was typically removed by tanker truck and transported off site. Historically, sludge may have been applied to the pineapple field soils as a fertilizer.

The injectant composition most likely consisted of domestic wastewater only, not industrial wastewater. Therefore, the subsurface strata and underlying groundwater receiving the wastewater is unlikely to have been significantly impacted by regulated chemicals. Human derived waste injected into this system has likely been naturally attenuated since closure in 1992.

From VEC's observations and database search, there are no production, domestic, irrigation or monitor wells located on the subject site.

Wells located near the subject property are mainly used for irrigation purposes or are unused at this time.

5.5.7 Septic and Cesspool Systems

From VEC's observations, there are no septic or cesspool systems located on the subject site. VEC did not obtain evidence of any historic septic or cesspool system located on the subject site. VEC did find a sewage treatment system that operated on site from 1974 to 1992. This system and shed is located down gradient from the buildings on the property along the southern boundary line of Lot 1 (See Figure 2, Appendix A and Section 5.5.6).

5.6 Non-Scope Considerations

The concerns listed below are not normally considered relevant under CERCLA, however, they may be considered regulated under other environmental laws and ordinances and may present a potential liability to the property owner.

5.6.1 Asbestos-Containing Materials (ACM)

Current OSHA regulations for occupational exposure to asbestos hazards require commercial building owners to presume all thermal system insulation, sprayed or textured surfacing materials and asphaltic and

vinyl flooring installed in buildings constructed before 1981 to contain ACM. Due to the subject property's building structure's construction date (1975), it is possible that some of the building materials contain asbestos. This poses a concern to the subject property owner for any future planned renovation or demolition activities.

During the site inspection, AHERA-certified building inspector Jeffrey Kermode performed a visual survey for suspect asbestos-containing building materials (ACMs). The survey consisted of a reconnaissance of readily accessible areas only, and was limited in scope in the contract. The site inspection did not include any entry into crawl spaces, plenums, or locked storage rooms. This following listing of suspected ACM's was compiled from site assessment notes and does not constitute a *comprehensive* building inspection under EPA/AHERA protocol:

- Vinyl floor tiles located in the cafeteria building;
- Textured paint located in several locations;
- Drywall tape and mud;

All suspect materials were generally observed to be in good condition. No suspected asbestos containing waste materials were noted.

Background Information:

Asbestos was widely used in building materials and in fire retardant applications up through the 1980s. Asbestos use in the United States did not start to decline until the EPA banned the spray-applied materials during 1973-1978. Further restrictions on U.S. manufactured asbestos products continued into the 1990s. The EPA ban rule and phase-out of all asbestos-containing materials (ACMs) was to be implemented in stages from 1990 to 1997, but the Rule was overturned in federal court.

Asbestos is a known health hazard causing progressive lung scarring and cancer. Asbestos related conditions usually develop within 15 to 40 years after exposure. Exposed smokers have an increased risk factor of 50 to 90 times that of the non-smoking population.

State and federal rules have established standards for the use and control of ACM. These standards apply to worker protection, notification procedures, renovation/demolition activities, and construction debris (waste) management.

Under the EPA's Asbestos Hazard Emergency Response Act (AHERA), 40CFR763, asbestos-containing material (ACM) is defined as any substance whose asbestos content exceeds one percent (1%) of the total volume as determined by Polarized Light Microscopy (PLM) analysis. Building inspector training, sampling procedures and laboratory analysis are also addressed under this rule. Some aspects of this rule have been extended to public and commercial buildings. The Hawaii Administrative Rules 11-502 have essentially adopted EPA's AHERA standard.

Current OSHA regulations for occupational exposure to asbestos hazards require commercial building owners to *presume* all thermal system insulation, sprayed or textured surfacing materials and asphaltic and vinyl flooring installed in buildings constructed before 1981 to contain ACM. The Federal Occupational Safety and Health Act (OSHA) Construction Standard for Asbestos requires that building owners communicate any potential or actual asbestos hazards (29CFR1926.1101(k)). Owner/Operators must inform in-house employees and any outside contractor (workers) who apply or bid for work in or adjacent to areas known or *presumed* to contain asbestos. Included asbestos materials are Thermal system insulation (TSI), sprayed or troweled-on surfacing materials, and asphalt or vinyl flooring material installed prior to 1981. Hawaii Occupational Safety and Health (HIOSH) under HAR 12-141.1 has adopted the federal standard.

Under EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP) 40CFR Part 61, are requirements for renovation and demolition work involving ACM.

5.6.2 Lead-Based Paint

Due to the construction date of the on site building structures (1975), the interior and exterior painted surfaces may contain paint with measurable levels of lead. This is not a concern if the paint is left undisturbed or is painted over. However, it does become a concern for the building owner/manager if renovation or demolition work is undertaken that will disturb the painted surfaces.

Background Information:

Lead is a metal element in pure form but is found in other chemical compounds used within manufactured and formulated products. Among these are pipe solder, paint and other coatings and water pipes - items commonly found in older buildings and homes.

Lead becomes toxic to the human body even in low levels by chronic over exposure. The exposure may occur by breathing dust, eating dust (on food, tobacco, fingers, or eating paint chips (children)). Lead poisoning affects the brain and central nervous system; especially susceptible are young children. Lead is also known to impact kidney and liver functions.

The EPA/HUD defines lead-based paint as paint or other coatings containing lead equal to or in excess of 0.5% lead by weight or 1.0 mg/cm². The prevalence of lead-based paint in housing built before 1940 is especially high according to research conducted by the U.S. Department of Housing and Urban Development (HUD). After 1940, its use diminished until 1972 when U.S. manufactured housing paint became regulated at 0.5 percent lead by weight and "banned" in 1978; this means that paint could not be manufactured and sold for housing use if it contained lead above the U.S. Consumer Products Safety Commission's (CC) 0.06 percent by weight. The "ban" provided a basis for using the cut-off date of 1978 when disclosing the possibility of lead-containing paint in sales and rentals of housing units.

Any detected lead-level in paint below HUD and the CPSC's criteria remains an environmental concern under the U.S. Occupational Safety and Health Administration's (OSHA) Lead Standard for Construction Workers, 29CFR1926.62 and the HIOSH equivalent, HAR 12-148.1. Communication of lead-levels in paint is required for worker safety, when conducting renovation or demolition, and for construction debris (waste) management.

5.6.3 Arsenic-Containing Substances

VEC did not identify any building materials on the subject property that are known or suspected to contain elevated levels of arsenic. Inner-wall framing lumber may be treated with an arsenic-containing pesticide.

Background Information

Arsenic, like several other heavy metals, tends to accumulate in the body. Ingestion of a small dose may seemingly exert no adverse effect at all, while ingestion of multiple small doses could cause death. In lesser amounts, arsenic-containing compounds cause other health problems, like mottling of the skin, skin lesions, nervous disorder, and severe, irreversible liver damage. Arsenic is a human carcinogen, causing skin tumors when ingested and lung tumors when inhaled.

Arsenic-containing compounds were once used as components of some inorganic pesticides. In the 1940s, these pesticides were used to control insects and rodents.

To protect against exposure to high arsenic concentrations, OSHA requires workers to use air-purifying respirators and to wear protective clothing in areas where airborne arsenic compounds are known to exist.

The Resource Conservation and Recovery Act (RCRA), Subtitle C lists arsenic and arsenic-containing compounds as a hazardous waste. Therefore, construction/demolition debris (waste) management should be conducted in accordance with all Federal, State, and Local regulations. This typically requires waste segregation into construction material and dust/debris waste. Sampling using the Toxicity Leach Characteristic Procedure (TCLP) for arsenic is required for hazardous waste determination.

5.6.4 Radon

VEC did not identify any man-made products on the subject property that are known or suspected to emit radioactive decay elements.

Background Information:

Radon is a colorless and odorless radioactive gas that can produce health effects such as cellular injury. Radon gas can occur in the natural environment as concentrations from certain rocks and geologic conditions have a high radon-emanation potential.

These surface rock types are not known to occur in Hawaii. It is possible that increased concentrations of Radon could occur in regions where geologic fault and volcanic rift zones may release gases from deeper earth sources. However, the State of Hawaii, Department of Health (DOH) has not addressed concerns for any significant levels of gas to occur anywhere in Hawaii. This was based on the 1992 and 1996 DOH investigations conducted in elementary schools throughout the State.

5.6.5 Lead in Drinking Water

The subject property is served by the Maui County Municipal Water System that, by regulatory compliance, must be periodically tested for lead concentrations. VEC was not provided records of tap water testing conducted at this site.

5.6.6 Ecological Resources, Endangered Species, Cultural and Historic Resources, and Wetlands

There are no known wetlands, critical habitats, or threatened and endangered species designated for the subject site. The subject site is not located within the County of Maui's Special Management Area (SMA).

5.6.7 Indoor Air Quality

VEC did not identify any building surfaces that had characteristics that resembled possible mold contamination at the time of the site visit. VEC did not observe any mold related odors. However, it should be noted that mold-contaminated surfaces may be located in interstitial wall spaces, and thus, would not be visually identified during the site investigation.

Background Information:

Indoor air quality (IAQ) problems primarily result from indoor pollution sources that release gases or airborne particles. The term "Sick Building Syndrome" (SBS) is used to describe situations in which building occupants experience acute health and discomfort effects that appear to be linked to time spent in a building and may be localized in a particular room or zone or may be widespread throughout the building. Frequently, problems result when a building is operated or maintained in a manner that is inconsistent with its original design or prescribed operating procedures or as a result of poor building design or occupant activities.

Sources of indoor air contaminants can originate from within the building or be drawn in from the outdoors. The following causes contribute to IAQ problems:

1. *Inadequate ventilation* – As a result of the oil embargo in 1973, national energy conservation measures called for a reduction in the amount of outdoor air provided for ventilation. In many cases the reduced outdoor air ventilation rates were found to be inadequate to maintain the health and comfort of building occupants. Potential air pollutant sources in ventilation or heating, ventilating, or air-conditioning (HVAC) systems include, but are not limited to: dust or dirt in ductwork; microbiological growth (i.e. mold, mildew, or bacteria); improper use of biocides, sealants, and cleaning compounds; improper venting of combustion products; and refrigerant leakage. Inadequate ventilation may increase the concentrations of these indoor air contaminants.

2. *Biological contaminants* – Bacteria, molds, pollen and viruses are types of biological contaminants. These contaminants may breed in stagnant water that has accumulated in ducts, humidifiers and drain pans, or where water has collected on ceiling tiles, carpeting, or insulation. Surfaces exposed to high humid conditions with limited air movement may also be subject to microbiological contamination.
3. *Chemical contaminants from indoor sources* – Most indoor air pollution comes from sources inside the building. Potential air pollutant sources of indoor chemical contaminants include, but are not limited to: adhesives, carpeting, upholstery, manufactured wood products, pesticides, combustion products (i.e. carbon monoxide, carbon dioxide, and nitrogen oxides), and cleaning agents emitting volatile organic compounds (VOCs). Tobacco smoke contributes high levels of VOCs, other toxic compounds, and respirable particulate matter. Research has shown that some VOCs can cause chronic and acute health effects at high concentrations, and some are known carcinogens.
4. *Chemical contaminants from outdoor sources* – The outdoor air that enters a building can be a source of indoor air pollution. Potential air pollutant sources of outdoor chemical contaminants include, but are not limited to: motor vehicle exhausts; plumbing vents; combustion products (i.e. carbon monoxide, carbon dioxide, and nitrogen oxides); and building exhausts (i.e. bathrooms and kitchens). These contaminants can enter the building through poorly located air intake vents, windows, and other openings.

Indicators of SBS or IAQ related health problems include, but are not limited to, headache, eye, nose, or throat irritation, dry cough, dry or itchy skin, dizziness or nausea, fatigue, and sensitivity to odors. Most complaints or symptoms are relieved soon after leaving the building.

5.6.8 High Voltage Transmission Lines

VEC did not identify any high voltage transmission lines on the subject site.



6.0 FINDINGS, OPINIONS, AND CONCLUSIONS

6.1 Recognized Environmental Conditions

Recognized environmental conditions, as defined by ASTM Standard E1527-00, are the presence or likely presence of any hazardous substance or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. *Recognized environmental conditions* are described with regard to (1) the nature and extent of the environmental condition, (2) potential or actual environmental threat, (3) potential for transport (migration) of any environmental conditions, and (4) consideration for further investigation. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

VEC has performed this Phase I Environmental Site Assessment in conformance with the scope and limitations of the ASTM Practice E 1527-00 for the property located on the east side of the Honoapiilani Highway south of its intersection with Napilihou Street in the community of Napili, Maui (portion of TMK Number (2) 4-3-01:01), defined as the subject property. Any exceptions to or deletions from, this practice are described in Section 1.4, Limitations and Exceptions, of this report.

This assessment has revealed no evidence of *recognized environmental conditions* in connection with the property, except for the following:

6.1.1 Database Listings (See Section 4.0 & EDR Report, Appendix B)

Findings/Concerns:

The subject site is not listed on any Federal, State or County databases as a site with any recognized environmental concerns except for the former injection wells listed with the Hawaii Department of Health's Safe Drinking Water Branch (See Section 5.5.6.).

One (1) UST (underground storage tank) and two (2) LUSTs (leaking underground storage tanks) listings were located on an adjoining property. These sites are located downgradient of the subject site. Additionally, these sites are also listed as "permanently out of use" and "site cleanup completed".

Opinions and Conclusions:

It is VEC's opinion that the above noted sites and any other listed sites in close proximity do not have a reasonable potential to adversely impact the environmental condition of the subject property. This is due to the status of these sites and/or their down gradient location relative to the subject site.

6.1.2 Current and Historic Use or Storage of Hazardous and Regulated Substances (See Sections 5.3.1 & 5.3.2)

Findings/Concerns:

There is no evidence of any historic or current significant misuse of hazardous or regulated substances on the subject property.

Historically, pineapple agriculture had been occurring on and adjacent to the subject property for several decades. Pineapple agriculture operations have been associated with the application of pesticides and fertilizers.

Opinions and Conclusions:

While the use of pesticides and herbicides on and near the property does not necessarily result in adverse impacts to the environmental condition of the subject site, it is possible (yet unlikely) for residual amounts of these substances to accumulate to concentrations that present a potential threat to human health or the environment. Soil and groundwater sampling and laboratory testing would provide additional information to evaluate potential environmental effects from these agricultural activities. A standard, pro-active procedure would be to conduct such a survey prior to future development at this site. There is, however, no regulatory requirement to conduct this sampling.

6.2 Other Environmental Concerns

The concerns listed below may not be considered *recognized environmental conditions* by ASTM definition. However, they may be considered regulated under other environmental laws and ordinances and may present a potential liability to the property owner.

6.2.1 Solid Waste Management (See Section 5.5.4)

Findings/Concerns:

The storage of out-of-use vehicles, harvesting equipment and fill material was evident on the subject property. Some regulated items were noted. Due to on-site building structures, a significant number of out-of-service vehicles, fill material stockpiles, and heavily vegetated areas, the entire subject site and underlying soils were not visibly inspected.

Opinions and Conclusions:

Any waste disposal should be in a permitted solid waste landfill or recycled in a manner that complies with all local, state, and federal regulations as applicable to the specific waste type with special attention given to regulated items.

It is important to note that if additional clearing of the property commences and large amounts of construction debris or unidentifiable substances (containers) are further discovered, proper waste identification, testing and applicable waste handling/disposal procedures are followed.

6.2.2 Building Materials' Management (See Sections 5.6.1 and 5.6.2)

Findings/Concerns:

VEC noted building materials that may contain asbestos and lead based paint.

Opinions and Conclusions:

The above noted materials may pose a concern to the subject property owner for any future planned renovation activities. Any suspect materials should be tested prior to any planned renovation or demolition activities.

All worker safety, required notifications, and waste management concerns regarding the above-noted materials should be thoroughly addressed and undertaken during future renovation activities.

6.2.3 Grease Interceptors (See Section 5.4.3)

Findings/Concerns:

VEC located one (1) grease interceptor on the subject property that is not registered with the Maui County Wastewater Reclamation Division.

Opinions and Conclusions:

VEC recommends that the current or future kitchen operation be fitted with a compliant grease interceptor that is acceptable with the County of Maui Wastewater Reclamation Division.

6.2.4 Surface Waters and Area Aquifer Protection (See Section 5.5.5)

Findings/Concerns:

Development may be planned for the subject site. For any future grubbing and grading and construction activities planned for the site, the property owner should be aware of the potential for contaminants to run off-site and into on-site watercourses or adjacent storm water drains. Products of concern relating to any future development activity would be earthen material (silt), oils, antifreezes and other fluids from automobile or on-site machinery, or leaks from on-site stocked items.

Opinions and Conclusions:

Future land clearing projects will likely require a County of Maui grading/grubbing permit and if the size of a project creates greater than one (1) acre of soil disturbance, the developer will also require a National Pollution Discharge Elimination System (NPDES) General Permit (State of Hawaii, Department of Health, Clean Water Branch).

In order to minimize any potential regulatory profiling of the subject site as a potential responsible party for any newly discovered groundwater or surface water contamination, future management may consider practicing conservative, proactive environmental policies. These policies might include written environmental protection contracts with any future special-use commercial tenants and posted notices regarding any use, storage and handling of hazardous substances and/or petroleum product. Special attention should be addressed to storm water entering the nearby storm water discharge system.



The conclusions stated above should not be construed to mean that any regulatory agency would have the same opinion as this author, nor is any implication proposed therefrom.

The results of this environmental assessment are intended for general reference purposes only and are not intended as legal advice. The advice of legal counsel should be sought in regard to individual facts, circumstances and interpretation of environmental liability.

7.0 REFERENCES

7.1 Published References

1. American Standard of Testing and Materials, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, E1527-00, 2000.
2. "Atlas of Hawaii", 2nd Edition, Department of Geography, University of Hawaii at Hilo, 1983, University of Hawaii Press.
3. "Atlas of Hawaii", 3rd Edition, Department of Geography, University of Hawaii at Hilo, 1998, University of Hawaii Press.
4. County of Maui, Real Property Tax Division, Historical Records for TMK Number (2) 4-3-01:01.
5. Hawaii Administrative Rules, Title 11, Department of Health, Chapter 58.1, Solid Waste Management Control.
6. State of Hawaii, Department of Health, Solid and Hazardous Waste Branch, Underground Storage Tank Section, List of Leaking Underground Storage Tank Release Sites, August 2003.
7. State of Hawaii, Department of Health, Solid and Hazardous Waste Branch, Underground Storage Tank Section, List of Underground Storage Tank Facilities, August 2003.
8. State of Hawaii, Department of Health, Voluntary Response Program (VRP), List of Voluntary Response Program Sites, October 2003.
9. State of Hawaii, Department of Health, Office of Hazard Evaluation and Emergency Response, List of Release Notifications, September 2000.
10. State of Hawaii, Department of Health, Office of Hazard Evaluation and Emergency Response, List of Sites List, July 2001.
11. State of Hawaii, Department of Land and Natural Resources, Registered Wells and Dry Wells, 2002.
12. State of Hawaii, Department of Land and Natural Resources, "State of Hawaii Water Quality Plan and Groundwater Map", June 1990, Revised December 1991.
13. U.S. Department of Agriculture, Soil Conservation Service, "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii", 1972.
14. U.S. Environmental Protection Agency, Office of Air and Radiation et al., Indoor Air Facts No. 4 (revised) Sick Building Syndrome, April 1991.
15. U.S. Environmental Protection Agency, Building Air Quality: A Guide for Building Owners and Facility Managers, 1991.

++

7.2 Map and Other References

1. Environmental Data Resources, Inc., "The EDR Field Check Report", April 9, 2004.
2. Federal Emergency Management Agency, "Flood Insurance Rate Map", Number #150003 0138 B map effective date June 1, 1981.
3. R.M. Towill Corporation, Aerial Photographs, Honolulu, Hawaii.
4. Air Survey Hawaii, Aerial Photographs, Honolulu, Hawaii.
5. Sanborn Maps (no coverage)
6. U.S. Geological Survey, 7.5 Minute Topographic Map, Napili, Hawaii 1983.

7.3 Record of Personal Communications

Table 30: List of personal interviews conducted by VEC

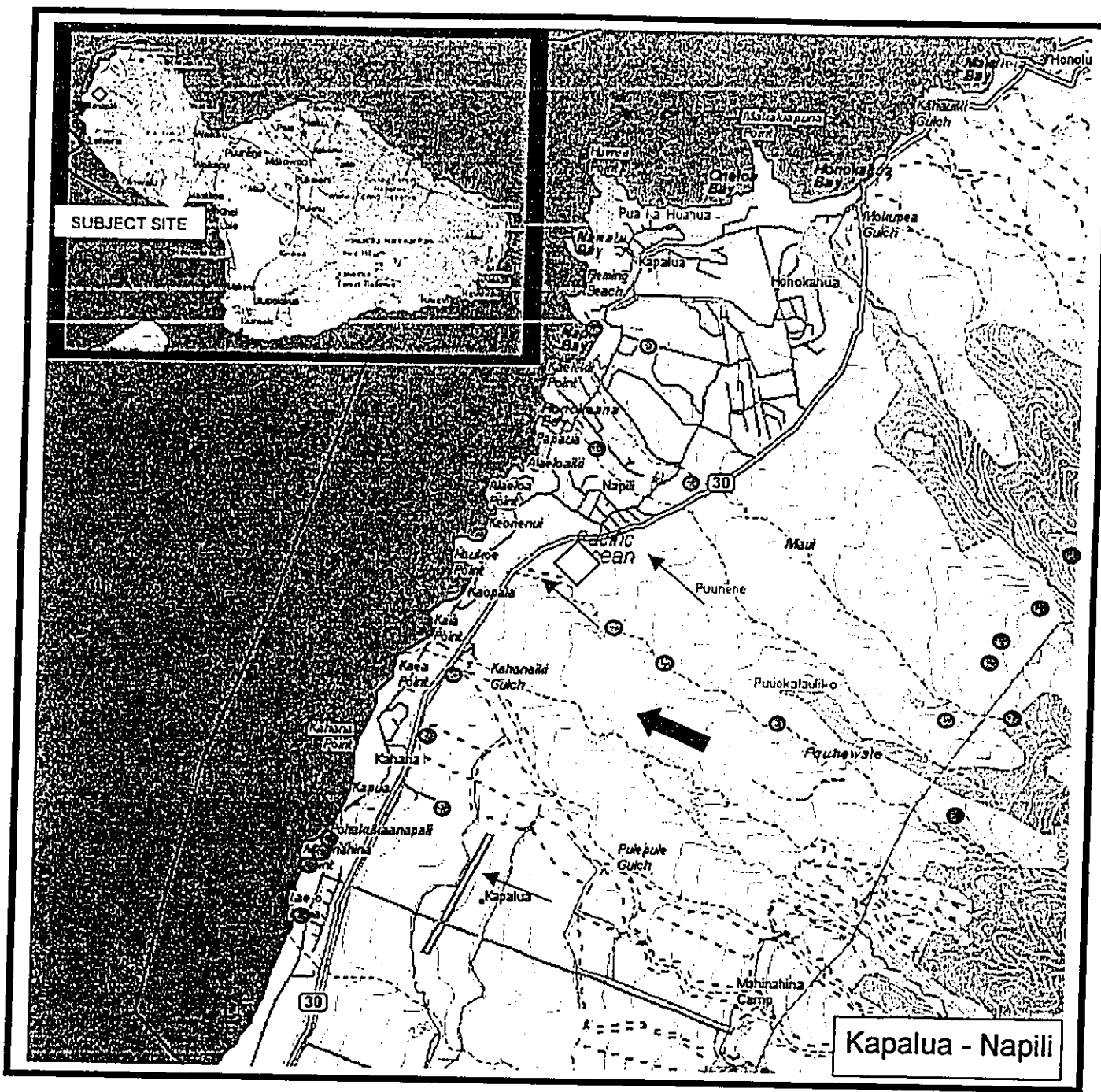
Date	Interviewee	Title & Organization	Address	Phone Number
3/12/04	Mr. Thomas DiNoto	President, Maui Preparatory Academy	200 South High St. Wailuku, HI 96793	(808) 270-7417
3/22/04	Mr. Bobby Brooks	Plantation Manager Maui Pineapple Company	Honolua Plantation, Honoapiilani Hwy, Napili	(808) 669-6201
4/1/04	Mr. Brad Fitkin	Harvesting Supervisor, Maui Pineapple Company	Honolua Plantation, Honoapiilani Hwy, Napili	(808) 669-8495
4/6/04	Mr. Chauncey Hew	Geologist, Safe Drinking Water Branch, Hawaii DOH	919 Ala Moana Blvd. Honolulu, HI 96814	(808) 586-4258
4/6/04	Mr. Norris Uehara	Safe Drinking Water Branch, Hawaii DOH	919 Ala Moana Blvd. Honolulu, HI 96814	(808) 586-4258
4/13/04	Mr. Wes Nohara	Plantation Supervisor, Maui Pineapple Company	Haliimaile, Maui, Hawaii	(808) 573-5102







Appendix A:

Maps, Plans, and Photographs

FIGURE 1: REGIONAL SETTING MAP



	Subject Property
	Projected Groundwater Flow
	Regional Surface Water Flow
	USGS Water Wells (October, 2002)


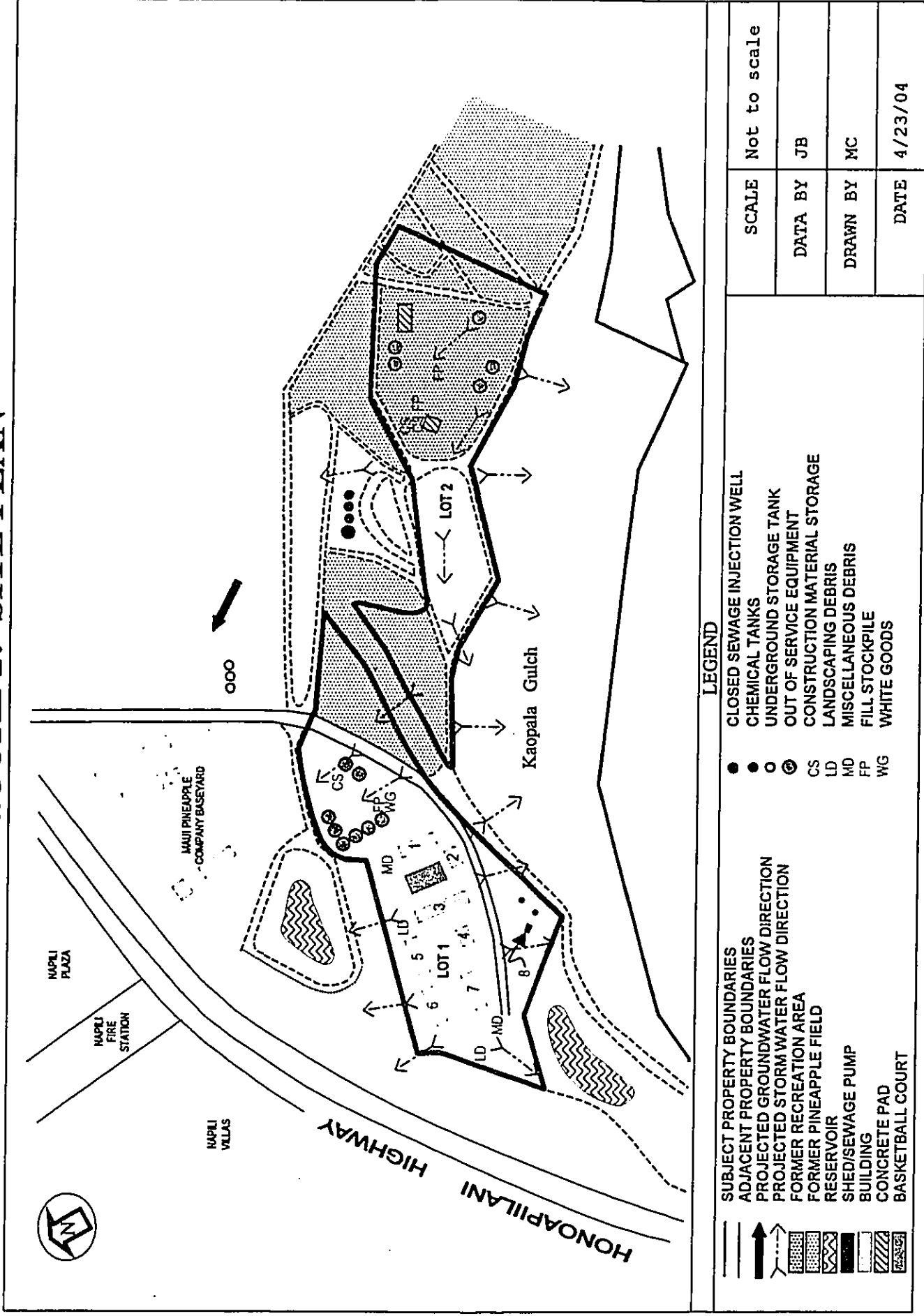


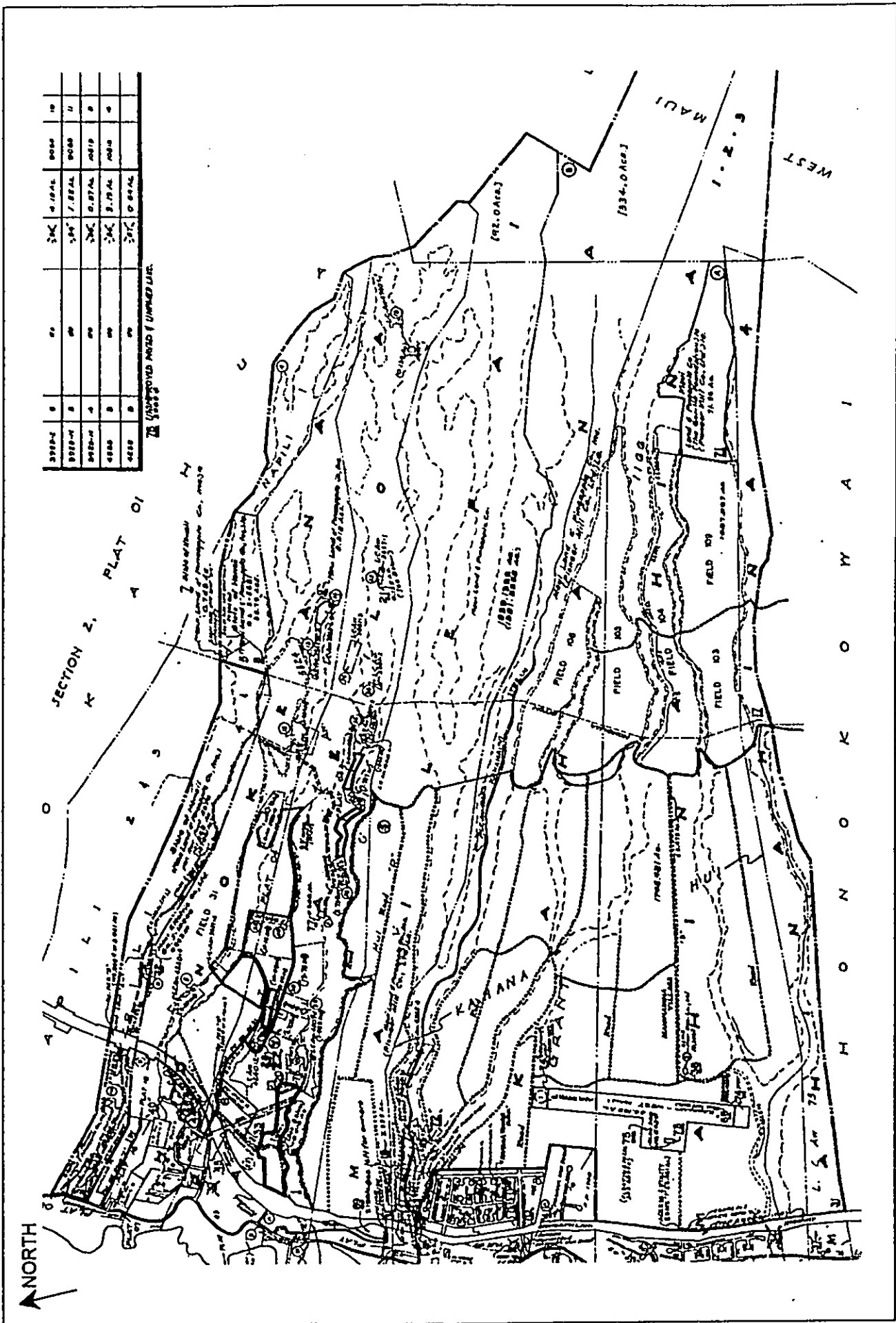
FIGURE 2: SITE PLAN



VEC Project # 0403-745

Confidential and Privileged

FIGURE 3: TAX MAP KEY



Appendix B:

Regulatory Records Documentation Site Specific Documentation

- Environmental Data Resources Risk Sites Report
- State & County Requests for Information

EDR FieldCheck™ Report



**EDR™ Environmental
Data Resources Inc**

**Maui Preparatory Academy
Honoapiilani Highway
Napili, HI 96761**

Inquiry Number: 01168436.1r

April 09, 2004

**The Standard in
Environmental Risk
Management Information**

440 Wheelers Farms Road
Milford, Connecticut 06460

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

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Executive Summary.....	ES1
Overview Map.....	2
Detail Map.....	3
Map Findings Summary.....	4
Map Findings.....	6
Orphan Summary.....	8
Government Records Searched/Data Currency Tracking.....	GR-1

GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Important Information about The EDR FieldCheck(TM) Report

This is The EDR FieldCheck (TM) Report. Through its continuing emphasis in online technological advancements, EDR has developed the FieldCheck (TM) system, which enables EDR's customers to make certain online modifications to the maps and text contained in EDR Radius Map Reports. With FieldCheck (TM), an EDR customer can relocate and/or delete plotted sites and/or plot or delete orphan sites that would otherwise appear or be noted with an EDR Radius Map Report. Such modifications may be based on site visits, independent data verification and/or other actions taken or decisions made by EDR's customer. As a result, the maps and text contained in The EDR FieldCheck (TM) Report that you receive may have been so modified. Please note: EDR has not taken any action to verify any such modifications, and this report and the findings set forth herein must be read in light of this fact. VUICH ENVIRONMENTAL should be contacted for information concerning all such modifications.

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EXECUTIVE SUMMARY

At the request of VUICH ENVIRONMENTAL, a search of the environmental records covering the area detailed herein was conducted by Environmental Data Resources, Inc. (EDR). This report was derived from the results of such search, which, as conducted by EDR, met the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances were per ASTM standard or custom distances requested by the user.

NOTE: ALL MAPS AND TEXT INCLUDED HEREIN MAY HAVE BEEN MODIFIED BY VUICH ENVIRONMENTAL BASED ON SITE VISITS, INDEPENDENT DATA VERIFICATION AND/OR OTHER ACTIONS TAKEN OR DECISIONS MADE BY VUICH ENVIRONMENTAL. EDR HAS NOT TAKEN ANY ACTION TO VERIFY ANY OF SUCH MODIFICATIONS, AND THIS REPORT AND THE FINDINGS SET FORTH HEREIN MUST BE READ IN LIGHT OF THIS FACT. VUICH ENVIRONMENTAL SHOULD BE CONTACTED FOR INFORMATION CONCERNING ALL SUCH MODIFICATIONS.

TARGET PROPERTY INFORMATION

ADDRESS

HONOAPIILANI HIGHWAY
NAPILI, HI 96761

COORDINATES

Latitude (North): 20.982400 - 20° 58' 56.6"
Longitude (West): 156.668100 - 156° 40' 5.2"
Universal Transverse Mercator: Zone 4
UTM X (Meters): 742433.9
UTM Y (Meters): 2321830.0
Elevation: 131 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property: 20156-H6 HALAWA OE S, HI
Source: USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No sites were found in an online review and analysis by VUICH ENVIRONMENTAL of EDR's search of available ("reasonably ascertainable") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

FEDERAL ASTM STANDARD

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System

EXECUTIVE SUMMARY

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned
CORRACTS..... Corrective Action Report
RCRIS-TSD..... Resource Conservation and Recovery Information System
RCRIS-LQG..... Resource Conservation and Recovery Information System
ERNS..... Emergency Response Notification System

STATE ASTM STANDARD

SHWS..... Sites List
SWF/LF..... Permitted Landfills in the State of Hawaii
VCP..... Voluntary Response Program Sites

FEDERAL ASTM SUPPLEMENTAL

CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
Delisted NPL..... National Priority List Deletions
FINDS..... Facility Index System/Facility Identification Initiative Program Summary Report
HMIRS..... Hazardous Materials Information Reporting System
MLTS..... Material Licensing Tracking System
MINES..... Mines Master Index File
NPL Liens..... Federal Superfund Liens
PADS..... PCB Activity Database System
INDIAN RESERV..... Indian Reservations
US BROWNFIELDS..... A Listing of Brownfields Sites
DOD..... Department of Defense Sites
RAATS..... RCRA Administrative Action Tracking System
TRIS..... Toxic Chemical Release Inventory System
TSCA..... Toxic Substances Control Act
SSTS..... Section 7 Tracking Systems
FTTS INSP..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

STATE OR LOCAL ASTM SUPPLEMENTAL

SPILLS..... Release Notifications

EDR PROPRIETARY HISTORICAL DATABASES

Coal Gas..... Former Manufactured Gas (Coal Gas) Sites

BROWNFIELDS DATABASES

US BROWNFIELDS..... A Listing of Brownfields Sites
BROWNFIELDS..... Brownfields Sites
VCP..... Voluntary Response Program Sites

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

EXECUTIVE SUMMARY

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property. Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in *bold italics* are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL ASTM STANDARD

RCRIS: Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs): generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs): generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs): generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

An online review and analysis by VUICH ENVIRONMENTAL of the RCRIS-SQG list, as provided by EDR, and dated 03/09/2004 has revealed that there is 1 RCRIS-SQG site within approximately 0.25 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<i>CHEM NUT INC</i>	<i>COR HONOAPILANI HWY/NAP</i>	<i>1/8 - 1/4NE</i>	<i>2</i>	<i>6</i>

STATE ASTM STANDARD

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Health's Active Leaking Underground Storage Tank Log Listing.

An online review and analysis by VUICH ENVIRONMENTAL of the LUST list, as provided by EDR, and dated 08/01/2003 has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
<i>MAUI LAND & PINEAPPLE CO., LTD</i>	<i>4900 HONOAPILANI HWY</i>	<i>1/8 - 1/4 ENE</i>	<i>A1</i>	<i>6</i>

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Health's Listing of Underground Storage Tanks.

An online review and analysis by VUICH ENVIRONMENTAL of the UST list, as provided by EDR, and dated 08/01/2003 has revealed that there is 1 UST site within approximately 0.25 miles of the target property.

EXECUTIVE SUMMARY

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Dist / Dir</u>	<u>Map ID</u>	<u>Page</u>
MAUI LAND & PINEAPPLE CO., LTD	4900 HONOAPIILANI HWY	1/8 - 1/4 ENE	A3	6

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

<u>Site Name</u>	<u>Database(s)</u>
BEN FRANKLIN STORES PROPERTY	SHWS
MAALAEA	SWF/LF
KAKAMAULA LANDFILL	SWF/LF
KALUAKOI LANDFILL	SWF/LF
MAUNALO A LANDFILL	SWF/LF
CENTRAL MAUI LF, PHASE I&II LF-0034-95)	SWF/LF
PAPILLION HAWAIIAN HELICOPTERS HELI	SWF/LF
NAPILI #1 P.S. (HONOKOWA)	LUST, UST
NAPILI #3 P.S. (KAEA POINT)	UST
NAPILI #2 P.S. (KAPUA)	UST
LAHAINA SPS#1 (HONOAPIILANI)	UST
LAHAINA SPS #2 (HONOAPIILANI)	UST
WEST MAUI SHELL	UST
WEST MAUI SHELL	UST
LAHAINA HARBOR, LAHAINA, MAUI DIESE	FINDS
LAHAINA HARBOR, MAUI	SPILLS
	SPILLS

RECEIVED AS FOLLOWS



PHOTO 1

Westerly overview of Lot 1 from the upper lot (Lot 2).



PHOTO 2

Easterly view of Lot 2 from the access driveway on the lower lot (Lot 1).

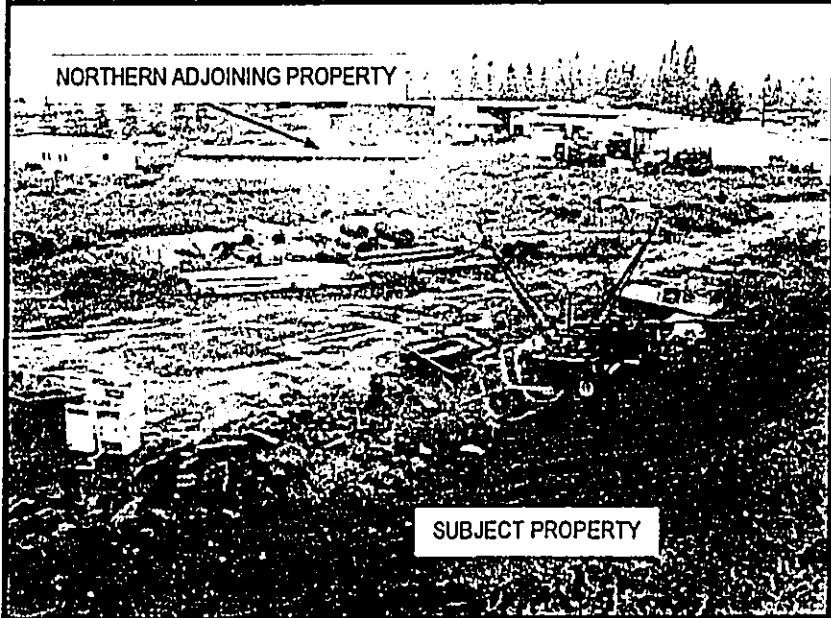


PHOTO 3

Lower portion of Lot 1 adjacent to Maui Pineapple Company's baseyard operation.

RECEIVED AS FOLLOWS

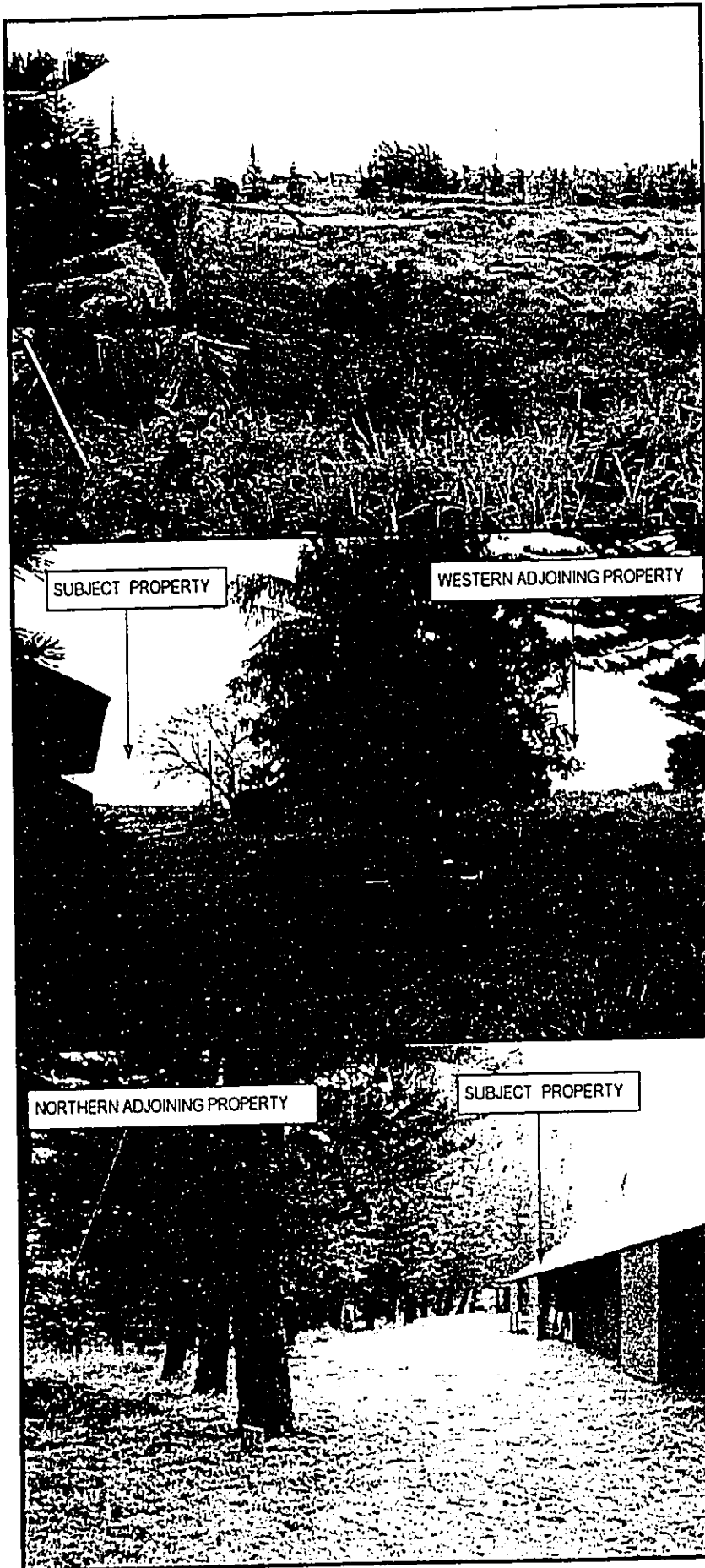


PHOTO 4

Westerly view of the former recreation area on Lot 2.

PHOTO 5

Southerly view from the northwestern property corner.

PHOTO 6

Easterly view along the subject property's (Lot 1) northern boundary from the northwest property corner.

RECEIVED AS FOLLOWS

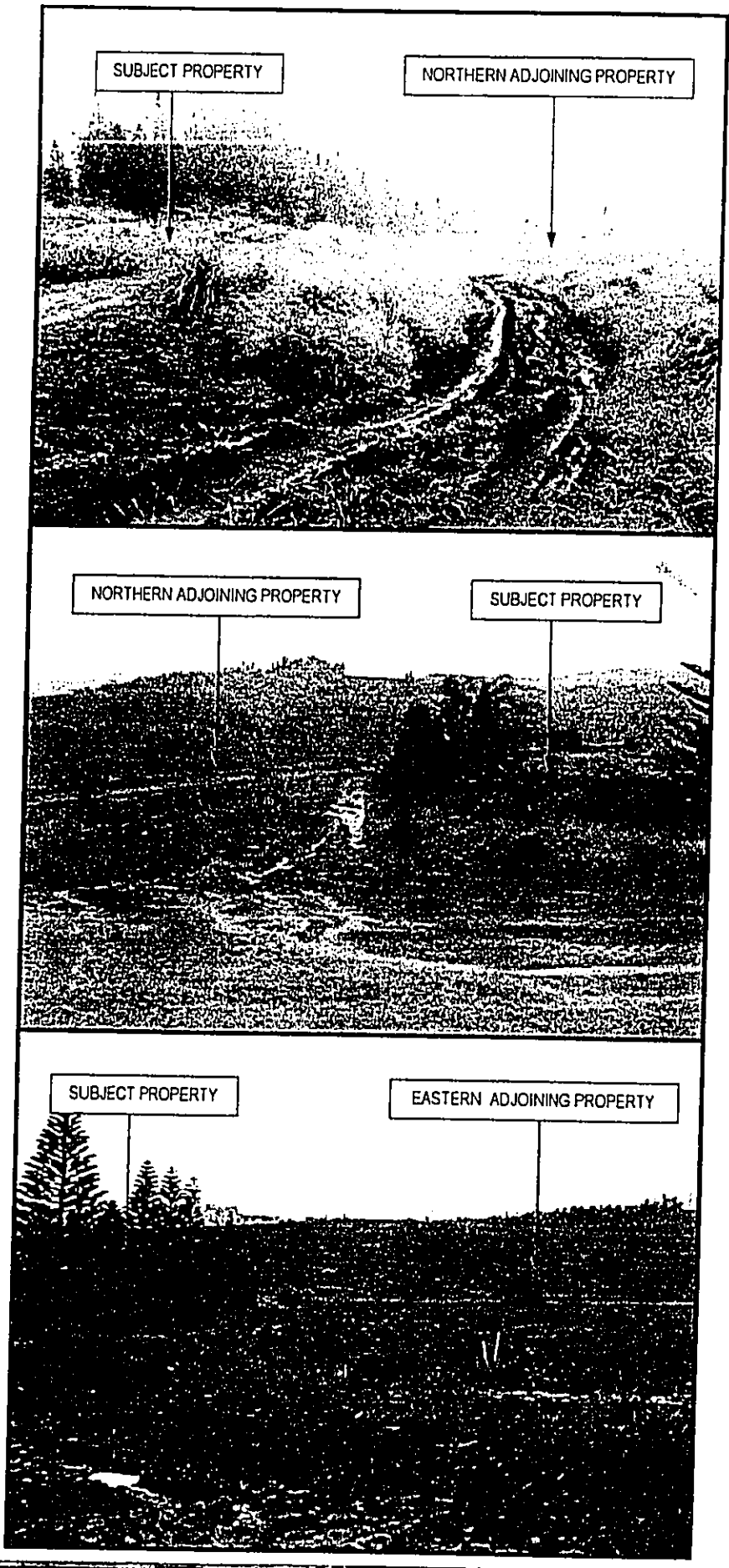


PHOTO 7

Westerly view of Lot 1's northern property line.

PHOTO 8

Easterly view of Lot 2's northern property line.

PHOTO 9

Northerly view of Lot 2's eastern property line.

RECEIVED AS FOLLOWS

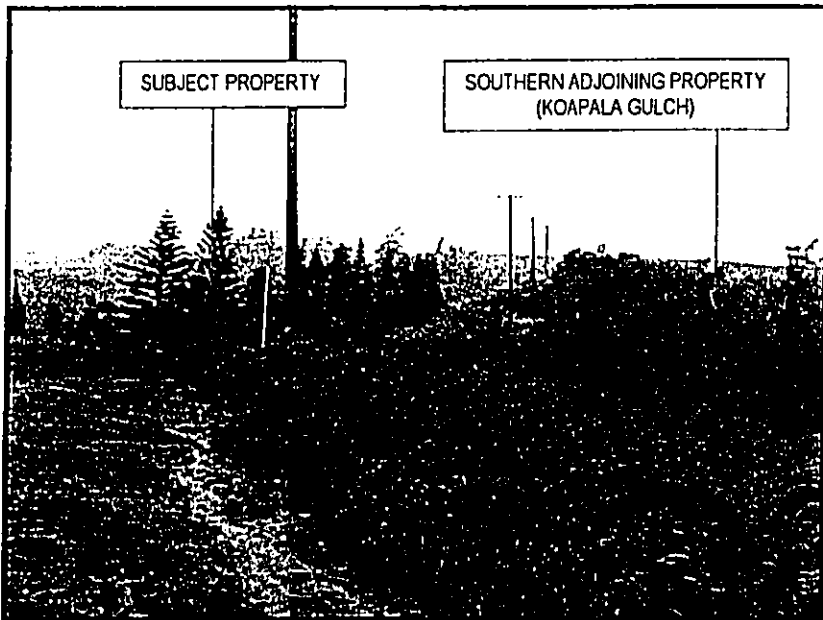


PHOTO 10

Easterly view of Lot 2's southern property line.



PHOTO 11

Westerly view of Lot 1's southern property line.



PHOTO 12

Easterly view of Lot 1's southern property line from its southwest property corner.

RECEIVED AS FOLLOWS

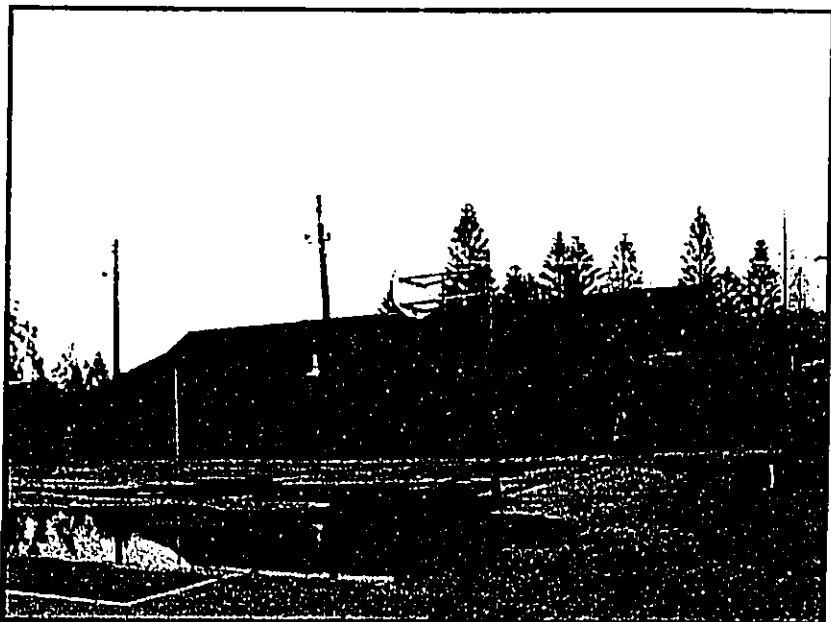


PHOTO 13

Westerly view of the Cafeteria building # 3 with the basketball court in the foreground.

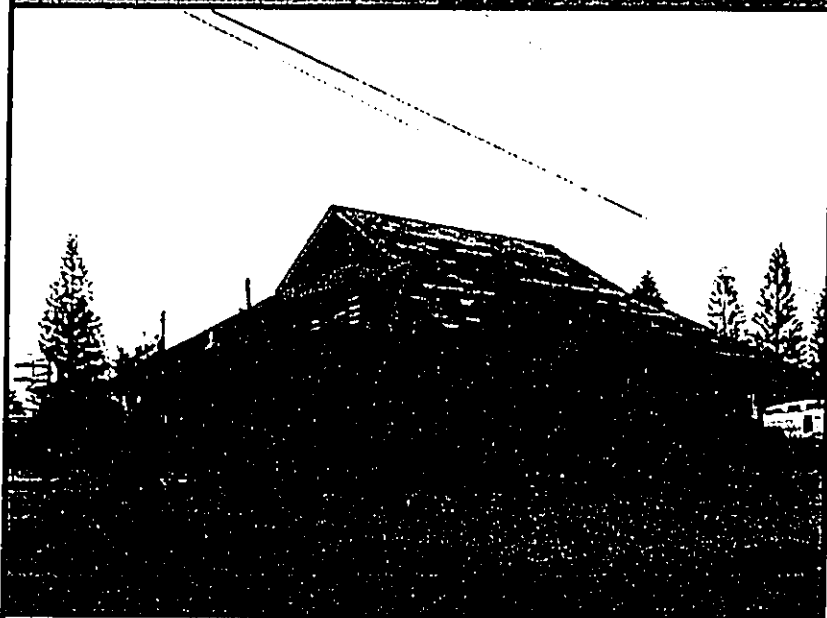


PHOTO 14

Northwesterly view of the Laundry building # 2.

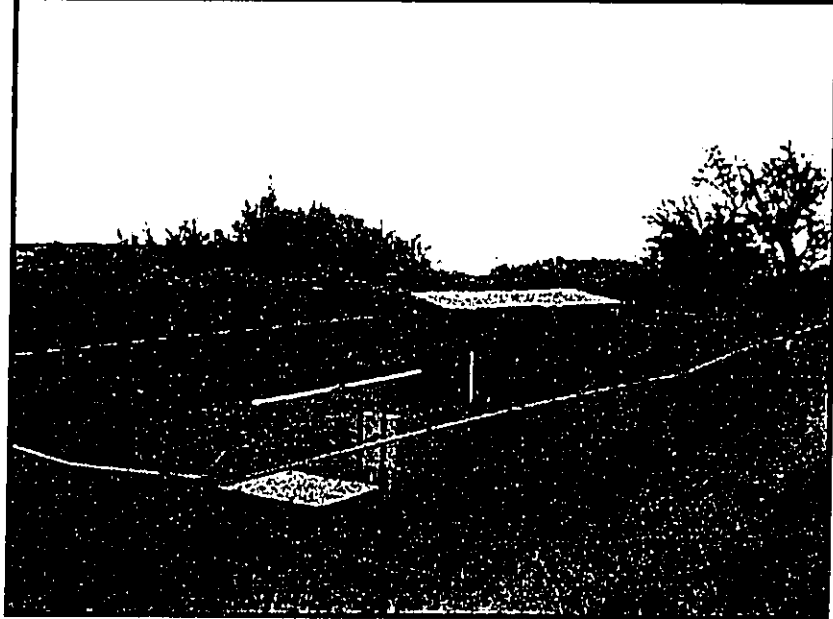


PHOTO 15

Southwesterly view of the sewage pump shed located on Lot 1.

RECEIVED AS FOLLOWS



PHOTO 16

Westerly view of pole-mounted transformer, propane tank, and waste bin.

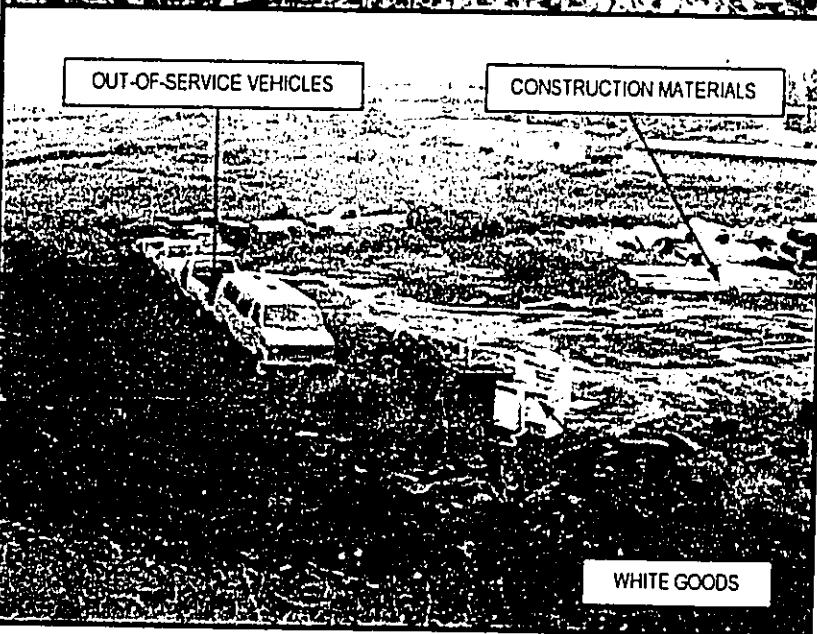


PHOTO 17

Miscellaneous debris pile located along the western property line of Lot 1.

PHOTO 18

Temporary storage area located at the lower portion of Lot 1.

RECEIVED AS FOLLOWS

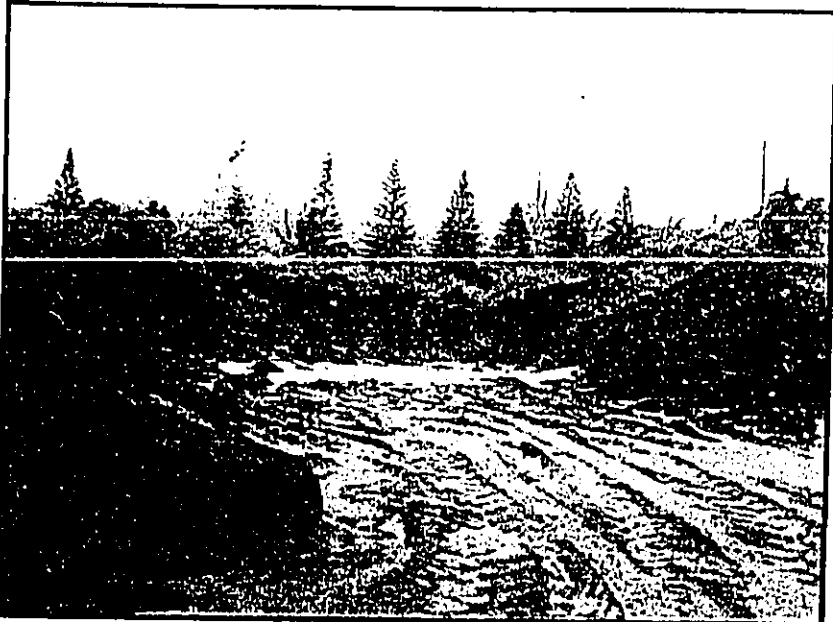


PHOTO 19

Rock/fill stockpile located in the center of Lot 2's former recreation area.

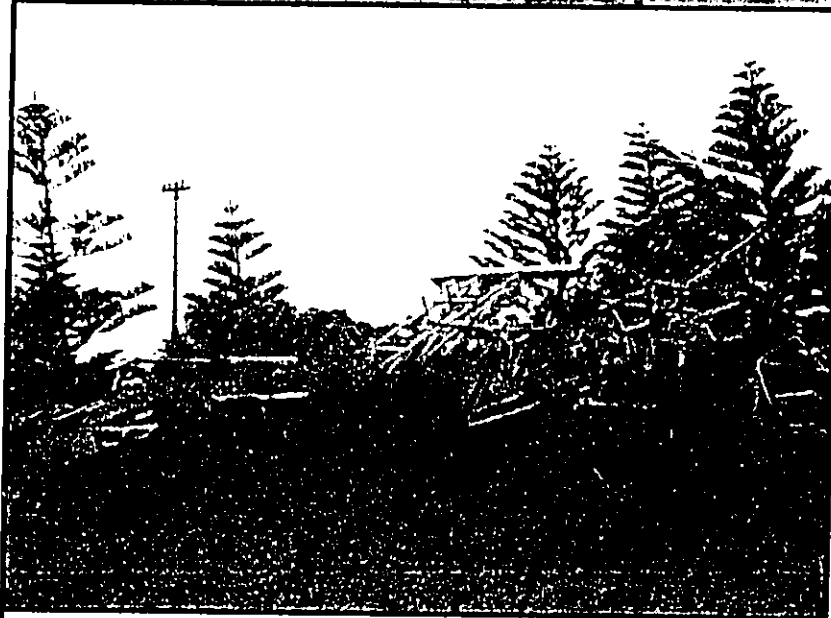


PHOTO 20

Out of use harvesting equipment located inside the southern property line of Lot 2.

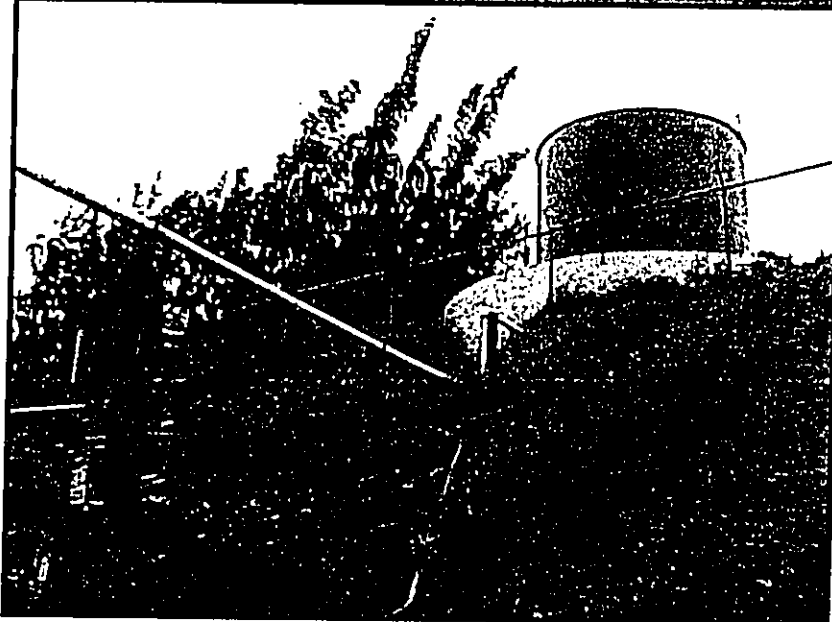


PHOTO 21

Chemical storage tanks located north of Lot 2's northern property line.

RECEIVED AS FOLLOWS

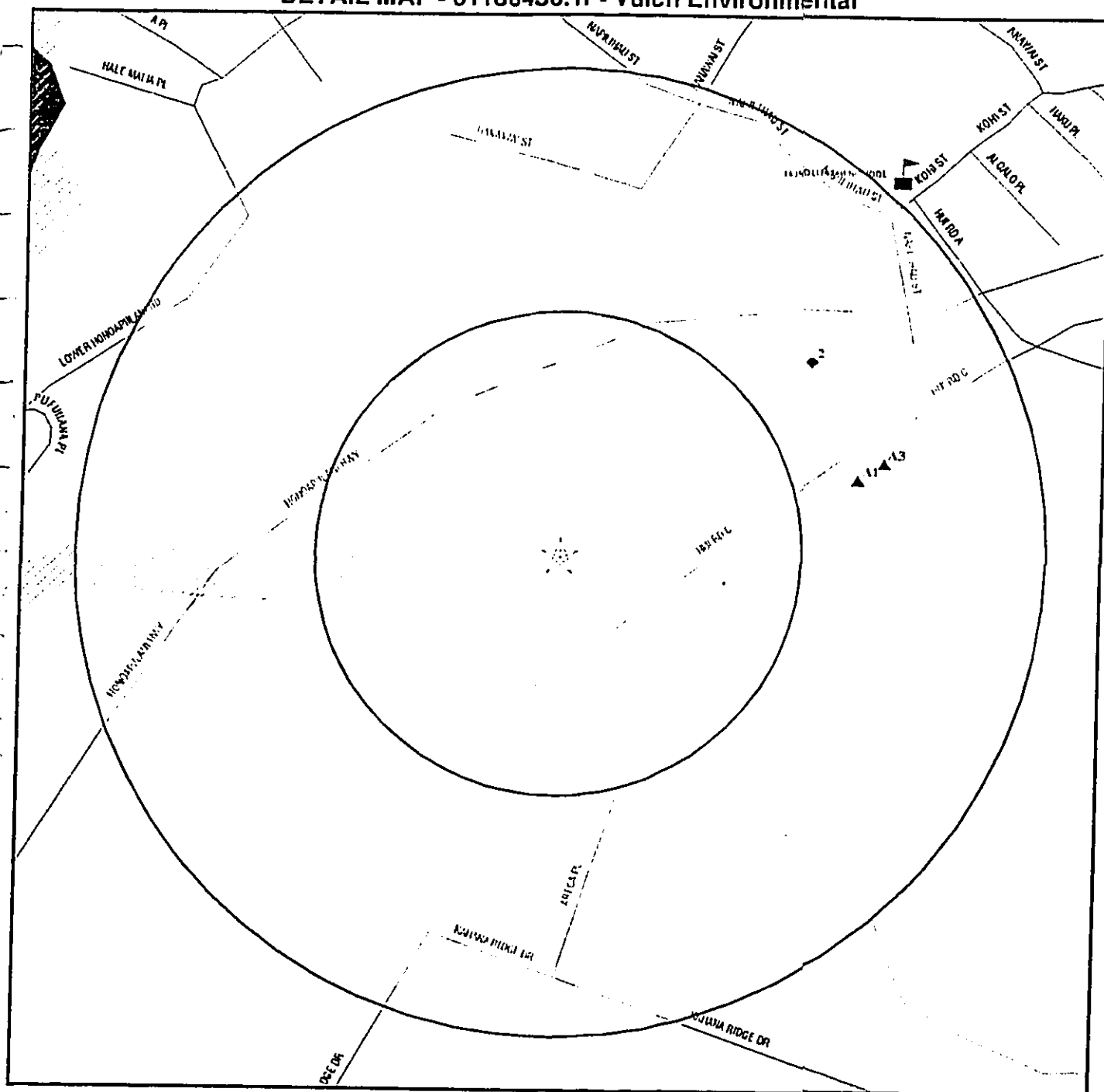
OVERVIEW MAP - 01168436.1r - Vuich Environmental



- * Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Coal Gasification Sites
- ▨ National Priority List Sites
- ▧ Landfill Sites
- ▩ Dept. Defense Sites
- ▤ Indian Reservations BIA
- ∨ Oil & Gas pipelines
- ▨ 100-year flood zone
- ▧ 500-year flood zone
- ▩ Federal Wetlands

TARGET PROPERTY:	Maui Preparatory Academy	CUSTOMER:	Vuich Environmental
ADDRESS:	Honoapiilani Highway	CONTACT:	Massy Cashen
CITY/STATE/ZIP:	Napili HI 96761	INQUIRY #:	01168436.1r
LAT/LONG:	20.9824 / 156.6681	DATE:	April 09, 2004 1:25 pm

DETAIL MAP - 01168436.1r - Vuich Environmental



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Coal Gasification Sites
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites

- Indian Reservations BIA
- ▲ Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone



<p>TARGET PROPERTY: Maui Preparatory Academy ADDRESS: Honoapiʻiani Highway CITY/STATE/ZIP: Napili HI 96761 LAT/LONG: 20.9824 / 156.6681</p>	<p>CUSTOMER: Vuich Environmental CONTACT: Massy Cashen INQUIRY #: 01168436.1r DATE: April 09, 2004 1:25 pm</p>
--	---

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Target Property</u>	<u>Search Distance (Miles)</u>	<u>< 1/8</u>	<u>1/8 - 1/4</u>	<u>1/4 - 1/2</u>	<u>1/2 - 1</u>	<u>> 1</u>	<u>Total Plotted</u>
<u>FEDERAL ASTM STANDARD</u>								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.250	0	0	NR	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRIS-TSD		0.500	0	0	0	NR	NR	0
RCRIS Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.250	0	1	NR	NR	NR	1
ERNS	TP		NR	NR	NR	NR	NR	0
<u>STATE ASTM STANDARD</u>								
SHWS		1.000	0	0	0	0	NR	0
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	1	0	NR	NR	1
UST		0.250	0	1	NR	NR	NR	1
VCP		0.500	0	0	0	NR	NR	0
<u>FEDERAL ASTM SUPPLEMENTAL</u>								
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
HMIRS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
NPL Liens	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
<u>STATE OR LOCAL ASTM SUPPLEMENTAL</u>								
SPILLS	TP		NR	NR	NR	NR	NR	0
<u>EDR PROPRIETARY HISTORICAL DATABASES</u>								
Coal Gas		1.000	0	0	0	0	NR	0
<u>BROWNFIELDS DATABASES</u>								
US BROWNFIELDS		0.500	0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Target Property</u>	<u>Search Distance (Miles)</u>	<u>< 1/8</u>	<u>1/8 - 1/4</u>	<u>1/4 - 1/2</u>	<u>1/2 - 1</u>	<u>> 1</u>	<u>Total Plotted</u>
BROWNFIELDS		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID
Direction
Distance
Distance (ft.)
Elevation Site

MAP FINDINGS

Database(s) EDR ID Number
EPA ID Number

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

A1 MAUI LAND & PINEAPPLE CO., LTD. - H LUST S103290159
ENE 4900 HONOAPIILANI HWY N/A
1/8-1/4 LAHAINA, HI 96761
835 ft.

Site 1 of 2 in cluster A

Relative:
Higher

LUST:

Facility ID: 9-500769
Alternate Event ID: 940140
Facility Status Date: 07/12/1994
Facility Status: Site Cleanup Completed
Project Officer: Hodges

Actual:
150 ft.

Facility ID: 9-500769
Alternate Event ID: 980105
Facility Status Date: 02/04/1999
Facility Status: Site Cleanup Completed
Project Officer: Ruiz

2 CHEM NUT INC RCRIS-SQG 1000244972
NE COR HONOAPIILANI HWY/NAPILIHOU FINDS HID982037616
1/8-1/4 LAHAINA, HI 96761
859 ft.

Relative:
Lower

RCRIS:

Owner: MAUI LAND & PINEAPPLE
(415) 555-1212
EPA ID: HID982037616
Contact: EDUARDO CHENCHIN
(808) 669-8462

Actual:
120 ft.

Classification: Small Quantity Generator
TSDF Activities: Not reported
Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:
Hawaii Environmental Compliance System (HI-ECS)
Hawaii Underground Storage Tank (HI-UST)
Resource Conservation and Recovery Act Information system (RCRAINFO)

A3 MAUI LAND & PINEAPPLE CO., LTD. - HONOLUA UST U001236702
ENE 4900 HONOAPIILANI HWY N/A
1/8-1/4 LAHAINA, HI 96761
915 ft.

Site 2 of 2 in cluster A

Relative:
Higher

UST:

Facility ID: 9-500769 Tank ID: R-1
Tank Status: Permanently Out of Use
Tank Capacity: 12000 Installed: 4/28/1978
Date Closed: 5/18/1994 Substance: Diesel
Owner: MAUI LAND & PINEAPPLE CO., LTD.
P.O. BOX 187
Lahaina, HI 96761

Actual:
159 ft.

MAP FINDINGS

Map ID Direction Distance Distance (ft.) Elevation	Site		Database(s)	EDR ID Number EPA ID Number
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MAUI LAND & PINEAPPLE CO., LTD. - HONOLUA (Continued)

U001236702

Facility ID: 9-500769 Tank Status: Permanently Out of Use Tank Capacity: 5000 Date Closed: 5/18/1994 Owner: MAUI LAND & PINEAPPLE CO., LTD. P.O. BOX 187 Lahaina, HI 96761	Tank ID: R-2 Installed: 4/28/1978 Substance: Gasoline
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Facility ID: 9-500769 Tank Status: Permanently Out of Use Tank Capacity: 1000 Date Closed: 4/21/1998 Owner: MAUI LAND & PINEAPPLE CO., LTD. P.O. BOX 187 Lahaina, HI 96761	Tank ID: R-3 Installed: 4/28/1978 Substance: Used Oil
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ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
KAPALUA	U003732591	PAPILLION HAWAIIAN HELICOPTERS HELI	HONOAPIILANI HIGHWAY	96761	LUST, UST
LAHAINA	U003402937	NAPILI #1 P.S. (HONOKOWA)	3300 HONOAPIILANI HWY L HONOAPIILANI HWY / KAMEE	96781	UST
LAHAINA	U003402935	NAPILI #3 P.S. (KAEA POINT)	3300 HONOAPIILANI HWY L HONOAPIILANI HWY / HOCHU	96761	UST
LAHAINA	U003402936	NAPILI #2 P.S. (KAPIUA)	3300 HONOAPIILANI HWY L HONOAPIILANI HWY / AEKAI	96761	UST
LAHAINA	U003541889	LAHAINA SPS#1 (HONOAPIILANI)	3300 HONOAPIILANI HWY HONOAPIILANI HWY/HALAWAI D	96761	UST
LAHAINA	U003402933	LAHAINA SPS #2 (HONOAPIILANI)	2010 HONOAPIILANI HWY / KAAHAPALI HWY	96761	UST
LAHAINA	U003402956	WEST MAUI SHELL	70 KAPUNAKEA PARTNERS	96761	UST
LAHAINA	1006843563	WEST MAUI SHELL	70 KAPUNAKEA PARTNERS	96761	FINDS
LAHAINA	S105262676	LAHAINA HARBOR, LAHAINA, MAUI DIESE	LAHAINA HARBOR	96761	SPILLS
LAHAINA	S105262346	LAHAINA HARBOR, MAUI	LAHAINA HARBOR	96761	SPILLS
MAUI COUNTY	S106100522	MAALAEA	INTERSECTION OF KIHEI RD AND HONOAPIILANI HWY		SWF/LF
MAUI COUNTY	S103763653	KAKAMAULA LANDFILL	HONOAPIILANI HWY		SWF/LF
MAUI COUNTY	S103763654	KALUAKOI LANDFILL	KALAWAULA MOLOKAI		SWF/LF
MAUI COUNTY	S104534094	BEN FRANKLIN STORES PROPERTY	KALUAKOI ROAD MAUNALOA		SHWS
MAUI COUNTY	S103763656	MAUNALOA LANDFILL	KAUNAKAKAI, MOLOKAI		SWF/LF
MAUI COUNTY	S103763652	CENTRAL MAUI LF, PHASE 1&II (LF-0034-95)	MAUNALOA MAUI PUNENE, MAUI		SWF/LF

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM STANDARD RECORDS

NPL: National Priority List

Source: EPA
Telephone: N/A

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

Date of Government Version: 01/29/04
Date Made Active at EDR: 02/27/04
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 02/06/04
Elapsed ASTM days: 21
Date of Last EDR Contact: 02/06/04

NPL Site Boundaries

Sources:

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

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 8
Telephone: 303-312-6774

EPA Region 4
Telephone 404-562-8033

Proposed NPL: Proposed National Priority List Sites

Source: EPA
Telephone: N/A

Date of Government Version: 01/07/04
Date Made Active at EDR: 02/27/04
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 02/06/04
Elapsed ASTM days: 21
Date of Last EDR Contact: 02/06/04

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

Source: EPA
Telephone: 703-413-0223

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/26/04
Date Made Active at EDR: 04/02/04
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 03/22/04
Elapsed ASTM days: 11
Date of Last EDR Contact: 03/22/04

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Source: EPA
Telephone: 703-413-0223

As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/26/04
Date Made Active at EDR: 04/02/04
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 03/22/04
Elapsed ASTM days: 11
Date of Last EDR Contact: 03/22/04

CORRACTS: Corrective Action Report

Source: EPA

Telephone: 800-424-9346

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/18/03
Date Made Active at EDR: 02/02/04
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 12/26/03
Elapsed ASTM days: 38
Date of Last EDR Contact: 03/08/04

RCRIS: Resource Conservation and Recovery Information System

Source: EPA

Telephone: 800-424-9346

Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs): generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs): generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs): generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/09/04
Date Made Active at EDR: 04/02/04
Database Release Frequency: Varies

Date of Data Arrival at EDR: 03/18/04
Elapsed ASTM days: 15
Date of Last EDR Contact: 01/19/04

ERNS: Emergency Response Notification System

Source: National Response Center, United States Coast Guard

Telephone: 202-260-2342

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/03
Date Made Active at EDR: 03/12/04
Database Release Frequency: Annually

Date of Data Arrival at EDR: 01/26/04
Elapsed ASTM days: 46
Date of Last EDR Contact: 01/26/04

FEDERAL ASTM SUPPLEMENTAL RECORDS

BRS: Biennial Reporting System

Source: EPA/NTIS

Telephone: 800-424-9346

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/01/01
Database Release Frequency: Biennially

Date of Last EDR Contact: 03/16/04
Date of Next Scheduled EDR Contact: 06/14/04

CONSENT: Superfund (CERCLA) Consent Decrees

Source: EPA Regional Offices

Telephone: Varies

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: N/A
Database Release Frequency: Varies

Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ROD: Records Of Decision

Source: EPA

Telephone: 703-416-0223

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 01/09/04

Database Release Frequency: Annually

Date of Last EDR Contact: 01/06/04

Date of Next Scheduled EDR Contact: 04/05/04

DELISTED NPL: National Priority List Deletions

Source: EPA

Telephone: N/A

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

Date of Government Version: 01/29/04

Database Release Frequency: Quarterly

Date of Last EDR Contact: 02/06/04

Date of Next Scheduled EDR Contact: 05/01/04

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report

Source: EPA

Telephone: N/A

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/09/04

Database Release Frequency: Quarterly

Date of Last EDR Contact: 01/06/04

Date of Next Scheduled EDR Contact: 04/05/04

HMIRS: Hazardous Materials Information Reporting System

Source: U.S. Department of Transportation

Telephone: 202-368-4555

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/18/03

Database Release Frequency: Annually

Date of Last EDR Contact: 01/19/04

Date of Next Scheduled EDR Contact: 04/19/04

MLTS: Material Licensing Tracking System

Source: Nuclear Regulatory Commission

Telephone: 301-415-7169

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/15/04

Database Release Frequency: Quarterly

Date of Last EDR Contact: 01/06/04

Date of Next Scheduled EDR Contact: 04/05/04

MINES: Mines Master Index File

Source: Department of Labor, Mine Safety and Health Administration

Telephone: 303-231-5959

Date of Government Version: 11/25/03

Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 12/29/03

Date of Next Scheduled EDR Contact: 03/29/04

NPL LIENS: Federal Superfund Liens

Source: EPA

Telephone: 202-564-4267

Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 03/12/04
Date of Next Scheduled EDR Contact: 05/24/04

PADS: PCB Activity Database System

Source: EPA
Telephone: 202-564-3887

PCB Activity Database. PADS identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 12/30/03
Database Release Frequency: Annually

Date of Last EDR Contact: 02/09/04
Date of Next Scheduled EDR Contact: 05/10/04

DOD: Department of Defense Sites

Source: USGS
Telephone: 703-692-8801

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 10/01/03
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 02/02/04
Date of Next Scheduled EDR Contact: 05/10/04

STORMWATER: Storm Water General Permits

Source: Environmental Protection Agency
Telephone: 202 564-0746

A listing of all facilities with Storm Water General Permits.

Date of Government Version: N/A
Database Release Frequency: Quarterly

Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

INDIAN RESERV: Indian Reservations

Source: USGS
Telephone: 202-208-3710

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 10/01/03
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 02/02/04
Date of Next Scheduled EDR Contact: 05/10/04

US BROWNFIELDS: A Listing of Brownfields Sites

Source: Environmental Protection Agency
Telephone: 202-566-2777

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities—especially those without EPA Brownfields Assessment Demonstration Pilots—minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients—States, political subdivisions, territories, and Indian tribes become BCRLF cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 07/15/03
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 03/15/04
Date of Next Scheduled EDR Contact: 06/14/04

RMP: Risk Management Plans

Source: Environmental Protection Agency
Telephone: 202-564-8600

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g. the fire department) should an accident occur.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Database Release Frequency: N/A

Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

RAATS: RCRA Administrative Action Tracking System

Source: EPA

Telephone: 202-564-4104

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 03/08/04
Date of Next Scheduled EDR Contact: 06/07/04

TRIS: Toxic Chemical Release Inventory System

Source: EPA

Telephone: 202-566-0250

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/01
Database Release Frequency: Annually

Date of Last EDR Contact: 03/23/04
Date of Next Scheduled EDR Contact: 06/21/04

TSCA: Toxic Substances Control Act

Source: EPA

Telephone: 202-260-5521

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/02
Database Release Frequency: Every 4 Years

Date of Last EDR Contact: 03/05/04
Date of Next Scheduled EDR Contact: 06/07/04

FTTS INSP: FIFRA TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Source: EPA

Telephone: 202-564-2501

Date of Government Version: 01/21/04
Database Release Frequency: Quarterly

Date of Last EDR Contact: 03/22/04
Date of Next Scheduled EDR Contact: 06/21/04

SSTS: Section 7 Tracking Systems

Source: EPA

Telephone: 202-564-5008

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/01
Database Release Frequency: Annually

Date of Last EDR Contact: 01/19/04
Date of Next Scheduled EDR Contact: 04/19/04

FTTS: FIFRA/TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Source: EPA/Office of Prevention, Pesticides and Toxic Substances

Telephone: 202-564-2501

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/30/04
Database Release Frequency: Quarterly

Date of Last EDR Contact: 03/22/04
Date of Next Scheduled EDR Contact: 06/21/04

STATE OF HAWAII ASTM STANDARD RECORDS

SHWS: Sites List

Source: Department of Health
Telephone: 808-586-4249

Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

Date of Government Version: 07/12/01
Date Made Active at EDR: 10/16/01
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 09/24/01
Elapsed ASTM days: 22
Date of Last EDR Contact: 12/24/03

SWF/LF: Permitted Landfills in the State of Hawaii

Source: Department of Health
Telephone: 808-586-4245

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/01/03
Date Made Active at EDR: 01/13/04
Database Release Frequency: Varies

Date of Data Arrival at EDR: 11/24/03
Elapsed ASTM days: 50
Date of Last EDR Contact: 01/26/04

LUST: Leaking Underground Storage Tank Database

Source: Department of Health
Telephone: 808-586-4228

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 08/01/03
Date Made Active at EDR: 09/17/03
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 09/02/03
Elapsed ASTM days: 15
Date of Last EDR Contact: 12/29/03

UST: Underground Storage Tank Database

Source: Department of Health
Telephone: 808-586-4228

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 08/01/03
Date Made Active at EDR: 09/11/03
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 09/02/03
Elapsed ASTM days: 9
Date of Last EDR Contact: 12/29/03

VCP: Voluntary Response Program Sites

Source: Department of Health
Telephone: 808-586-4249

Date of Government Version: 10/10/03
Date Made Active at EDR: 10/21/03
Database Release Frequency: Varies

Date of Data Arrival at EDR: 10/13/03
Elapsed ASTM days: 8
Date of Last EDR Contact: 03/22/04

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STATE OF HAWAII ASTM SUPPLEMENTAL RECORDS

SPILLS: Release Notifications

Source: Department of Health

Telephone: 808-586-4249

Releases of hazardous substances to the environment reported to the Office of Hazard Evaluation and Emergency Response since 1988.

Date of Government Version: 09/01/00
Database Release Frequency: Varies

Date of Last EDR Contact: 12/24/03
Date of Next Scheduled EDR Contact: 03/22/04

EDR PROPRIETARY HISTORICAL DATABASES

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

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BROWNFIELDS DATABASES

BROWNFIELDS: Brownfields Sites

Source: Department of Health

Telephone: 808-586-4249

Date of Government Version: 10/10/03
Database Release Frequency: Varies

Date of Last EDR Contact: 03/22/04
Date of Next Scheduled EDR Contact: 06/21/04

VCP: Voluntary Response Program Sites

Source: Department of Health

Telephone: 808-586-4249

Date of Government Version: 10/04/03
Database Release Frequency: Varies

Date of Last EDR Contact: 03/22/04
Date of Next Scheduled EDR Contact: 06/21/04

US BROWNFIELDS: A Listing of Brownfields Sites

Source: Environmental Protection Agency
Telephone: 202-566-2777

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities—especially those without EPA Brownfields Assessment Demonstration Pilots—minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients—States, political subdivisions, territories, and Indian tribes become BCRLF cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data

Source: PennWell Corporation
Telephone: (800) 823-6277

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health
Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics
Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics
Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 from the U.S. Fish and Wildlife Service.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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Vuich Environmental
Preliminary Environmental Investigation
Maui Preparatory Academy

A. TMK: (2) 4-3-01:01 (portion)

1. Environmental Site Assessments: We are unaware of any previous assessments for the subject site, other than for the closure and cleaning up of a sewage treatment plant that was located at the same site as the current sewage lift station.

In the "immediate area", we had a Telone tank removed, which was located near the existing fertilizer tanks.

2. Local-State-Federal Inspections: The cafeteria has had periodic inspections by the State Department of Health. The County Department of Water Supply may have inspected the backflow preventer. The County Fire Department inspects the fire hydrants on the site.

3a., 3b. Structures/Buildings: We have some construction plans for the buildings on the site.

Contact: Bob Mc Natt - Vice President/Land Planning and Development
(808) 669-5622

4. Purchase Price: No, the purchase price is not within a normal market range. The site will be a donation to Maui Preparatory Academy a 501(c)3 non-profit corporation.

5. Current Owner: Maui Land & Pineapple Company, Inc.

6. Former Owner: Baldwin Packers, Limited

7. Proceedings: We are unaware of any proceedings against this subject property.

8. Environmental liens: We are unaware of any liens on the subject property that are environmentally related.

9. Historic info: We are unaware of any third-persons who have special knowledge of the historic use of the property.

10. Manufacturing/Processing: No manufacturing or processing activities occur on the property. It is a working agricultural area and field worker dormitory site.

11. This report is prepared for:

Attention: Thomas DiNoto
Organization: Maui Preparatory Academy
Address: 11 Hale Malia Pl.
Lahaina, HI 96761

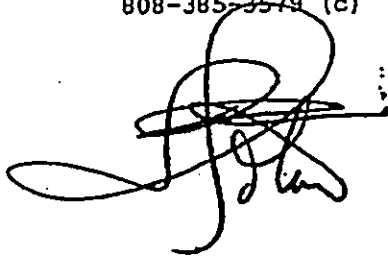
12. Also prepared for:

None required at this time.

13. Starter package prepared by:

Randy Endo
Development Manager
Maui Land and Pineapple Company
808-877-3874

Thomas DiNoto
President Board of Trustees
Maui Preparatory Academy
808-669-1929 (o)
808-385-3579 (c)



2/20/04

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:
EMC/SOWB

March 25, 2004

Ms. Massy Cashen
Vuich Environmental Consultants
1498 Lower Main Street, Suite C
Wailuku, Hawai'i 96793

Dear Ms. Cashen:

SUBJECT: UNDERGROUND INJECTION CONTROL (UIC)
REPLY TO YOUR REQUEST FOR PUBLIC RECORD

1. TMK: (2) 3-4-20:52
1872 Wili Pa Loop, Wailuku, HI 96793
2. TMK: (2) 3-9-2:153
1295 South Kihei Road, Kihei, HI 96753

There are no UIC permits associated with the two above stated properties.

3. TMK: (2) 4-3-01:01
Vacant Land - Honoapi'ilani Highway, Napili, HI 96761

Two injection wells for sewage disposal, under UIC Permit No. UM-1293, were backfilled and abandoned in 1992, for property No. 3.

If an injection well is found at any property, please contact us so that we can determine if the injection well regulations are applicable.

If you have any questions about this subject, please call Chauncey Hew at (808) 586-4258 (Honolulu) or call direct toll free from Maui at 984-2400, ext. 64258.

Sincerely,

William Wong
WILLIAM WONG, P.E. CHIEF
Safe Drinking Water Branch
Environmental Management Division

CH:cb



Consultants, Inc.

March 5, 2004

State of Hawaii Department of Health
Environmental Management Division
919 Ala Moana Boulevard, Room 309
Honolulu, HI 96814
Phone: (808) 586-4200
Fax: (808) 586-5800
Attn: Clean Air Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, or other information pertaining to the site(s) described below.

SITE INFORMATION:

Project Number: 0403-745
Tax Map Key No.: (2) 4-3-01:01
Address: Vacant Land - Honoapiilani Highway, Napili, HI 96761
Current Owner: Maui Land & Pineapple Company
Former Owner: N. A.
Current Occupant: None
Type of Business: N. A.

Tax Map Key is enclosed.

Truly yours,


Massy Cashen



Consultants, Inc.

March 5, 2004

State of Hawaii Department of Health
Environmental Management Division
919 Ala Moana Boulevard, Room 301
Honolulu, HI 96814
Phone: (808) 586-4309
Attn: Clean Water Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, or other information pertaining to the site(s) described below.

SITE INFORMATION:

Project Number: 0403-745
Tax Map Key No.: (2) 4-3-01:01
Address: Vacant Land - Honoapiilani Highway, Napili, HI 96761
Current Owner: Maui Land & Pineapple Company
Former Owner: N. A.
Current Occupant: None
Type of Business: N. A.

Tax Map Key is enclosed.

Truly yours,


Massy Cashen



Consultants, Inc.

March 5, 2004

State of Hawaii Department of Health
Environmental Management Division
919 Ala Moana Boulevard, Room 206
Honolulu, HI 96814
Phone: (808) 586-4249
*Attn: Office of Hazard Evaluation
& Emergency Response (HEER)*

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, or other information pertaining to the site(s) described below.

SITE INFORMATION:

Project Number: 0403-745
Tax Map Key No.: (2) 4-3-01:01
Address: Vacant Land - Honoapiilani Highway, Napili, HI 96761
Current Owner: Maui Land & Pineapple Company
Former Owner: N. A.
Current Occupant: None
Type of Business: N. A.

Tax Map Key is enclosed.

Truly yours,


Massy Cashen



Consultants, Inc.

March 5, 2004

State of Hawaii Department of Health
Environmental Management Division
919 Ala Moana Boulevard, Room 308
Honolulu, HI 96814
Phone: (808) 586-4258
Fax: (808) 586-4370
Attn: Safe Drinking Water Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, or other information pertaining to the site(s) described below.

SITE INFORMATION:

Project Number: 0403-745
Tax Map Key No.: (2) 4-3-01:01
Address: Vacant Land - Honoapiilani Highway, Napili, HI 96761
Current Owner: Maui Land & Pineapple Company
Former Owner: N. A.
Current Occupant: None
Type of Business: N. A.

Tax Map Key is enclosed.

Truly yours,


Massy Cashen



Consultants, Inc.

March 5, 2004

State of Hawaii Department of Health
Environmental Management Division
919 Ala Moana Boulevard, Room 212
Honolulu, HI 96814

Phone: (808) 586-4226

Attn: Solid & Hazardous Waste Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, or other information pertaining to the site(s) described below.

SITE INFORMATION:

Project Number:	0403-745
Tax Map Key No.:	(2) 4-3-01:01
Address:	Vacant Land - Honoapiilani Highway, Napili, HI 96761
Current Owner:	Maui Land & Pineapple Company
Former Owner:	N. A.
Current Occupant:	None
Type of Business:	N. A.

Tax Map Key is enclosed.

Truly yours,


Massy Cashen



March 4, 2004

Maui County Fire Department
Hazardous Materials Division
200 Dairy Road
Kahului, Hawaii 96732
Attn: Mr. Jeffrey M. Kihune
Acting Officer
Via Fax No: 270-7919

RE: Request for Public Records for Vuich Environmental Consultants (VEC)

Dear Mr. Kihune:

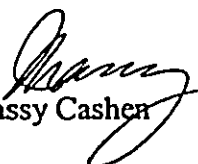
VEC is requesting any past or present information of environmental concern pertaining to the subject site and adjacent sites from the Maui County Fire Department's database. This could include information on environmental releases (spills), permits, citations, inspections, etc.

SITE INFORMATION:

Project Number:	0403-745
Tax Map Key No.:	(2) 4-3-01:01
Address:	Vacant Land - Honoapiilani Highway, Napili, HI 96761
Current Owner:	Maui Land & Pineapple Company
Former Owner:	N. A.
Current Occupant:	None
Type of Business:	N. A.

Thank you for your assistance.

Sincerely yours,


Massy Cashen

Attachment: TMK map



March 4, 2004

Maui County Fire Department
Fire Prevention Bureau
21 Kinipopo Street
Wailuku, Hawaii 96793
Attn: Capt. Neal Bal
Via Fax No: 270-7889

RE: Request for Public Records for Vuich Environmental Consultants (VEC)

Dear Capt. Bal:

VEC is requesting any past or present information of environmental concern pertaining to the subject site and adjacent sites from the Maui County Fire Department's database. This could include information on environmental releases (spills), permits, citations, inspections, etc.

SITE INFORMATION:

Project Number:	0403-745
Tax Map Key No.:	(2) 4-3-01:01
Address:	Vacant Land - Honoapiilani Highway, Napili, HI 96761
Current Owner:	Maui Land & Pineapple Company
Former Owner:	N. A.
Current Occupant:	None
Type of Business:	N. A.

Thank you for your assistance.

Sincerely yours,


Massy Cashen

Attachment: TMK map



Consultants, Inc.

Asbestos & Demolition Contractor License C-22329

Maui (Corporate) Office:

1498 Lower Main Street, Suite C, Wailuku, Hawaii 96793 • (808) 249-2777 Phone / (808) 249-2778 Fax

Oahu Office:

650 Kakoi Street, Unit 3, Honolulu, Hawaii 96819 • (808) 836-1611 Phone / (808) 836-6299 Fax

Fax

Attn: Wes Nohara	From: Joe Beaulieu
Company: Maui Pineapple Co.	Of: Vuich Environmental Consultants, Inc.
Fax: 572-8229	Pages: 02
Phone: 573-5102	Date: 4/1/04
Re: Information request	CC:

Urgent
 For Review
 Please Comment
 Please Reply
 Please Recycle

Notes:

Aloha,

As requested by the prospective property owner, Vuich Environmental Consultants, Inc. (VEC) is conducting an Environmental Site Assessment (ESA) on the following parcel of land, Portion TMK (2)4-3-01:01. See attached map.

Site specific information (if it applies to the subject property) that would be useful includes:

- knowledge of on-site equipment maintenance locations;
- presence of former or current underground or above-ground fuel storage tanks (UST/AST);
- location of bulk fertilizer/pesticide storage areas and knowledge of any significant spills;
- location of on-site landfills (waste dumps), cesspools or septic tanks;
- location of any on-site groundwater wells,

Mahalo for your time. Please call me if you have any questions.

Joe Beaulieu

CONFIDENTIALITY NOTICE: The document(s) accompanying this fax contain(s) information that is confidential, and may be legally privileged. The information is intended only for the individual or entity named on this cover letter. If you are not the intended recipient, be aware that any disclosure, copying, distribution or use of the information is prohibited. If you have received this fax in error, please notify us by telephone immediately at (808) 249-2777 so that we can arrange for the retrieval of the original documents at no cost to you.

Massy Cashen

From: "Joseph Beaulieu" <jbeaulieu@vuichenvironmental.com>
To: "Wes Nohara" <wnohara@mlp.maui.com>
Sent: Wednesday, April 07, 2004 4:44 PM
Subject: Chemical list request

Wes Nohara
Maui Pineapple Company

I am writing to request a general list of the main types of chemicals used on and around the 15 acre parcel of land owned by the Maui Pineapple Company which will be owned by the Maui Preparatory Academy (T.M.K. por(2)4-3-01:01). These could include pesticides, fertilizers, or bulk storage petroleum products. Please include location of any former tanks and/or drums. We would also like to know the methods of application and approximate frequency of application of the main pesticides and fertilizers used.

Additionally, are you aware of any pesticide or fertilizer storage or mixing areas on the subject site?

Please call or email me if you have any questions.
Thanks,

Joe Beaulieu
Vuich Environmental
(808) 249-2777

4/7/2004

Appendix C:

Qualifications of Environmental Professionals

Appendix C:

Qualifications of Environmental Professionals



STATEMENT OF QUALIFICATIONS

for
Joseph W. Beaulieu, B.A.

Company Position Environmental Technician

**Responsibilities
and Duties:**

- Phase I & II Environmental Site Assessments/Investigations
- Phase III Environmental Remediation Projects
- Underground Storage Tank (UST) Closures
- Erosion Control Management
- Indoor Air Quality Investigations
- Erosion Control Plan (BMP) Development
- Hazardous/Regulated Waste Management

Experience:

- Environmental Site Assessments
- Disaster Preparedness drills - GIS
- Cartographer – American Automobile Association
- 14 years with the State of New York Mapping and GIS program

**Training &
Education**

- Bachelor of Arts, Environmental Science and Geography (double major), Planning (minor), Mapping Science (minor), Plattsburgh State University College, Plattsburgh, New York. 1986
- GIS Graduate course work, State University at Albany, New York
- GPS training

Rev. 7-03

Maui (Main) Office: 1498 Lower Main Street, Suite C, Wailuku, Maui, Hawaii 96793 • (808) 249-2777 Phone (808) 249-2778 Fax
Oahu Office: Hanua Industrial Complex, 91-110 Hanua Street, Unit 317, Kapolei, Oahu, Hawaii 96707
(808) 682-1611 Phone • (808) 682-1616 Fax • Inter-Island: (800) 572-1165 • www.vuichenvironmental.com



STATEMENT OF QUALIFICATIONS

for

Jeffrey E. Kermode, B.A., B. Tech.

Company Position

Environmental Projects Manager

Responsibilities and Duties:

- Phase I & II Environmental Site Assessments/Investigations
- Phase III Remediation Projects
- Underground Storage Tank (UST) Closures
- Asbestos Inspections, Air Monitoring and Supervision of Removal
- Lead-Based Paint Inspections, Risk Assessments and Supervision of Removal
- Indoor Air Quality Investigations and Mold Remediation Project Management
- Erosion Control Plan (BMP) Development
- Site Safety Officer for Sampling/Remediation Projects

Experience:

- Soil and Groundwater Investigations/Remediation
- UST Removal and Closure
- Hazardous Materials Management
- Asbestos and Lead-Based Paint Projects (Inspections, Monitoring, Removal)
- Air Quality Sampling for Particulate and Microbiological Contaminants
- Wetland Delineation
- Erosion Control and Pollution Prevention Planning and Implementation for Large Scale Construction Projects
- Underground Injection Control (UIC) Permitting
- Environmental Report Writing and Compilation
- Conducted On-Site Oil Spill Response Training Courses, Assessed Clients' Response Preparedness, and Assisted in the Development of Oil Spill Contingency Plans
- Oil Spill Clean-Up Operations
- Pelagic and Coastal Fisheries Research as a Scientific Observer

Training & Education

- Bachelor of Technology, Environmental Engineering, B.C.I.T. Burnaby, B.C., 1999
- Bachelor of Arts, Geography, University of B.C., Vancouver, Canada, 1989
- AHERA (Asbestos Hazard Emergency Response Act) Inspector for Asbestos, US EPA Certified
- AHERA Asbestos Contractor Supervisor, US EPA Certified
- AHERA Project Monitor for Asbestos, US EPA Certified
- OSHA HAZWOPER Certification (40 Hr)
- On-Scene Incident Commander Certification (24 Hr), US EPA Certified
- Lead-Based Paint Inspector, US EPA Certified
- Lead-Based Paint Risk Assessor, US EPA Certified
- Lead-Based Paint Contractor Supervisor, US EPA Certified

Rev. 6-03

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Oahu Office: Hanua Industrial Complex, 91-110 Hanua Street, Unit 317, Kapolei, Oahu, Hawaii 96707
(808) 682-1611 Phone • (808) 682-1616 Fax • **Inter-Island:** (800) 572-1165 • www.vuichenvironmental.com



JOHN S. VUICH
President & CEO

STATEMENT OF QUALIFICATIONS:

M. S. Geological Engineering, University of Arizona
B. S. Geological Engineering, University of Arizona
Registered Geologist (California)
Registered Environmental Assessor (California)
Certified Environmental Manager (Nevada)

AREAS OF EXPERTISE

- | | |
|----------------------|---|
| ENVIRONMENTAL | <ul style="list-style-type: none">▼ Site Assessments, Phase I, II, III Investigations▼ Underground Storage Tank Closure▼ Asbestos Inspection and Monitoring, Management Planning, and Abatement Project Design and Removal▼ Lead-Containing Paint Surveys and Inspections, and Disturbance Design and Removal▼ Site Characterization for Remedial Investigations▼ Facility Operation Compliance Audits-ISO 14000 Audits▼ Soils/Groundwater Remediation▼ Hazardous Waste Management▼ Risk Assessment Investigations▼ RCRA Compliance and Closure Projects▼ Expert Witness/Litigation Support▼ Industrial Hygiene Qualified/Competent Person▼ Mold/Fungi Sampling, Remediation and Abatement Design and Removal |
| GEOLOGICAL | <ul style="list-style-type: none">▼ Hydrogeology▼ Geologic Hazards Analysis▼ Landuse Planning▼ Subsurface Excavations and Drilling Investigations and Sampling |
| MANAGEMENT | <ul style="list-style-type: none">▼ Program Director - Project Management▼ Client - Agency Liaison▼ Field Supervision - Administrative Supervisor |

Rev. 6/03

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(808) 682-1611 Phone • (808) 682-1616 Fax • **Inter-Island:** (800) 572-1165 • www.vuichenvironmental.com

RELEVANT EXPERIENCE

Owner-President • Vuich Environmental Consultants, Inc.

Wailuku, Maui, and Honolulu, Oahu • (March, 1994 - Present)

Consulting services and project management for Abatement / Remediation Projects property transfers, sampling and site characterization plans, hazardous and toxic waste management, underground storage tanks, regulatory compliance, landfill sites, site remediation and closure plans, permit applications, litigation support, feasibility planning and contingency and emergency response plans.

Director • CEO Haztech Enviro-Systems

Tucson, AZ • July 1988 - February 1994)

Founder of professional environmental engineering and geological consulting firm. Services included site assessments, site contamination characterizations, facility audits, RCRA closure investigations and hazardous/regulated waste management, remediation projects, and asbestos surveys. Prepared regulatory documentation and permitting for Federal, State and local regulatory agencies on all projects. Supervised professional, technical, sales and administrative/clerical staff.

Project Engineer • Hazchem Environmental Services

Tucson, AZ • March 1987 - June 1988

Performed and supervised RCRA remedial projects and waste management projects.

Independent Consultant Geologist

Laguna Hills, CA and Tucson, AZ • 1982 - 1987

Conducted geological investigations in western United States and Mexico. Performed geochemical sampling and geologic mapping. Prepared technical reports for clients and regulatory agencies.

Environmental/Geotechnical Section Supervisor • TRW: Systems Engineering

Redondo Beach, CA • 1978 - 1981

Directed environmental project management for Department of Defense and Department of Energy related projects in Western U.S. Project, including site selection, planning and environmental impact statements. Supervised staff consisting of geologists and environmental scientists.

Assistant Geologist • Arizona Geological Survey

Tucson, AZ • 1972-1978

Participated in environmental impact studies, geologic hazards analysis, landuse planning. Author of several landuse planning technical publications.

Project Geologist and Staff Geologist • Various Geological Consulting & Mining Companies

Southwestern United States • 1968-1972

Performed geochemical sampling, subsurface investigations including drilling, mineral property valuation and geologic mapping. Prepared geologic reports and maps.

Rev. 6/03

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(808) 682-1611 Phone • (808) 682-1616 Fax • Inter-Island: (800) 572-1165 • www.vuichenvironmental.com

OTHER CERTIFICATIONS, TRAINING AND SECURITY CLEARANCES

- ▼ Asbestos & Demolition Contractor (C-19, C-24) HI LIC #21212
- ▼ Certified Hazardous Materials First Responder, FEMA and Arizona Division of Emergency Services.
- ▼ OSHA Hazmat Worker and Supervisor
- ▼ Accredited Asbestos Building Inspector, Asbestos Contractor/Supervisor, Project Monitor, and Asbestos Abatement Project Designer.
- ▼ Accredited Lead Inspector and Lead Contractor Supervisor
- ▼ Continuing Education in Hazardous Materials Management, Environmental Studies and Environmental Regulations: 628 Classroom Hours since 1987 - Arizona State University, Tempe, AZ, Pima Community College, Tucson, AZ., & The Environmental Training Center Tucson, AZ.
- ▼ Security Clearance: Department of Defense, TOP SECRET (1980)
- ▼ Licensed Private Pilot - 1400 Hours, Single Engine, Land

Rev. 6/03

Maul (Main) Office: 1498 Lower Main Street, Suite C, Wailuku, Maui, Hawaii 96793 • (808) 249-2777 Phone (808) 249-2778 Fax
Oahu Office: Hanua Industrial Complex, 91-110 Hanua Street, Unit 317, Kapolei, Oahu, Hawaii 96707
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Appendix D:

Acronyms and Abbreviations

Abbreviation	Definition
AST	Aboveground Storage Tank
AHERA	(Federal) Asbestos Hazard Emergency Response Act
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BLM	Bureau of Land Management
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CAA	Clean Air Act: Regulates Air Quality
CAMU	Corrective Action management Unit
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act: Federal Superfund for Cleanup of Environmental Contamination (1980, 1986)
CERCLIS	CERCLA Information System (data base)
CESQG	Conditionally Exempt SQG: Hazardous Waste Generator less than 100 kg/mo.
C.F.R.	Code of Federal Regulations: National Standard Regulations
COLIWASA	Composite Liquid Waste Sampler
CRC	Chlorofluorocarbon
CMU	Concrete Masonry Unit
CWA	Clean Water Act: Regulates Water Quality (1972, 1987)
CZMA	Coastal Zone Management Act
DLNR	Department of Land and Natural Resources
DOT	Department of Transportation: Administers hazardous Waste Containers-Marking-Labeling-Placarding and Transportation Procedures.
DOH	Department Of Health (State Of Hawaii)
DRASTIC	EPA Standardized System for Evaluating Groundwater Pollution Potential Using Hydrogeologic Settings.
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency: Administers CERCLA, RCRA and SARA
FID	Flame Ionization Detector
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act: Regulates Pesticides (1972, 1988)
FSP	Field Sampling Plan
FWPCA	Federal Water Pollution Control Act
HAP	Hazardous Air Pollutant
HCS	(OSHA) Hazard Communication Standard
HSWA	(Federal) Hazardous and Solid Waste Amendments of 1984
LEL	Lower Explosive Limit
LQG	Large Quantity Generators; Hazardous Waste Generator in Excess of 100 kg/mo.
LUST	Leaking Underground Storage Tank.
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MSDS	Material Safety Data Sheets: Hazard Information Required for Chemical Substances by OSHA
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants (Under CAA Regulations)
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operating and Maintenance
OCS	Outer Continental Shelf
OSHA	Occupational Safety and Health Act: Established Hazard Communication Program and Employee Right-to-Know Law (1970)
OVA	Organic Vapor Analyzer
PCB	Polychlorinated Biphenyls: Toxic Substance Used in Electric-Device Cooling.
PCII	Picocuries Per Liter
PEL	Permissible Airborne Exposure Level
PID	Photoionization Detector
POTW	Publicly Owned Treatment Works

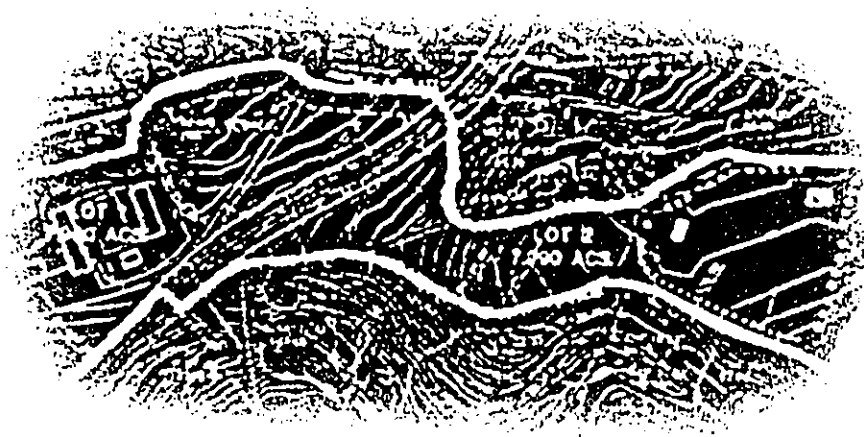
ppb	parts per billion
ppm	parts per million
PWP	Project Work Plan
PRPs	Potentially Responsible Parties
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RBCA	Risk Based Corrective Action and Decision-Making at Sites with Contaminated Soil and Groundwater. (Hawaii DOH)
RCRA	Resource Conservation and Recovery Act: Federal Hazardous Waste Management Law. Regulates Waste Generation, Transportation, Treatment, Storage or Disposal Sites (1976, 1984)
RQ	Reportable Quantity
RUST	Registry of Underground Storage Tanks
SAP	Sampling & Analysis Plan
SARA	Superfund Amendments and Reauthorization Act: Amends CERCLA and includes Community Right to Know Law. Requires facilities report their chemical inventories and emissions (1986).
SDWA	Safe Drinking Water Act: Establishes maximum contaminant levels for drinking water (1974, 1986).
SHSP	Site Health & Safety Plan
SIC	Standard Industrial Classification
SIP	State implementation plan
SPCC	Spill Prevention Control and Countermeasure
SQG	Small Quantity Generator: Hazardous Waste Generator between 100-1000 kg/mo.
TCLP	Toxicity Characteristic Leaching Procedure: A toxicity test for certain substances declared hazardous by the EPA.
TMK	(Hawaii) Tax Map Key
TPH	Total Petroleum Hydrocarbons
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act: Regulates PCBs in electrical devices and chromium in evaporative cooling towers, asbestos in schools. (1976)
TSD	Treatment, Storage, and Disposal
UEL	Upper Explosive Limit
UIC	Underground Injection Control
USGS	United States Geological Survey
UST	Underground Storage Tank
VOA	Volatile Organic Analyses
VOC	Volatile Organic Compound: EPA listed toxic or carcinogenic organic substances.
Minimal, Minor or Not Significant	1) An unlikely or remote event, i.e., possible, but not anticipated under current conditions and observed features. 2) Insignificant when compared to regulatory acceptance levels, guideline action levels or when compared to background and/or baseline conditions of the local environment. 3) Any potential effect or impact attributed to the subject factor may be considered as the least likely source among a number of potentially responsible factors. 4) Any potential effect may not be measurable or detected by current technology. 5) Education, experience, and background of the investigator were utilized to conclude the situation or condition as trifle.

Appendix E

***Traffic Impact
Assessment Report***

Traffic Impact Report

Maui Preparatory Academy



Prepared for:
Maui Preparatory Academy

Prepared by:
Wilson Okamoto Corporation

April 2004

TRAFFIC IMPACT REPORT
FOR
MAUI PREPARATORY ACADEMY

Prepared for:

**Maui Preparatory Academy
11 Hale Malia Place
Lahaina, Hawaii 96761**

Prepared by:

**Wilson Okamoto Corporation
1907 South Beretania Street
Honolulu, Hawaii 96826**

April 2004

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CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
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I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to identify and assess the traffic impacts resulting from the proposed Preparatory Academy, which will be located in Napili on the island of Maui. The project will initially service three grade levels upon opening with plans to expand service to pre-Kindergarten through Grade 12 in the future. This assessment evaluates traffic operations of four individual stages of the school's proposed development.

B. Scope of Study

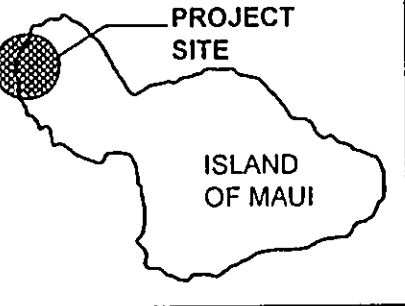
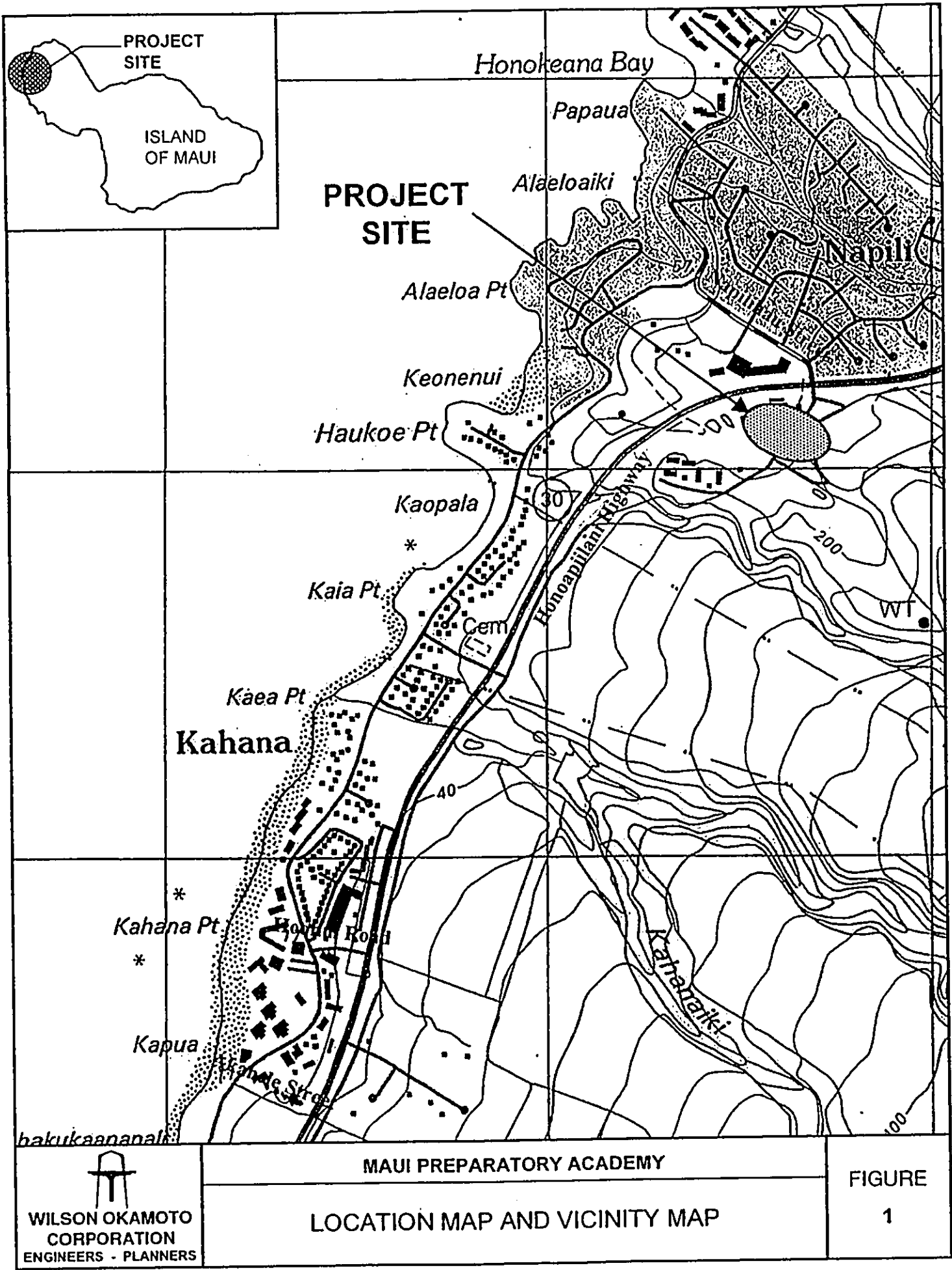
This report presents the findings and conclusions of the traffic study, the scope of which includes:

1. Description of the proposed project and proposed development plan.
2. Evaluation of existing roadway and traffic operations in the vicinity.
3. Analysis and development of trip generation characteristics for the proposed project.
4. Development of traffic projections and future traffic conditions.
5. Superimposition of site-generated traffic over future traffic conditions.
6. The identification and analysis of traffic impacts resulting from the proposed project.
7. Development of recommended roadway or intersection improvements, as appropriate, to mitigate the identified traffic impacts resulting from the proposed project.

II. PROJECT DESCRIPTION

A. Location

The project site is located in Napili on the mauka side of Honoapiilani Highway. The project site is further identified as a portion of Tax Map Key 4-3-01: 31. Access to the project site is via the Honoapiilani Highway and Napilihau Street signalized intersection as shown on Figures 1 and 2. The approximately 15-acre site is isolated from direct residential areas and is situated across the highway from the



PROJECT SITE

Kahana

Haukoe Pt

Kaopala

Kaia Pt

Kaea Pt

Kahana Pt

Kapua

Honokeana Bay

Papaua

Alaeloiki

Alaeloa Pt

Keonenui

Napili

Honoapiʻiani Highway

Cem

WT

Road

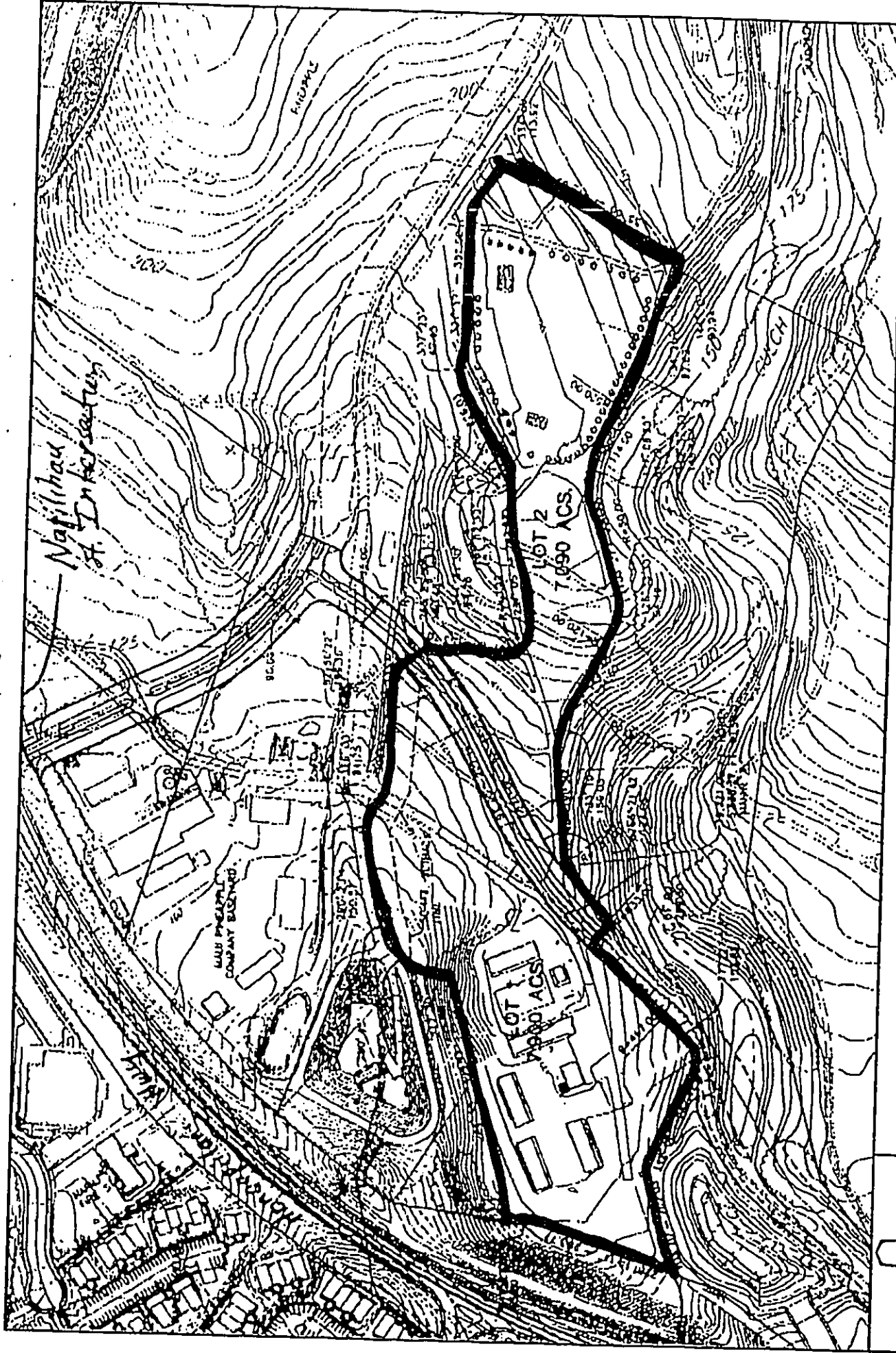
Kahanaiki

haukaananali


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MAUI PREPARATORY ACADEMY
LOCATION MAP AND VICINITY MAP

FIGURE
1



MAUI PREPARATORY ACADEMY

PROPOSED SITE PLAN

FIGURE
2



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existing Napili Plaza. The project site is generally surrounded by agricultural lands, which will eventually be integrated in the school's curriculum.

B. Project Characteristics

Maui Preparatory Academy proposes to remodel and utilize the existing buildings and other structures currently on the site formerly used as dormitories for field workers of the adjacent agricultural lands. The planned opening of the campus is in the Fall of 2005, with anticipated enrollment of 90 students in grades 6, 7 and 8. In 2007, four classes of pre-Kindergarten will be added. The anticipated enrollment of pre-Kindergarten is 18 students per classroom. In 2008, an additional primary grade will be added with anticipated enrollment of the grade level of 36 students (two classes of 18 students each). The school is expected to add an additional primary grade level each succeeding year to reach a full enrollment program of 540 students by Year 2013 in grades pre-Kindergarten through grade 12.

III. EXISTING CONDITIONS

A. General

Access to the proposed project site is through the intersection of Napilihau Street and Honoapiilani Highway. Honoapiilani Highway serves as the primary arterial roadway in the region that is oriented along the West Maui coast and connects to other regional highway systems serving other parts of the island. In the project vicinity, Honoapiilani Highway is generally linked to mauka-makai collector roads that serve the surrounding residences, agricultural lands, and adjacent commercial areas.

B. Area Roadway System

In the vicinity of the proposed project, Honoapiilani Highway is primarily a two-way, two-lane, undivided State highway (Route 30) with a posted speed limit of 45 miles per hour (mph). Near the project site, the highway intersects with Napilihau Street, a two-way, two-lane, County of Maui roadway with a posted speed limit of 20 mph. The Ironwood Ranch and operations associated with the Maui Pineapple Company, Ltd. are located on the mauka side of the intersection. The uses on the

makai corners of the intersection include the Honolua United Methodist Church and Preschool, and the Napili Plaza commercial area.

The intersection is controlled by a traffic signal system, with roadway lane designations of the northbound approach of Honoapiilani Highway serving exclusive left-turn, and shared through and right-turn traffic movements. The lane designations on the southbound approach of the intersection serve exclusive left-turn, through, and exclusive right-turn traffic movements. The lane designations on the eastbound approach of Napilihau Street serve exclusive right-turn and shared through and left-turn movements while the one-lane westbound approach is designated to be shared between left-turn, through, and right-turn movements.

Approximately 1.5 miles south of the intersection with Napilihau Street, Honoapiilani Highway intersects with Hoohui Road which is generally a two-way, two-lane, County of Maui roadway with a posted speed limit of 20 mph. The Kahana Ridge residential subdivision is located on the mauka side of the intersection with the Kahana Shopping Center located on the makai side.

The intersection is controlled by a traffic signal system with lane designations on both the southbound and northbound approaches serving exclusive left-turn, through, and right-turn traffic movements. The lane designations on the eastbound and westbound approaches of Hoohui Road serve shared left-turn and through traffic movements, and exclusive right-turn traffic movements.

Approximately 4,000 feet further south of the intersection with Hoohui Road, Honoapiilani Highway intersects with Akahahele Street. Akahahele Street is generally a two-way, two-lane, County of Maui roadway with a posted speed limit of 30 mph. The Kapalua West Maui Airstrip is located on the mauka side of the intersection with residential homes on the makai side.

The intersection is controlled by a traffic signal system with lane designations on both the northbound and southbound approaches of Honoapiilani Highway serving exclusive left-turn, through, and right-turn traffic movements. The eastbound and westbound approaches of Akahahele Street both serve exclusive left-turn, and shared through and right-turn movements.

C. Traffic Volumes and Conditions

I. General

a. Field Investigation

The field investigation was conducted on March 16 and 17, 2004 and consisted of a manual turning movement count survey. The traffic count survey was conducted between the morning peak hours of 6:30 AM and 8:30 AM, and the afternoon peak hours of 2:00 PM and 5:00 PM at the intersections of Honoapiilani Highway with Napilihau Street, Hoohui Road, and Akahahele Street. In addition, 24-hour traffic counts were collected along the roadway segment of Honoapiilani Highway between Napilihau Street and Hoohui Road to verify peak traffic periods.

b. Capacity Analysis Methodology

The highway capacity analysis performed in this study is based upon procedures presented in the "Highway Capacity Manual", Transportation Research Board, 2000, and the "Highway Capacity Software", developed by the Federal Highway Administration. The analysis is based on the concept of Level of Service (LOS).

LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS "A" through "F". LOS "A" represents ideal or free-flow traffic operating conditions and LOS "F" represents unacceptable or potentially congested traffic operating conditions. LOS "B", "C", "D", and "E" represent the intermediate traffic operational characteristics between the two extremes of LOS "A" and LOS "F". The LOS definitions are included in Appendix B.

"Volume-to-Capacity" (v/c) ratio is another measure indicating the relative traffic demand to the roadway carrying capacity. A v/c ratio of one (1.00) indicates that the roadway is operating at or near

capacity. A v/c ratio of greater than 1.00 generally indicates that the traffic demand exceeds the road's carrying capacity.

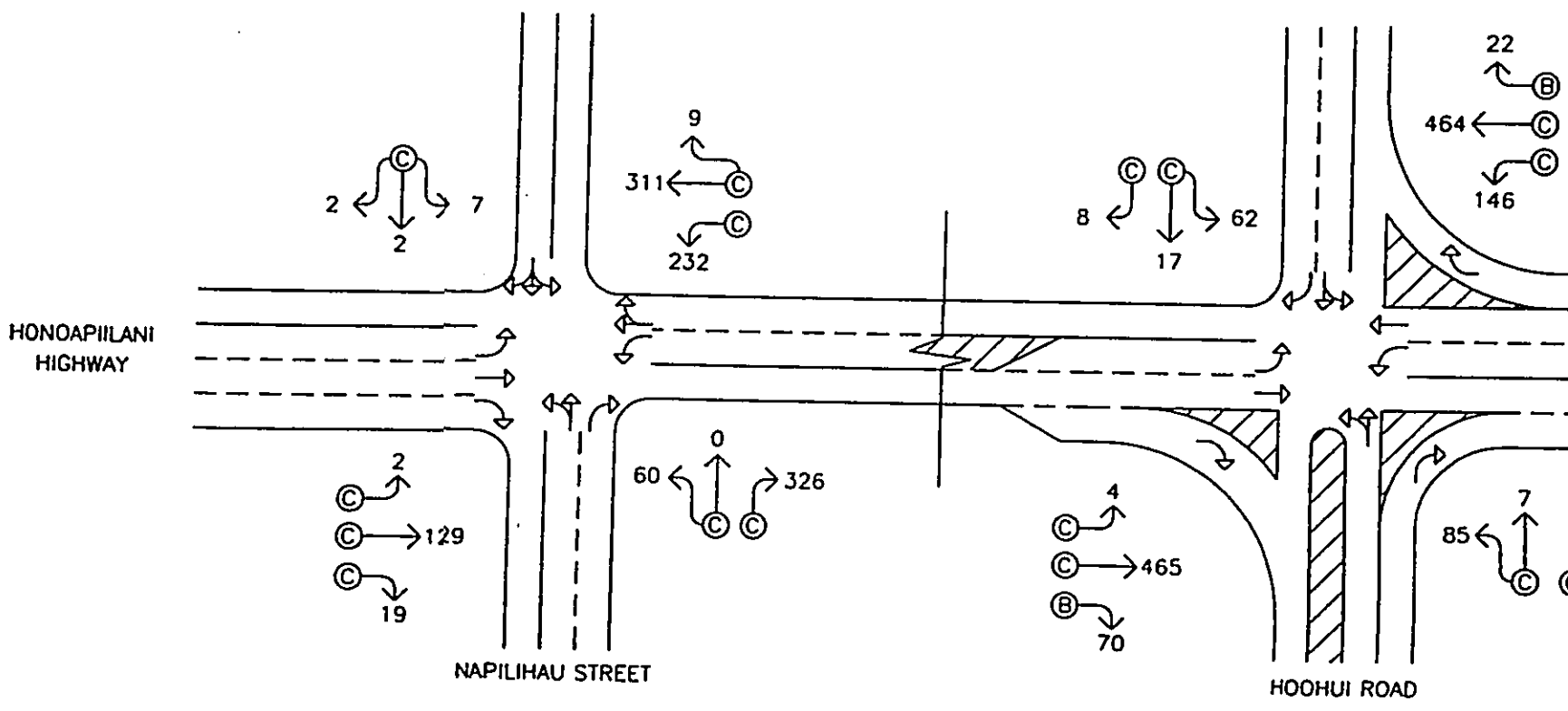
2. Existing Peak Hour Traffic

a. General

Figures 3 and 4 show the existing AM and PM peak hour traffic volumes and operating traffic conditions at the intersections of Honoapiilani Highway with Napilihau Street, Hoohui Road, and Akahele Street. The morning peak hour of traffic generally occurs between 7:15 AM and 8:15 AM at the study intersections and represent both school-related and commuter traffic. In the afternoon, the peak hour of traffic generally occurs between the hours of 3:30 PM and 4:30 PM at the intersections of Honoapiilani Highway with Napilihau Street and Hoohui Road. The afternoon peak hour of traffic at the intersection of Honoapiilani Highway and Akahele Street occurs between 4:00 PM and 5:00 PM due to the fluctuating traffic demands associated with the residential areas located immediately makai of the intersection. To identify the traffic impacts associated with the proposed project, the traffic analyses are based on the morning peak hour time period between 7:00 AM and 8:00 AM and the afternoon peak hour time period between 3:30 PM and 4:30 PM. LOS calculations are included in Appendix C.

b. Honoapiilani Highway and Napilihau Street

At the intersection of Honoapiilani Highway and Napilihau Street, the operational qualities of traffic movements on both the northbound and southbound intersection approaches of Honoapiilani Highway operate at LOS "C" or better during the AM peak hour of traffic. During the PM peak hour of traffic the operational qualities of traffic movements at both the northbound and southbound approaches also operate at LOS "C" or better on the highway. All of the other movements at the intersection on the Napilihau Street approaches also



LEGEND

90
 TRAFFIC MOVEMENT VOLUME (VPH)

LANE USAGE

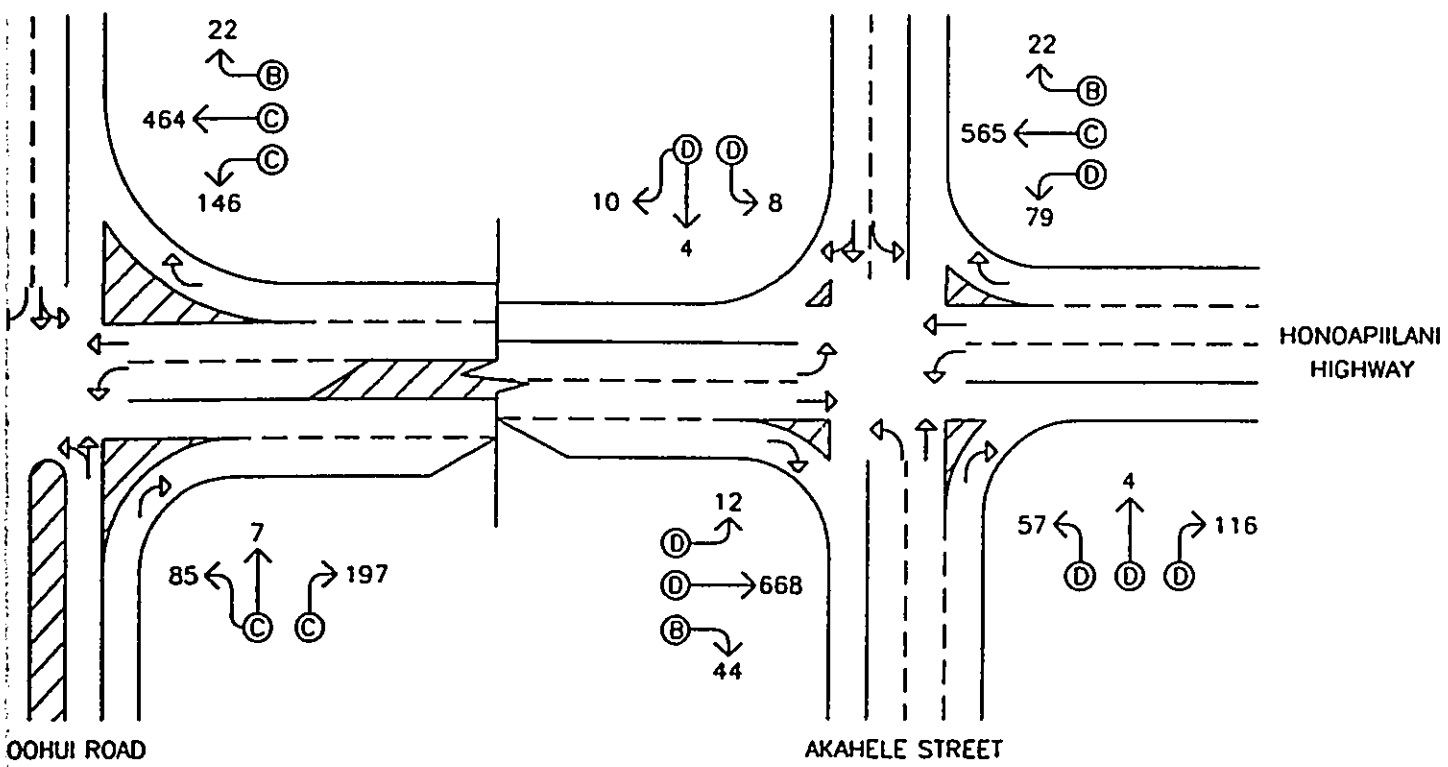
(A) LANE GROUP LEVEL OF SERVICE

DATE OF COUNT: MARCH 16 & 17, 2004



MAUI PREPARATORY ACADEMY

EXISTING AM PEAK HOUR OF TRAFFIC



LEGEND

MOVEMENT VOLUME (VPH)

PERFORMANCE LEVEL OF SERVICE

ARCH 16 & 17, 2004

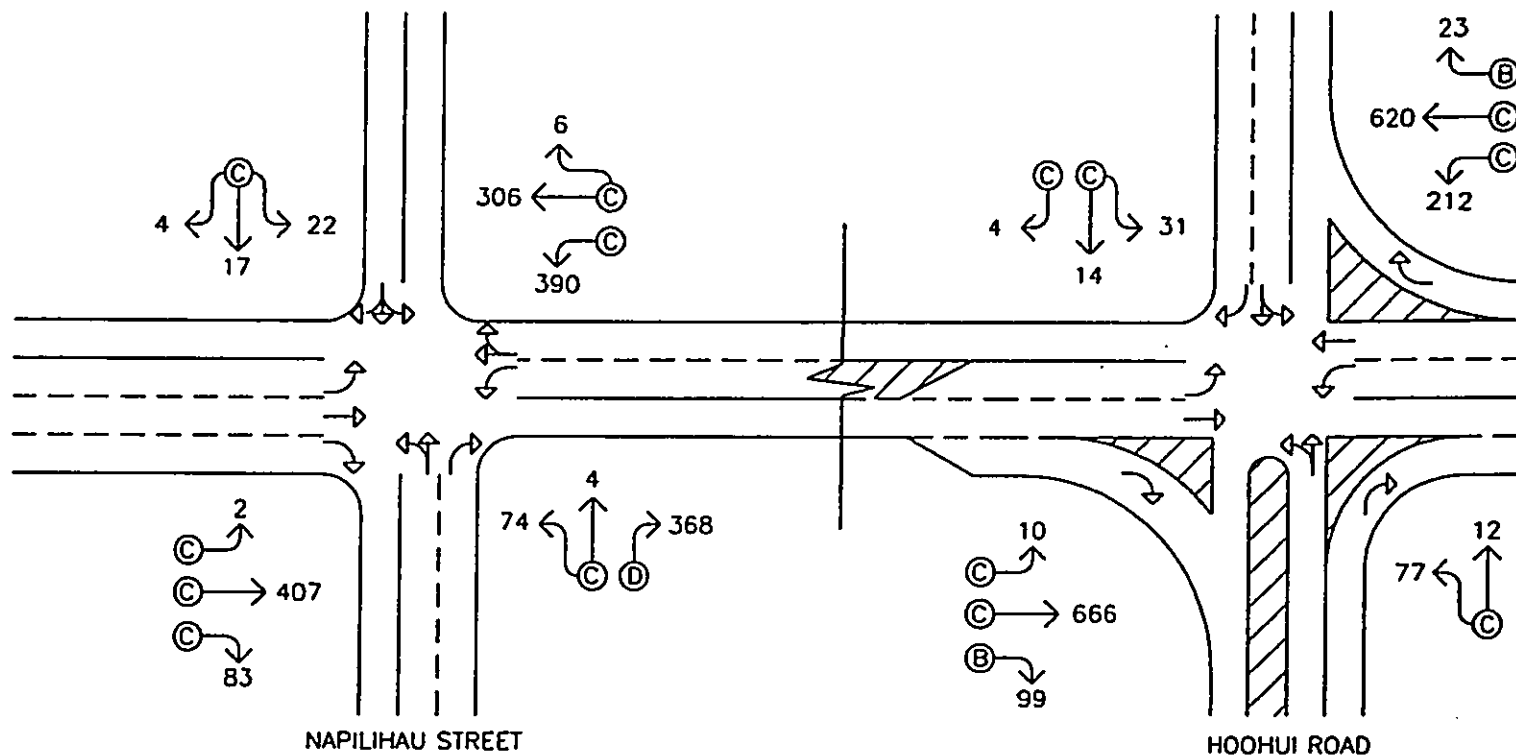
STATIONARY ACADEMY

PER HOUR OF TRAFFIC

FIGURE

3

HONOAPIILANI HIGHWAY



LEGEND

- 90 TRAFFIC MOVEMENT VOLUME (VPH)
- LANE USAGE
- (A) LANE GROUP LEVEL OF SERVICE

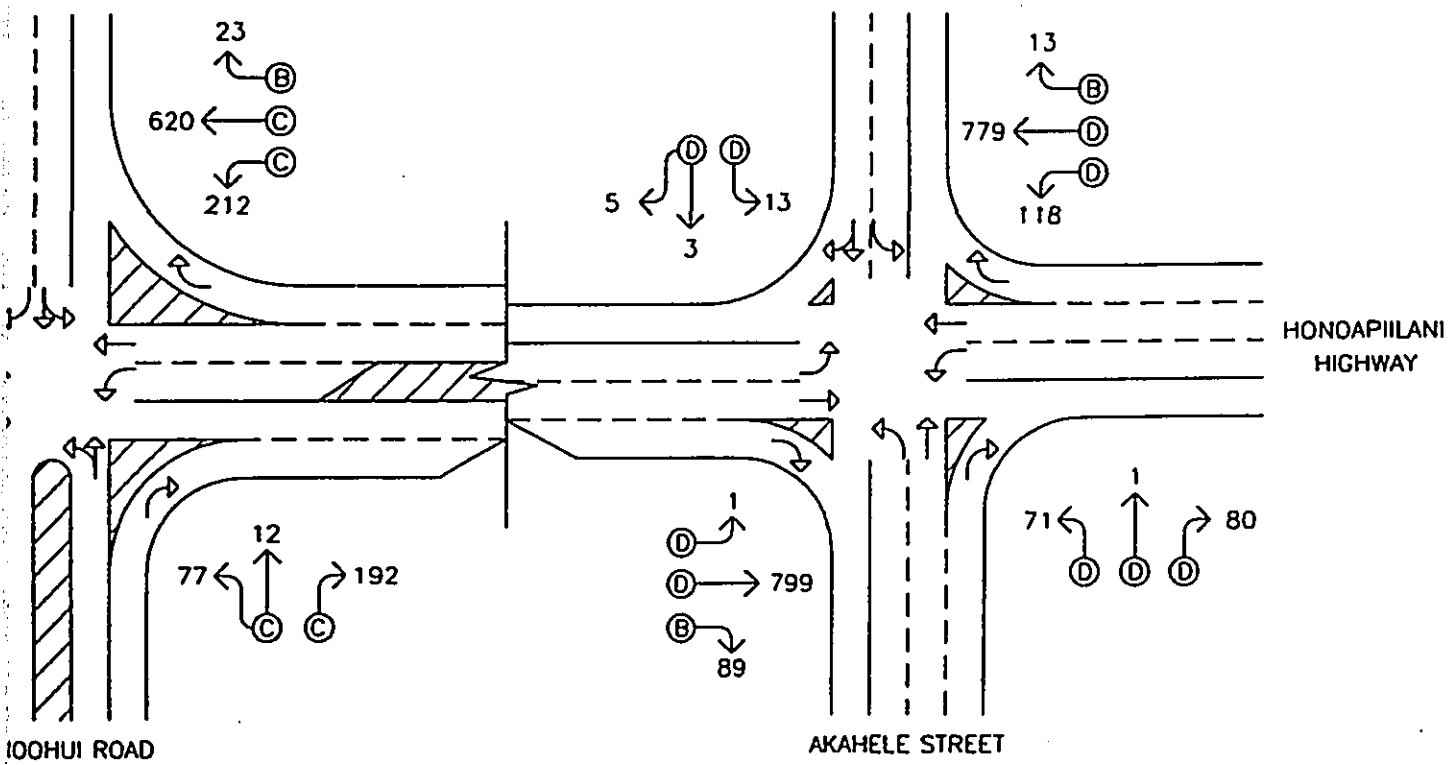
DATE OF COUNT: MARCH 16 & 17, 2004



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MAUI PREPARATORY ACADEMY

EXISTING PM PEAK HOUR OF TRAFFIC



LEGEND

MOVEMENT VOLUME (VPH)

LEVEL OF SERVICE

DATE: MARCH 16 & 17, 2004

STATIONARY ACADEMY

1 HOUR OF TRAFFIC

FIGURE

4

operate well at LOS "C" during both the AM and PM peak hours of traffic, with the exception of the eastbound right-turn movement which operates at LOS "D". Maximum vehicular queue lengths on the southbound approach of Honoapiilani Highway were observed to be between seven and nine vehicles in the afternoon. The maximum queue vehicle lengths for the northbound approach left-turn movement were between 11 and 13 vehicles during the afternoon. The vehicular queues of the other traffic movements would clear after each traffic signal cycle change during both the AM and PM peak hours of traffic.

During the AM peak period, Honoapiilani Highway just south of Napilihau Street carries 1,014 vehicles, 552 vehicles traveling northbound and 462 vehicles traveling southbound. Traffic volumes during the PM peak hour at the same roadway section are heavier with a total of 1,499 vehicles on the roadway, 702 vehicles traveling northbound and 797 vehicles traveling southbound. Although traffic volumes are relatively heavy, the traffic signal system at the intersection generally services the traffic demands during both the morning and afternoon peak hours with occasionally queuing of specific movements.

c. Honoapiilani Highway and Hoohui Road

At the intersection of Honoapiilani Highway and Hoohui Road, the operational qualities of traffic movements on both the northbound and southbound intersection approaches of Honoapiilani Highway operate at LOS "C" or better during both the AM and PM peak hours of traffic. The traffic operational qualities of all movements on both the eastbound and westbound approaches of Hoohui Road operate at LOS "C" during the AM and PM peak hours of traffic. The intersection is channelized and allows right-turn movements on all approaches to flow without impeding other traffic movements at the intersection. Maximum vehicular queue lengths on the southbound

and northbound approaches of Honoapiilani were observed to be between eight and ten vehicles in the afternoon. The maximum vehicle queue lengths for the eastbound and westbound approaches were observed at five to seven vehicles. However, all of the vehicle queues would clear after each traffic signal cycle change during both the AM and PM peak hours of traffic.

During the AM peak period, Honoapiilani Highway just south of Hoohui Road carries 1,356 vehicles, 632 vehicles traveling northbound and 724 vehicles traveling southbound. Traffic volumes during the PM peak hour at the same roadway section are heavier with a total of 1,744 vehicles on the roadway, 855 vehicles traveling northbound and 889 vehicles traveling southbound. Although traffic volumes are relatively heavy, the traffic signal system at the intersection generally services the traffic demands during both the morning and afternoon peak hours with occasionally queuing of specific movements.

d. Honoapiilani Highway and Akahele Street

At the intersection of Honoapiilani Highway with Akahele Street, the northbound through movement of the highway operates at LOS "C" during the AM peak hour of traffic while the northbound left-turn movement operates at LOS "D". The southbound through and left-turn movements also operate at LOS "D". During the PM peak hours, however, both the northbound and southbound left-turn and through movements operate at LOS "D" while the right-turn movements for both the northbound and southbound intersection approaches of Honoapiilani Highway operate at LOS "B". During the AM and PM peak hours, the westbound and eastbound approaches of Akahele Street operate at LOS "D" as a result of the relatively heavy through traffic movements on the highway.

During the AM peak period, Honoapiilani Highway just south of Akahahele Street carries 1,458 vehicles, 666 vehicles traveling northbound and 792 vehicles traveling southbound. Traffic volumes during the PM peak hour at the same roadway section are slightly heavier with a total of 1,802 vehicles on the roadway, 910 vehicles traveling northbound and 892 vehicles traveling southbound. The eastbound right-turn movement from Akahahele Street to southbound Honoapiilani Highway is generally heavy during the morning peak hour that appears to comprise of commuter trips from the adjacent residential areas. Likewise, in the afternoon, the northbound left-turn movement from Honoapiilani Highway to westbound Akahahele Street is also heavy which inferred to be the returning commuter trips.

IV. PROJECTED TRAFFIC CONDITIONS

A. Site-Generated Traffic

1. Trip Generation Methodology

The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in "Trip Generation, 7th Edition," 2003. The projected vehicular trips generated by the proposed school were based on the proposed planned enrollment schedule. Table 1 summarizes the project site trip generation characteristics applied to the AM and PM peak hours of traffic for the development milestones at Years 2005, 2008, and 2013.

Table 1: Peak Hour Trip Generation

PRIVATE SCHOOL (K-12)		
YEAR 2005		
INDEPENDENT VARIABLE:		Enrollment = 90 Students
		PROJECTED TRIP ENDS
AM PEAK	ENTER	50
	EXIT	33
	TOTAL	83
PM PEAK	ENTER	7
	EXIT	11
	TOTAL	18
YEAR 2008 (From 2005)		
INDEPENDENT VARIABLE:		Enrollment = 198 Students
		PROJECTED TRIP ENDS
AM PEAK	ENTER	109
	EXIT	73
	TOTAL	182
PM PEAK	ENTER	15
	EXIT	25
	TOTAL	40
YEAR 2013 (From 2005)		
INDEPENDENT VARIABLE:		Enrollment = 540 Students
		PROJECTED TRIP ENDS
AM PEAK	ENTER	298
	EXIT	199
	TOTAL	497
PM PEAK	ENTER	41
	EXIT	67
	TOTAL	108

2. Trip Distribution

Access to the proposed school would be via Napilihau Street through the intersection with Honoapiilani Highway. The directional distribution of all site-generated vehicular trips was assumed to remain constant for each analysis year. At the study intersections, the directional distribution of site-generated traffic was based upon the current residential housing density throughout the area and the shortest travel times and distances to and from the

proposed project. Figures 5 through 10 show the project site-generated traffic for each of the study intersection and analysis year.

B. Through Traffic Forecasting Methodology

The travel forecast is based upon historical traffic count data obtained from the State Department of Transportation (DOT) at a survey station at the intersection of Honoapiilani Highway and Napilihau Street. The historical data were analyzed by linear regression techniques to obtain the following average annual growth rates of the highway using Year 2004 as the Base Year: 2.76% to Year 2005, 2.66% to Year 2008, and 2.50% to Year 2013. The respective growth factors of 1.03 (Year 2005), 1.11 (Year 2008), and 1.23 (Year 2013) were applied to the existing traffic demands on the highway to achieve the projected traffic demands for each development milestone year.

C. Traffic Operations Without Proposed Project

1. General

The AM and PM peak hour traffic volumes and operating conditions of the study intersections for the development year 2005, without the proposed development of Maui Preparatory Academy are shown on Figures 11 and 12, and summarized in Table 2. The through volumes along Honoapiilani Highway were projected to Year 2005 based on historical traffic volume data. The existing levels of service are provided for comparison purposes. LOS calculations are included in Appendix D.

Table 2: Existing and Projected (Without Project) Levels of Service

Intersection	Approach	Movement	AM		PM	
			Exist	Year 2005 w/out Proj	Exist	Year 2005 w/out Proj
Honoapiilani Hwy/Napilihau St	EB	LT	C	C	C	C
		R	C	C	D	D
	WB	LTR	C	C	C	C

HONOAPIILANI
HIGHWAY

6 ←
↓ 3
→ 24

38 ↶

1 ↶

32 ←

8 ↶

4 ↑

1 ↶
→ 20
↓ 3

5 ↶

NAPILIHAI STREET

HOOHUI ROAD

LEGEND

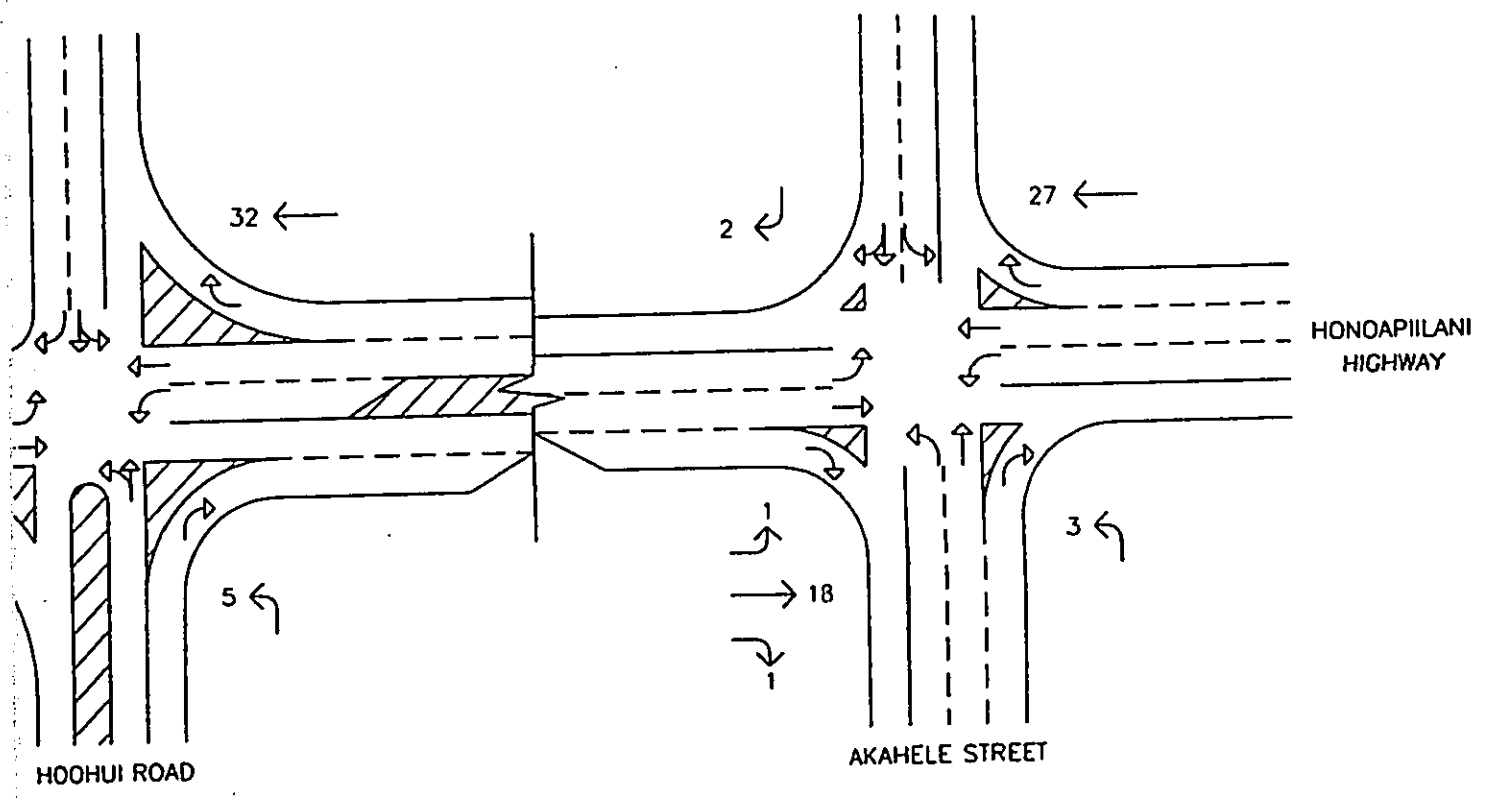
- 90 ↶ TRAFFIC MOVEMENT VOLUME (VPH)
- ↶ LANE USAGE
- Ⓐ LANE GROUP LEVEL OF SERVICE



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MAUI PREPARATORY ACADEMY

YEAR 2005 AM PEAK PERIOD TRIP DISTRIBUTION OF S



LEGEND

MOVEMENT VOLUME (VPH)

AGE

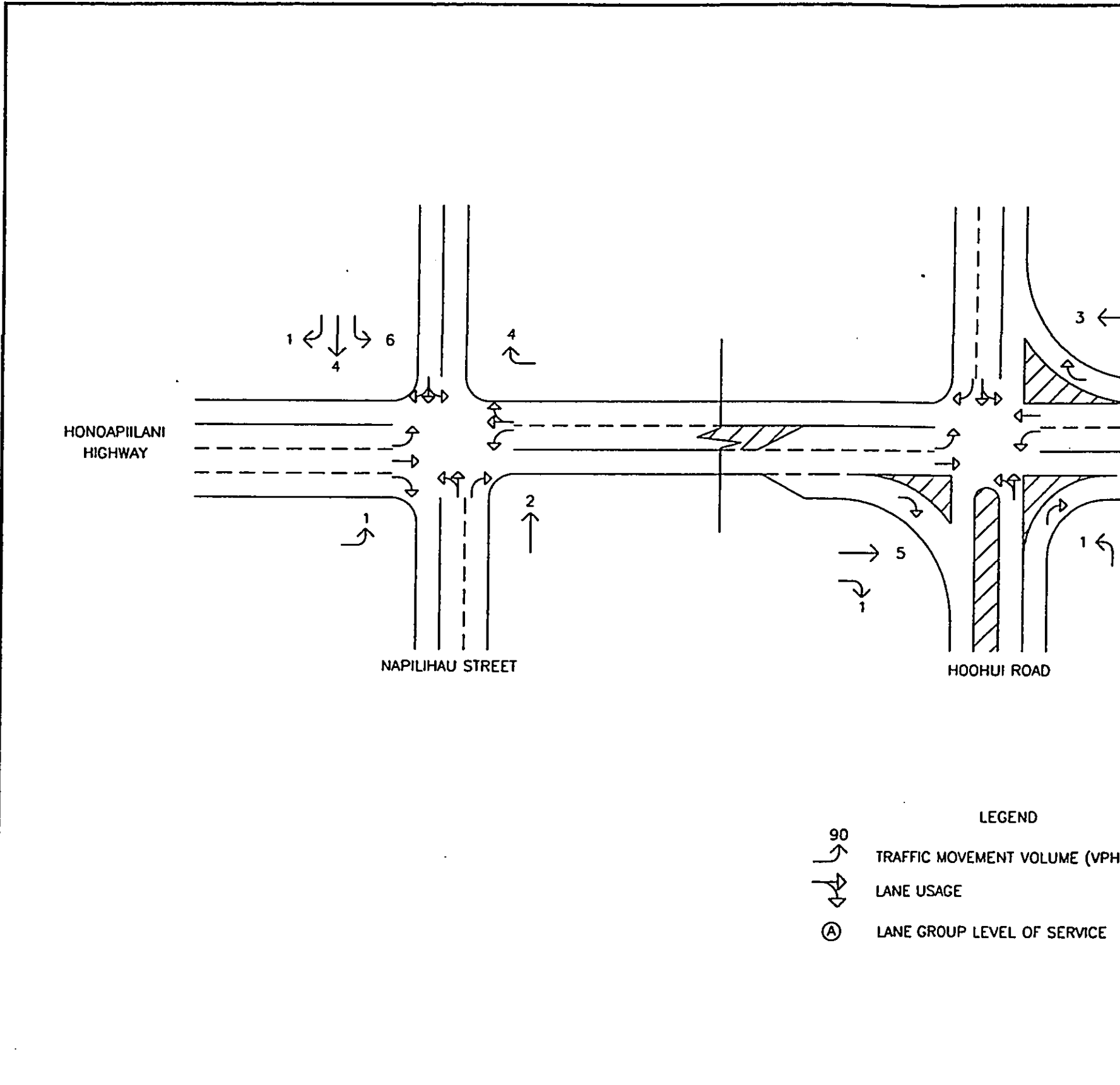
GROUP LEVEL OF SERVICE

RATORY ACADEMY

DISTRIBUTION OF SITE GENERATED VEHICLES

FIGURE

5



HONOAPIILANI
HIGHWAY

NAPILIHOU STREET

HOOHUI ROAD

LEGEND

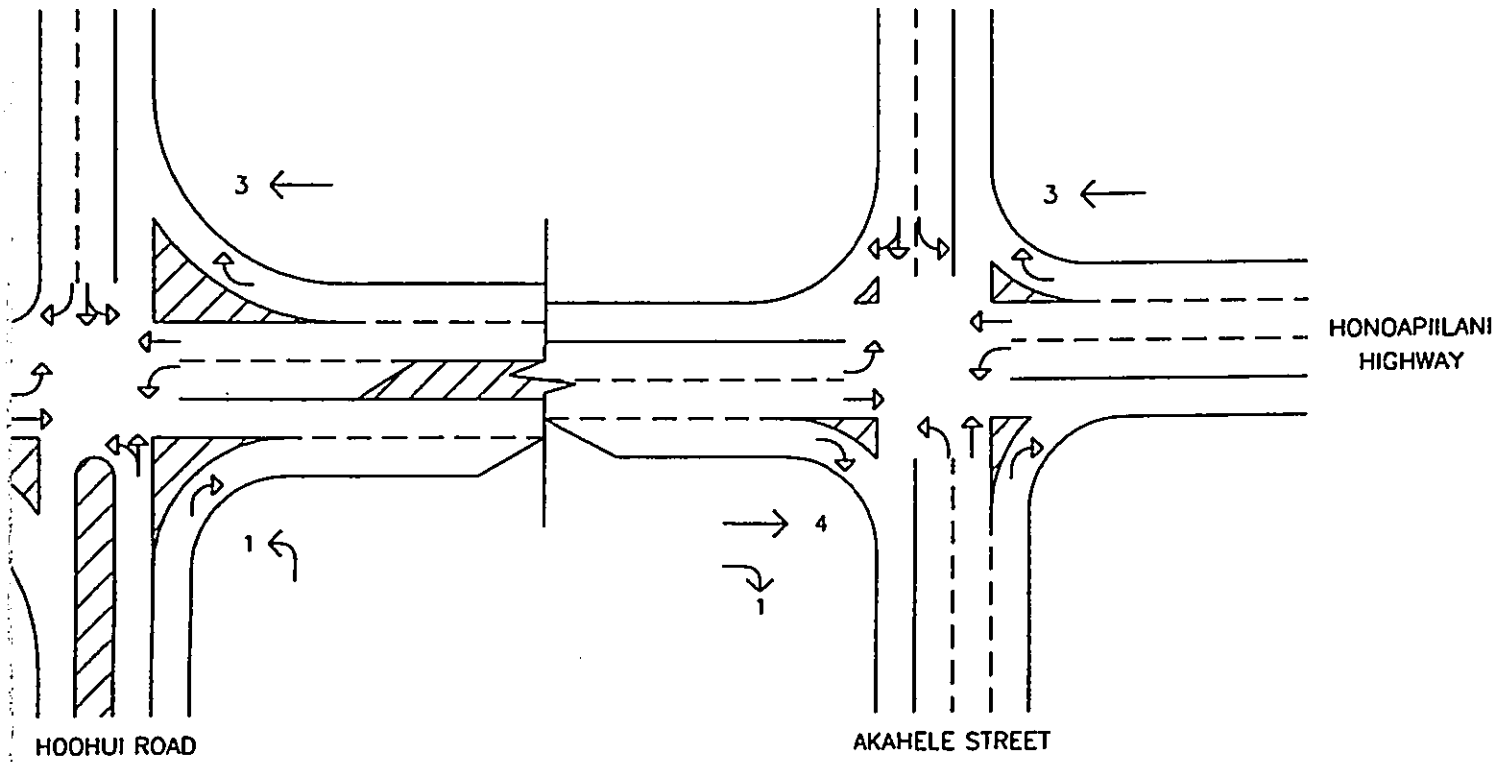
- 90 ↗ TRAFFIC MOVEMENT VOLUME (VPH)
- ↔ LANE USAGE
- (A) LANE GROUP LEVEL OF SERVICE



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MAUI PREPARATORY ACADEMY

YEAR 2005 PM PEAK PERIOD TRIP DISTRIBUTION OF S



LEGEND

MOVEMENT VOLUME (VPH)

PAGE

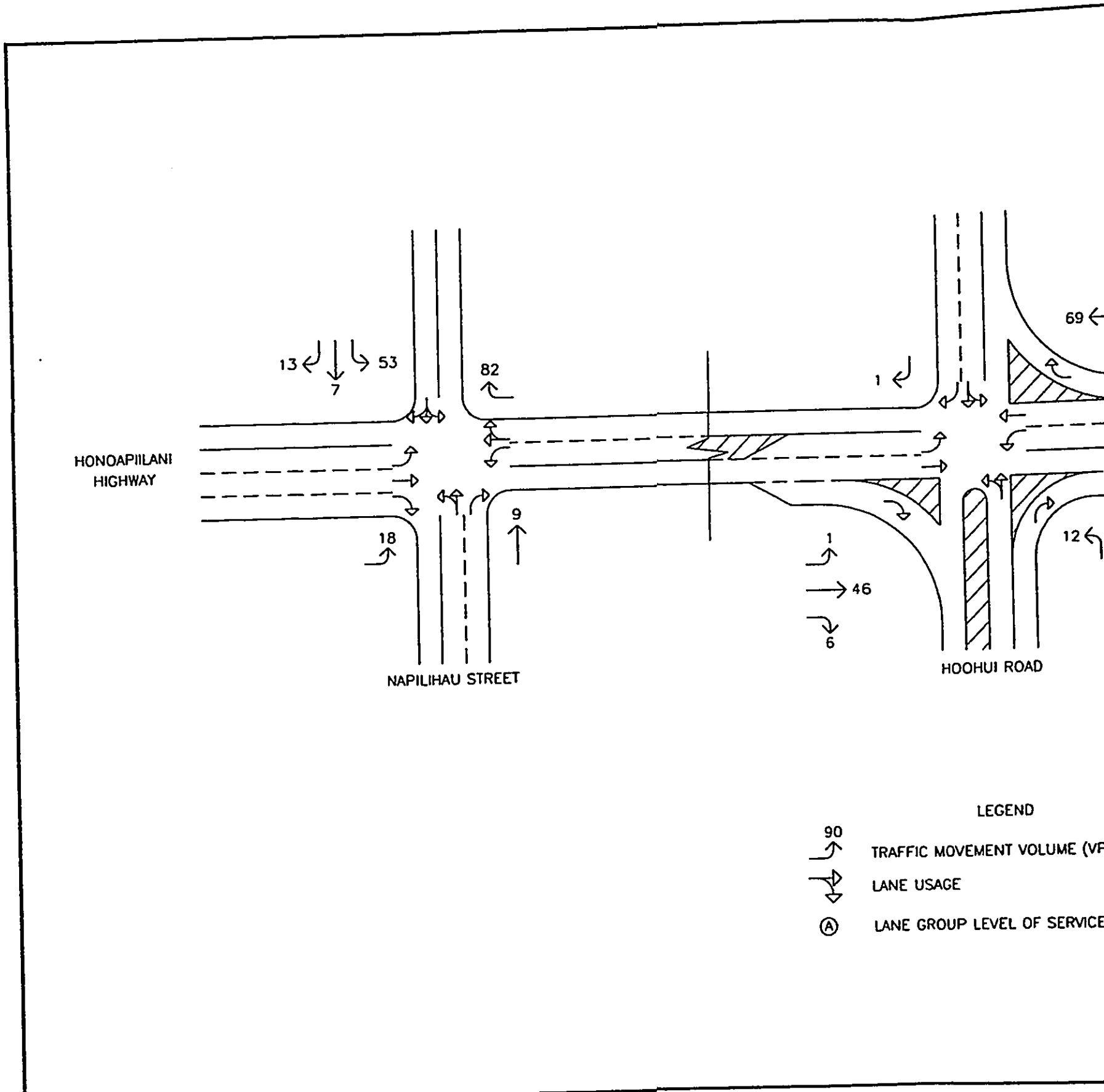
GROUP LEVEL OF SERVICE

RATORY ACADEMY

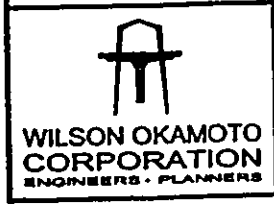
DISTRIBUTION OF SITE GENERATED VEHICLES

FIGURE

6

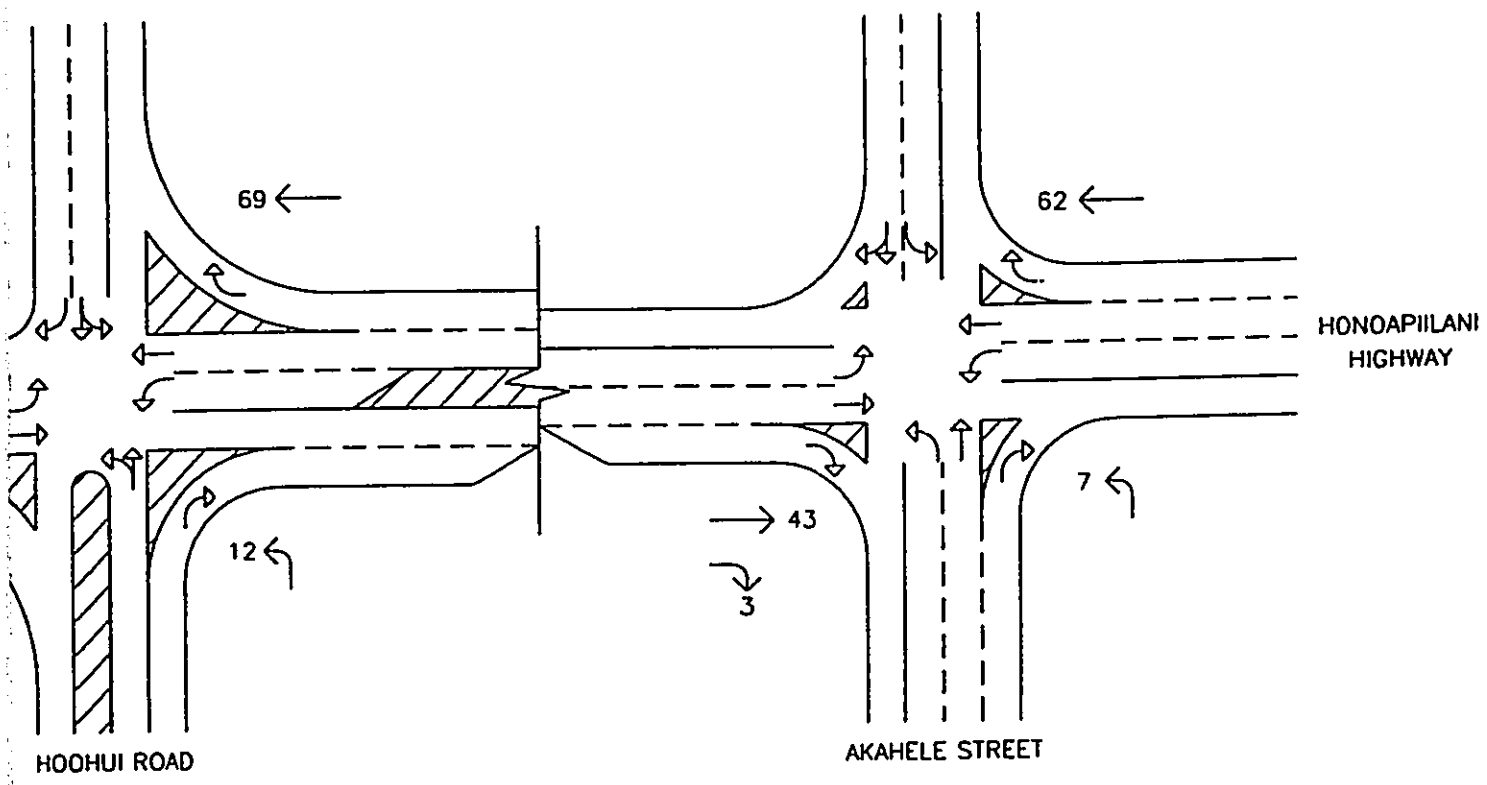


- LEGEND
- 90
↪ TRAFFIC MOVEMENT VOLUME (VP)
 - ↪ LANE USAGE
 - Ⓐ LANE GROUP LEVEL OF SERVICE



MAUI PREPARATORY ACADEMY

YEAR 2008 AM PEAK PERIOD TRIP DISTRIBUTION OF



LEGEND

MOVEMENT VOLUME (VPH)

SAGE

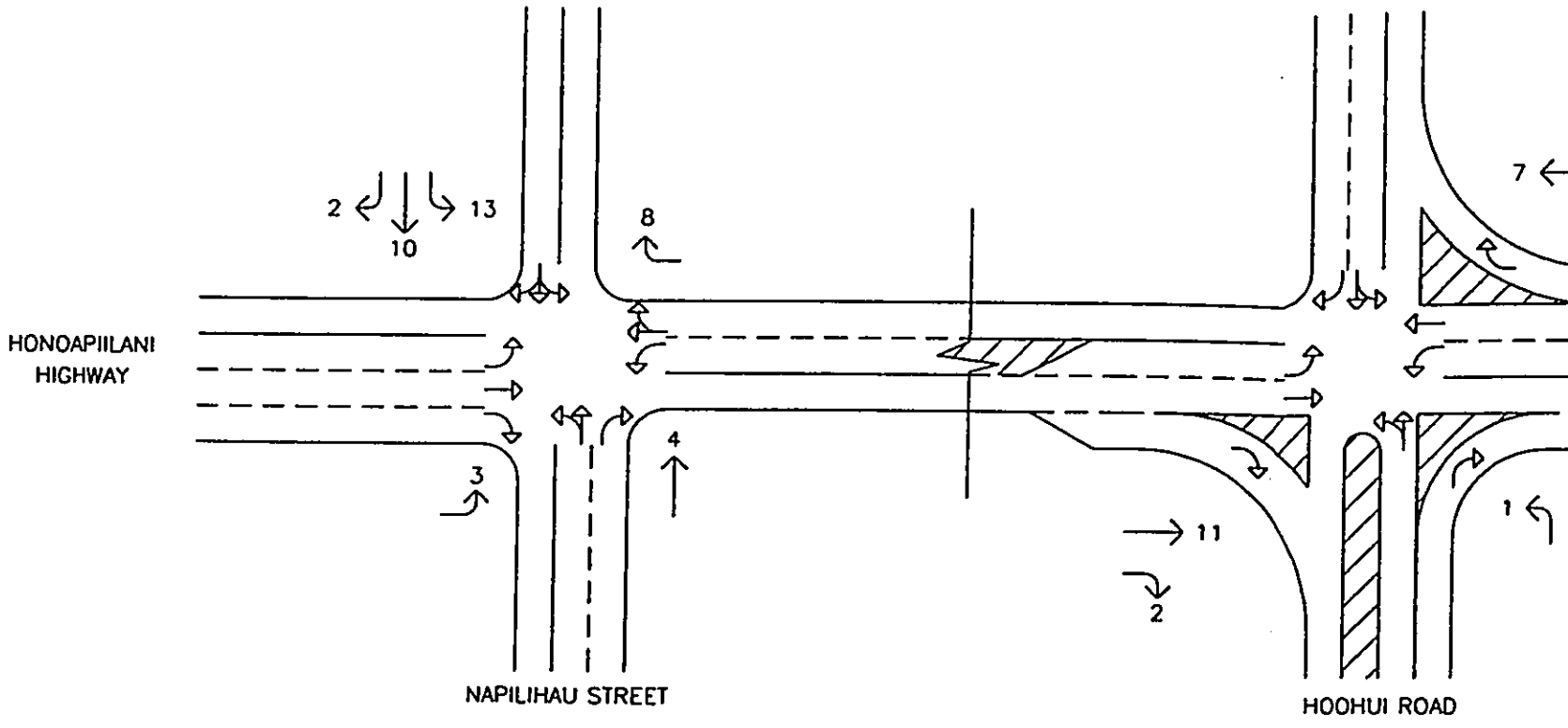
GROUP LEVEL OF SERVICE

LABORATORY ACADEMY

DISTRIBUTION OF SITE GENERATED VEHICLES

FIGURE

7



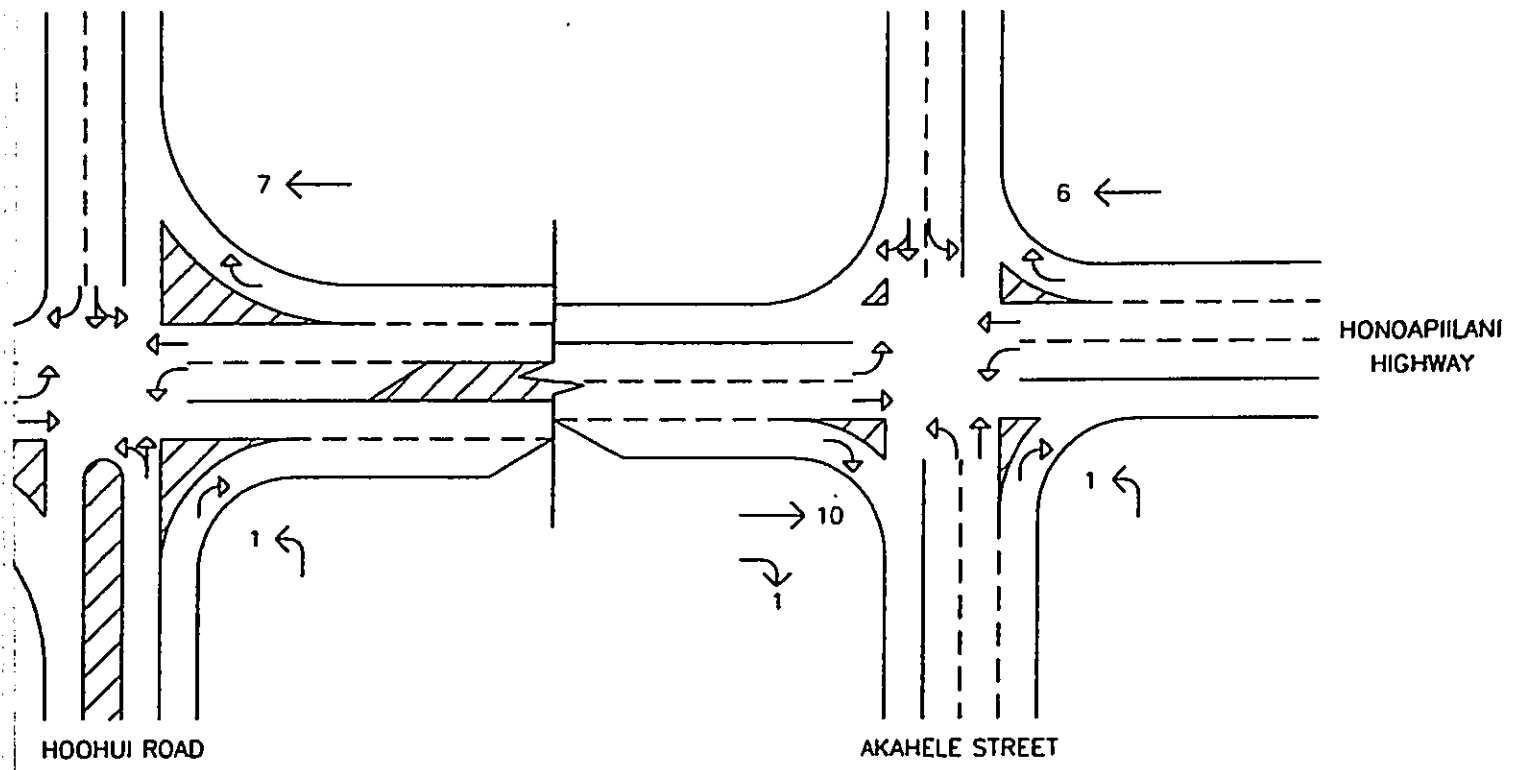
- LEGEND**
- 90 ↪ TRAFFIC MOVEMENT VOLUME (VPH)
 - ↪ LANE USAGE
 - Ⓐ LANE GROUP LEVEL OF SERVICE



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MAUI PREPARATORY ACADEMY

YEAR 2008 PM PEAK PERIOD TRIP DISTRIBUTION OF S



LEGEND

- MOVEMENT VOLUME (VPH)
- SAGE
- GROUP LEVEL OF SERVICE

LABORATORY ACADEMY

DISTRIBUTION OF SITE GENERATED VEHICLES

FIGURE
8

HONOAPIILANI
HIGHWAY

33 ←
↓ 17
→ 149

224

3 ←

192 ←

49

25

1

132

16

29 ←

NAPILIAU STREET

HOOHUI ROAD

LEGEND

90



TRAFFIC MOVEMENT VOLUME (VPH)



LANE USAGE



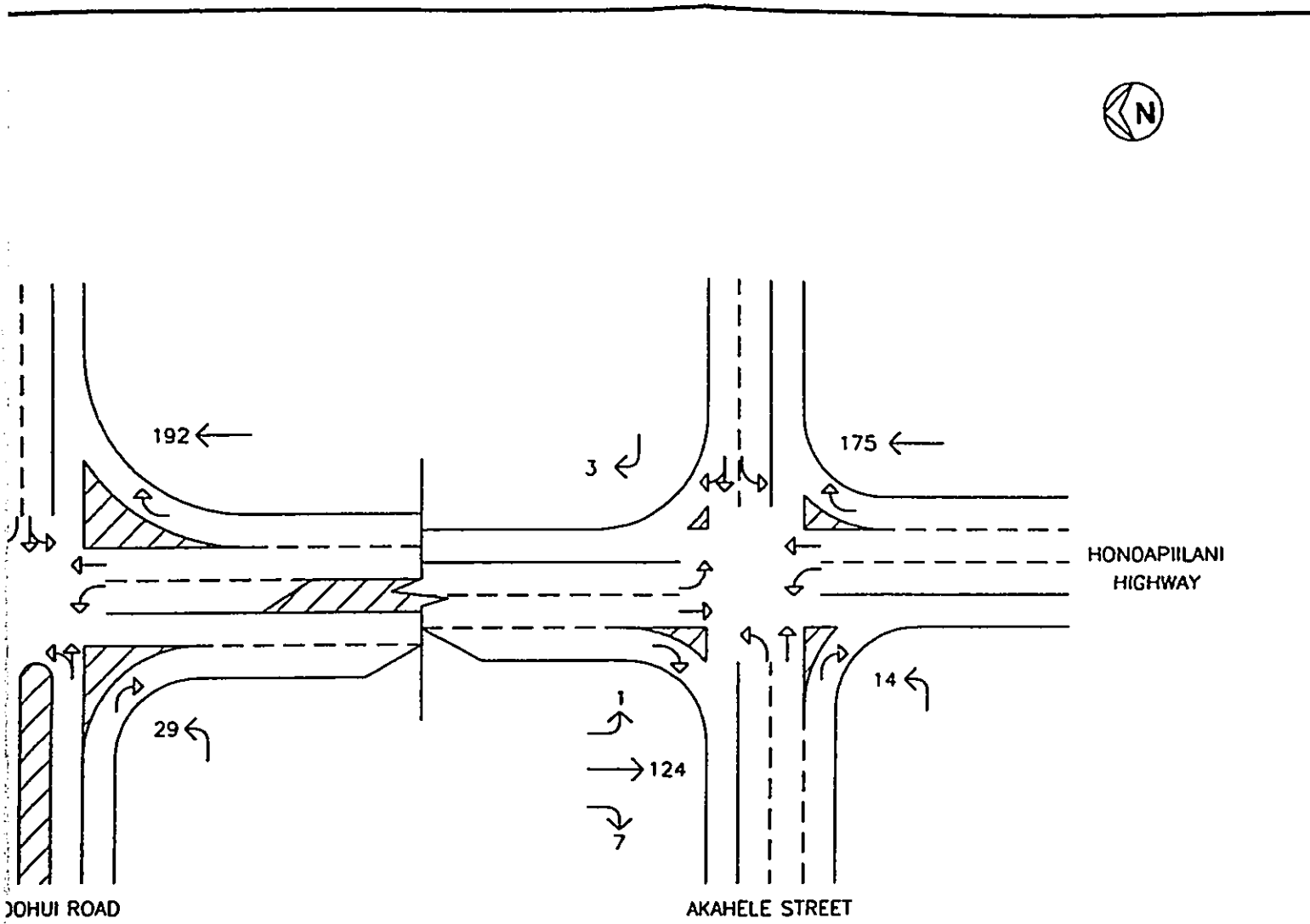
LANE GROUP LEVEL OF SERVICE



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YEAR 2013 AM PEAK PERIOD TRIP DISTRIBUTION OF SITE



LEGEND

□ VEHICLE VOLUME (VPH)

□ LEVEL OF SERVICE

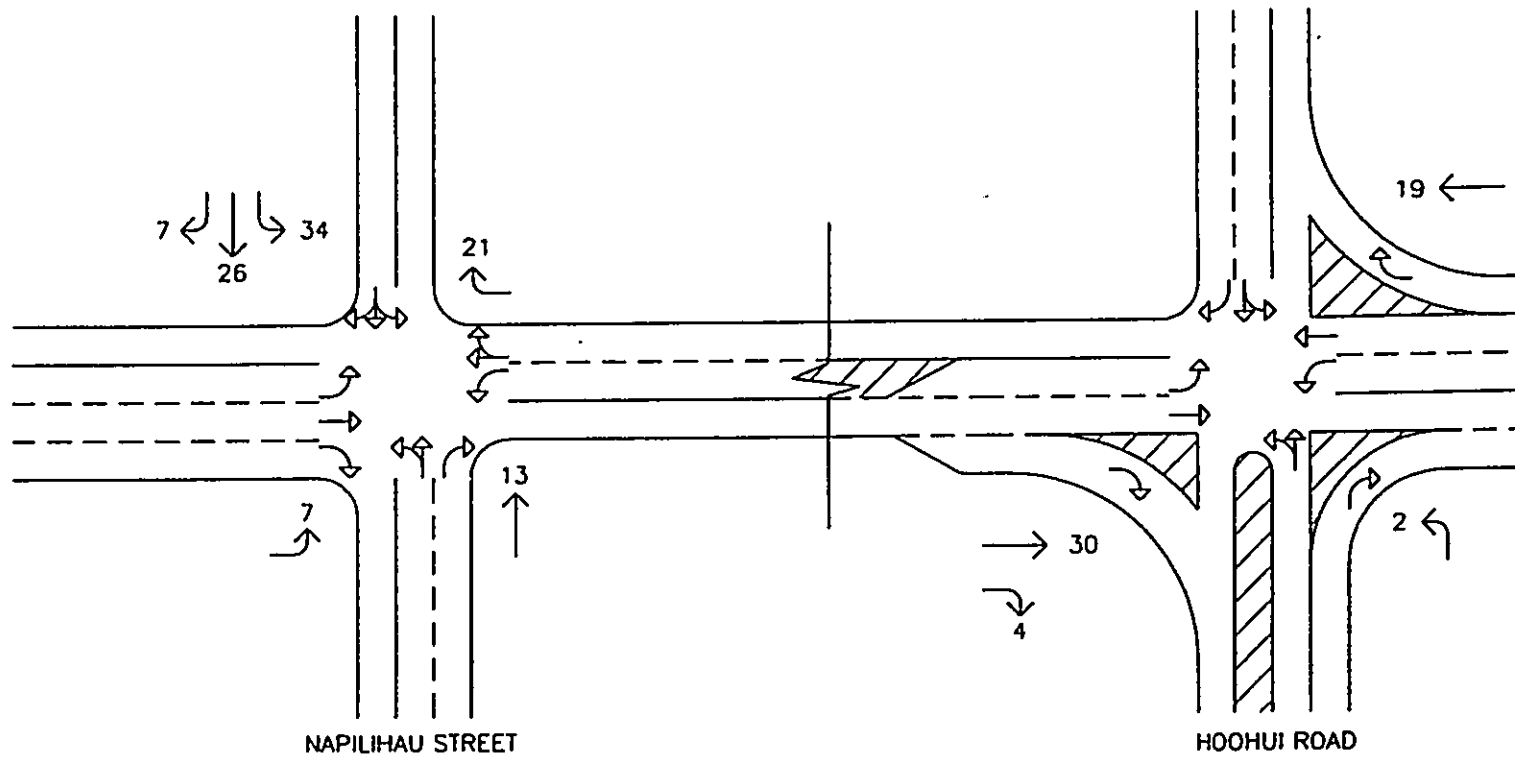
DRY ACADEMY

DISTRIBUTION OF SITE GENERATED VEHICLES

FIGURE

9

HONOAPIILANI
HIGHWAY



LEGEND

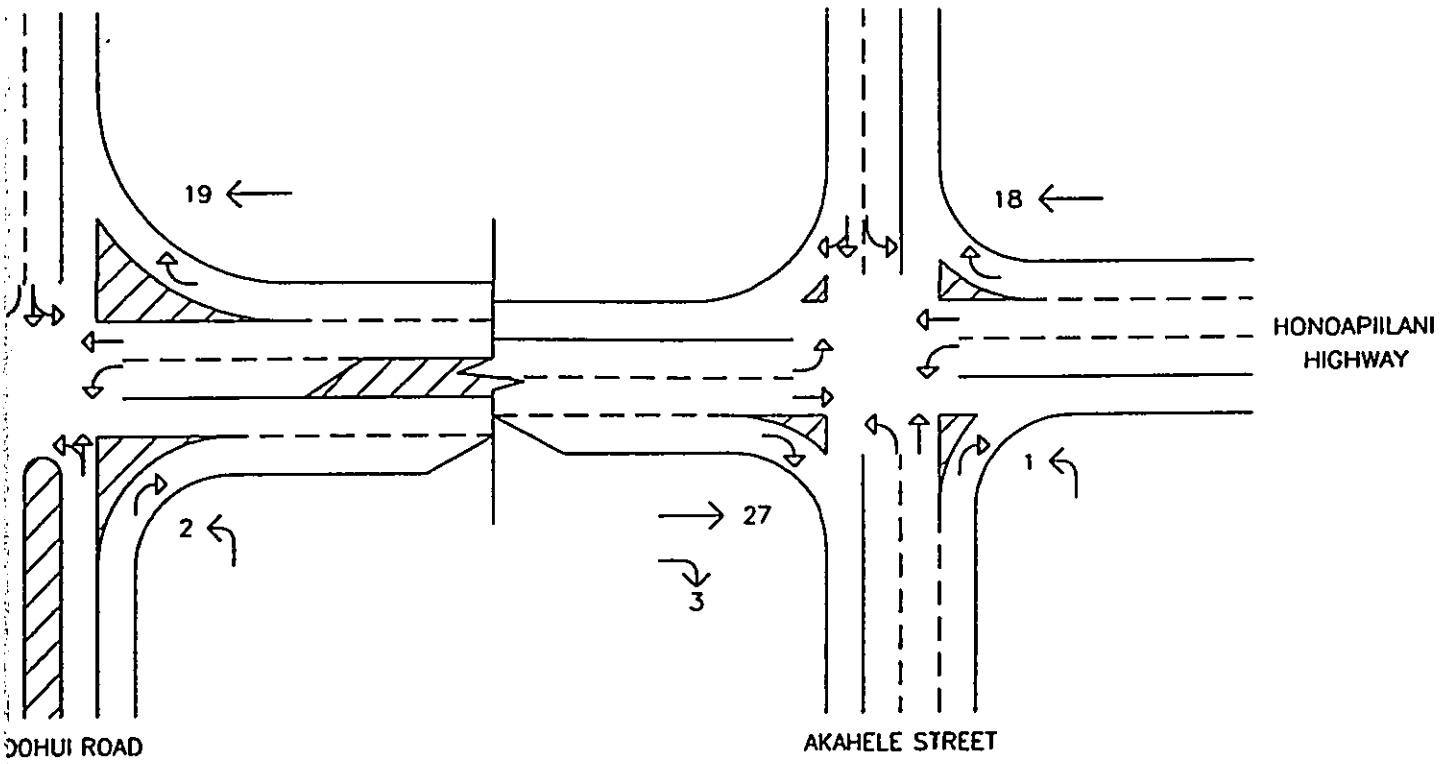
- 90 → TRAFFIC MOVEMENT VOLUME (VPH)
- ↔ LANE USAGE
- Ⓐ LANE GROUP LEVEL OF SERVICE



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MAUI PREPARATORY ACADEMY

YEAR 2013 PM PEAK PERIOD TRIP DISTRIBUTION OF SIT

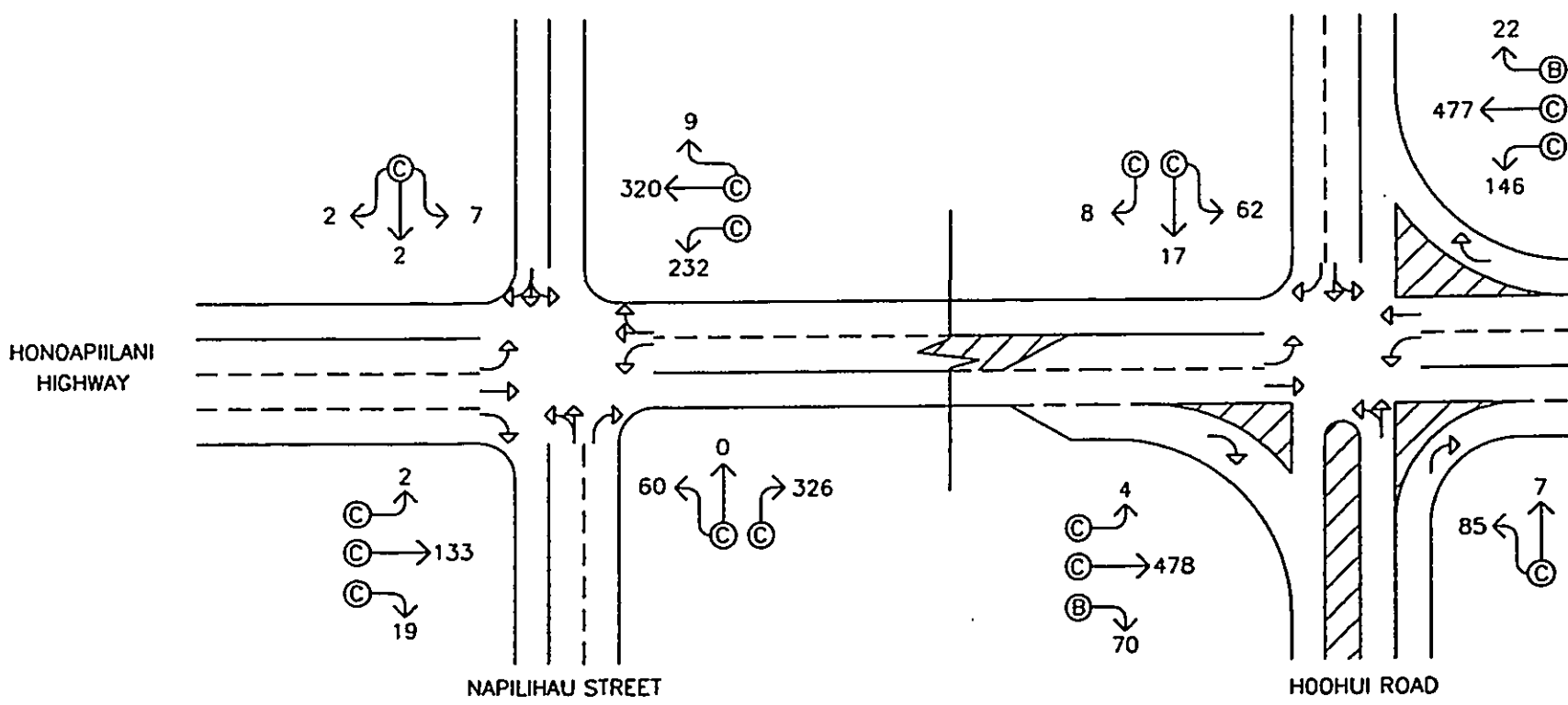


LEGEND
VEHICLE VOLUME (VPH)
LEVEL OF SERVICE

FORRY ACADEMY

DISTRIBUTION OF SITE GENERATED VEHICLES

FIGURE
10



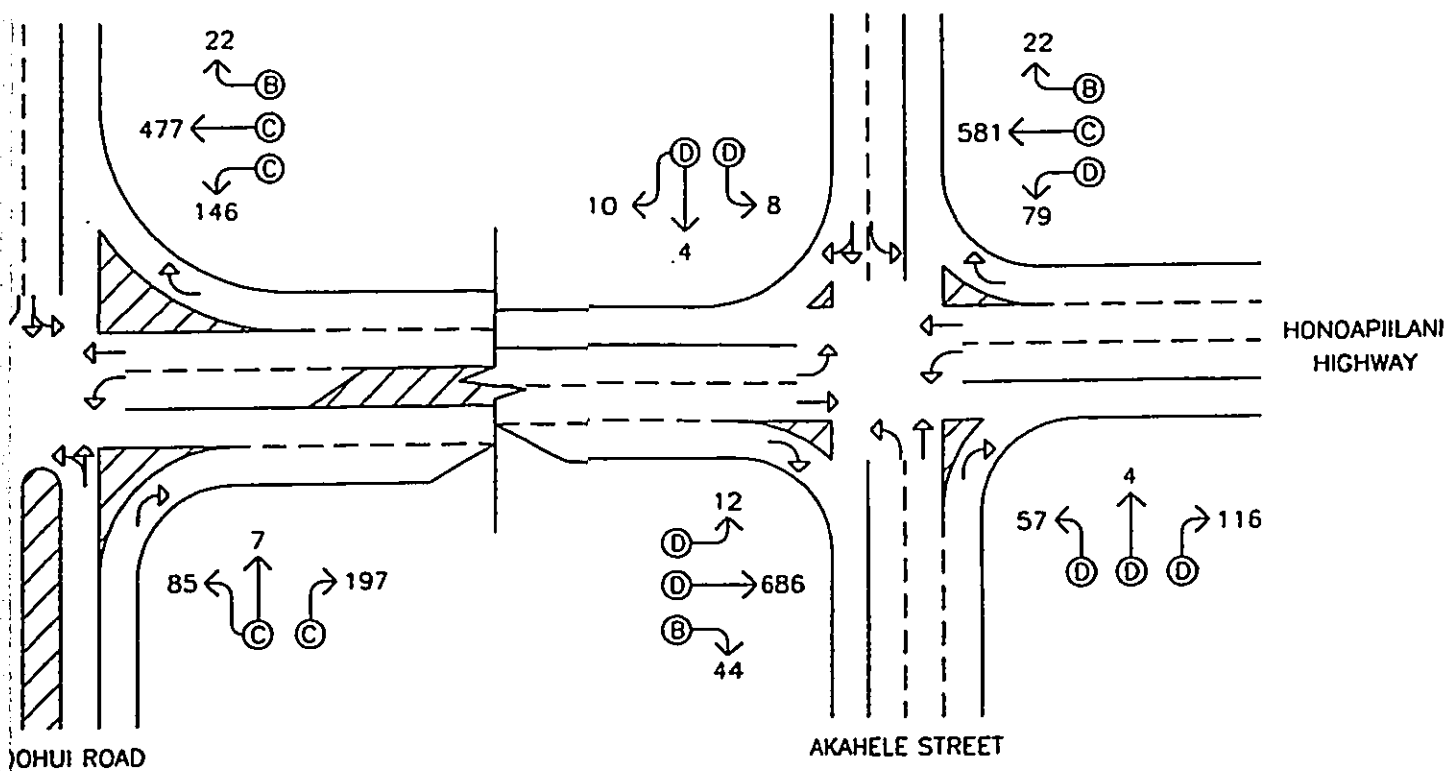
- LEGEND**
- 90 ↗ **TRAFFIC MOVEMENT VOLUME (VPH)**
 - ↔ **LANE USAGE**
 - Ⓐ **LANE GROUP LEVEL OF SERVICE**



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MAUI PREPARATORY ACADEMY

YEAR 2005 PROJECTED AM PEAK HOUR OF TRAFF



LEGEND

VEHICLE PER HOUR (VPH)

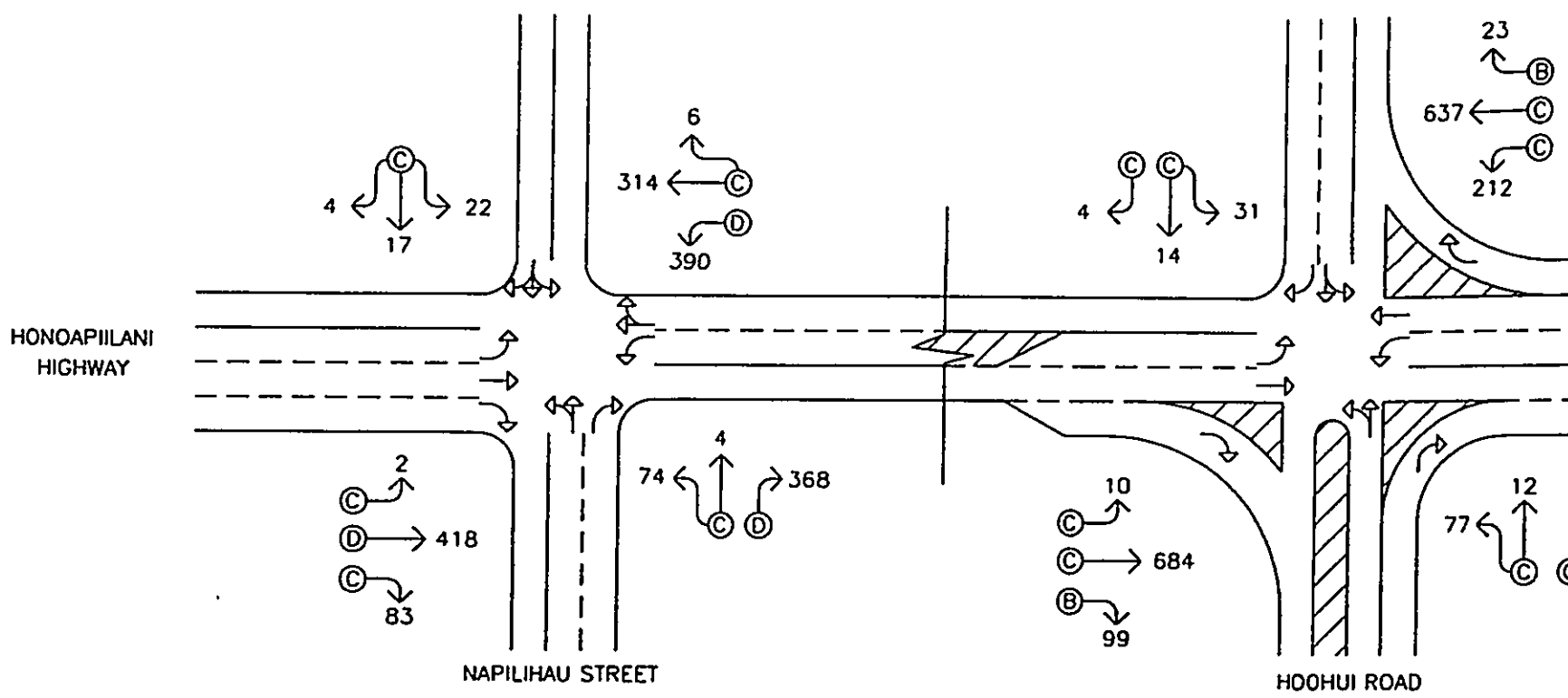
LEVEL OF SERVICE

ORY ACADEMY

UR OF TRAFFIC WITHOUT PROJECT

FIGURE

11



LEGEND

90
 TRAFFIC MOVEMENT VOLUME (VPH)

LANE USAGE

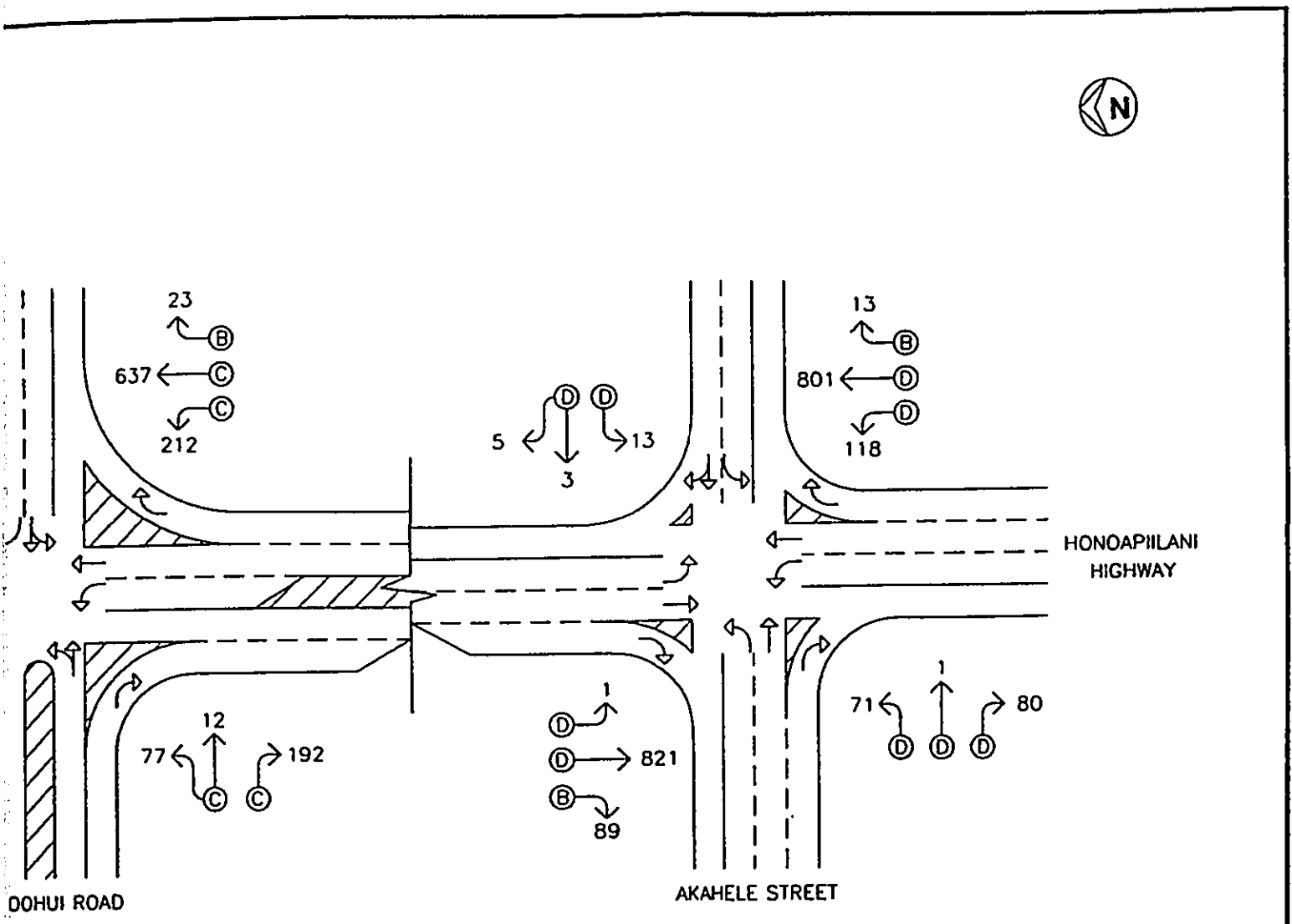
(A) LANE GROUP LEVEL OF SERVICE



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YEAR 2005 PROJECTED PM PEAK HOUR OF TRAFFIC



LEGEND

MOVEMENT VOLUME (VPH)

LEVEL OF SERVICE

TORY ACADEMY

OUR OF TRAFFIC WITHOUT PROJECT

FIGURE

12

Table 2: Comparison of Existing and Projected (Without Project) Levels of Service (Cont'd)

Intersection	Approach	Movement	AM		PM	
			Exist	Year 2005 w/out Proj	Exist	Year 2005 w/out Proj
Honoapiilani Hwy/Napilihau St (Cont'd)	NB	L	C	C	C	D
		TR	C	C	C	C
	SB	L	C	C	C	C
		T	C	C	C	D
		R	C	C	C	C
Honoapiilani Hwy/Hoohui Rd	EB	LT	C	C	C	C
		R	C	C	C	C
	WB	LT	C	C	C	C
		R	C	C	C	C
	NB	L	C	C	C	C
		T	C	C	C	C
		R	B	B	B	B
	SB	L	C	C	C	C
		T	C	C	C	C
		R	B	B	B	B
Honoapiilani Hwy/Akahele St	EB	L	D	D	D	D
		T	D	D	D	D
		R	D	D	D	D
	WB	L	D	D	D	D
		TR	D	D	D	D
	NB	L	D	D	D	D
		T	C	C	D	D
		R	B	B	B	B

Table 2: Comparison of Existing and Projected (Without Project) Levels of Service (Cont'd)

Intersection	Approach	Movement	AM		PM	
			Exist	Year 2005 w/out Proj	Exist	Year 2005 w/out Proj
Honoapiilani Hwy/Akahele St (Cont'd)	SB	L	D	D	D	D
		T	D	D	D	D
		R	B	B	B	B

2. Honoapiilani Highway and Napilihau Street

At the intersection of Honoapiilani Highway and Napilihau Street, the operational qualities of traffic movements on both the northbound and southbound intersection approaches of Honoapiilani Highway would operate at LOS "C" or better during the AM peak hour of traffic for Year 2005 without project conditions. During the PM peak hour of traffic for Year 2005 without project conditions, the operational qualities of traffic movements at both the northbound and southbound approaches would also operate at LOS "C" or better on the highway with the exception of the northbound left-turn movement and the southbound through movement which would operate at LOS "D". All of the other movements at the intersection on the Napilihau Street approaches should also operate under the same LOS designations as with existing conditions.

During the projected Year 2005 AM peak hour without project conditions, Honoapiilani Highway just south of Napilihau Street is expected to carry 1,027 vehicles, 561 vehicles traveling northbound and 466 vehicles traveling southbound. Traffic volumes during the PM peak hour at the same roadway section are heavier with a total of 1,518 vehicles on the roadway, 710 vehicles traveling northbound and 808 vehicles traveling southbound.

3. Honoapiilani Highway and Hoohui Road

At the intersection of Honoapiilani Highway and Hoohui Road, the operational qualities of traffic movements on both the northbound and southbound intersection approaches of Honoapiilani Highway would operate at LOS "C" or better during both the projected Year 2005 AM and PM peak hours of traffic under without project conditions. The traffic operational qualities of all movements on both the eastbound and westbound approaches of Hoohui Road would also operate at LOS "C" or better during both the projected Year 2005 AM and PM peak hours of traffic under without project conditions.

During the projected Year 2005 AM peak hour without project conditions, Honoapiilani Highway just south of Hoohui Road is expected to carry 1,382 vehicles, 645 vehicles traveling northbound and 737 vehicles traveling southbound. Traffic volumes during the PM peak hour at the same roadway section are expected to be heavier with a total of 1,779 vehicles on the roadway, 872 vehicles traveling northbound and 907 vehicles traveling southbound.

4. Honoapiilani Highway and Akahele Street

At the intersection of Honoapiilani Highway with Akahele Street, the northbound through movement of the highway would operate at LOS "C" during the AM peak hour for projected Year 2005 without project conditions while the southbound through movement is expected to operate the same service quality as existing conditions at LOS "D". The northbound and southbound left-turn movements are also expected to continue to operate at LOS "D" conditions. During the PM peak hours, both the northbound and southbound through and left-turn movements of the highway are expected to operate at LOS "D" during the projected Year 2005 without project traffic conditions. During the AM and PM peak hours, the westbound and eastbound approaches of Akahele Street would continue to operate at LOS "D" as a result of the relatively heavy projected through traffic movements on the highway.

During the projected Year 2005 without project AM peak period, Honoapiilani Highway just south of Akahahele Street is expected to carry 1,492 vehicles, 682 vehicles traveling northbound and 810 vehicles traveling southbound. Traffic volumes during the PM peak hour at the same roadway section are expected to be slightly heavier with a total of 1,846 vehicles on the roadway, 932 vehicles traveling northbound and 914 vehicles traveling southbound.

D. Traffic Operations With Proposed Project

1. General

The cumulative AM and PM peak hour traffic conditions resulting from the projected external traffic and the development of the proposed Maui Preparatory Academy for each analysis year are shown in Figures 13 through 18, and summarized in Table 3. The cumulative volumes consist of site-generated traffic superimposed over Years 2005, 2008, and 2013 projected traffic demands for each scenario. The LOS designations for projected Year 2005 without project conditions are presented for convenience. LOS calculations are included in Appendices E through G.

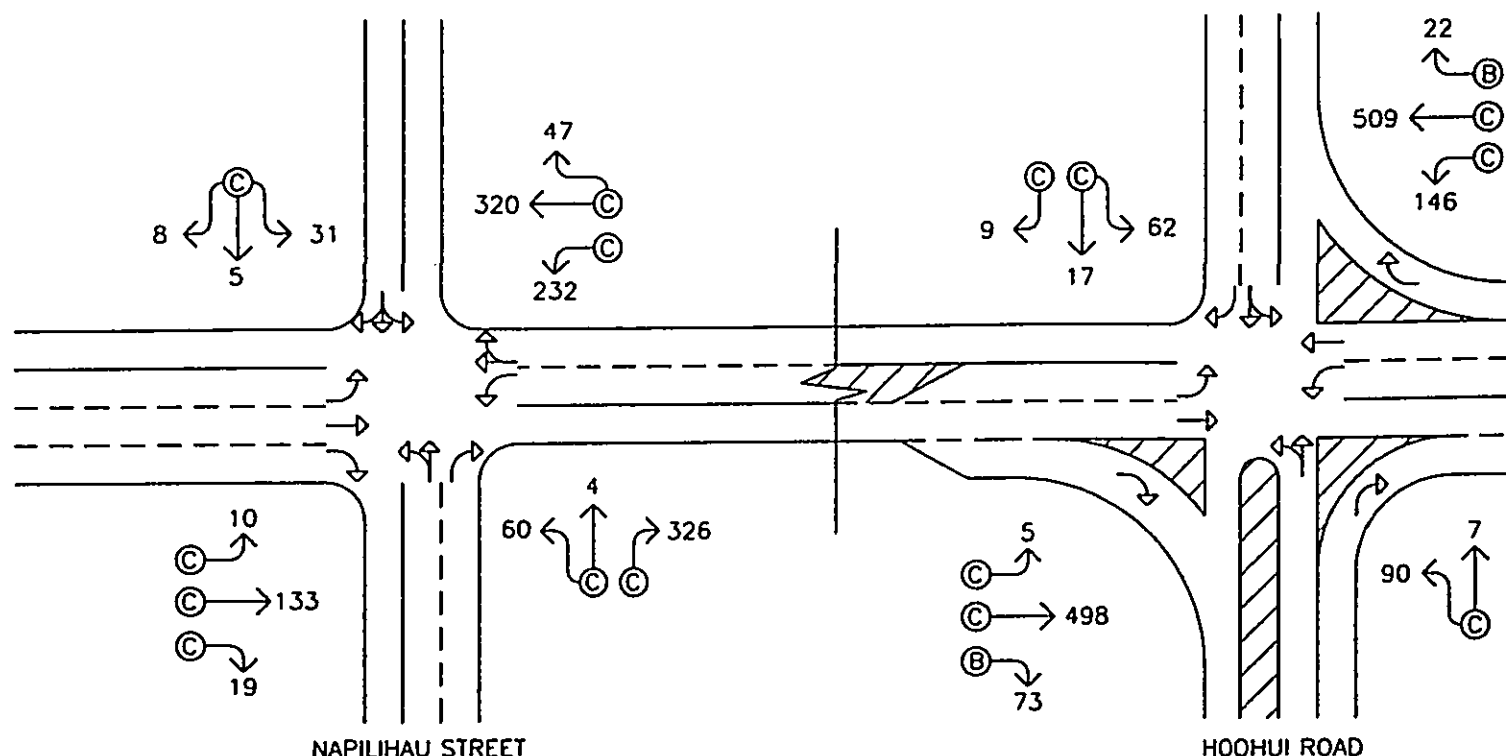
Table 3: Projected (Year 2005, 2008, and 2013) Levels of Service

Intersection	Approach	Move- ment	AM			PM				
			Year 2005 w/ out Proj	With Project		Year 2005 w/ out Proj	With Project			
				Year 2005	Year 2008		Year 2013	Year 2005	Year 2008	Year 2013
Honoapiilani Hwy/ Napilihau St	EB	LT	C	C	C	C	C	C	C	
		R	C	C	C	D	D	D	D	
	WB	LTR	C	C	C	C	D	D	D	
	NB	L	C	C	C	C	D	D	D	D
		TR	C	C	C	C	C	C	C	C

HONOAPIILANI
HIGHWAY

NAPILIHAI STREET

HOOHUI ROAD



LEGEND

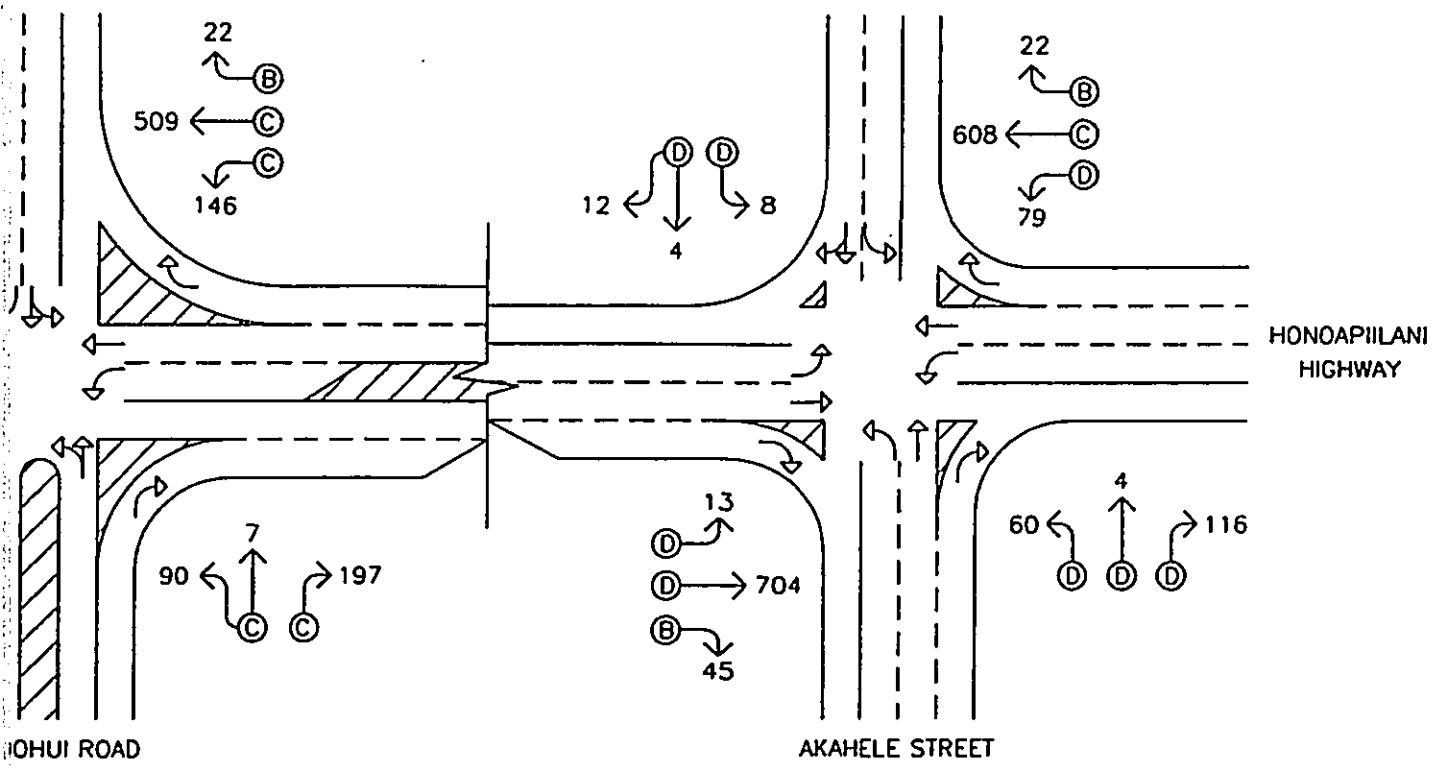
- 90 → TRAFFIC MOVEMENT VOLUME (VPH)
- LANE USAGE
- (A) LANE GROUP LEVEL OF SERVICE



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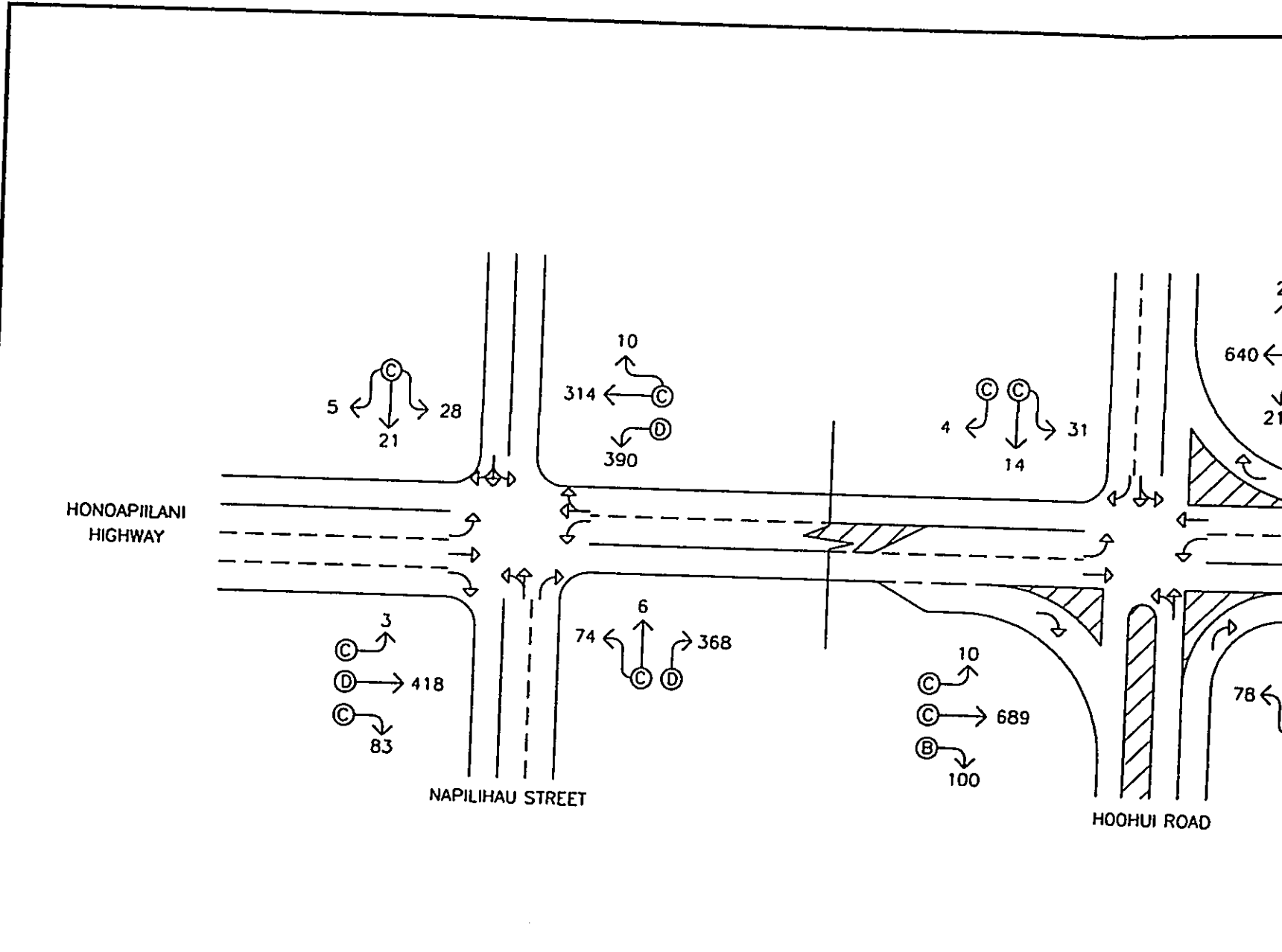
YEAR 2005 PROJECTED AM PEAK HOUR OF TRAF



LEGEND
ELEMENT VOLUME (VPH)
LEVEL OF SERVICE

DRY ACADEMY
OUR OF TRAFFIC WITH PROJECT

FIGURE
13



LEGEND

90 ↗ TRAFFIC MOVEMENT VOLUME (VPH)

↔ LANE USAGE

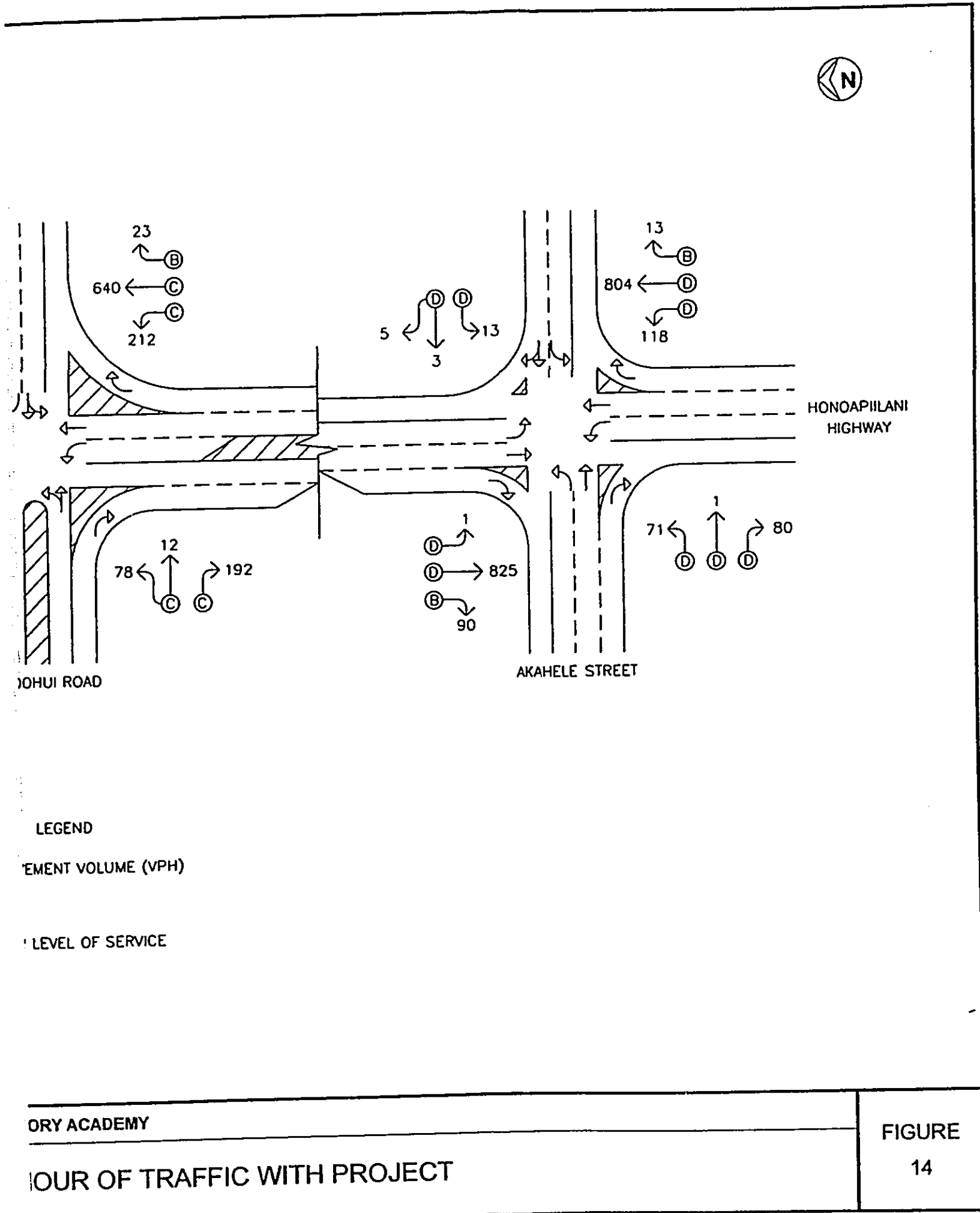
(A) LANE GROUP LEVEL OF SERVICE

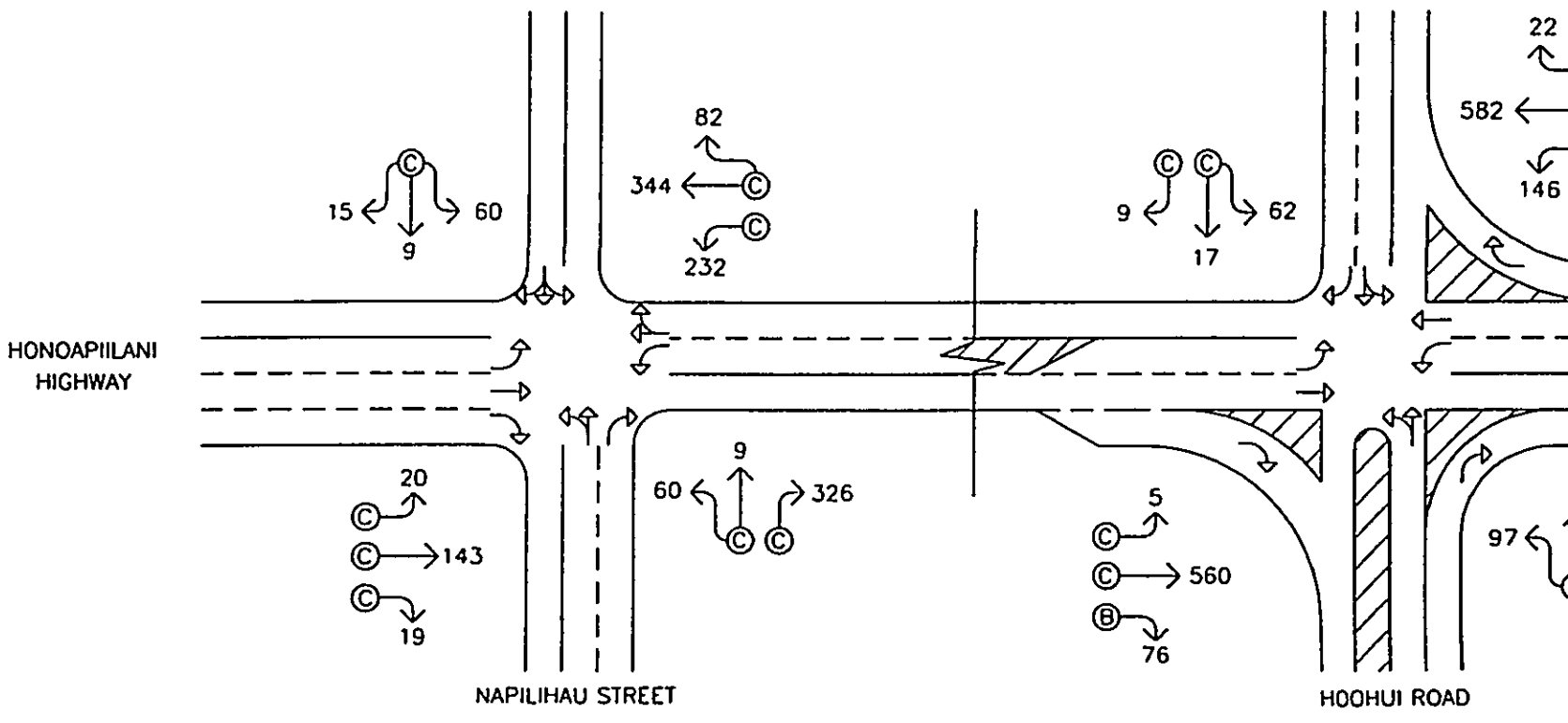


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YEAR 2005 PROJECTED PM PEAK HOUR OF TRAFFIC





LEGEND

90
 TRAFFIC MOVEMENT VOLUME (VPI)

LANE USAGE

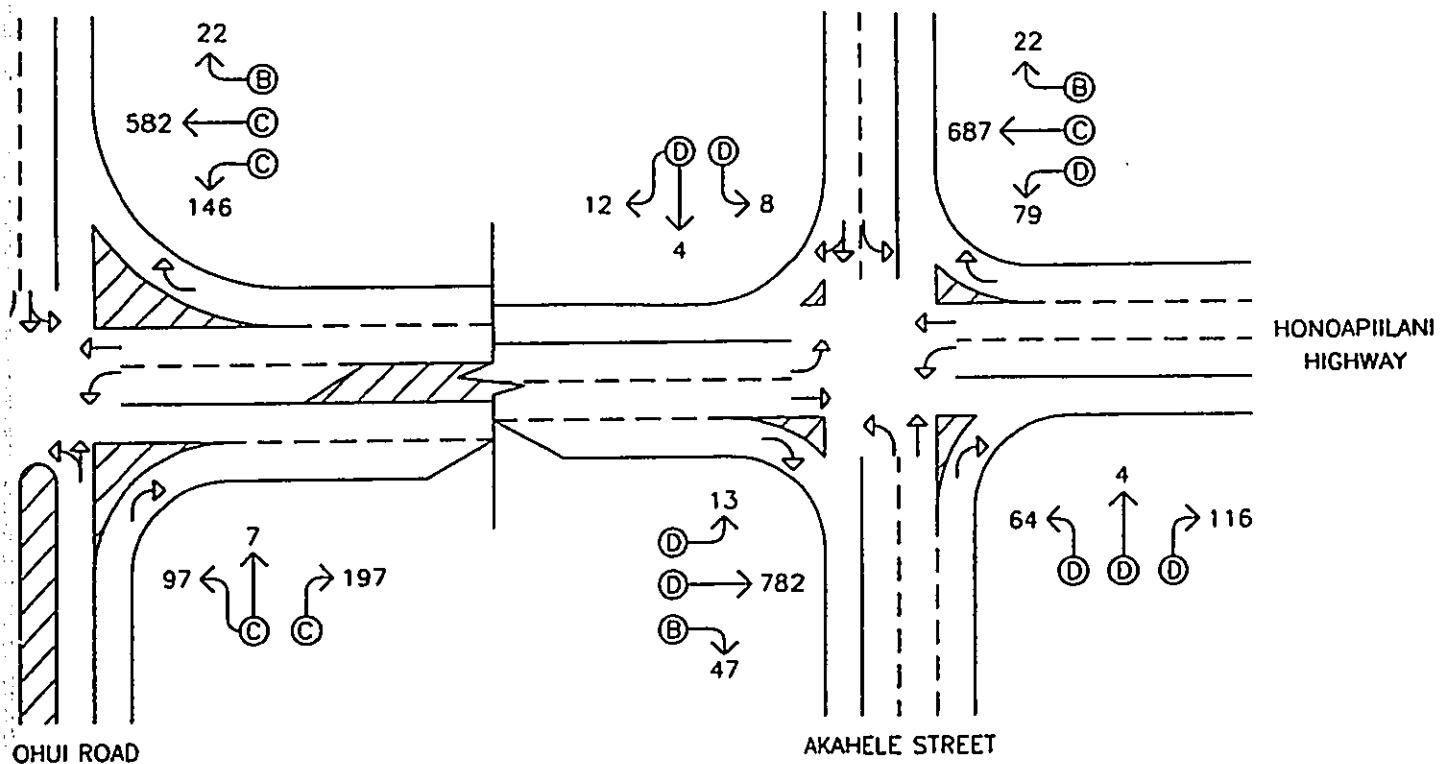
LANE GROUP LEVEL OF SERVICE



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YEAR 2008 PROJECTED AM PEAK HOUR OF TRAFFIC



LEGEND

LEMENT VOLUME (VPH)

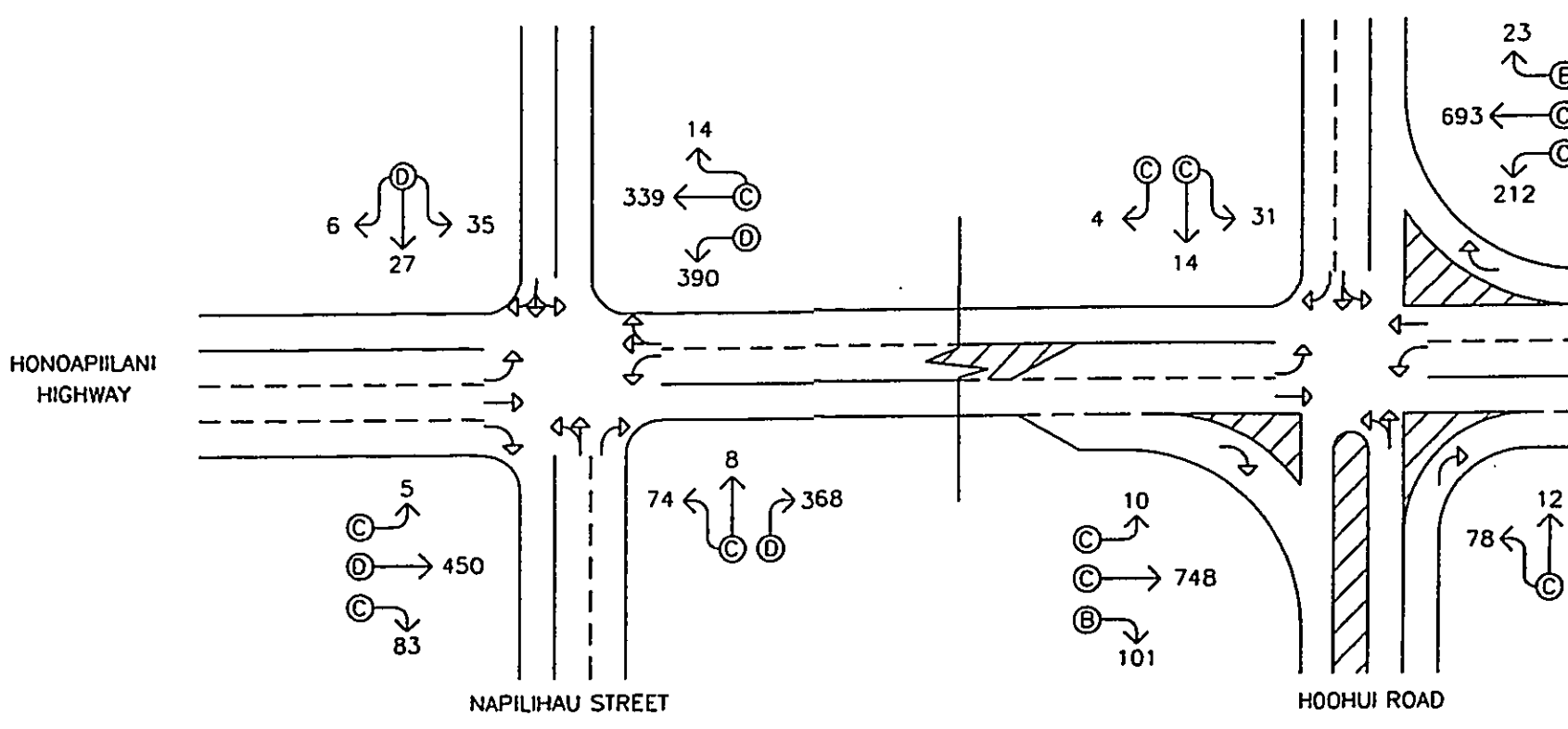
LEVEL OF SERVICE

DRY ACADEMY

OUR OF TRAFFIC WITH PROJECT

FIGURE

15



LEGEND

90
 TRAFFIC MOVEMENT VOLUME (VPH)

LANE USAGE

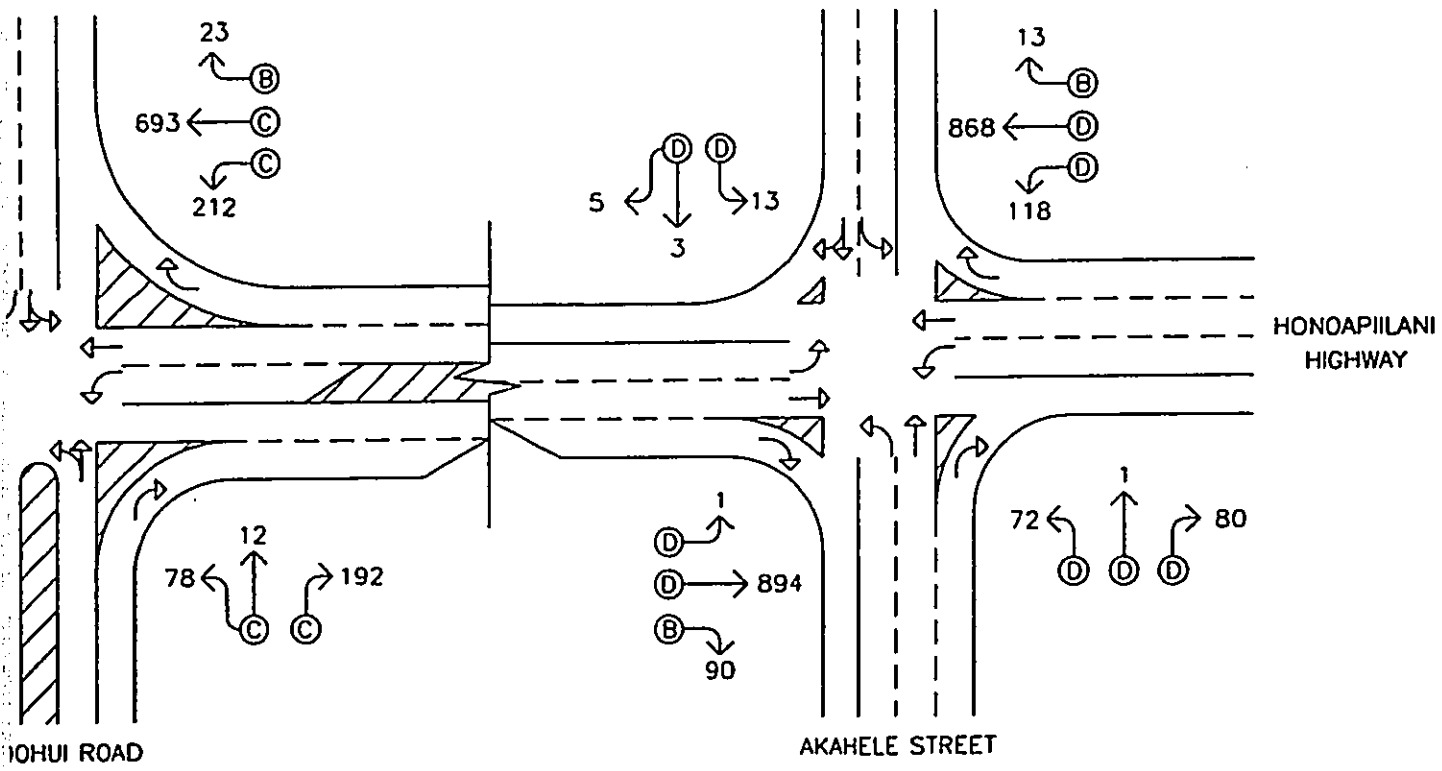
(A) LANE GROUP LEVEL OF SERVICE



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YEAR 2008 PROJECTED PM PEAK HOUR OF TRAFFIC



LEGEND

MOVEMENT VOLUME (VPH)

LEVEL OF SERVICE

DRY ACADEMY

FLOW OF TRAFFIC WITH PROJECT

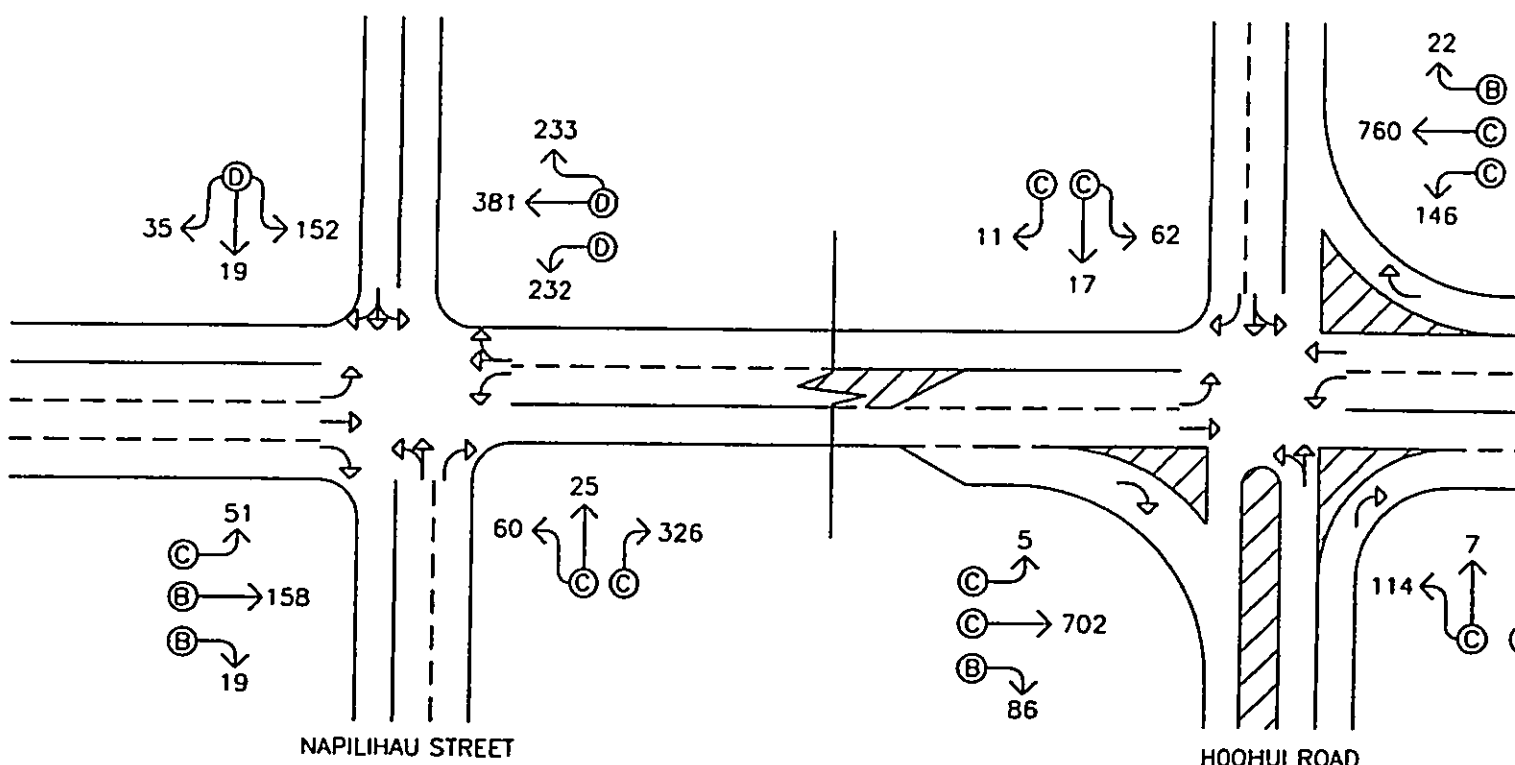
FIGURE

16

HONOAPIILANI
HIGHWAY

NAPILIHAIU STREET

HOOHUI ROAD



LEGEND

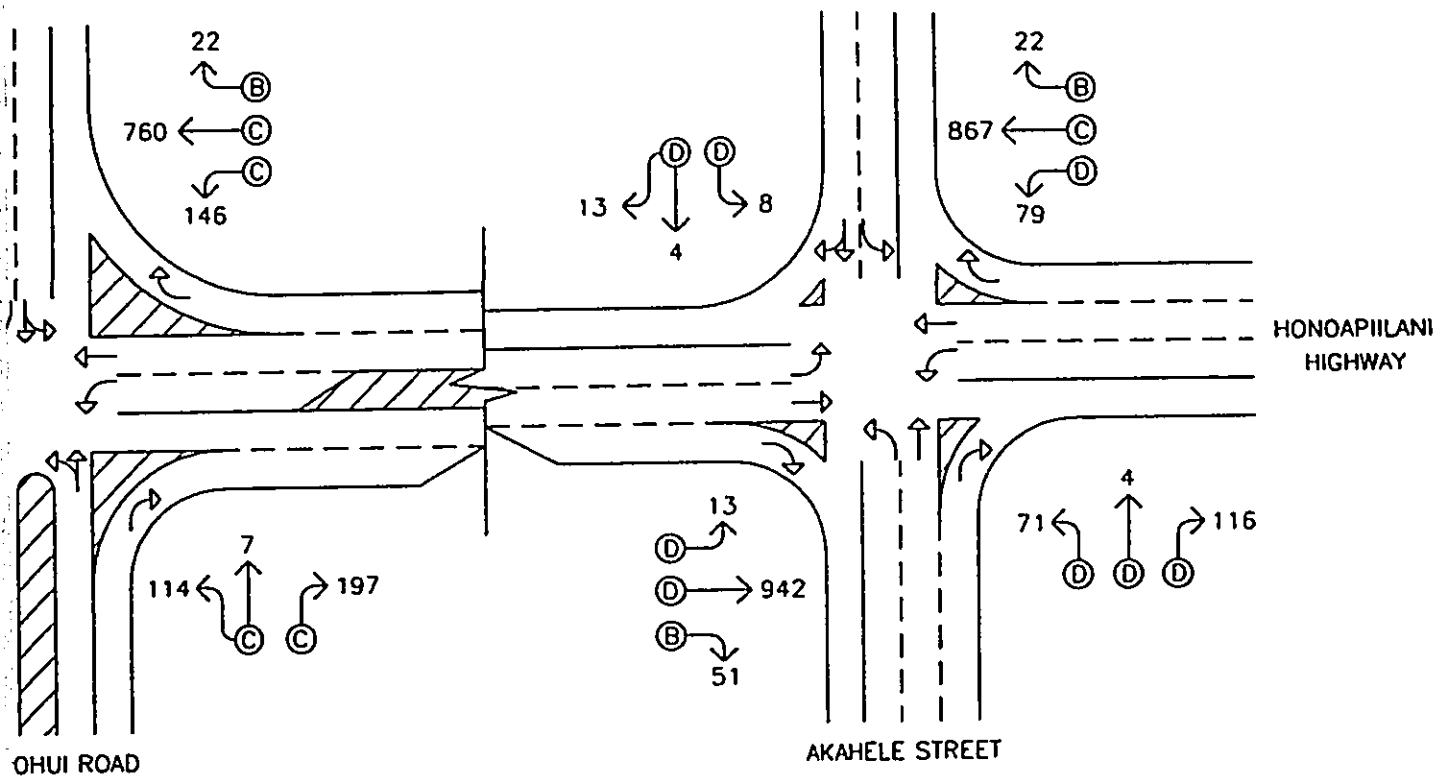
- 90 TRAFFIC MOVEMENT VOLUME (VPH)
- LANE USAGE
- (A) LANE GROUP LEVEL OF SERVICE



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YEAR 2013 PROJECTED AM PEAK HOUR OF TRAFFIC



LEGEND

EMENT VOLUME (VPH)

LEVEL OF SERVICE

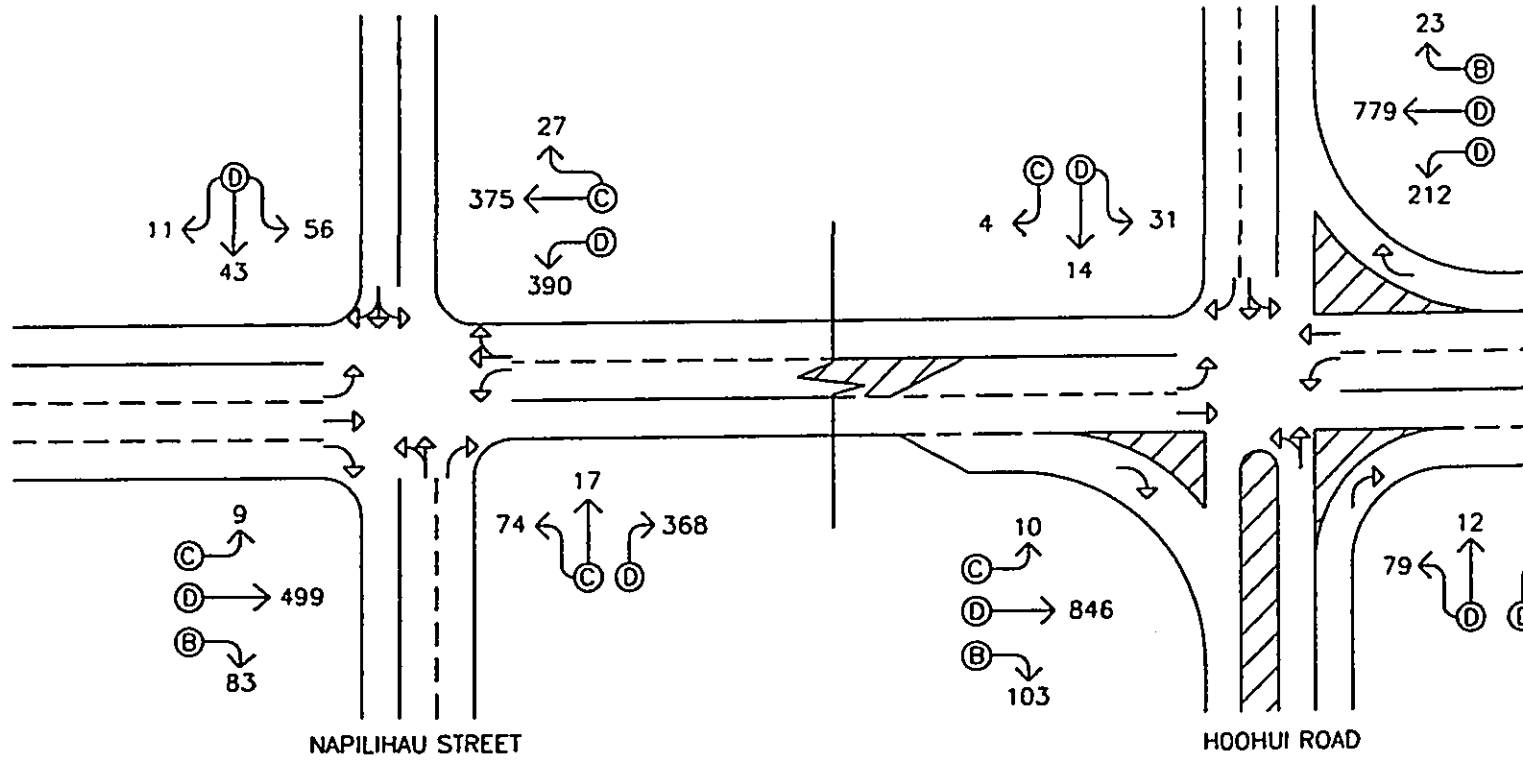
DRY ACADEMY

OUR OF TRAFFIC WITH PROJECT

FIGURE

17

HONOAPIILANI
HIGHWAY



LEGEND

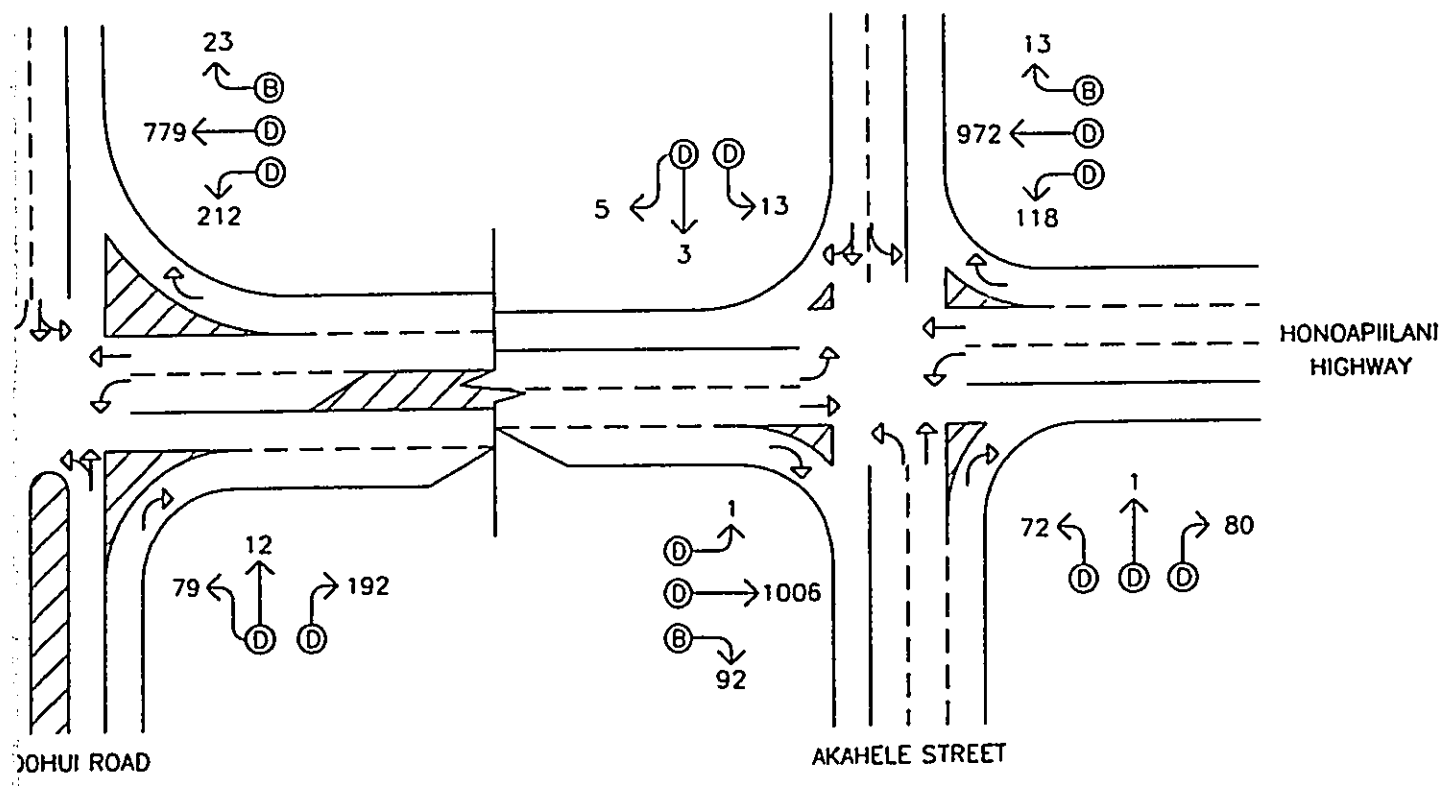
- 90 (with arrow) TRAFFIC MOVEMENT VOLUME (VPH)
- (with arrow) LANE USAGE
- (A) LANE GROUP LEVEL OF SERVICE



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YEAR 2013 PROJECTED PM PEAK HOUR OF TRAFFIC



LEGEND

① TRAFFIC VOLUME (VPH)

② LEVEL OF SERVICE

ORY ACADEMY

OUR OF TRAFFIC WITH PROJECT

FIGURE
18

Table 3: Projected (Year 2005, 2008, and 2013) Levels of Service (Cont'd)

Intersection	Approach	Move- ment	AM				PM				
			Year 2005 w/ out Proj	With Project			Year 2005 w/ out Proj	With Project			
				Year 2005	Year 2008	Year 2013		Year 2005	Year 2008	Year 2013	
Honoapiilani Hwy/ Napilihau St (Cont'd)	SB	L	C	C	C	C	C	C	C	C	
		T	C	C	C	C	D	D	D	D	
		R	C	C	B	B	C	C	C	B	
Honoapiilani Hwy/ Hoohui Rd	EB	LT	C	C	C	C	C	C	C	D	
		R	C	C	C	C	C	C	C	D	
	WB	LT	C	C	C	C	C	C	C	D	
		R	C	C	C	C	C	C	C	C	
	NB	L	C	C	C	C	C	C	C	D	
		T	C	C	C	C	C	C	C	D	
		R	B	B	B	B	B	B	B	B	
	SB	L	C	C	C	C	C	C	C	C	
		T	C	C	C	C	C	C	C	D	
		R	B	B	B	B	B	B	B	B	
	Honoapiilani Hwy/ Akahele St	EB	L	D	D	D	D	D	D	D	D
			T	D	D	D	D	D	D	D	D
R			D	D	D	D	D	D	D	D	
WB		L	D	D	D	D	D	D	D	D	
		TR	D	D	D	D	D	D	D	D	
NB		L	D	D	D	D	D	D	D	D	
		T	C	C	C	C	D	D	D	D	
		R	B	B	B	B	B	B	B	B	
SB		L	D	D	D	D	D	D	D	D	
		T	D	D	D	D	D	D	D	D	
		R	B	B	B	B	B	B	B	B	

2. **Projected Year 2005 With Project**
a. **Honoapiilani Highway and Napili Street**

At the intersection of Honoapiilani Highway and Napili Street, the operational qualities of all the traffic movements for Year 2005 on both the northbound and southbound intersection approaches of Honoapiilani Highway would operate at LOS "C" or better during the projected AM peak hour of traffic. During the Year 2005 PM peak hour of traffic with project conditions, the operational qualities of traffic movements at both approaches also would generally operate at LOS "C" or better with the exception of the southbound through movement and the northbound left-turn movement on the highway. These two movements would continue to operate at LOS "D" from Year 2005 without project conditions. All of the other movements at the intersection on the Napili Street approaches would operate at LOS "C" during the projected AM peak hour of traffic under with project conditions. However, during the Year 2005 PM peak hour with project conditions, the eastbound right-turn movement will continue to operate at LOS "D" while the westbound approach will also continue to operate at LOS "C" conditions.

During the projected Year 2005 with project AM peak period, Honoapiilani Highway just south of Napili Street is expected to carry 1,089 vehicles, 599 vehicles traveling northbound and 490 vehicles traveling southbound. Traffic volumes during the PM peak hour at the same roadway section would be heavier with a total of 1,528 vehicles on the roadway, 714 vehicles traveling northbound and 814 vehicles traveling southbound.

b. **Honoapiilani Highway and Hoohui Road**

At the intersection of Honoapiilani Highway and Hoohui Road, the operational qualities of traffic movements on both the northbound and southbound intersection approaches of Honoapiilani Highway for

Year 2005 with project conditions are expected to continue to operate at LOS "C" or better during both the projected AM and PM peak hours of traffic. The traffic operational qualities of all movements on both the eastbound and westbound approaches of Hoohui Road would also continue to operate at LOS "C" during the projected AM and PM peak hours of traffic in Year 2005 with the project.

During the projected AM peak period, Honoapiilani Highway just south of Hoohui Road is expected to carry 1,382 vehicles, 645 vehicles traveling northbound and 737 vehicles traveling southbound with the project. Projected traffic volumes during the Year 2005 with project PM peak hour at the same roadway section would be heavier with a total of 1,779 vehicles on the roadway, 872 vehicles traveling northbound and 907 vehicles traveling southbound.

c. Honoapiilani Highway and Akahele Street

At the intersection of Honoapiilani Highway with Akahele Street, the northbound approach through movement on the highway would continue to operate well at LOS "C" while the left-turn movement would operate at LOS "D" during the projected AM peak hour of traffic for Year 2005 conditions with the project. On the southbound approach of the highway, the left-turn movement would also operate at LOS "D" conditions. Likewise, all of the traffic movements on the eastbound and westbound approaches would operate at LOS "D" during the projected Year 2005 AM peak hour traffic conditions with the project. During the projected PM peak hours, however, the left-turn and through movements on both the northbound and southbound intersection approaches of Honoapiilani Highway would operate at LOS "D". During the projected PM peak hours, the westbound and eastbound approaches of Akahele Street would continue to operate at LOS "D". The other traffic movements at the intersection are expected to operate at better than LOS "C"

conditions for Year 2005 with project conditions for both the projected AM and PM peak hours of traffic.

During the AM peak period, Honoapiilani Highway just south of Akahele Street would carry 1,492 vehicles, 682 vehicles traveling northbound and 810 vehicles traveling southbound. Traffic volumes during the PM peak hour at the same roadway section would be heavier with a total of 1,846 vehicles on the roadway, 932 vehicles traveling northbound and 914 vehicles traveling southbound.

3. Projected Year 2008 With Project

a. Honoapiilani Highway and Napili Hau Street

At the intersection of Honoapiilani Highway and Napili Hau Street, the traffic movements on both northbound and southbound intersection approaches of Honoapiilani Highway would operate at LOS "C" or better during the projected AM peak hour of traffic. The eastbound and westbound traffic movements at the intersection would also continue to operate at LOS "C" conditions during the projected Year 2008 AM peak hour of traffic with the proposed project. During the projected Year 2008 PM peak hour of traffic, the traffic operational qualities of traffic movements on the northbound and southbound approaches would remain the same as Year 2005 without project conditions. The northbound left-turn and southbound through movements would operate at LOS "D" while all other traffic movements on the approaches would operate at LOS "C" conditions. In addition, all of the other movements on the eastbound and westbound approaches of the intersection would operate at LOS "D" during both the AM and PM peak hours of traffic for Year 2008 with project traffic conditions, with the exception of the eastbound left-turn and through movements which would operate at LOS "C".

During the AM peak period, Honoapiilani Highway just south of Napili Hau Street would carry 1,258 vehicles, 705 vehicles traveling

northbound and 553 vehicles traveling southbound under Year 2008 with project conditions. Traffic volumes during the PM peak hour at the same roadway section are heavier with an anticipated total of 1,606 vehicles on the roadway, 747 vehicles traveling northbound and 859 vehicles traveling southbound for projected Year 2008 with project conditions.

b. Honoapiilani Highway and Hoohui Road

At the intersection of Honoapiilani Highway and Hoohui Road, the operational qualities of traffic movements on both the northbound and southbound intersection approaches of Honoapiilani Highway would remain at LOS "C" or better during both the AM and PM peak hours of traffic in Year 2008 with the proposed project. The traffic operational qualities of all movements on both the eastbound and westbound approaches of Hoohui Road would also remain at LOS "C" during the projected Year 2008 AM and PM peak hours of traffic with the project.

During the AM peak period, Honoapiilani Highway just south of Hoohui Road would carry 1,621 vehicles, 782 vehicles traveling northbound and 839 vehicles traveling southbound in Year 2008 with the proposed project. Traffic volumes during the PM peak hour at the same roadway section are expected to be heavier with a total of 1,907 vehicles on the roadway, 931 vehicles traveling northbound and 976 vehicles traveling southbound.

c. Honoapiilani Highway and Akahele Street

At the intersection of Honoapiilani Highway and Akahele Street, the traffic movements on the northbound intersection approach of Honoapiilani Highway would generally remain at LOS "C" or better with the northbound left-turn movement anticipated to operate at LOS "D" during the projected Year 2008 AM peak hour of traffic conditions with the project. Because of the relatively low demand the

right-turn traffic movement would continue to operate at LOS "B". On the southbound approach of the intersection, the left-turn and through movements on the highway would continue to operate at LOS "D" during the projected AM peak hour of traffic for Year 2008 with the proposed project. During the projected Year 2008 PM peak hour of traffic with the project, the traffic operational qualities of traffic movements on the northbound and southbound approaches would generally remain the same as Year 2005 without the project. The northbound and southbound left-turn and through movements would continue to operate at LOS "D". In addition, all of the other movements on the eastbound and westbound approaches of the intersection would continue to operate at LOS "D" during both the AM and PM peak hours of traffic for Year 2008 traffic conditions with the project.

During the AM peak period, Honoapiilani Highway just south of Akahele Street is expected to carry 1,739 vehicles, 815 vehicles traveling northbound and 924 vehicles traveling southbound. Traffic volumes during the PM peak hour at the same roadway section would be heavier with a total of 1,993 vehicles on the roadway, 1,002 vehicles traveling northbound and 991 vehicles traveling southbound.

4. Projected Year 2013 With Project

a. Honoapiilani Highway and Napilihau Street

At the intersection of Honoapiilani Highway and Napilihau Street, the operational qualities of traffic movements on the northbound intersection approach of Honoapiilani Highway would worsen from LOS "C" for projected Year 2008 conditions to LOS "D" for Year 2013 projected AM peak hours. The southbound left-turn traffic movement would remain at LOS "C" while the southbound through and right-turn traffic movements would operate at LOS "B." The improvement from LOS "C" to LOS "B" for the southbound

through and right-turn movements is a result of traffic signal phase timing changes necessary because of the shift in traffic demands at the intersection. The traffic operational qualities of all movements on the eastbound approach of Hoohui Road would remain at LOS "C" during the Year 2013 projected AM peak hour of traffic while the movements on the westbound approach would worsen from LOS "C" to LOS "D." During the projected Year 2013 PM peak hours, ~~the~~ all of the traffic movements at the intersection are expected to continue operating at LOS "D" or better.

During the AM peak period, Honoapiilani Highway just south of Napilihau Street would carry 1,310 vehicles, 742 vehicles traveling northbound and 568 vehicles traveling southbound under Year 2013 conditions with the project. Traffic volumes during the PM peak hour at the same roadway section would be heavier with an anticipated total of 1,746 vehicles on the roadway, 804 vehicles traveling northbound and 942 vehicles traveling southbound for projected Year 2013 conditions with the proposed project.

b. Honoapiilani Highway and Hoohui Road

At the intersection of Honoapiilani Highway and Hoohui Road, the operational qualities of traffic movements on the northbound and southbound intersection approaches of Honoapiilani Highway would operate at LOS "C" for Year 2013 projected conditions with the project during the projected AM peak hours of traffic with the exception of the northbound and southbound right-turn movement which would operate well at LOS "B". The traffic operational qualities of all movements on both the eastbound and westbound approaches of Hoohui Road would operate at LOS "C" during both the Year 2013 projected AM peak hours of traffic. During the projected Year 2013 PM peak hours, the northbound through and left-turn movements would worsen from LOS "C" for projected Year 2008

conditions with the project to LOS "D" conditions. The southbound through movement would also worsen from LOS "C" for projected Year 2008 conditions to LOS "D" for Year 2013 projected PM peak hours of traffic with the project. All of the other movements on the northbound and southbound approaches of Honoapiilani Highway are expected to operate at LOS "C" or better during the projected PM peak hours of traffic. All of the movements on the eastbound approach of Hoohui Road are expected to worsen from LOS "C" for projected Year 2008 conditions with the project to LOS "D" during the PM peak hours of traffic for Year 2013 with the exception of the westbound right-turn movement that would continue to operate at LOS "C".

During the projected AM peak period for Year 2013 with project conditions, Honoapiilani Highway just south of Hoohui Road is expected to carry 1,732 vehicles, 837 vehicles traveling northbound and 895 vehicles traveling southbound. Traffic volumes during the projected PM peak hour at the same roadway section would be heavier with a total of 2,109 vehicles on the roadway, 1,024 vehicles traveling northbound and 1,085 vehicles traveling southbound.

c. Honoapiilani Highway and Akahahele Street

At the intersection of Honoapiilani Highway with Akahahele Street, the northbound through movement and right-turn movement on the approach of the highway would operate well at LOS "C" or better during the projected AM peak hours of traffic for Year 2013 conditions with the project. However, the northbound left-turn movement and southbound through and left-turn movements would operate at LOS "D". During the projected PM peak hours, both the northbound and southbound left-turn and through movements of the highway would operate at LOS "D" for Year 2013 conditions with the project. Likewise, during the AM and PM peak hours, all of the traffic

movements on both the westbound and eastbound approaches of Akahele Street would operate at LOS' D".

During the Year 2013 projected AM peak period, Honoapiilani Highway just south of Akahele Street would carry approximately 1,885 vehicles, 882 vehicles traveling northbound and 1,003 vehicles traveling southbound. Traffic volumes during the projected PM peak hour for Year 2013 at the same roadway section would be heavier with balanced traffic demands of 2,225 vehicles on the roadway, 1,112 vehicles traveling northbound and 1,113 vehicles traveling southbound.

5. Pedestrian Circulation

It is not anticipated that students will be walking to and from school since Maui Preparatory Academy is proposed to be located over 1,000 feet away from the intersection of Honoapiilani Highway and Napilihau Street, the closest intersection on the highway. In addition, it is anticipated that bus service may be provided if there is a demand for such a service, further reducing the probability of students walking to and from the proposed Maui Preparatory Academy. However, should there be students walking to and from the school, provisions should be provided for pedestrians crossing the highway. Currently, there are crosswalks at the intersection of Honoapiilani Highway and Napilihau Street for pedestrian movements crossing the north and east legs of the intersection. Allowable crossing times of the traffic signal system at the intersection appear to be sufficient to cross the roadways and should be maintained in the event the demand to cross the highway to and from Maui Preparatory Academy increases. Appropriate walking surfaces and/or sidewalks should be provided for a safe walking environment and include provisions necessary to comply with the Americans with Disabilities Act (ADA) requirements accessible pedestrian routes.

V. TRAFFIC IMPACT ANALYSIS

The traffic impact of the proposed Maui Preparatory Academy is generally represented by the decrease in operational levels of service of the study roadways. The generated traffic demand as a result of Maui Preparatory Academy is anticipated to originate from residential areas throughout the island. The travel patterns of these trips are expected to include sections of Honoapiilani Highway located south of the proposed project. The levels of service of the approaches at the study intersections remain relatively constant until the future years of the development plan.

The projected PM peak hours are generally worse than the projected AM peak hours of traffic. The projected through movements of the intersections which would be comprised of background traffic growth as well as project-generated trips affect the operations of other movements at the intersections. The recommendations to mitigate operational deficiencies are primarily a result of the operational characteristics of the projected PM peak hour conditions, and are included in the following section.

VI. RECOMMENDATIONS

Based upon the analysis of the traffic data, the following are the recommendations of this study separated by development milestone years of the project:

A. Year 2005 Conditions With Project

1. Maintain provisions for the pedestrian crossing of the north leg of the intersection of Honoapiilani Highway and Napilihau Street. Provide safe and accessible facilities for pedestrians that may be walking to and from the school.
2. Consider the use of school bus service to transport students to and from the school. The service will be dependent upon the need and interest in using such a service. A bus program should reduce traffic demands on the roadways. If a school bus program is incorporated in the project development plans, ensure adequate maneuvering areas and designate internal circulation routes, and boarding and alighting points on-site to maintain appropriate and efficient traffic circulation and pedestrian safety.

3. Provide two separate approach lanes on the westbound approach of Napilihau Street at the intersection of Honoapiilani Highway. The lane designations should include an exclusive left-turn lane and a shared through and right-turn lane.
4. Provide appropriate turning radii at the highway and internal roadway intersection corners to accommodate the potential movement of school buses.

B. Year 2008 Conditions With Project

1. Provide an acceleration lane on Honoapiilani Highway for the eastbound right-turn movement from the Napilihau Street eastbound approach for the southbound traffic demands.
2. *Modify the traffic signal timing at the intersection of Honoapiilani Highway and Napilihau Street to increase capacity of the intersection by providing additional green time to the northbound and southbound highway approaches. Details of the modified signal timing plan may be determined during the design stage of the project.*
3. *Modify the traffic signal timing at the intersection of Honoapiilani Highway and Akahele Street to increase capacity of the intersection. Details of the modified signal timing plan may be determined during the design stage of the project.*
4. Provide a right-turn deceleration lane on the northbound approach of Honoapiilani Highway at the intersection with Napilihau Street to maintain through traffic flow on the highway.

C. Year 2013 Conditions With Project

1. Provide an additional northbound left-turn lane on the northbound approach of Honoapiilani Highway at the intersection with Napilihau Street. The provisions of an additional lane must be included on the departure side of the intersection's west leg to accept the double left-turn lane. This lane may merge into the existing two-lane roadway of Napilihau Street. Details of this improvement should be verified during the design stages of the project.

VII. CONCLUSION

The proposed Maui Preparatory Academy is expected to impact traffic operations in the vicinity. The academy proposes a phased development plan with initial enrollment in Year 2005 of 90 students to full enrollment of 540 students in Year 2013. Much of the identified traffic operational deficiencies are a result of overall growth in the region. Under existing conditions, traffic volumes are near capacity at times with Honoapiilani Highway operating generally good throughout the rest of the day. Although the trip generating volumes of Maui Preparatory Academy are relatively low compared to the overall carrying capacity of the highway, the added traffic to the area roadway system triggers reduction in service quality. In Year 2008, additional background growth and the additional traffic as a result of the increase in enrollment result in the need for additional traffic mitigation. In Year 2013, background traffic increase even more with the addition of students at Maui Preparatory Academy to reach its targeted full enrollment plan. Nonetheless, the recommendations to mitigate potential traffic operational deficiencies on the highway and study intersections were separated for each of the development milestone years of the Maui Preparatory Academy development. These recommendations provide a basis to improve traffic flow in the immediate region to not only accommodate traffic demands as a result of the proposed Maui Preparatory Academy but also to accommodate the increase in overall growth of the area and nearby communities.

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APPENDIX A
EXISTING TRAFFIC COUNT DATA

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

Counter: D1-0525
 Counted By: GMT
 Weather: Clear

File Name : akahonp
 Site Code : 00000045
 Start Date : 03/16/2004
 Page No : 1

Start Time	Groups Printed- Unshifted																
	Honoapiilani Hwy Southbound				Akahahe St Westbound				Honoapiilani Hwy Northbound				Akahahe St Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
02:00 PM	2	0	13	15	2	2	1	5	22	0	2	24	13	1	18	32	76
02:15 PM	5	0	6	11	6	0	2	8	26	1	3	30	8	1	17	26	75
02:30 PM	2	0	19	21	6	3	7	16	23	0	9	32	10	2	17	29	98
02:45 PM	1	0	13	14	3	1	1	5	27	0	1	28	14	0	18	32	79
Total	10	0	51	61	17	6	11	34	98	1	15	114	45	4	70	119	328
03:00 PM	0	0	13	13	2	0	2	4	30	0	1	31	10	0	14	24	72
03:15 PM	1	0	14	15	4	0	0	4	23	0	0	23	13	1	29	43	85
03:30 PM	0	0	19	19	3	1	2	6	25	0	6	31	16	1	15	32	88
03:45 PM	0	0	16	16	7	1	1	9	38	0	3	41	19	0	22	41	107
Total	1	0	62	63	16	2	5	23	116	0	10	126	58	2	80	140	352
04:00 PM	1	0	20	21	1	1	2	4	31	0	3	34	18	0	25	43	102
04:15 PM	0	0	34	34	2	0	0	2	24	0	1	25	18	0	18	36	97
04:30 PM	0	0	20	20	3	0	3	6	30	0	8	38	17	0	22	39	103
04:45 PM	4	0	22	26	5	2	2	9	27	0	4	31	10	2	32	44	110
Total	5	0	96	101	11	3	7	21	112	0	16	128	63	2	97	162	412
Grand Total	16	0	209	225	44	11	23	78	326	1	41	368	166	8	247	421	1092
Approch %	7.1	0.0	92.9		56.4	14.1	29.5		88.6	0.3	11.1		39.4	1.9	58.7		
Total %	1.5	0.0	19.1	20.6	4.0	1.0	2.1	7.1	29.9	0.1	3.8	33.7	15.2	0.7	22.6	38.6	

Start Time	Groups Printed- Unshifted																	
	Honoapiilani Hwy Southbound				Akahahe St Westbound				Honoapiilani Hwy Northbound				Akahahe St Eastbound					
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total	
Peak Hour From 02:00 PM to 04:45 PM - Peak 1 of 1																		
Intersection 04:00 PM	5	0	96	101	11	3	7	21	112	0	16	128	63	2	97	162	412	
Volume	5	0	96	101	11	3	7	21	112	0	16	128	63	2	97	162	412	
Percent	5.0	0.0	95.0	26	52.4	14.3	33.3	9	87.5	0.0	12.5	31	38.9	1.2	59.9	44	110	
04:45 Volume	4	0	22	26	5	2	2	9	27	0	4	31	10	2	32	44	0.936	
Peak Factor																		
High Int. 04:15 PM	0	0	34	34	04:45 PM	5	2	2	9	04:30 PM	30	8	38	10	2	32	44	
Volume	0	0	34	34	5	2	2	9	30	0	8	38	10	2	32	44		
Peak Factor				0.743				0.583				0.842				0.920		

Counter: D1-0526/D1-0527
 Counted By: IQ/MAF
 Weather: Clear

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

File Name : honhoop
 Site Code : 00000002
 Start Date : 03/16/2004
 Page No : 1

Groups Printed: 1 - Unshifted

Start Time	Honoapiilani Hwy Southbound			Hooihui St Westbound			Honoapiilani Hwy Northbound			Hooihui St Eastbound			Int. Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
02:00 PM	3	114	16	9	9	0	43	120	3	166	25	2	34	61
02:15 PM	2	129	19	4	7	0	34	112	8	154	16	6	34	56
02:30 PM	2	118	20	2	2	3	45	122	8	175	23	1	44	68
02:45 PM	3	111	20	7	2	1	54	148	6	208	15	2	31	48
Total	10	472	75	30	20	4	176	502	25	703	79	11	143	233
03:00 PM	4	134	18	8	1	1	39	137	2	178	18	3	40	61
03:15 PM	1	142	21	11	4	0	42	147	11	200	15	0	48	63
03:30 PM	1	158	20	11	2	2	43	146	6	195	16	1	59	76
03:45 PM	3	153	24	11	5	1	53	155	7	215	20	3	37	60
Total	9	587	83	41	12	4	177	585	26	788	69	7	184	260
04:00 PM	3	176	28	1	2	1	47	147	2	196	19	4	55	78
04:15 PM	3	179	27	8	5	0	69	172	8	249	22	4	41	67
04:30 PM	4	143	23	9	4	2	56	137	8	201	22	1	52	75
04:45 PM	5	124	24	5	1	1	46	152	7	205	18	3	44	65
Total	15	622	102	23	12	4	218	608	25	851	81	12	192	285
Grand Total	34	1681	260	94	44	12	571	1695	76	2342	229	30	519	778
Approch %	1.7	85.1	13.2	62.7	29.3	8.0	24.4	72.4	3.2	29.4	29.4	3.9	66.7	14.8
Total %	0.6	32.0	5.0	1.8	0.8	0.2	10.9	32.3	1.4	44.7	4.4	0.6	9.9	

Start Time	Honoapiilani Hwy Southbound			Hooihui St Westbound			Honoapiilani Hwy Northbound			Hooihui St Eastbound			Int. Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Peak Hour From 02:00 PM to 04:45 PM - Peak 1 of 1														
Intersection 03:30 PM	10	666	99	31	14	4	212	620	23	855	77	12	192	1960
Volume	1.3	85.9	12.8	63.3	28.6	8.2	24.8	72.5	2.7	27.4	27.4	4.3	66.3	
Percent	3	179	27	8	5	0	69	172	8	249	22	4	41	538
Peak Factor														
High Int. 04:15 PM	3	179	27	03:45 PM			04:15 PM			04:00 PM				0.911
Volume				11	5	1	69	172	8	249	19	4	55	78
Peak Factor										0.858				0.901

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

File Name : honnapa
 Site Code : 00000001
 Start Date : 03/17/2004
 Page No : 1

Counter: T-1839/T-1841
 Counted By: CL/PP
 Weather: Clear

Groups Printed- Unshifted

Start Time	Honoapiilani Hwy Southbound			Napilihau St Westbound			Honoapiilani Hwy Northbound			Napilihau St Eastbound			App. Total	Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
06:30 AM	0	18	7	0	1	0	26	41	2	10	3	49	62	157
06:45 AM	0	21	4	0	0	1	30	64	3	97	0	61	72	203
Total	0	39	11	8	1	1	56	105	5	166	3	110	134	360
07:00 AM	3	24	1	1	1	0	44	53	0	97	2	93	110	237
07:15 AM	1	30	5	1	1	0	51	98	4	153	0	104	123	314
07:30 AM	0	34	4	4	0	0	51	74	0	125	0	87	97	264
07:45 AM	0	39	8	0	0	1	67	68	2	137	0	70	82	267
Total	4	127	18	6	2	1	213	293	6	512	2	354	412	1082
08:00 AM	1	26	2	2	1	1	63	71	3	137	0	65	84	254
08:15 AM	1	34	3	3	4	0	63	98	3	164	2	53	76	285
Grand Total	6	226	34	19	8	3	395	567	17	979	7	582	706	1981
Approch %	2.3	85.0	12.8	63.3	26.7	10.0	40.3	57.9	1.7	49.4	1.0	82.4	35.6	
Total %	0.3	11.4	1.7	1.0	0.4	0.2	19.9	28.6	0.9	49.4	0.4	29.4		

Start Time	Honoapiilani Hwy Southbound			Napilihau St Westbound			Honoapiilani Hwy Northbound			Napilihau St Eastbound			App. Total	Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1														
Intersection 07:15 AM	2	129	19	7	2	2	232	311	9	552	0	326	386	1099
Volume	1.3	86.0	12.7	63.6	18.2	18.2	42.0	56.3	1.6	153	0.0	84.5	123	314
Percent	1	30	5	1	1	0	51	98	4	153	0	104	123	0.875
07:15 Volume														
Peak Factor														
High Int. 07:45 AM				07:30 AM			07:15 AM			07:15 AM				
Volume	0	39	8	4	0	0	51	98	4	153	0	104	123	0.785
Peak Factor										0.688				

Wilson Okamoto Corporation

1907 S. Beretania St., #400
Honolulu, HI 96826

1 : Maui Prep
2 : SUNNY
3 : 0349

Site: 1
Date: 03/16/04

Origin	AM	SB	PM	AM	NB	PM	AM	PM	Day:	Tuesday
01:00	*		*	*		*	*	*		
01:15	*		*	*		*	*	*		
02:30	*		*	*		*	*	*		
12:45	*		*	*		*	*	*		
01:00	*		86 606	*		75 457	*	161 1,063		
01:15	*		138	*		125	*	263		
01:30	*		206	*		125	*	331		
01:45	*		176	*		132	*	308		
02:00	*		146 610	*		127 554	*	273 1,164		
02:15	*		160	*		132	*	292		
02:30	*		156	*		140	*	296		
02:45	*		148	*		155	*	303		
03:00	*		168 723	*		149 627	*	317 1,350		
03:15	*		168	*		160	*	328		
03:30	*		193	*		160	*	353		
03:45	*		194	*		158	*	352		
04:00	*		218 789	*		162 675	*	380 1,464		
04:15	*		228	*		164	*	392		
04:30	*		173	*		181	*	354		
04:45	*		170	*		168	*	338		
05:00	*		182 618	*		146 619	*	328 1,237		
05:15	*		148	*		179	*	327		
05:30	*		142	*		158	*	300		
05:45	*		146	*		136	*	282		
06:00	*		146 510	*		129 517	*	275 1,027		
06:15	*		124	*		146	*	270		
06:30	*		110	*		124	*	234		
06:45	*		130	*		118	*	248		
07:00	*		123 383	*		92 359	*	215 742		
07:15	*		111	*		97	*	208		
07:30	*		80	*		90	*	170		
07:45	*		69	*		80	*	149		
08:00	*		120 309	*		82 350	*	202 659		
08:15	*		76	*		92	*	168		
08:30	*		57	*		82	*	139		
08:45	*		56	*		94	*	150		
09:00	*		54 217	*		78 334	*	132 551		
09:15	*		57	*		82	*	139		
09:30	*		57	*		82	*	139		
09:45	*		49	*		92	*	141		
10:00	*		65 220	*		70 250	*	135 470		
10:15	*		59	*		84	*	143		
10:30	*		60	*		42	*	102		
10:45	*		36	*		54	*	90		
11:00	*		52 110	*		39 98	*	91 208		
11:15	*		24	*		18	*	42		
11:30	*		13	*		26	*	39		
11:45	*		21	*		15	*	36		
Totals	0		5,095	0		4,840	0	9,935		
%	*		51.3	*		48.7				
Totals		5,095			4,840			9,935		
by Splits		51.3			48.7					
Hour	*	03:30	*	04:00	*	03:45				
Volume	*	833	*	675	*	1,478				
Prpr	*	0.91	*	0.93	*	0.94				

Wilson Okamoto Corporation
 1907 S. Beretania St., #400
 Honolulu, HI 96826

Title1 : Maui Prep
 Title2 : SUNNY
 Title3 : 0349

Site: 1
 Date: 03/17/04

Interval Begin	SB		NB			Combined		Day: Wednesday
	AM	PM	AM	PM	AM	PM		
12:00	17	56	17	53	34	109		
12:15	23		24		47			
12:30	8		7		15			
12:45	8		5		13			
1:00	11	32	9	33	20	65		
1:15	5		5		10			
01:30	6		6		12			
01:45	10		13		23			
02:00	8	22	12	33	20	55		
02:15	7		9		16			
02:30	4		5		9			
02:45	3		7		10			
03:00	5	21	10	21	15	42		
03:15	5		0		5			
03:30	4		5		9			
03:45	7		6		13			
04:00	10	33	14	124	24	157		
04:15	4		22		26			
04:30	9		38		47			
04:45	10		50		60			
05:00	28	118	22	120	50	238		
05:15	26		30		56			
05:30	26		26		52			
05:45	38		42		80			
06:00	64	277	30	257	94	534		
06:15	47		52		99			
06:30	68		91		159			
06:45	98		84		182			
07:00	122	578	100	498	222	1,076		
07:15	181		128		309			
07:30	147		140		287			
07:45	128		130		258			
08:00	104		134		238			
08:15	102		170		272			
08:30	0		0		0			
08:45								
09:00								
09:15								
09:30								
09:45								
10:00								
10:15								
10:30								
10:45								
11:00								
11:15								
11:30								
11:45								
Totals	1,343	0	1,443	0	2,786	0		
%	48.2	0	51.8	0				
Day Totals		1,343		1,443		2,786		
Day Splits		48.2		51.8				
Hour	07:00		07:30		07:15			
Volume	578		574		1,092			
Factor	0.80		0.84		0.88			

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APPENDIX B
LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically a 15-min analysis period. The criteria are given in the following table.

Table 1: Level-of-Service Criteria for Signalized Intersections

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

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

Level of Service A describes operations with low control delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with control delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 sec per vehicle. At level of service D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operation with control delay greater than 55 and up to 80 sec per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

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APPENDIX C
CAPACITY ANALYSIS CALCULATIONS
EXISTING PEAK HOUR TRAFFIC ANALYSIS

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT Inter.:
 Agency: Area Type: All other areas
 Date: 04/01/04 Jurisd:
 Period: AM PEAK Year : Existing
 Project ID:
 E/W St: Napilihau Street N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	1
LGConfig		LT	R		LTR		L	TR		L	T	R
Volume	60	0	326	7	2	2	232	311	9	2	129	19
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vol			163			0			1			2

Duration	1.00	Area Type: All other areas							
Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left	A				NB Left	A			
Thru	A				Thru		A		
Right	A				Right		A		
Peds					Peds				
WB Left	A				SB Left	A			
Thru	A				Thru		A		
Right	A				Right		A		
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	24.0				24.0	27.0			
Yellow	4.0				4.0	4.0			
All Red	1.0				1.0	1.0			
Cycle Length: 90.0 secs									

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group	Approach	
			v/c	g/C	Delay	LOS	Delay
							LOS
Eastbound							
LT	365	1367	0.21	0.27	25.9	C	28.0 C
R	422	1583	0.49	0.27	28.7	C	
Westbound							
LTR	426	1598	0.04	0.27	24.5	C	24.5 C
Northbound							
L	522	1956	0.49	0.27	28.5	C	
TR	515	2051	0.57	0.30	27.9	C	28.2 C
Southbound							
L	522	1956	0.00	0.27	24.2	C	
T	518	2059	0.26	0.30	24.1	C	23.9 C
R	525	1750	0.04	0.30	22.3	C	
Intersection Delay = 27.3 (sec/veh) Intersection LOS = C							

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/01/04
 Period: PM PEAK
 Project ID:
 E/W St: Napilihau Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	1
LGConfig		LT	R		LTR		L	TR		L	T	R
Volume	74	4	368	22	17	4	390	306	6	2	407	83
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vol			184			0			1			8

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	18.0					26.0	31.0	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	1.0	

Cycle Length: 90.0 secs

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/c	Delay	LOS	Delay	LOS
Eastbound								
LT	242	1208	0.35	0.20	31.9	C	35.7	D
R	317	1583	0.64	0.20	37.3	D		
Westbound								
LTR	273	1366	0.47	0.20	33.0	C	33.0	C
Northbound								
L	565	1956	0.74	0.29	34.4	C		
TR	707	2054	0.47	0.34	23.6	C	29.6	C
Southbound								
L	565	1956	0.01	0.29	22.8	C		
T	709	2059	0.81	0.34	34.1	C	32.0	C
R	603	1750	0.18	0.34	20.7	C		
Intersection Delay = 31.7 (sec/veh)					Intersection LOS = C			

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 03/31/04
 Period: AM PEAK
 Project ID:
 E/W St: Hoohui Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	1	1	1	1	1
LGConfig		LT	R		LT	R	L	T	R	L	T	R
Volume	85	7	197	62	17	8	146	464	22	4	465	70
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			99			1			2			7

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	22.5				21.0	31.5		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	248	991	0.42	0.25	29.4	C	28.5	C
R	396	1583	0.28	0.25	27.6	C		
Westbound								
LT	291	1163	0.46	0.25	29.8	C	29.4	C
R	396	1583	0.03	0.25	25.5	C		
Northbound								
L	456	1956	0.36	0.23	29.4	C		
T	721	2059	0.72	0.35	29.1	C	28.9	C
R	612	1750	0.04	0.35	19.3	B		
Southbound								
L	456	1956	0.01	0.23	26.5	C		
T	721	2059	0.67	0.35	27.3	C	26.4	C
R	612	1750	0.11	0.35	19.8	B		

Intersection Delay = 28.0 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 03/31/04
 Period: PM PEAK
 Project ID:
 E/W St: Hoohui Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	1	1	1	1	1
LGConfig		LT	R		LT	R	L	T	R	L	T	R
Volume	77	12	192	31	14	4	212	620	23	10	666	99
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			96			0			2			10

Duration	1.00	Area Type: All other areas							
Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left	A				NB Left	A			
Thru	A				Thru		A		
Right	A				Right		A		
Peds					Peds				
WB Left	A				SB Left	A			
Thru	A				Thru		A		
Right	A				Right		A		
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	17.5				20.0	37.5			
Yellow	4.0				4.0	4.0			
All Red	1.0				1.0	1.0			
Cycle Length: 90.0 secs									

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	251	1293	0.39	0.19	32.6	C	32.3	C
R	308	1583	0.34	0.19	31.9	C		
Westbound								
LT	269	1385	0.23	0.19	31.0	C	30.9	C
R	308	1583	0.02	0.19	29.3	C		
Northbound								
L	435	1956	0.57	0.22	32.9	C		
T	858	2059	0.84	0.42	31.6	C	31.6	C
R	729	1750	0.03	0.42	15.5	B		
Southbound								
L	435	1956	0.03	0.22	27.4	C		
T	858	2059	0.83	0.42	31.1	C	29.3	C
R	729	1750	0.13	0.42	16.3	B		
Intersection Delay = 30.7 (sec/veh)					Intersection LOS = C			

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency: Inter.:
 Date: 03/31/04 Area Type: All other areas
 Period: AM PEAK Jurisd:
 Project ID: Year : Existing
 E/W St: Akahahele Street N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	0	1	1	1	1	1	1
LGConfig	L	T	R	L	TR		L	T	R	L	T	R
Volume	57	4	116	8	4	10	79	565	22	12	668	44
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			58			1			2			4

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	14.5	15.0			14.0	56.5		
Yellow	4.0	4.0			4.0	4.0		
All Red	1.0	1.0			1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	214	1770	0.36	0.12	49.5	D		
T	233	1863	0.02	0.13	46.1	D	49.4	D
R	198	1583	0.39	0.13	49.6	D		
Westbound								
L	214	1770	0.06	0.12	46.8	D		
TR	209	1672	0.09	0.13	46.7	D	46.7	D
Northbound								
L	228	1956	0.39	0.12	50.1	D		
T	969	2059	0.65	0.47	25.7	C	28.4	C
R	824	1750	0.03	0.47	17.0	B		
Southbound								
L	228	1956	0.07	0.12	47.3	D		
T	969	2059	0.93	0.47	49.5	D	47.7	D
R	824	1750	0.07	0.47	17.4	B		

Intersection Delay = 40.3 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT Inter.:
 Agency: Area Type: All other areas
 Date: 03/31/04 Jurisd:
 Period: PM PEAK Year : Existing
 Project ID:
 E/W St: Akahahele Street N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	0	1	1	1	1	1	1
LGConfig	L	T	R	L	TR		L	T	R	L	T	R
Volume	71	1	80	13	3	5	118	779	13	1	799	89
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			40			1			1			9

Duration	Area Type: All other areas							
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru		A			Thru		A	
Right			A		Right			A
Peds					Peds			
WB Left		A			SB Left	A		
Thru			A		Thru		A	
Right				A	Right			A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		14.0	14.5			16.5	55.0	
Yellow		4.0	4.0			4.0	4.0	
All Red		1.0	1.0			1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	207	1770	0.39	0.12	50.2	D		
T	225	1863	0.00	0.12	46.4	D	49.5	D
R	191	1583	0.24	0.12	48.4	D		
Westbound								
L	207	1770	0.11	0.12	47.6	D		
TR	205	1700	0.06	0.12	46.8	D	47.3	D
Northbound								
L	269	1956	0.49	0.14	49.3	D		
T	944	2059	0.93	0.46	49.4	D	49.0	D
R	802	1750	0.02	0.46	17.7	B		
Southbound								
L	269	1956	0.00	0.14	44.7	D		
T	944	2059	0.88	0.46	40.5	D	38.5	D
R	802	1750	0.10	0.46	18.5	B		

Intersection Delay = 44.4 (sec/veh) Intersection LOS = D

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APPENDIX D

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2005 PEAK HOUR TRAFFIC
ANALYSIS WITHOUT PROJECT**

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: AM PEAK
 Project ID:
 E/W St: Napilihau Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2005 Without Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	1
LGConfig	LT R			LTR			L TR			L T R		
Volume	60	0	326	7	2	2	232	320	9	2	133	19
Lane Width	12.0 12.0			12.0			12.0 12.0			12.0 12.0 12.0		
RTOR Vol	163			0			1			2		

Duration	1.00	Area Type	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	24.0				24.0	27.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group Delay LOS	Approach Delay LOS
			v/c	g/C		
Eastbound						
LT	365	1367	0.21	0.27	25.9 C	28.0 C
R	422	1583	0.49	0.27	28.7 C	
Westbound						
LTR	426	1598	0.04	0.27	24.5 C	24.5 C
Northbound						
L	522	1956	0.49	0.27	28.5 C	
TR	615	2051	0.59	0.30	28.2 C	28.4 C
Southbound						
L	522	1956	0.00	0.27	24.2 C	
T	618	2059	0.27	0.30	24.2 C	24.0 C
R	525	1750	0.04	0.30	22.3 C	

Intersection Delay = 27.5 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: PM PEAK
 Project ID:
 E/W St: Napilihau Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2005 Without Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	1
LGConfig		LT	R		LTR		L	TR		L	T	R
Volume	74	4	368	22	17	4	390	314	6	2	418	83
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vol			184			0			1			8

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	18.5				25.5	31.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	249	1210	0.34	0.21	31.4	C	34.8	C
R	325	1583	0.62	0.21	36.3	D		
Westbound								
LTR	285	1388	0.45	0.21	32.4	C	32.4	C
Northbound								
L	554	1956	0.76	0.28	35.6	D		
TR	707	2054	0.49	0.34	23.7	C	30.3	C
Southbound								
L	554	1956	0.01	0.28	23.2	C		
T	709	2059	0.83	0.34	36.0	D	33.6	C
R	603	1750	0.18	0.34	20.7	C		

Intersection Delay = 32.4 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: AM PEAK
 Project ID:
 E/W St: Hoohui Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2005 Without Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	1	1	1	1	1
LGConfig		LT	R		LT	R	L	T	R	L	T	R
Volume	85	7	197	62	17	8	146	477	22	4	478	70
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			99			1			2			7

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	22.5				20.5	32.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	248	991	0.42	0.25	29.4	C	28.5	C
R	396	1583	0.28	0.25	27.6	C		
Westbound								
LT	291	1163	0.46	0.25	29.8	C	29.4	C
R	396	1583	0.03	0.25	25.5	C		
Northbound								
L	446	1956	0.37	0.23	29.8	C		
T	732	2059	0.73	0.36	29.2	C	29.0	C
R	622	1750	0.04	0.36	19.0	B		
Southbound								
L	446	1956	0.01	0.23	26.9	C		
T	732	2059	0.68	0.36	27.3	C	26.4	C
R	622	1750	0.11	0.36	19.5	B		
Intersection Delay = 28.1 (sec/veh) Intersection LOS = C								

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT Inter.:
 Agency: Area Type: All other areas
 Date: 04/13/04 Jurisd:
 Period: PM PEAK Year : Year 2005 Without Project
 Project ID:
 E/W St: Hoohui Road N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	1	1	1	1	1
LGConfig	LT R			LT R			L	T	R	L	T	R
Volume	77	12	192	31	14	4	212	637	23	10	684	99
Lane Width	12.0 12.0			12.0 12.0			12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol	96			0			2			10		

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	17.0				20.0	38.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		
Cycle Length: 90.0 secs								

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	243	1289	0.40	0.19	33.1	C	32.8	C
R	299	1583	0.35	0.19	32.4	C		
Westbound								
LT	257	1359	0.24	0.19	31.5	C	31.3	C
R	299	1583	0.02	0.19	29.7	C		
Northbound								
L	435	1956	0.57	0.22	32.9	C		
T	869	2059	0.85	0.42	32.4	C	32.1	C
R	739	1750	0.03	0.42	15.2	B		
Southbound								
L	435	1956	0.03	0.22	27.4	C		
T	869	2059	0.85	0.42	31.7	C	29.9	C
R	739	1750	0.13	0.42	16.0	B		
Intersection Delay = 31.3 (sec/veh)					Intersection LOS = C			

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: AM PEAK
 Project ID:
 E/W St: Akahela Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2005 Without Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	0	1	1	1	1	1	1
LGConfig	L	T	R	L	TR		L	T	R	L	T	R
Volume	57	4	116	8	4	10	179	581	22	12	686	44
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			58			1			2			4

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		14.0	14.0			14.5	57.5	
Yellow		4.0	4.0			4.0	4.0	
All Red		1.0	1.0			1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	207	1770	0.37	0.12	50.0	D		
T	217	1863	0.02	0.12	47.0	D	50.3	D
R	185	1583	0.42	0.12	50.7	D		
Westbound								
L	207	1770	0.06	0.12	47.3	D		
TR	195	1672	0.10	0.12	47.6	D	47.4	D
Northbound								
L	236	1956	0.37	0.12	49.6	D		
T	987	2059	0.65	0.48	25.3	C	27.9	C
R	839	1750	0.03	0.48	16.5	B		
Southbound								
L	236	1956	0.07	0.12	46.9	D		
T	987	2059	0.94	0.48	50.9	D	49.0	D
R	839	1750	0.06	0.48	16.8	B		

Intersection Delay = 40.9 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: PM PEAK
 Project ID:
 E/W St: Akahahele Street
 Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2005 Without Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	0	1	1	1	1	1	1
LGConfig	L	T	R	L	TR		L	T	R	L	T	R
Volume	71	1	80	13	3	5	118	801	13	1	821	89
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			40			1			1			9

Duration	1.00	Area Type: All other areas							
Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left	A				NB Left	A			
Thru		A			Thru		A		
Right			A		Right			A	
Peds					Peds				
WB Left		A			SB Left	A			
Thru			A		Thru		A		
Right				A	Right			A	
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green		14.0	13.5			16.5	56.0		
Yellow		4.0	4.0			4.0	4.0		
All Red		1.0	1.0			1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	207	1770	0.39	0.12	50.2	D		
T	210	1863	0.00	0.11	47.3	D	49.9	D
R	178	1583	0.25	0.11	49.4	D		
Westbound								
L	207	1770	0.11	0.12	47.6	D		
TR	191	1700	0.06	0.11	47.7	D	47.7	D
Northbound								
L	269	1956	0.49	0.14	49.3	D		
T	961	2059	0.94	0.47	51.3	D	50.7	D
R	817	1750	0.02	0.47	17.2	B		
Southbound								
L	269	1956	0.00	0.14	44.7	D		
T	961	2059	0.89	0.47	41.0	D	39.0	D
R	817	1750	0.10	0.47	18.0	B		

Intersection Delay = 45.4 (sec/veh) Intersection LOS = D

APPENDIX E

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2005 PEAK HOUR TRAFFIC
ANALYSIS WITH PROJECT**

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: AM PEAK
 Project ID:
 E/W St: Napilihau Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2005 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	1
LGConfig		LT	R		LTR		L	TR		L	T	R
Volume	60	4	326	31	5	8	232	320	47	10	133	19
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vol			163			1			5			2

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	23.0				24.0	28.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		
Cycle Length: 90.0 secs								

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	339	1326	0.24	0.26	26.9	C	28.9	C
R	405	1583	0.51	0.26	29.7	C		
Westbound								
LTR	364	1424	0.17	0.26	26.3	C	26.3	C
Northbound								
L	522	1956	0.49	0.27	28.5	C		
TR	629	2023	0.63	0.31	28.7	C	28.6	C
Southbound								
L	522	1956	0.02	0.27	24.4	C		
T	641	2059	0.26	0.31	23.4	C	23.3	C
R	544	1750	0.04	0.31	21.6	C		
Intersection Delay = 27.7 (sec/veh)					Intersection LOS = C			

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: PM PEAK
 Project ID:
 E/W St: Napilihau Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2005 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	1
LGConfig		LT	R		LTR		L	TR		L	T	R
Volume	74	6	368	28	21	5	390	314	10	3	418	83
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vol			184			1			1			8

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	18.5				25.5	31.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	240	1169	0.37	0.21	31.7	C	34.9	C
R	325	1583	0.62	0.21	36.3	D		
Westbound								
LTR	265	1291	0.59	0.21	35.8	D	35.8	D
Northbound								
L	554	1956	0.76	0.28	35.6	D		
TR	706	2050	0.49	0.34	23.8	C	30.3	C
Southbound								
L	554	1956	0.01	0.28	23.2	C		
T	709	2059	0.83	0.34	36.0	D	33.6	C
R	603	1750	0.18	0.34	20.7	C		
Intersection Delay = 32.6 (sec/veh)					Intersection LOS = C			

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: AM PEAK
 Project ID:
 E/W St: Hoohui Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2005 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	1	1	1	1	1
LGConfig		LT	R		LT	R	L	T	R	L	T	R
Volume	90	7	197	62	17	9	146	509	22	5	498	73
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			99			1			2			7

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	22.0					20.5	32.5	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	1.0	

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	239	976	0.46	0.24	30.3	C	29.2	C
R	387	1583	0.28	0.24	28.0	C		
Westbound								
LT	277	1135	0.48	0.24	30.5	C	30.0	C
R	387	1583	0.04	0.24	26.0	C		
Northbound								
L	446	1956	0.37	0.23	29.8	C		
T	744	2059	0.77	0.36	30.5	C	30.0	C
R	632	1750	0.03	0.36	18.6	B		
Southbound								
L	446	1956	0.01	0.23	26.9	C		
T	744	2059	0.70	0.36	27.5	C	26.5	C
R	632	1750	0.11	0.36	19.2	B		

Intersection Delay = 28.7 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: PM PEAK
 Project ID:
 E/W St: Hooehui Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2005 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY												
	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	1	1	1	1	1
LGConfig		LT	R		LT	R	L	T	R	L	T	R
Volume	78	12	192	31	14	4	212	640	23	10	689	100
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			96			0			2			10

Duration	1.00	Area Type: All other areas							
		Signal Operations							
Phase Combination	1	2	3	4	5	6	7	8	
EB Left		A			NB Left	A			
Thru		A			Thru		A		
Right		A			Right		A		
Peds					Peds				
WB Left		A			SB Left	A			
Thru		A			Thru		A		
Right		A			Right		A		
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green		17.0				20.0	38.0		
Yellow		4.0				4.0	4.0		
All Red		1.0				1.0	1.0		
Cycle Length: 90.0 secs									

Intersection Performance Summary								
Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	243	1289	0.41	0.19	33.2	C	32.8	C
R	299	1583	0.35	0.19	32.4	C		
Westbound								
LT	256	1353	0.24	0.19	31.5	C	31.4	C
R	299	1583	0.02	0.19	29.7	C		
Northbound								
L	435	1956	0.57	0.22	32.9	C		
T	869	2059	0.86	0.42	32.8	C	32.4	C
R	739	1750	0.03	0.42	15.2	B		
Southbound								
L	435	1956	0.03	0.22	27.4	C		
T	869	2059	0.85	0.42	32.4	C	30.5	C
R	739	1750	0.13	0.42	16.0	B		
Intersection Delay = 31.6 (sec/veh) Intersection LOS = C								

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: AM PEAK
 Project ID:
 E/W St: Akahele Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2005 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	0	1	1	1	1	1	1
LGConfig	L	T	R	L	TR		L	T	R	L	T	R
Volume	60	4	116	8	4	12	179	608	22	13	704	45
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			58			1			2			5

Duration	1.00	Area Type: All other areas									
Signal Operations											
Phase Combination	1	2	3	4	5	6	7	8			
EB Left		A			NB Left	A					
Thru			A		Thru		A				
Right			A		Right		A				
Peds					Peds						
WB Left		A			SB Left	A					
Thru			A		Thru		A				
Right			A		Right		A				
Peds					Peds						
NB Right					EB Right						
SB Right					WB Right						
Green		14.0	14.0			13.0	59.0				
Yellow		4.0	4.0			4.0	4.0				
All Red		1.0	1.0			1.0	1.0				

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/c	Delay	LOS	Delay	LOS
Eastbound								
L	207	1770	0.39	0.12	50.2	D		
T	217	1863	0.02	0.12	47.0	D	50.4	D
R	185	1583	0.42	0.12	50.7	D		
Westbound								
L	207	1770	0.06	0.12	47.3	D		
TR	194	1660	0.11	0.12	47.7	D	47.5	D
Northbound								
L	212	1956	0.42	0.11	51.3	D		
T	1012	2059	0.67	0.49	24.8	C	27.5	C
R	860	1750	0.03	0.49	15.7	B		
Southbound								
L	212	1956	0.08	0.11	48.3	D		
T	1012	2059	0.94	0.49	49.9	D	48.0	D
R	860	1750	0.06	0.49	16.0	B		

Intersection Delay = 40.2 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: PM PEAK
 Project ID:
 E/W St: Akahele Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2005 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	0	1	1	1	1	1	1
LGConfig	L	T	R	L	TR		L	T	R	L	T	R
Volume	171	1	80	13	3	5	118	804	13	1	825	90
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			40			1			1			9

Duration	1.00	Area Type: All other areas									
Signal Operations											
Phase Combination	1	2	3	4	5	6	7	8			
EB Left		A			NB Left	A					
Thru			A		Thru		A				
Right			A		Right		A				
Peds					Peds						
WB Left		A			SB Left	A					
Thru			A		Thru		A				
Right			A		Right		A				
Peds					Peds						
NB Right					EB Right						
SB Right					WB Right						
Green		14.0	13.0			16.5	56.5				
Yellow		4.0	4.0			4.0	4.0				
All Red		1.0	1.0			1.0	1.0				

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	207	1770	0.39	0.12	50.2	D		
T	202	1863	0.00	0.11	47.7	D	50.1	D
R	171	1583	0.26	0.11	49.9	D		
Westbound								
L	207	1770	0.11	0.12	47.6	D		
TR	184	1700	0.07	0.11	48.2	D	47.8	D
Northbound								
L	269	1956	0.49	0.14	49.3	D		
T	969	2059	0.93	0.47	49.5	D	49.1	D
R	824	1750	0.02	0.47	16.9	B		
Southbound								
L	269	1956	0.00	0.14	44.7	D		
T	969	2059	0.89	0.47	40.1	D	38.2	D
R	824	1750	0.10	0.47	17.7	B		

Intersection Delay = 44.3 (sec/veh) Intersection LOS = D

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APPENDIX F

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2008 PEAK HOUR TRAFFIC
ANALYSIS WITH PROJECT**

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: AM PEAK
 Project ID:
 E/W St: Napilihau Street
 Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2008 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	1
LGConfig		LT	R		LTR		L	TR		L	T	R
Volume	60	9	326	60	9	15	232	344	82	20	143	19
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vol			163			2			8			2

Duration		1.00		Area Type: All other areas													
Signal Operations		1		2		3		4		5		6		7		8	
EB	Left		A							NB	Left	A					
	Thru		A								Thru		A				
	Right		A								Right		A				
	Peds										Peds						
WB	Left		A							SB	Left	A					
	Thru		A								Thru		A				
	Right		A								Right		A				
	Peds										Peds						
NB	Right									EB	Right						
SB	Right									WB	Right						
Green			23.0									22.0	30.0				
Yellow			4.0									4.0	4.0				
All Red			1.0									1.0	1.0				

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	342	1338	0.25	0.26	27.1	C	28.9	C
R	405	1583	0.51	0.26	29.7	C		
Westbound								
LTR	330	1292	0.36	0.26	28.1	C	28.1	C
Northbound								
L	478	1956	0.53	0.24	30.7	C		
TR	668	2004	0.69	0.33	29.0	C	29.6	C
Southbound								
L	478	1956	0.05	0.24	26.1	C		
T	686	2059	0.26	0.33	22.1	C	22.4	C
R	583	1750	0.04	0.33	20.3	C		

Intersection Delay = 28.1 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: PM PEAK
 Project ID:
 E/W St: Napilihau Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2008 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	1
LGConfig	LT R			LTR			L TR			L T R		
Volume	74	8	368	35	27	6	390	339	14	5	450	83
Lane Width	12.0 12.0			12.0			12.0 12.0			12.0 12.0 12.0		
RTOR Vol	184			1			1			8		

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	18.0				25.0 32.0			
Yellow	4.0				4.0 4.0			
All Red	1.0				1.0 1.0			
Cycle Length: 90.0 secs								

Intersection Performance Summary

Appr/Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	244	1219	0.37	0.20	32.0	C	35.7	D
R	317	1583	0.64	0.20	37.3	D		
Westbound								
LTR	261	1304	0.51	0.20	33.8	C	33.8	C
Northbound								
L	543	1956	0.77	0.28	37.0	D		
TR	728	2047	0.52	0.36	23.6	C	30.6	C
Southbound								
L	543	1956	0.01	0.28	23.6	C		
T	732	2059	0.87	0.36	39.0	D	36.2	D
R	622	1750	0.17	0.36	20.0+	C		
Intersection Delay = 33.7 (sec/veh) Intersection LOS = C								

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: AM PEAK
 Project ID:
 E/W St: Hoohui Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2008 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	1	1	1	1	1
LGConfig	LT R			LT R			L	T	R	L	T	R
Volume	97	7	197	62	17	9	146	582	22	5	560	76
Lane Width	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol	99			1			2			8		

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	21.5				18.5		35.0	
Yellow	4.0				4.0		4.0	
All Red	1.0				1.0		1.0	

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	230	964	0.51	0.24	31.6	C	30.1	C
R	378	1583	0.29	0.24	28.4	C		
Westbound								
LT	261	1092	0.51	0.24	31.5	C	31.0	C
R	378	1583	0.04	0.24	26.3	C		
Northbound								
L	402	1956	0.41	0.21	31.7	C		
T	801	2059	0.82	0.39	31.6	C	31.2	C
R	681	1750	0.03	0.39	17.0	B		
Southbound								
L	402	1956	0.01	0.21	28.5	C		
T	801	2059	0.73	0.39	26.9	C	25.9	C
R	681	1750	0.10	0.39	17.6	B		

Intersection Delay = 29.2 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: PM PEAK
 Project ID:
 E/W St: Hoohui Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2008 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	1	1	1	1	1
LGConfig		LT	R		LT	R	L	T	R	L	T	R
Volume	78	12	192	31	14	4	212	693	23	10	748	101
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			96			0			2			10

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	16.0				19.0	40.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	228	1280	0.43	0.18	34.3	C	33.8	C
R	281	1583	0.37	0.18	33.4	C		
Westbound								
LT	230	1294	0.27	0.18	32.5	C	32.4	C
R	281	1583	0.02	0.18	30.5	C		
Northbound								
L	413	1956	0.60	0.21	34.5	C		
T	915	2059	0.88	0.44	34.1	C	33.7	C
R	778	1750	0.03	0.44	14.1	B		
Southbound								
L	413	1956	0.03	0.21	28.2	C		
T	915	2059	0.88	0.44	33.8	C	31.7	C
R	778	1750	0.13	0.44	14.8	B		

Intersection Delay = 32.9 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: AM PEAK
 Project ID:
 E/W St: Akahela Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2008 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	0	1	1	1	1	1	1
LGConfig	L	T	R	L	TR		L	T	R	L	T	R
Volume	64	4	116	8	4	12	179	687	22	13	782	47
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			58			1			2			5

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left	A							
Thru		A						
Right		A						
Peds								
WB Left	A							
Thru		A						
Right		A						
Peds								
NB Right								
SB Right								
Green	14.0	15.0						
Yellow	4.0	4.0			16.0	55.0		
All Red	1.0	1.0			4.0	4.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group	Approach	
			v/c	g/C		Delay	LOS
Eastbound							
L	207	1770	0.34	0.12	49.8	D	
T	233	1863	0.02	0.13	46.1	D	49.2 D
R	198	1583	0.32	0.13	48.8	D	
Westbound							
L	207	1770	0.04	0.12	47.1	D	
TR	207	1653	0.08	0.13	46.5	D	46.8 D
Northbound							
L	261	1956	0.34	0.13	48.0	D	
T	944	2059	0.81	0.46	33.5	C	34.6 C
R	802	1750	0.03	0.46	17.8	B	
Southbound							
L	261	1956	0.05	0.13	45.5	D	
T	944	2059	0.92	0.46	47.7	D	46.2 D
R	802	1750	0.06	0.46	18.1	B	

Intersection Delay = 41.3 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: PM PEAK
 Project ID:
 E/W St: Akahahele Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2008 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	0	1	1	1	1	1	1
LGConfig	L	T	R	L	TR		L	T	R	L	T	R
Volume	72	1	80	13	3	5	118	868	13	1	894	90
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			40			1			1			9

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	13.0	12.0			15.5	59.5		
Yellow	4.0	4.0			4.0	4.0		
All Red	1.0	1.0			1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	192	1770	0.42	0.11	51.4	D		
T	186	1863	0.01	0.10	48.6	D	51.2	D
R	158	1583	0.28	0.10	51.0	D		
Westbound								
L	192	1770	0.07	0.11	48.2	D		
TR	170	1703	0.04	0.10	48.9	D	48.5	D
Northbound								
L	253	1956	0.52	0.13	50.7	D		
T	1021	2059	0.94	0.50	51.0	D	50.5	D
R	868	1750	0.01	0.50	15.4	B		
Southbound								
L	253	1956	0.00	0.13	45.5	D		
T	1021	2059	0.91	0.50	42.3	D	40.1	D
R	868	1750	0.10	0.50	16.1	B		

Intersection Delay = 45.9 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: AM PEAK
 Project ID:
 E/W St: Napilihau Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2013 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	1
LGConfig		LT	R		LTR		L		TR	L	T	R
Volume	60	25	326	156	19	35	232	381	233	51	158	19
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vol			163			4			23			2

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	26.0					15.5	33.5	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	1.0	

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	386	1337	0.28	0.29	25.2	C	26.3	C
R	457	1583	0.45	0.29	26.9	C		
Westbound								
LTR	340	1176	0.81	0.29	44.4	D	44.4	D
Northbound								
L	337	1956	0.76	0.17	45.5	D		
TR	725	1949	0.90	0.37	43.2	D	43.8	D
Southbound								
L	337	1956	0.19	0.17	32.2	C		
T	766	2059	0.26	0.37	19.8	B	22.5	C
R	651	1750	0.03	0.37	18.0	B		

Intersection Delay = 37.4 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT Inter.:
 Agency: Area Type: All other areas
 Date: 04/13/04 Jurisd:
 Period: PM PEAK Year : Year 2013 With Project
 Project ID:
 E/W St: Napilihau Street N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	1	0	1	1	1
LGConfig	LT R			LTR			L TR			L T R		
Volume	74	23	368	75	57	14	390	375	39	13	499	83
Lane Width	12.0 12.0			12.0			12.0 12.0			12.0 12.0 12.0		
RTOR Vol	184			1			4			8		

Duration	1.00	Area Type: All other areas							
Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left	A				NB Left	A			
Thru	A				Thru	A			
Right	A				Right	A			
Peds					Peds				
WB Left	A				SB Left	A			
Thru	A				Thru	A			
Right	A				Right	A			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	19.0				22.5	33.5			
Yellow	4.0				4.0	4.0			
All Red	1.0				1.0	1.0			
Cycle Length: 90.0 secs									

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	252	1192	0.42	0.21	31.9	C	34.1	C
R	334	1583	0.60	0.21	35.3	D		
Westbound								
LTR	255	1206	0.76	0.21	46.6	D	46.6	D
Northbound								
L	489	1956	0.86	0.25	48.3	D		
TR	756	2032	0.58	0.37	23.8	C	35.8	D
Southbound								
L	489	1956	0.04	0.25	25.6	C		
T	766	2059	0.92	0.37	47.1	D	43.0	D
R	651	1750	0.16	0.37	19.0	B		
Intersection Delay = 39.2 (sec/veh)					Intersection LOS = D			

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: AM PEAK
 Project ID:
 E/W St: Hoohui Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2013 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	1	1	1	1	1
LGConfig		LT	R		LT	R	L	T	R	L	T	R
Volume	102	7	197	62	17	10	146	669	22	6	636	79
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			99			1			2			8

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	21.0				16.0	38.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	222	953	0.55	0.23	33.4	C	31.3	C
R	369	1583	0.30	0.23	28.9	C		
Westbound								
LT	247	1058	0.54	0.23	32.8	C	32.1	C
R	369	1583	0.04	0.23	26.7	C		
Northbound								
L	348	1956	0.47	0.18	34.2	C		
T	869	2059	0.87	0.42	33.8	C	33.4	C
R	739	1750	0.03	0.42	15.2	B		
Southbound								
L	348	1956	0.02	0.18	30.5	C		
T	869	2059	0.76	0.42	26.3	C	25.3	C
R	739	1750	0.10	0.42	15.7	B		

Intersection Delay = 30.2 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: PM PEAK
 Project ID:
 E/W St: Hoohui Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2013 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	1	1	1	1	1
LGConfig		LT	R		LT	R	L	T	R	L	T	R
Volume	81	12	192	31	14	4	212	789	23	10	862	106
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			96			0			2			11

Duration	1.00	Area Type: All other areas									
Signal Operations											
Phase Combination	1	2	3	4	5	6	7	8			
EB Left	A				NB Left	A					
Thru	A				Thru		A				
Right	A				Right		A				
Peds					Peds						
WB Left	A				SB Left	A					
Thru	A				Thru		A				
Right	A				Right		A				
Peds					Peds						
NB Right					EB Right						
SB Right					WB Right						
Green	14.0				17.0	44.0					
Yellow	4.0				4.0	4.0					
All Red	1.0				1.0	1.0					
Cycle Length: 90.0 secs											

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group	Approach	
			v/c	g/C	Delay LOS	Delay LOS	
Eastbound							
LT	196	1257	0.52	0.16	37.4	D	36.5 D
R	246	1583	0.43	0.16	35.6	D	
Westbound							
LT	176	1131	0.35	0.16	35.1	D	34.9 C
R	246	1583	0.02	0.16	32.2	C	
Northbound							
L	369	1956	0.67	0.19	38.6	D	
T	1007	2059	0.91	0.49	35.6	D	35.7 D
R	856	1750	0.03	0.49	11.9	B	
Southbound							
L	369	1956	0.03	0.19	29.8	C	
T	1007	2059	0.92	0.49	37.7	D	35.1 D
R	856	1750	0.12	0.49	12.5	B	
Intersection Delay = 35.5 (sec/veh) Intersection LOS = D							

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: AM PEAK
 Project ID:
 E/W St: Akahahele Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2013 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	0	1	1	1	1	1	1
LGConfig	L	T	R	L	TR		L	T	R	L	T	R
Volume	67	4	116	8	4	12	79	781	22	13	879	48
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			58			1			2			5

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		13.0	13.0			14.0	60.0	
Yellow		4.0	4.0			4.0	4.0	
All Red		1.0	1.0			1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	192	1770	0.39	0.11	51.1	D		
T	202	1863	0.02	0.11	47.8	D	51.0	D
R	171	1583	0.37	0.11	51.1	D		
Westbound								
L	192	1770	0.05	0.11	48.0	D		
TR	179	1653	0.09	0.11	48.4	D	48.3	D
Northbound								
L	228	1956	0.39	0.12	50.1	D		
T	1030	2059	0.84	0.50	32.8	C	34.0	C
R	875	1750	0.03	0.50	15.2	B		
Southbound								
L	228	1956	0.06	0.12	47.3	D		
T	1030	2059	0.95	0.50	52.1	D	50.4	D
R	875	1750	0.05	0.50	15.4	B		

Intersection Delay = 43.1 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1d

Analyst: GMT
 Agency:
 Date: 04/13/04
 Period: PM PEAK
 Project ID:
 E/W St: Akahela Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2013 With Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	0	1	1	1	1	1	1
LGConfig	L	T	R	L	TR		L	T	R	L	T	R
Volume	73	1	80	13	3	5	118	981	13	1	1020	94
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			40			1			1			9

Area Type: All other areas
Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					A			
Thru	A							
Right		A						
Peds		A						
WB Left	A							
Thru								
Right		A						
Peds		A						
NB Right								
SB Right								
Green		11.0	9.0		14.0	66.0		
Yellow		4.0	4.0		4.0	4.0		
All Red		1.0	1.0		1.0	1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	162	1770	0.50	0.09	54.3	D		
T	140	1863	0.01	0.08	51.4	D	54.4	D
R	119	1583	0.37	0.08	54.8	D		
Westbound								
L	162	1770	0.09	0.09	50.1	D		
TR	128	1703	0.05	0.08	51.7	D	50.7	D
Northbound								
L	228	1956	0.57	0.12	53.7	D		
T	1132	2059	0.96	0.55	53.4	D	53.0	D
R	963	1750	0.01	0.55	12.2	B		
Southbound								
L	228	1956	0.00	0.12	46.8	D		
T	1132	2059	0.94	0.55	44.0	D	41.6	D
R	963	1750	0.09	0.55	12.8	B		

Intersection Delay = 47.9 (sec/veh) Intersection LOS = D

Appendix E-1

***Supplement to
Traffic Report***

7198-01
October 18, 2004

**WILSON
OKAMOTO
CORPORATION**

Mr. Matthew M. Slepik
Munekiyo & Hiraga, Inc.
305 S. High Street, Suite 104
Wailuku, Hawaii 96793

Subject: Traffic Impact Report
Maui Preparatory Academy
TMK: 4-3-01:31



Dear Mr. Slepik:

**ENGINEERS
PLANNERS**

1907 S. BERETANIA STREET
HONOLULU, HAWAII 96826
PH: (808) 946-2277
FAX: (808) 946-2253

This is in response to your inquiry regarding proposed changes to the projected student enrollment for the proposed Maui Preparatory Academy. The analysis contained in the traffic impact report for the subject project dated April 2004, is based on a full enrollment projection of 540 students in Year 2013. It is our understanding that this figure has since been modified to 360 students at full enrollment.

With the higher enrollment figure of 540 students incorporated in the traffic analysis, the calculated traffic generation of the proposed Maui Preparatory Academy would be higher than the calculated traffic generation based on the revised 360-student full enrollment projection. With the revised 360-student enrollment figure, traffic demands in the vicinity as a result of the project would therefore be less than the traffic demands contained in the traffic impact report dated April 2004. As a result, the traffic impact report that is based on a 540-student enrollment represents a conservative analysis of traffic operations in the vicinity should enrollment reach a maximum of 360 students. The mitigation measures identified in the traffic impact report would therefore also mitigate potential adverse traffic impacts as a result of the Maui Preparatory Academy with the revised full enrollment projection of 360 students.

Should you require additional information or want to discuss further, please feel free to contact me at 808.846.2277.

Sincerely,

Pete G. Pascua, P.E.
Project Traffic Engineer

Appendix F

***Preliminary
Engineering Report***

PRELIMINARY ENGINEERING REPORT

FOR

MAUI PREPARATORY ACADEMY

Napili, Maui, Hawaii

T.M.K.: (2) 4-3-001: por. 001

Prepared For:

**MAUI PREPARATORY ACADEMY
11 Hale Malia Place
Lahaina, Hawaii 96761**



Prepared By:



**CONSULTING CIVIL ENGINEERS
305 SOUTH HIGH STREET, SUITE 102
WAILUKU, MAUI, HAWAII 96793
PHONE: (808) 242-0032
FAX: (808) 242-5779**

July 2004

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**PRELIMINARY ENGINEERING REPORT
FOR
MAUI PREPARATORY ACADEMY
T.M.K.: (2) 4-3-001: por. of 001**

1.0 INTRODUCTION

The purpose of this report is to provide information on the existing infrastructure which will be servicing the proposed project. It will also evaluate the adequacy of the existing infrastructure and anticipated improvements which may be required for the proposed project.

The proposed project site is identified as T.M.K.: (2) 4-3-001: portion of 001 and contains an area of approximately 14.9 acres. The Maui Preparatory Academy (MPA), in collaboration with Maui Land & Pineapple Company, Inc. (ML&P) proposes a new independent, non-profit, non-sectarian college preparatory school in Napili.

The project site is bordered by the ML&P Honolua baseyard to the north; agricultural pineapple lands to the east and south, and Honoapiilani Highway to the west.

The proposed full build out improvements include the conversion of the existing dormitory facility to classroom and support facilities to accommodate the initial classes, office spaces, maintenance buildings, gymnasium, football field, and tennis courts. Associated improvements include paved roadways and parking areas, concrete sidewalks, utility connections, and landscaping.

2.0 EXISTING INFRASTRUCTURE

2.1 ROADWAYS

Honoapiilani Highway is the major roadway which links Central and South Maui to West Maui. In the vicinity of the project site, it links the Lahaina area with Kapalua. It is a State-owned four lane roadway between Lahainaluna Road and the intersection of Honoapiilani Highway and Lower Honoapiilani Road. The remainder of the highway is a two lane roadway. In the vicinity of the project site, Honoapiilani Highway is signalized at its intersection with Napilihau Street.

Lower Honoapiilani Road is a County-owned two lane roadway parallel to Honoapiilani Highway which runs along the coastline. It serves most of the residential and business communities west of Honoapiilani Highway.

Napilihau Street is a two lane east-west roadway which connects Lower Honoapiilani Road and Honoapiilani Highway. Access to the proposed project will be from Napilihau Street.

2.2 DRAINAGE

The elevation on the site ranges from 230 feet at the eastern corner of the site to 110 feet at Honoapiilani Highway, averaging approximately 6.1%. According to Panel No. 150003 0138 B of the Flood Insurance Rate Maps, dated June 1, 1981, the project site is situated in Flood Zone C, which is designated as areas of minimal flooding.

There are no existing drainage facilities within the proposed project site. Kaopala Gulch traverses outside the southerly boundary of the project site. A silting basin and overflow structure collects runoff from Kaopala Gulch east of Honoapiilani Highway. A concrete spillway allows the overflow runoff from the silting basin to flow to two 8'-0" x 7'-0" concrete box culverts. The box culverts diverts the runoff across Honoapiilani Highway into a natural earth channel makai of the highway.

According to the "Hydrology Report for Honoapiilani Highway (Honokowai to Kahana) F.A. Project No. RF-030-1 (7) and Kahana to Alaeloa F.A. Project No. RF-030-1 (13) Island of Maui, prepared by Hydraulic Design Section, October 1975, the 100-year flow in Kaopala Gulch is 1,344 cfs.

There is an existing detention basin located outside of the northwest corner of the project site. Overflow from the detention basin is diverted across Honoapiilani Highway via a 66-inch culvert. The culvert connects to the drainage system installed for the Napili Villas project.

It is estimated that the present 50-year, 1-hour runoff from the project site is 19.2 cfs. Of this total flow, approximately 6.6 cfs sheet flows into Kaopala Gulch and 12.6 cfs sheet flows into the existing detention basin to the northwest of the project site.

2.3 SEWER

The wastewater generated from the existing ML&P dormitory area presently flows into an onsite sewerage lift station. It is pumped through a 4-inch force main through their baseyard area into a sewer manhole located to the north of the Napilihau Street-Honoapiilani Highway intersection. The force main system

then becomes a gravity system from said sewer manhole via an 8-inch sewerline across Honoapiilani Highway, down Napilihau Street, and connecting to the sewer system on Lower Honoapiilani Road.

The majority of the County wastewater facilities in the vicinity of the project site are located along Lower Honoapiilani Road. These include gravity sewer lines, sewer force mains and sewer pump stations. Sewerage from the area is transported to the Lahaina Wastewater Reclamation Plant in Honokowai, which is located approximately 2.8 miles south of the project site.

According to the Wastewater Reclamation Division, County of Maui, the Lahaina Wastewater Reclamation Plant has a design capacity of 9 million gallons per day (mgd). Currently, it is processing approximately 4 mgd of sewerage. Of the remaining capacity, approximately 0.24 mgd is allocated to Kapalua, 1.38 mgd is allocated to AMFAC, and 1.80 mgd is allocated to the Housing Finance Development Corporation. The County has retained the services of a consultant to do a dynamic study of the existing wastewater facilities. However, it is estimated that the study will take 12 months to complete.

2.4 WATER

There are two existing water sources which serves the area. The first is raw surface water from the Honokohau Ditch which collects water from Honokohau Stream and Honolua Stream. The surface water from the Honokohau Ditch is then diverted to the Mahinahina Water Treatment Plant which was designed to process 2.5 mgd. Presently, the treatment plant is processing an average of approximately 2.4 mgd. The second source is groundwater from the Honokohua wells and Napili wells. The capacity of the wells are 700 gpm from Honokohua Well A, 1,250 gpm from Honokohua Well B, 700 gpm from Napili Well A, 700 gpm from Napili Well B, and 1,000 gpm from Napili Well C. According to the Department of Water Supply, Honokohua Well A, Napili Well A, and Napili Well C is currently not in use.

The storage for the area are the existing 2.0 million gallon Honokowai reservoir and a 1.0 million gallon Kahana Ridge reservoir. The 2.0 million gallon reservoir is located at an elevation of 250 feet approximately 5,800 feet south of the project site. The 1.0 million gallon reservoir is also located at an elevation of 250 feet approximately 1,100 feet to the north of the project site.

The 2.0 million gallon reservoir is filled from the Mahinahina Water Treatment Plant. The 1.0 million gallon reservoir is filled from the Honokohua and Napili wells. There is a 16-inch waterline which was constructed along Honoapiilani Highway from the Maui Land & Pine baseyard area to the Kahana Ridge subdivision from the 1.0 million gallon reservoir.

2.5 ELECTRIC, TELEPHONE AND CABLE TV

There are existing overhead electrical and telephone facilities along the mauka side of Honoapiilani Highway and along Lower Honoapiilani Road. Maui Electric Company provides electrical service to the West Maui region, Verizon Hawaii provides telephone service and Oceanic Time Warner provides cable service.

3.0 ANTICIPATED INFRASTRUCTURE IMPROVEMENTS

3.1 ROADWAYS

Napilihau Street will be extended from its intersection with Honoapiilani Highway into the ML&P baseyard area to the project site. Access to the project site will be from the Napilihau Street extension. As previously mentioned, Napilihau Street is presently signalized at its intersection with Honoapiilani Highway.

A Traffic Impact Report was prepared for the project by the Wilson Okamoto Corporation, April 2004. The recommendations of the report, separated by development milestone years of the project were:

"A. Year 2005 Conditions With Project

- 1. Maintain provisions for the pedestrian crossing of the north leg of the intersection of Honoapiilani Highway and Napilihau Street. Provide safe and accessible facilities for pedestrians that may be walking to and from the school.**
- 2. Consider the use of school bus service to transport students to and from the school. The service will be dependent upon the need and interest in using such a service. A bus program should reduce traffic demands on the roadways. If a school bus program is incorporated in the project development plans, ensure adequate maneuvering areas and designate internal circulation routes, and boarding and**

alighting points onsite to maintain appropriate and efficient traffic circulation and pedestrian safety.

3. Provide two separate approach lanes on the westbound approach of Napilihau Street at the intersection of Honoapiilani Highway. The lane designations should include an exclusive left-turn and a shared right-turn lane.
4. Provide appropriate turning radii at the highway and internal roadway intersection corners to accommodate the potential movement of school buses.

B. Year 2008 Conditions With Project

1. Provide an acceleration lane on Honoapiilani Highway for the eastbound right-turn movement from the Napilihau Street eastbound approach for the southbound traffic demands.
2. Modify the traffic signal timing at the intersection of Honoapiilani Highway and Napilihau Street to increase capacity of the intersection by providing additional green time to the northbound and southbound highway approaches. Details of the modified signal timing plan may be determined during the design stage of the project.
3. Modify the traffic signal timing at the intersection of Honoapiilani Highway and Akahale Street to increase the capacity of the intersection. Details of the modified signal timing plan may be determined during the design stage of the project.
4. Provide a right-turn deceleration lane on the northbound approach of Honoapiilani Highway at the intersection with Napilihau Street to maintain through traffic flow on the highway.

C. Year 2013 Conditions With Project

1. Provide an additional northbound left-turn lane on the northbound approach of Honoapiilani Highway at the intersection with Napilihau Street. The provisions of an additional lane must be included on the departure side of the intersection's west leg to accept the double left-turn lane. This lane may merge into the existing two-lane roadway of Napilihau Street. Details of this improvement should be verified during the design stages of the project."

3.2 DRAINAGE

The post development runoff from the project site is estimated to be 40.2 cfs, with an increase of 21.0 cfs over existing conditions. Onsite runoff will be collected by catch basins located at appropriate intervals along the project roadways and landscaped areas and diverted by drainlines to onsite detention basins. The detention basins will be located within the proposed open landscaped areas and green play areas.

No additional runoff will be released into the existing drainageways, detention basins or onto Honoapiilani Highway. The net result of the proposed drainage improvements will be no increase in runoff from the project site to the adjacent or downstream properties.

3.3 SEWER

The build out of the proposed project consists of 14.9 acres of school (estimated enrollment of 360 elementary, intermediate and high school students), office space, libraries, and maintenance buildings. Based on this, it is estimated that the total project will generate 8,908 gallons of wastewater per day.

The onsite sewer collection system will be designed to accommodate this flow. The onsite sewer system will consist of a gravity sewer system which will collect and divert wastewater to an onsite sewer pump station. The pump station will push the wastewater through a force main to the existing sewer manhole near the intersection of Napilihau Street and Honoapiilani Highway, as it is presently doing.

The developer will work with the Wastewater Reclamation Division to upgrade the existing facilities that do not have the capacity to accommodate the wastewater generated from the project.

3.4 WATER

In accordance with the Department of Water Supply's Domestic Consumption Guidelines, the average daily demand for the proposed development is approximately 25,330 gallons per day. Fire flow demand for

schools is 2,000 gallons per minute for a 2 hour duration. Fire hydrants will be installed with a maximum spacing of 250 feet.

There is an existing 12-inch waterline from the Kahana Ridge reservoir which traverses along the project boundary. This line is capable of providing the required fire flow and domestic water service for the project.

3.5 ELECTRIC, TELEPHONE AND CABLE TV

The proposed electrical, telephone and cable TV distribution systems in the subject development will be installed underground from the existing facilities along Honoapiilani Highway. The developer will coordinate any facility expansion requirements with Maui Electric Company, Verizon Hawaii, Oceanic Time Warner Cable. Street lights will be installed along the subdivision streets at intervals to be determined by the electrical engineer.

Appendix G

Drainage Report

PRELIMINARY DRAINAGE REPORT

FOR

MAUI PREPARATORY ACADEMY

Napili, Maui, Hawaii

T.M.K.: (2) 4-3-001: por. of 001

Prepared For:

**MAUI PREPARATORY ACADEMY
11 Hale Malia Place
Lahaina, Hawaii 96761**



Prepared By:



**CONSULTING CIVIL ENGINEERS
305 SOUTH HIGH STREET, SUITE 102
WAILUKU, MAUI, HAWAII 96793
PHONE: (808) 242-0032
FAX: (808) 242-5779**

July 2004

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**PRELIMINARY DRAINAGE REPORT
FOR
MAUI PREPARATORY ACADEMY
Napili, Maui, Hawaii**

I. INTRODUCTION

The purpose of this report is to examine both the existing and proposed drainage conditions for the proposed project.

II. SITE LOCATION AND PROJECT DESCRIPTION

The subject property is identified as T.M.K.: (2) 4-3-001: por. of 001 and contains an area of approximately 14.9 acres. The Maui Preparatory Academy (MPA), in collaboration with Maui Land & Pineapple Company, Inc. (ML&P) proposes a new independent, non-profit, non-sectarian college preparatory school in Napili.

The project site is bordered by the ML&P Honolua baseyard to the north; agricultural pineapple lands to the east and south, and Honoapiilani Highway to the west.

The proposed full build out improvements include the conversion of the existing dormitory facility to classroom and support facilities to accommodate the initial classes, office spaces, maintenance buildings, gymnasium, football field, and tennis courts. Associated improvements include paved roadways and parking areas, concrete sidewalks, utility connections, and landscaping.

III. EXISTING TOPOGRAPHY AND SOIL CONDITIONS

The project site consists of the existing ML&P dormitory site and pineapple fields. The elevation on the site ranges from 230 feet at the eastern corner of the site to 110 feet at Honoapiilani Highway, averaging approximately 6.1%.

According to the "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii (August, 1972)," prepared by the United States Department of Agriculture Soil Conservation Service, the soil within the project site is classified as Kahana silty clay (rRS), Lahaina silty clay, 3 to 7 percent (LaB), and Lahaina silty clay, 7 to 15 percent (KbB). It is characterized as having slow runoff and a slight erosion hazard.

IV. EXISTING DRAINAGE CONDITIONS

There are no existing drainage facilities within the proposed project site. Kaopala Gulch traverses outside the southerly boundary of the facility. A silting basin and overflow structure collects runoff from Kaopala Gulch mauka of Honoapiilani Highway. A concrete spillway allows the overflow runoff from the silting basin to flow to two 8'-0" x 7'-0" concrete box culverts. The box culverts diverts the runoff across Honoapiilani Highway into a natural earth channel makai of the highway.

According to the "Hydrology Report for Honoapiilani Highway (Honokowai to Kahana) F.A. Project No. RF-030-1 (7) and Kahana to Alaeloa F.A. Project No. RF-030-1 (13) Island of Maui, prepared by Hydraulic Design Section, October 1975, the 100-year flow in Kaopala Gulch is 1,344 cfs.

There is an existing detention basin located outside of the northwest corner of the project site. Overflow from the detention basin is diverted across Honoapiilani Highway via a 66-inch culvert. The culvert connects to the drainage system installed for the Napili Villas project.

It is estimated that the present 50-year, 1-hour runoff from the project site is 19.2 cfs. Of this total flow, approximately 6.6 cfs sheet flows into Kaopala Gulch and 12.6 cfs sheet flows into the existing detention basin to the northwest of the project site.

V. FLOOD AND TSUNAMI ZONE

According to Panel No. 150003 0138 B of the Flood Insurance Rate Maps, dated June 1, 1981, the project site is situated in Flood Zone C, which is designated as areas of minimal flooding.

VI. PROPOSED DRAINAGE PLAN

The post development runoff from the project site is estimated to be 40.2 cfs, with an increase of 21.0 cfs over existing conditions. Onsite runoff will be collected by catch basins located at appropriate intervals along the project roadways and landscaped areas and diverted by drainlines to onsite detention basins. The detention basins will be located within the proposed open landscaped areas and green play areas.

No additional runoff will be released into the existing drainageways, detention basins or onto Honoapiilani Highway. The net result of the proposed drainage improvements will be no increase in runoff from the project site to the adjacent or downstream properties.

VII. HYDROLOGIC CALCULATIONS

The hydrologic calculations are based on the "Drainage Master Plan for the County of Maui," and the "Rainfall Frequency Atlas of the Hawaiian Islands," Technical Paper No. 43, U.S. Department of Commerce, Weather Bureau.

Rational Formula Used: $Q = CIA$

Where Q = rate of flow (cfs)

C = rainfall coefficient

I = rainfall intensity for a duration equal to the time of concentration (inches/hour)

A = drainage area (Acres)

See Appendix A for Hydrologic Calculations

VIII. CONCLUSION

The proposed development is expected to generate a 50-year storm runoff of 40.2 cfs, with an increase of 21.0 cfs. The increase in onsite runoff will be diverted to onsite detention basins located within the proposed open landscaped areas and green play areas..

There will be no increase in runoff from the project site sheet flowing toward the makai properties or onto Honoapiilani Highway. This is in accordance with Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui.

Therefore, it is our professional opinion that the proposed development will not have an adverse effect on the adjoining or downstream properties.

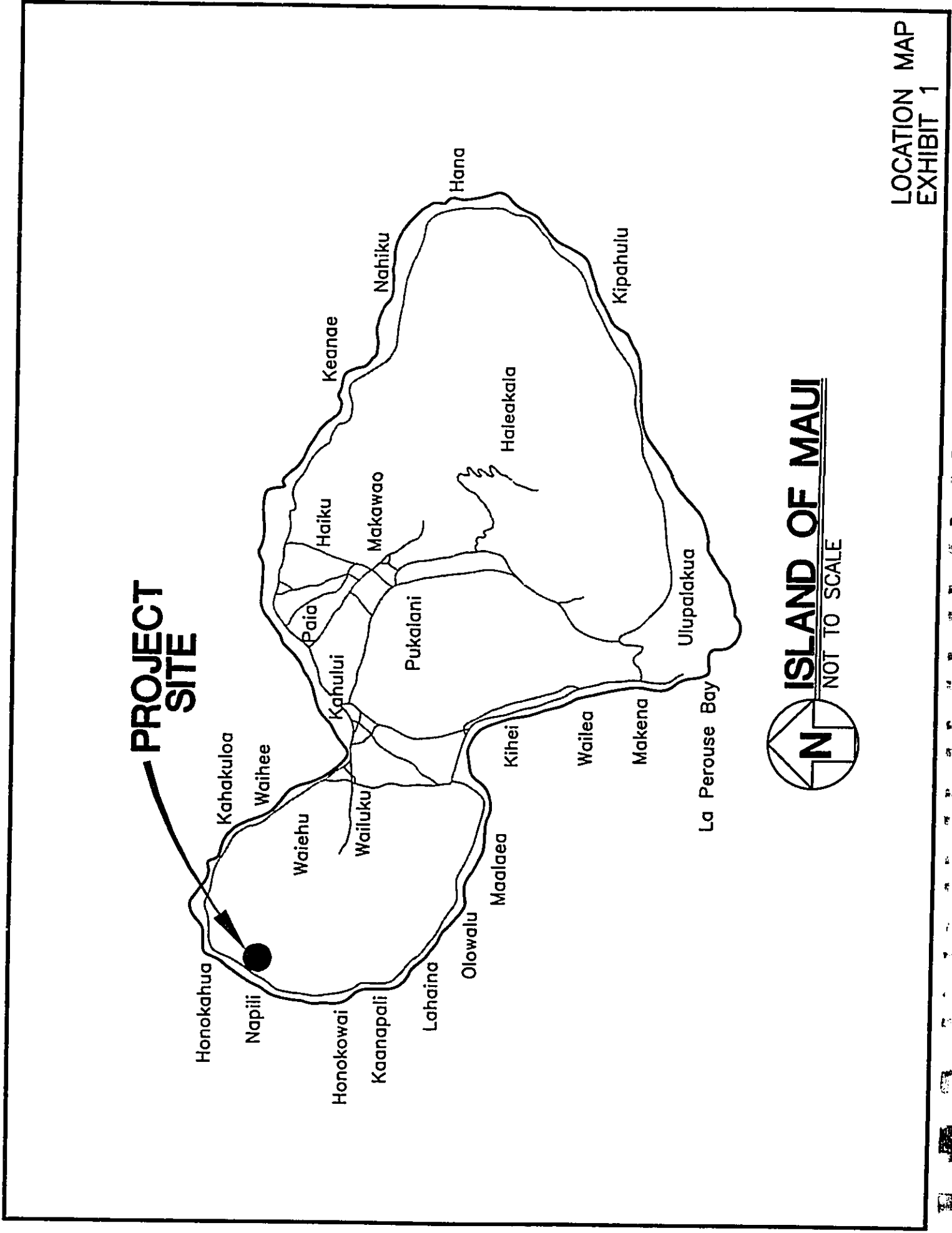
IX. REFERENCES

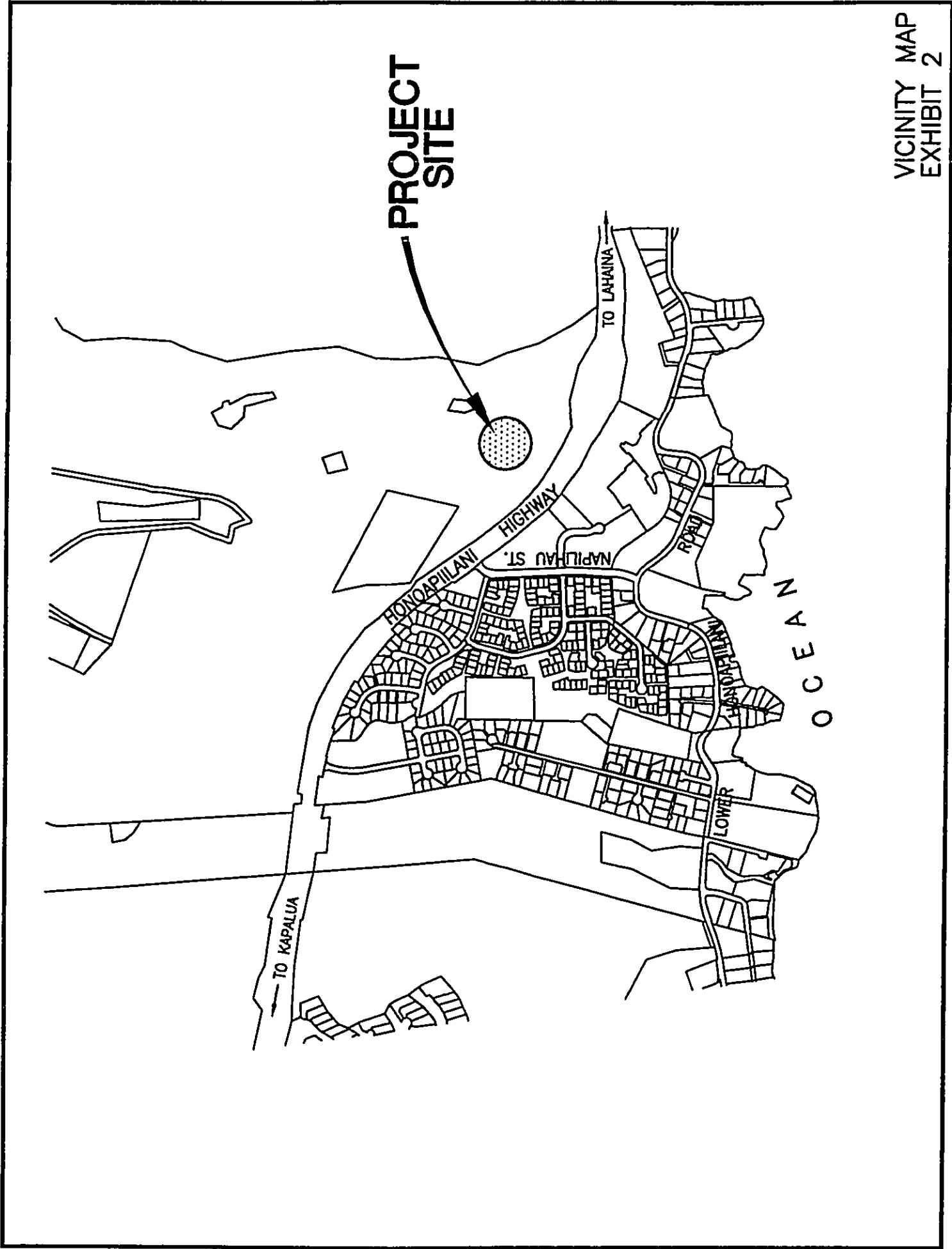
- A. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, prepared by U.S. Department of Agriculture, Soil Conservation Service, August, 1972.

- B. Erosion and Sediment Control Guide for Hawaii, prepared by U.S. Department of Agriculture, Soil Conservation Service, March, 1981.
- C. Rainfall-Frequency Atlas of the Hawaiian Islands, Technical Paper No. 43, U.S. Department of Commerce, Weather Bureau, 1962.
- D. Flood Insurance Rate Maps of the County of Maui, June, 1981.
- E. Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui, prepared by the Department of Public Works and Waste Management, County of Maui, 1995.
- F. Watershed Work Plan for Honolua Watershed, Maui County, March 1976.
- G. Hydrology Report for Honoapiilani Highway (Honokowai to Kahana) F.A. Project No. RF-030-1 (7) and Kahana to Alaeloa F.A. Project No. RF-030-1 (13) Island of Maui, prepared by the Hydraulic Design Section, State Department of Transportation, Highways Division, October , 1975.

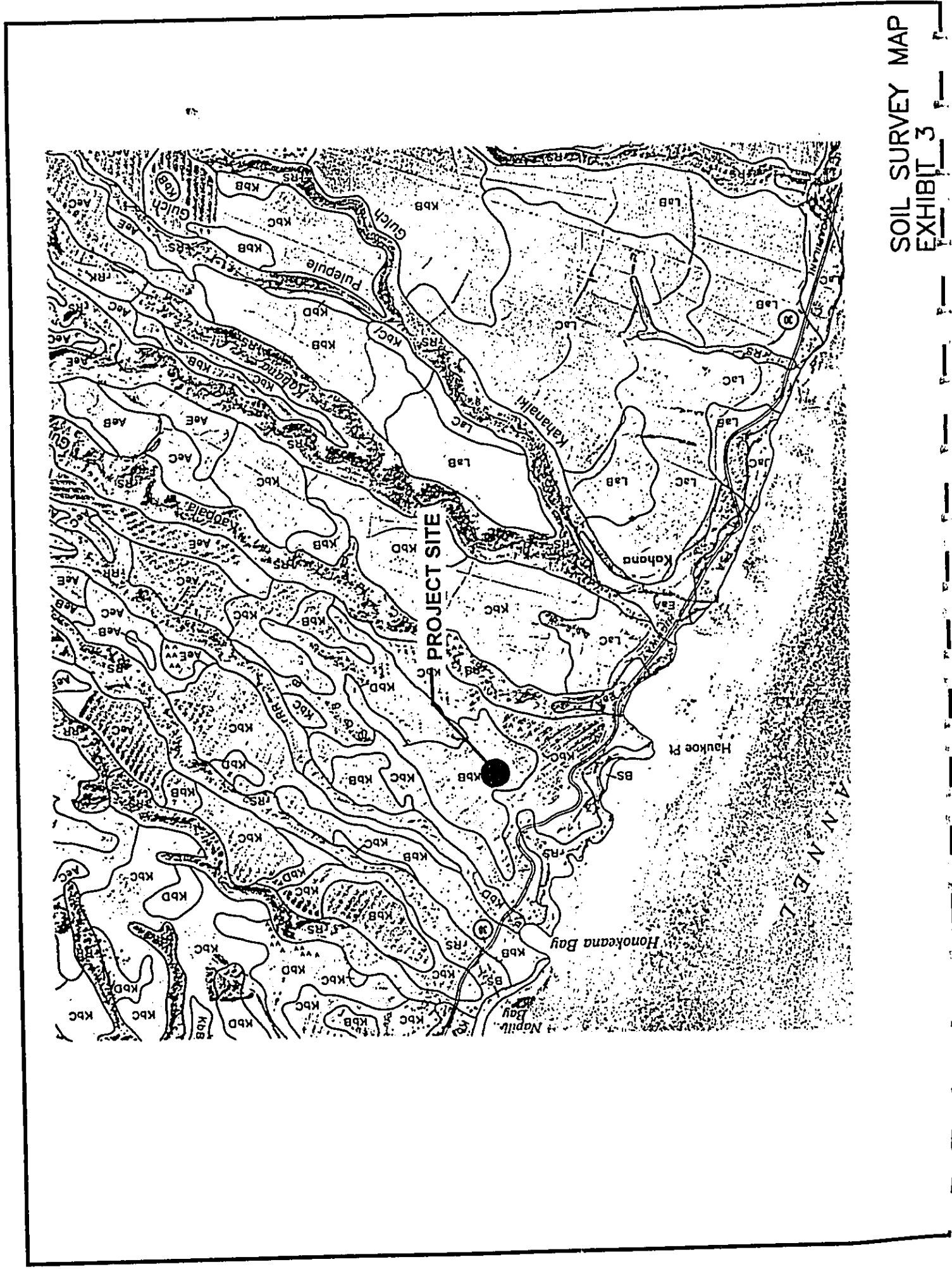
EXHIBITS

- 1 Location Map**
- 2 Vicinity Map**
- 3 Soil Survey Map**
- 4 Flood Insurance Rate Map**
- 5 Onsite Drainage Area Map**



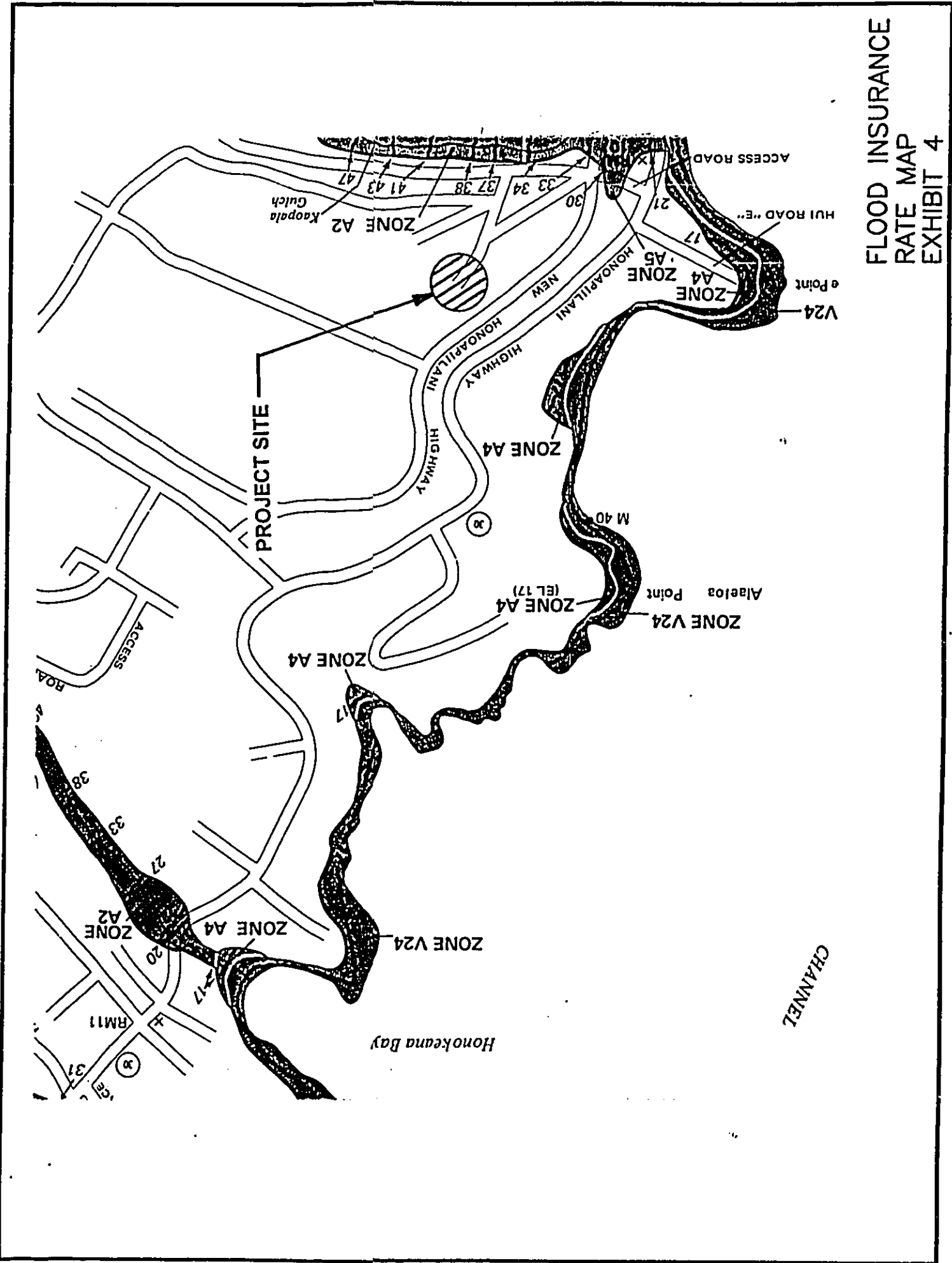


VICINITY MAP
EXHIBIT 2



SOIL SURVEY MAP
EXHIBIT 3

FLOOD INSURANCE
RATE MAP
EXHIBIT 4



APPENDIX A
HYDROLOGIC CALCULATIONS

Hydrologic Calculations

Purpose: Determine the existing runoff from the project site sheet flowing into Kaopala Gulch and the existing north detention basin and determine the increase in surface runoff from the development of the proposed project based on a 50-year storm.

A. Determine the Runoff Coefficient (C):

EXISTING CONDITIONS:

Infiltration (Medium)	= 0.07
Relief (Rolling)	= 0.03
Vegetal Cover (Good)	= 0.03
Development Type (Ag)	= <u>0.15</u>
C	= 0.28

PAVEMENT AREAS:

Infiltration (Negligible)	= 0.20
Relief (Flat)	= 0.03
Vegetal Cover (None)	= 0.07
Development Type (Pavement)	= <u>0.55</u>
C	= 0.85

ROOF AREAS:

Infiltration (Negligible)	= 0.20
Relief (Steep)	= 0.08
Vegetal Cover (None)	= 0.07
Development Type (Roof)	= <u>0.55</u>
C	= 0.90

LANDSCAPED AREAS:

Infiltration (Medium)	= 0.07
Relief (Rolling)	= 0.03
Vegetal Cover (High)	= 0.00
Development Type (Landscape)	= <u>0.15</u>
C	= 0.28

Weighted C:

Existing Conditions: Ag Area = 14.3 acres
Roof Area = 0.6 acres
Weighted C = 0.30

Developed Conditions: Roof Area = 2.2 acres
Paved Area = 3.3 acres
Landscaped Area = 9.4 acres
Weighted C = 0.50

B. Determine the 50-year 1-hour rainfall:

$$i_{50} = 2.8 \text{ inches}$$

Adjust for time of concentration to compute Rainfall Intensity (I):

Existing Condition:

$$T_c = 25 \text{ minutes}$$
$$I = 4.3 \text{ inches/hour}$$

Developed Conditions:

$$T_c = 13 \text{ minutes}$$
$$I = 5.4 \text{ inches/hour}$$

C. Drainage Area (A):

$$\text{Total Area} = 14.9 \text{ Acres}$$

D. Compute the 50-year storm runoff volume (Q):

$$Q = CIA$$

Existing Conditions:

$$\text{Kaopala Drainage Area: } Q = (0.30)(4.3)(5.1) = 6.6 \text{ cfs}$$

$$\text{North Drainage Area: } Q = (0.30)(4.3)(9.8) = 12.6 \text{ cfs}$$

$$\text{Total Existing Onsite Runoff} = 19.2 \text{ cfs}$$

Developed Conditions:

$$Q = (0.50)(5.4)(14.9) = 40.2 \text{ cfs}$$

The increase in runoff due to the proposed development is $40.2 - 19.2 = 21.0$ cfs.

END

CERTIFICATION

**I HEREBY CERTIFY THAT THE MICROPHOTOGRAPH APPEARING IN THIS REEL OF
FILM ARE TRUE COPIES OF THE ORIGINAL DOCUMENTS.**

2005

DATE

Gina R. Fardipatel

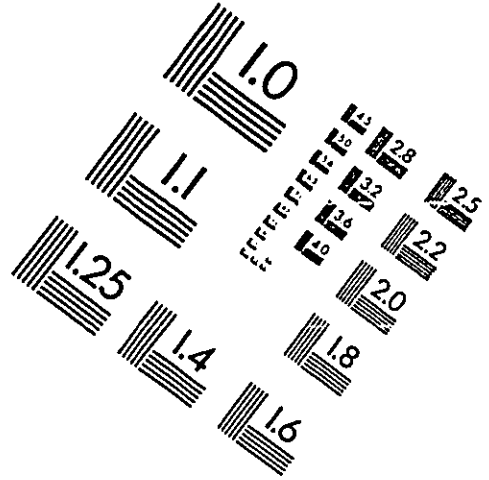
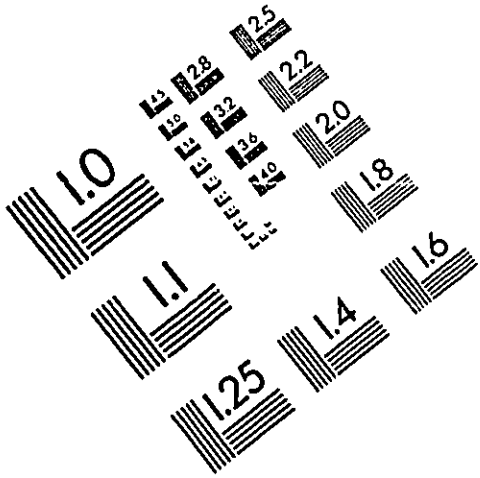
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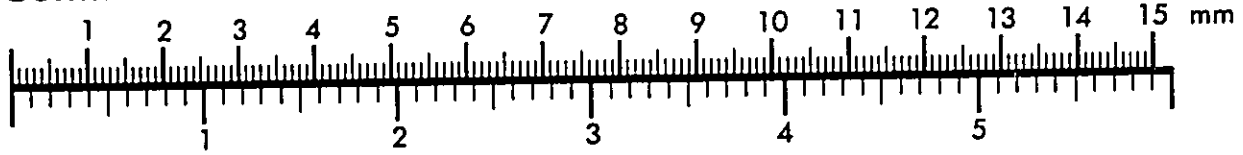
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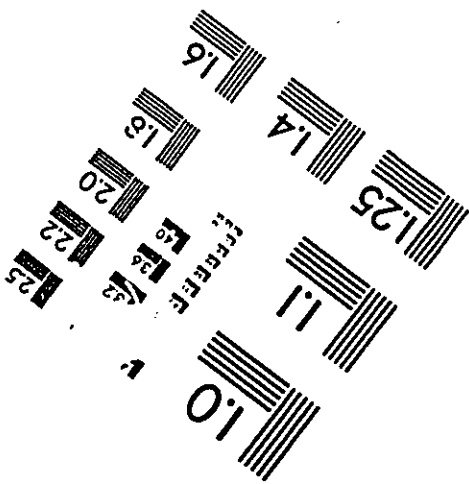
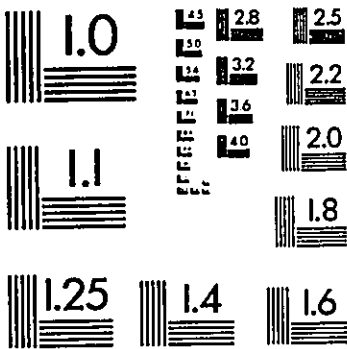
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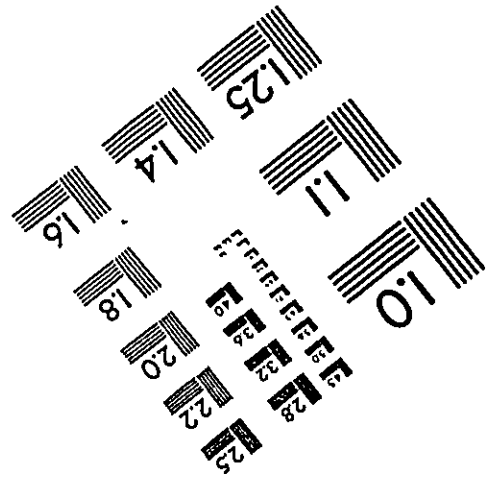
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