Draft Environmental Assessment

PROPOSED LAHAINA CIVIC CENTER TENNIS COURTS COMPLEX EXPANSION

(TMK (2) 4-5-021:010 (POR.), 016 (POR.) AND 020 (POR.))

Prepared for:

County of Maui,
Department of Parks and Recreation

June 2008

MUNEKIYO HIRAGA, INC.

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Executive Summary

Project Name:	Lahaina Civic Center Tennis Courts Complex Expansion
Type of Document:	Draft Environmental Assessment
Legal Authority:	Chapter 343, Hawai`i Revised Statutes
Agency Determination:	Anticipated Finding of No Significant Impact
Applicable Environmental Assessment Review "Trigger":	Use of State lands and County funds
Location:	Island of Maui Lahaina TMK (2)4-5-021:10 (por.), 016 (por.), and 020 (por.)
Applicant:	County of Maui Department of Parks and Recreation 700 Hali`a Nakoa Street Wailuku, Hawai`i 96793
Approving Agency:	County of Maui Department of Parks and Recreation 700 Hali`a Nakoa Street Wailuku, Hawai`i 96793
Consultant:	Munekiyo & Hiraga, Inc. 305 High Street, Suite 104 Wailuku, Hawai`i 96793 Contact: Michael Munekiyo Telephone: (808) 244-2015
Project Summary:	The County of Maui, Department of Parks and Recreation proposes to undertake the Lahaina Civic Center Tennis Courts Complex Expansion Project. The additional four (4) tennis courts with sports lighting, fencing and windscreens will cover approximately 2.0 acres. Related improvements include a 25-stall paved parking lot and improvements to existing site utilities which include water, wastewater, drainage, and electrical systems.

The proposed action involves the use of State of Hawai`i Lands (TMK Nos. (2)4-5-021:010 (por.) and 016 (por.)), as well as lands owned by the State Department of Hawaiian Home Lands (TMK (2)4-5-021:020 (por.)). County funds will be used for the proposed tennis courts expansion project. In light of the foregoing, an environmental assessment is being prepared pursuant to Chapter 343, Hawai`i Revised Statutes.

It is additionally noted that the project site falls within the County of Maui's Special Management Area or SMA. Accordingly, a SMA Use Permit Application will be filed with the Maui Planning Department.

I. PROJECT OVERVIEW

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A. PROJECT LOCATION, EXISTING USE, AND OWNERSHIP

An expansion of the tennis courts complex at the Lahaina Civic Center (LCC) is proposed by the County of Maui, affecting Tax Map Key (TMK) Nos. (2) 4-5-021:010 (por.), 016 (por.), and 020 (por.) located in Lahaina, Maui, Hawai`i. See **Figure 1**. The proposed expansion will add four (4) new tennis courts to the LCC tennis complex. The existing tennis complex consists of five (5) tennis courts and is located south of LCC's main facilities and adjacent to the Lahaina Post Office. The project site is accessible via the Leiali`i Parkway and Honoapi`ilani Highway intersection. See **Figure 2**.

The proposed expansion will affect the area immediately north of the existing tennis courts complex. The land areas affected by the proposed action are summarized in **Table 1**.

Table 1. Affected Parcels and Areas

Tax Map Key No.	Area of Parcel	Portion of Parcel Affected by Proposed Project
(2) 4-5-021:010	3.849 acres	0.7 acres
(2) 4-5-021:016	16.782 acres	0.2 acres
(2) 4-5-021:020	50.858 acres	1.1 acres
TOTAL AREA ENCOMPASSED BY EXPANSION		**2.0 acres**

The subject parcels are owned by the State of Hawai`i and the State Department of Hawaiian Home Lands as described in **Table 2**.

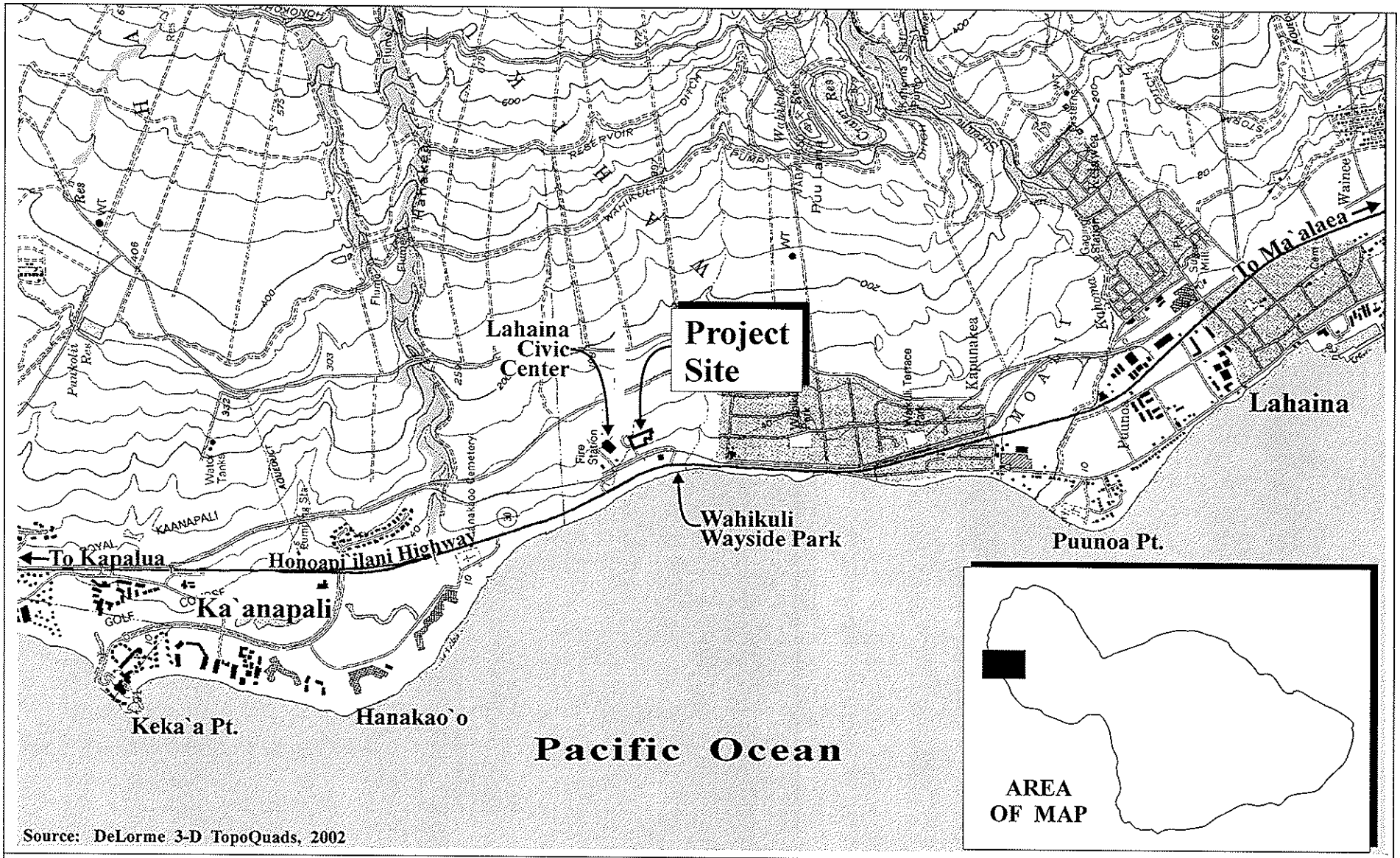

Figure 1 Proposed Lahaina Civic Center Tennis Courts Complex Expansion

Regional Location Map

NOT TO SCALE

Prepared for: County of Maui, Dept. of Parks and Recreation

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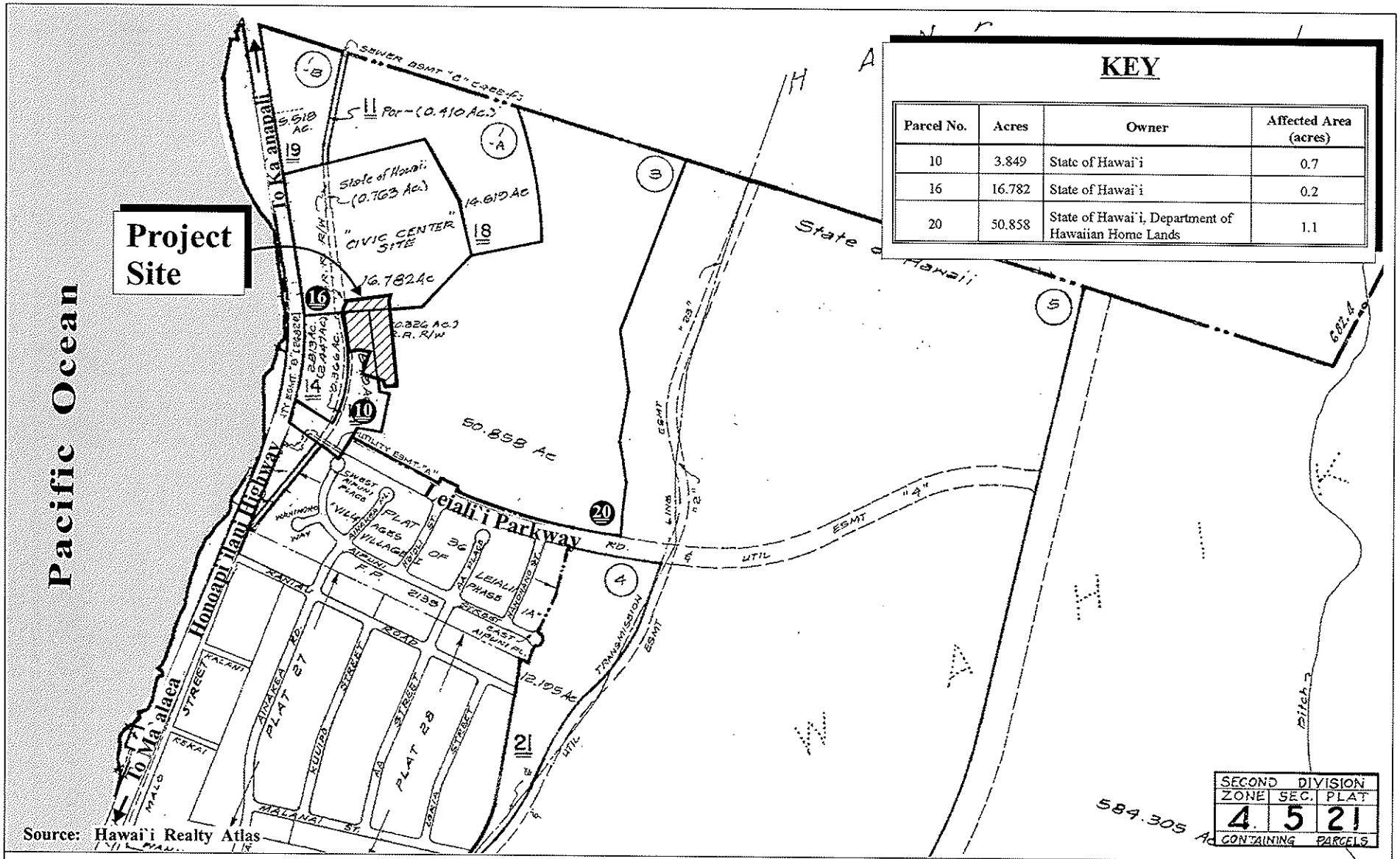

KEY

Parcel No.	Acres	Owner	Affected Area (acres)
10	3.849	State of Hawai`i	0.7
16	16.782	State of Hawai`i	0.2
20	50.858	State of Hawai`i, Department of Hawaiian Home Lands	1.1

Source: Hawai`i Realty Atlas

Figure 2 Proposed Lahaina Civic Center Tennis Courts Complex Expansion

Property Location Map

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Prepared for: County of Maui, Dept. of Parks and Recreation

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Table 2. Existing Use and Ownership of Affected Parcels

Tax Map Key No.	Owner	Existing Use
(2) 4-5-021:010	State of Hawai`i	Lahaina Civic Center Tennis Courts Complex, consisting of 5 tennis courts
(2) 4-5-021:016	State of Hawai`i	Lahaina Civic Center main facilities, consisting of an amphitheater, social hall, gymnasium, police station, fire station, health center and a courthouse
(2) 4-5-021:020	State of Hawai`i, Department of Hawaiian Home Lands	Vacant Land

The County of Maui has control and management over TMK (2)4-5-021:010 and 016 for the LCC in accordance with Executive Order Nos. 3282 and 3139.

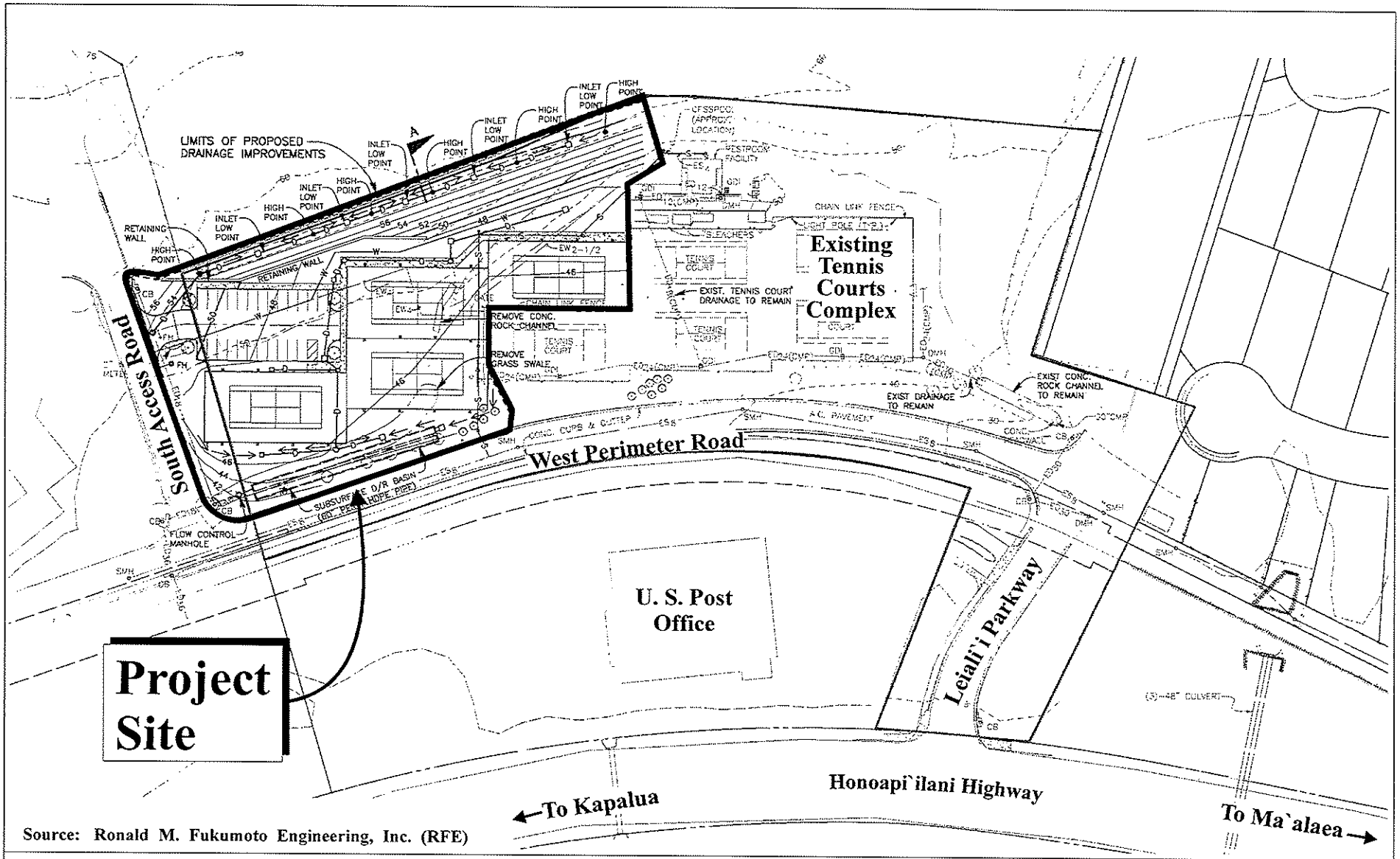
B. PROPOSED ACTION

The County of Maui, Department of Parks and Recreation, proposes an expansion of the LCC tennis courts complex. The current tennis courts complex encompasses TMK No. (2) 4-5-021:010, plus a small portion of TMK No. (2) 4-5-021:020. It includes five (5) tennis courts, a comfort station, overhead lighting, and related supporting improvements.

The proposed expansion will consist of an additional four (4) tennis courts. See **Figure 3**. These tennis courts will have fencing, sports lighting, and windscreens. A 25-stall paved parking lot with lighting, lighted walkway access paths, retaining walls, landscape plantings and irrigation, and site utilities are also a part of the proposed action. The site utilities improvements will address water, wastewater, drainage, and electrical systems. The water system improvements will consist of the relocation of a water meter manhole, relocation of a fire hydrant, water service lines, and drinking fountains. The wastewater system improvements will include a sewer lateral for the restrooms located mauka of the existing tennis courts.

The drainage system improvements will consist of channels, inlets, manholes, drain pipes, and a subsurface detention/retention basin. The electrical system improvements will include underground distribution lines for the lighting.

The proposed expansion of the existing LCC tennis courts complex will provide increased access to tennis recreational facilities for current and future residents and visitors.



Source: Ronald M. Fukumoto Engineering, Inc. (RFE)

Figure 3 Proposed Lahaina Civic Center Tennis Courts Complex Expansion

Site Plan

NOT TO SCALE

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.

Rfe\LahainaCC Tennis\siteplan

C. CHAPTER 343, HAWAI`I REVISED STATUTES REQUIREMENT

The proposed improvements will be funded by the County of Maui on lands owned by the State of Hawai`i. The use of State lands and County funds is a trigger for an environmental assessment pursuant to Chapter 343, Hawai`i Revised Statutes (HRS). In particular, based on the anticipated scope of work, the proposed action requires the preparation and processing of an environmental assessment.

D. IMPLEMENTATION CONSIDERATIONS

The project site falls within the County of Maui's Special Management Area or SMA. As such, an SMA Use Permit application will be filed with the Maui Planning Department for processing and action by the Maui Planning Commission.

The estimated construction cost for the proposed project is $2.9 million. Construction is programmed to start in March, 2009. Construction duration is anticipated to be approximately six (6) months.

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

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

A. PHYSICAL SETTING

1. Surrounding Land Uses

a. Existing Conditions

The proposed tennis courts complex expansion project will be located immediately north of the current tennis complex at the Lahaina Civic Center (LCC). Surrounding the project site on the north side is LCC's main facilities which include a gymnasium, amphitheater and stage, the Lahaina District Court, Fire Station, Police Station, Health Center and Department of Motor Vehicle and Licensing. See **Figure 4**. East of the project site is undeveloped DHHL lands. To the south side The Villages of Leiali`i, a Hawaiian Homes affordable housing development. The Lahaina Post Office is located on the west (makai) side of the project site. Other developments in the general area include the Wahikuli House Lots subdivision, located south of the project site and Wahikuli Wayside Park, located to the west (makai) of Honoapi`ilani Highway. Further northeast of the project site are undeveloped State lands.

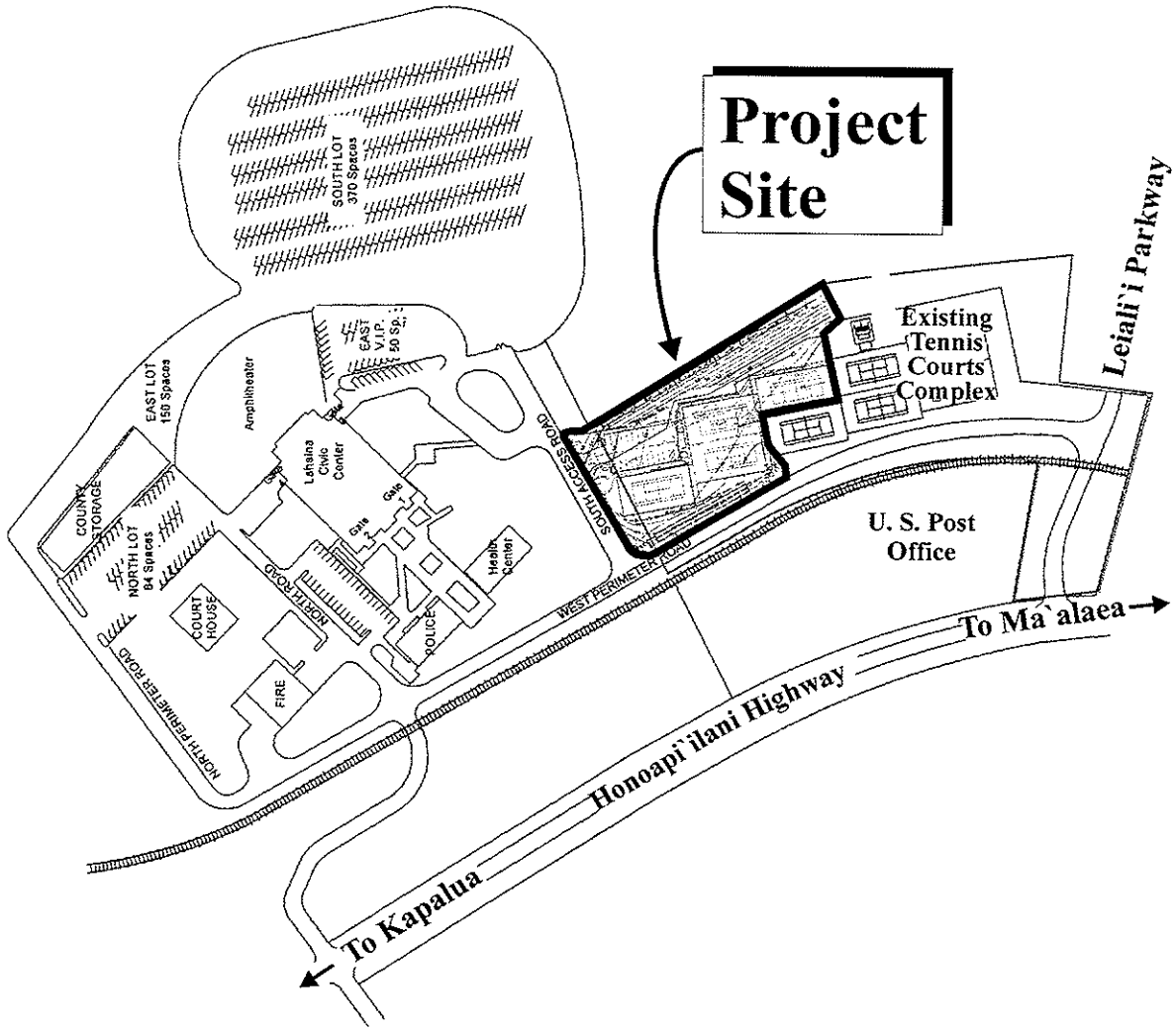
b. Potential Impacts and Proposed Mitigation Measures

The proposed action is intended to provide additional recreational facilities in the West Maui region. The project is not anticipated to have an adverse effect on surrounding commercial, resort, and agricultural uses.

2. Climate

a. Existing Conditions

Like most areas of Hawai`i, Lahaina's climate is relatively uniform year-round. Lahaina's tropical latitude, its position relative to storm tracts and the



Source: County of Maui, Dept. of Parks and Recreation

Figure 4 Proposed Lahaina Civic Center Tennis Courts Complex Expansion

Existing Lahaina Civic Center Site Plan

NOT TO SCALE

Prepared for: County of Maui, Dept. of Parks and Recreation

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Rfe\LahainaCC Tennis\existsiteplan

Pacific anticyclone, and the surrounding ocean combine to produce this stable climate. Variation in climate among different regions on Maui is largely left to local terrain.

Average temperatures in Lahaina range between 66 degrees and 88 degrees Fahrenheit. August and September are historically the warmest months, while January and February are the coolest (Maui County Data Book, 2006).

Rainfall in Lahaina is highly seasonal, with most precipitation occurring between November 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 sea breezes take moisture upslope during the day. Precipitation data collected at the Kapalua-West Maui Airport station show that, on average, March is the wettest month with 6.39 inches of precipitation, while December is the driest with just 0.45 inch (Maui County Data Book, 2006).

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

b. Potential Impacts and Proposed Mitigation Measures

The proposed project will not have an adverse effect on the climate. The proposed project will have a low profile and is not anticipated to alter wind patterns in the area.

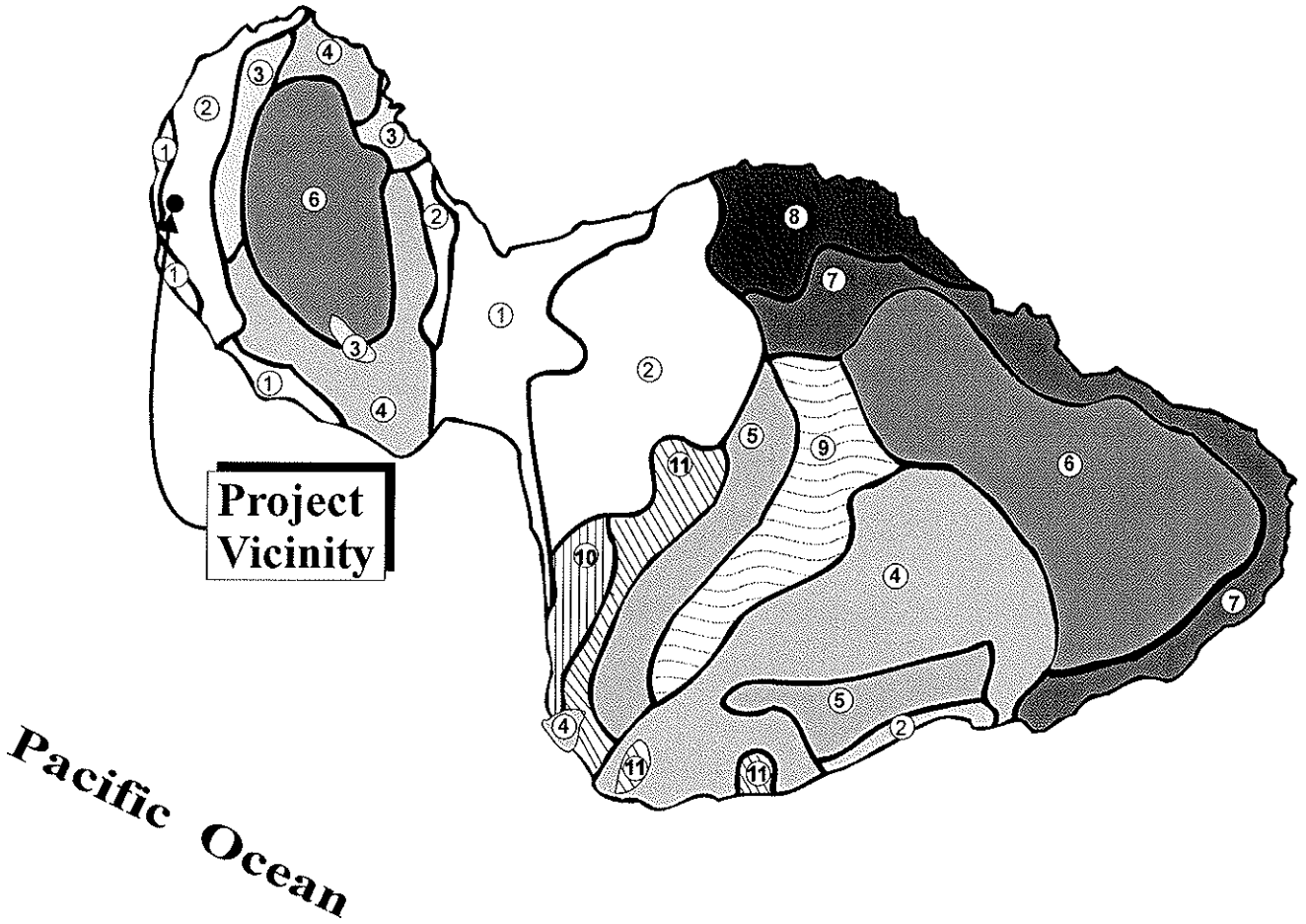
3. Topography and Soil Characteristics

a. Existing Conditions

Underlying the project site are the soils of the Waiakoa-Keahua-Moloka`i association. See **Figure 5**. The Soil Survey of the Islands of Kaua`i, O`ahu, Maui, Moloka`i, and Lana`i, State of Hawai`i, characterizes the soils of this association as being well-drained, moderately fine textured, and occurring in

LEGEND

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



Map Source: USDA Soil Conservation Service

Figure 5 Proposed Lahaina Civic Center Tennis Courts Complex Expansion
Soil Association Map

NOT TO SCALE

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.

RFE/LahainaCC Tennis/soils

low uplands. Soils of this association have developed in material weathered from basic igneous rocks.

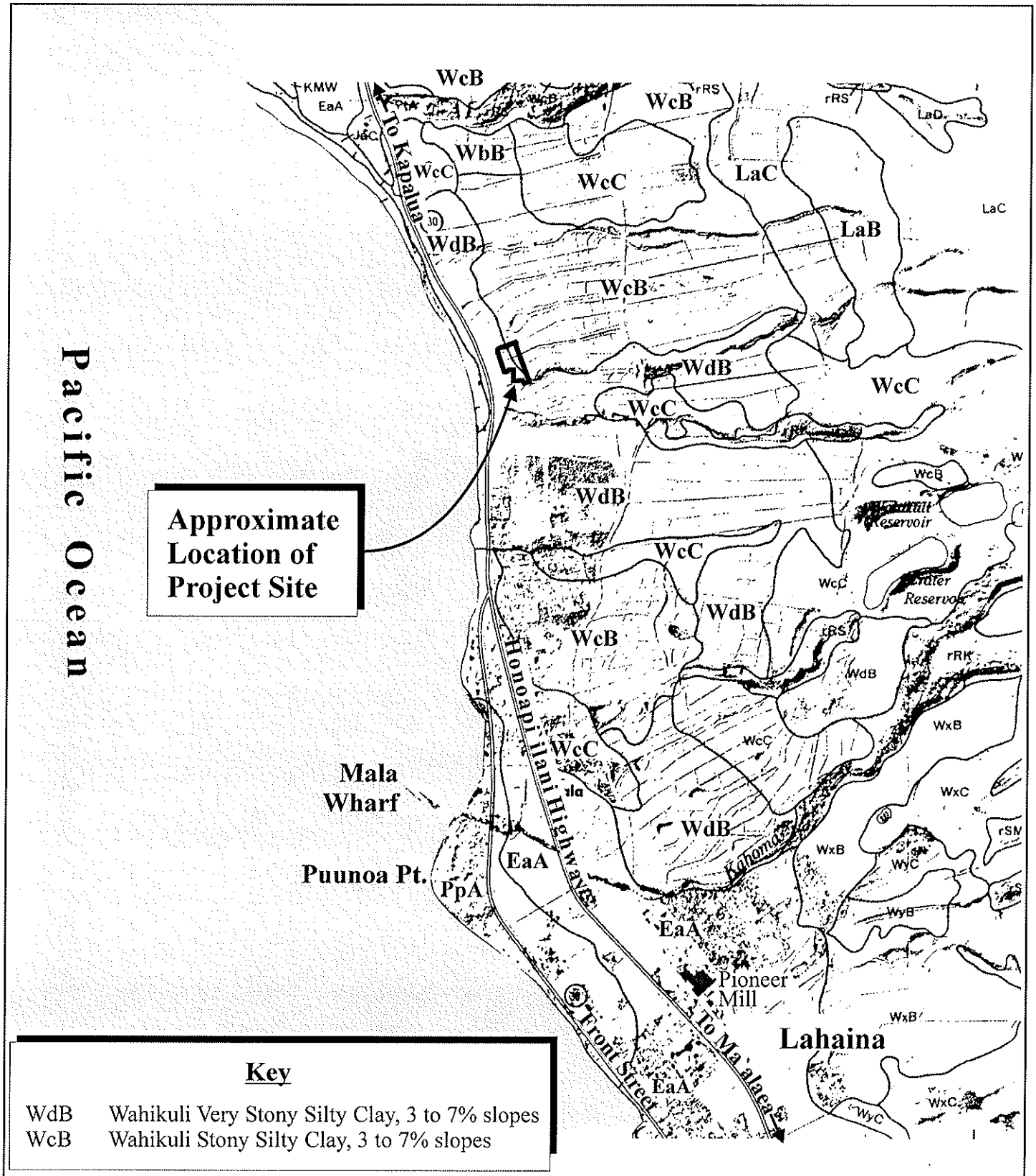
Soils underlying a portion of the project site are of the Wahikuli Series, more specifically Wahikuli very stony silty clay, 3 to 7 percent slopes (WdB). The remaining portion of the project site have soils classified as Wahikuli stony silty clay, 3 to 7 percent slopes (WcB). See **Figure 6**. Both of these soils have moderate permeability, slow runoff and the erosion hazard is slight. The soils of this series are gently to moderately sloping and are geographically associated with Lahaina and Moloka`i soil.

The WcB soils have a dark-reddish brown surface layer and have enough stones on the surface to hinder cultivation. The WdB soils also have a dark-reddish brown surface layer except that it can have as much as 3 percent of the surface covered by stones. Both of these soil types are used primarily for sugarcane and a small acreage is used for homesites.

Elevations of the site range from about 40 feet to 60 feet above mean sea level. The site generally slopes in an east to west direction. The steepest areas are at the easterly and southwesterly ends with slopes that range from about 20 to 40 percent. The flattest areas are at the northwesterly end of the site with slopes that range from about 4 to 8 percent. See **Figure 7**.

b. Potential Impacts and Proposed Mitigation Measures

The proposed action will require grading to accommodate grade requirements for the new tennis facilities. Cut and fill quantities will be balanced to the extent practicable, with limited alteration to the general topographic conditions at the site. Soil conditions at the site do not pose construction constraints for the project. The proposed project is not anticipated to adversely affect topography and soil characteristics of the area.



Source: USDA Soil Conservation Service

Figure 6 Proposed Lahaina Civic Center Tennis Courts Complex Expansion

Soil Classification Map

0 500 1000 2000 Feet

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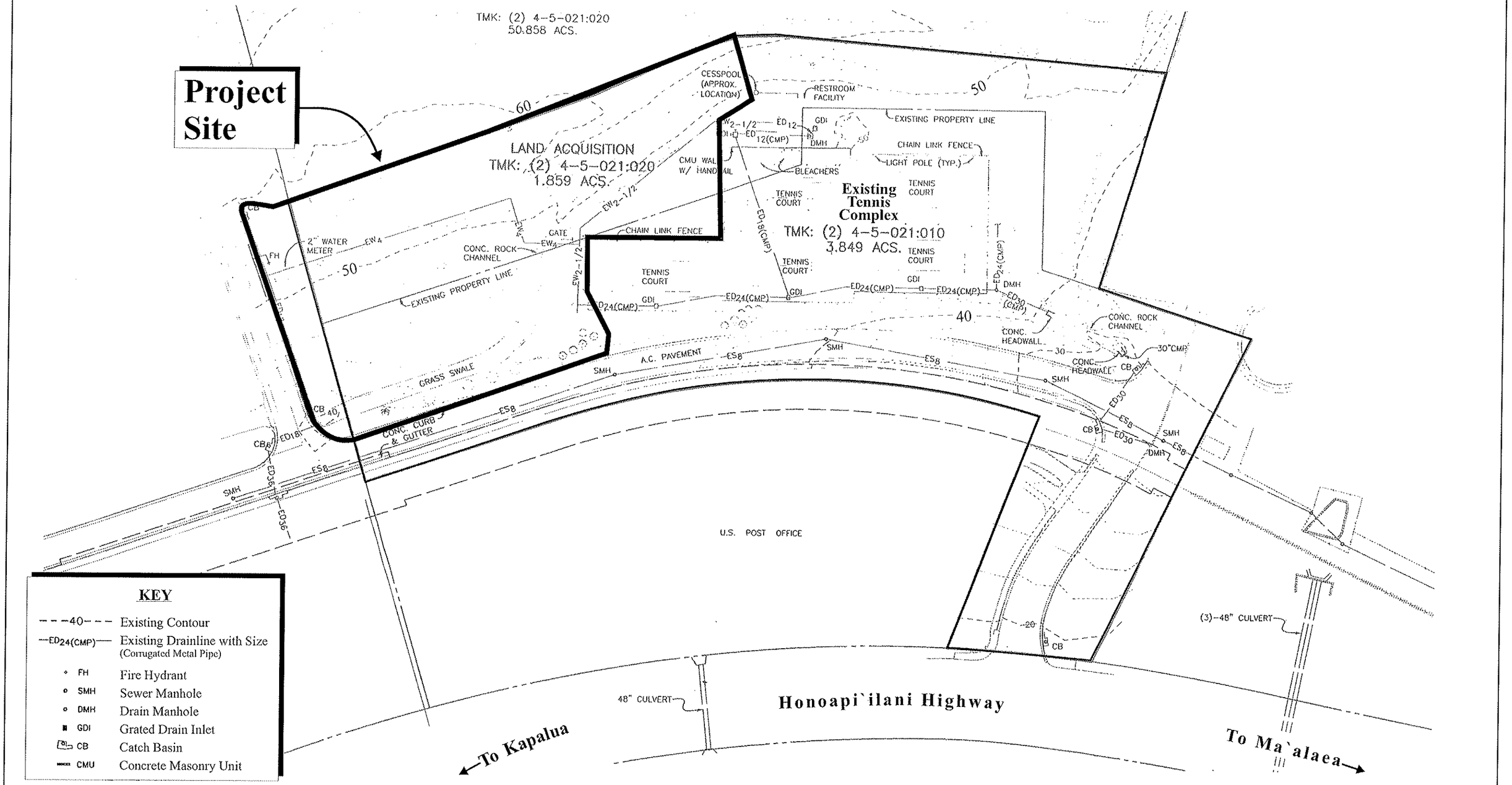

Source: Ronald M. Fukumoto Engineering, Inc.

Figure 7

Proposed Lahaina Civic Center Tennis Courts Complex Expansion

Topographic Map

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Prepared for: County of Maui, Dept. of Parks and Recreation

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RFE/LahainaCC Tennis/topographic

4. Agricultural Productivity Considerations

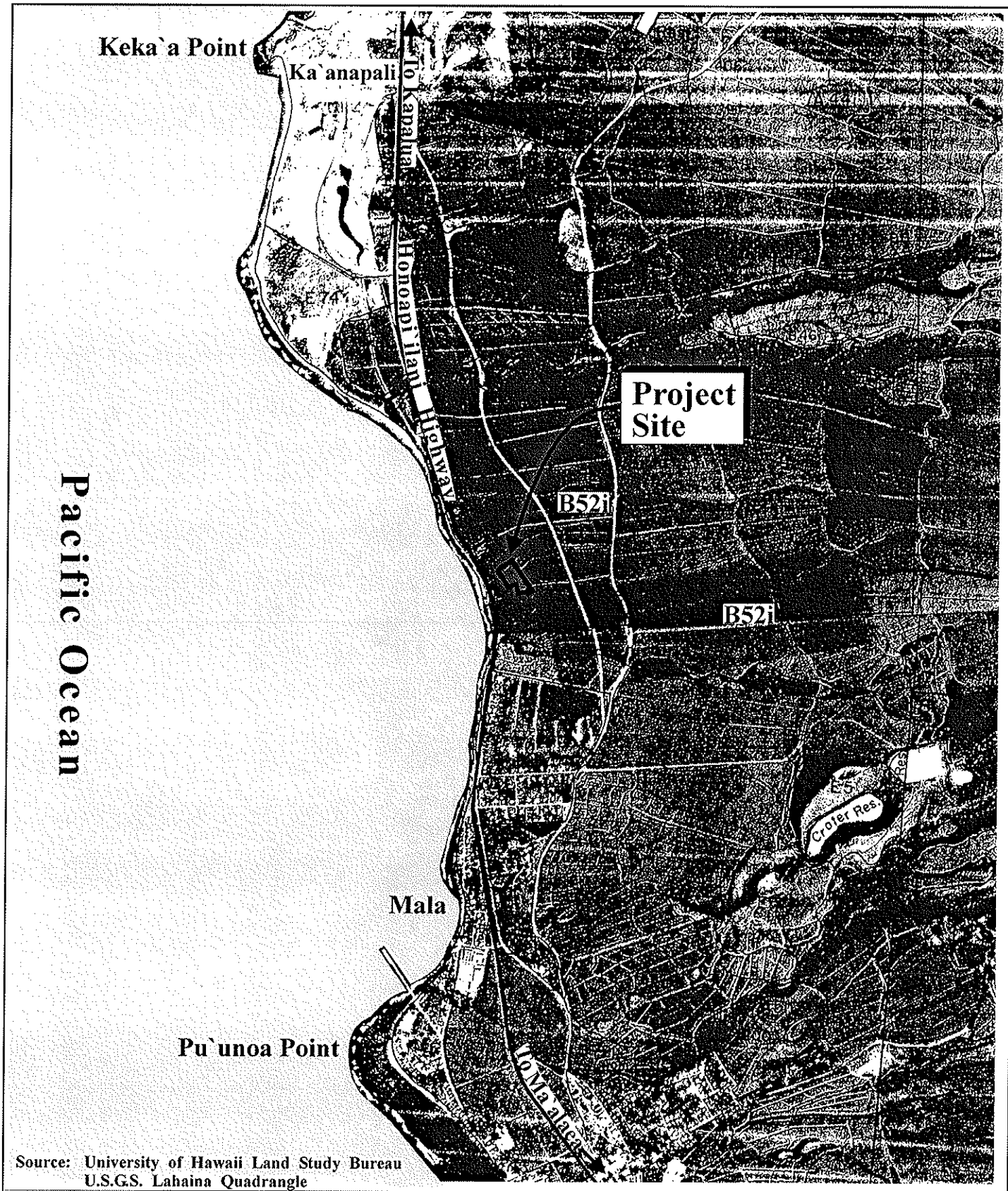
a. Existing Conditions

The lands underlying the subject property were formerly utilized for sugarcane cultivation by Pioneer Mill Company, Ltd.

The coastal flatlands and plateaus of the West Maui Mountains are suitable for agricultural crop cultivation. Soils are dark reddish-brown, stony, well-drained, and deep in the areas north of Lahaina, but stony in the areas south of Lahaina. Slopes along the coastal flatlands are level, whereas slopes on the plateaus range from gentle to steeply sloping. These plateaus are typically separated by deep, steep-sided canyons.

With regard to agricultural productivity attributes, the Land Study Bureau classifies lands with a productivity rating of "A" through "E", with "A" reflecting lands with the highest productivity and "E" the lowest. The lands underlying the project site have an overall productivity rating of "B" and reflects land types which are moderately suited for agricultural uses. According to the Land Study Bureau's Detailed Land Classification Map, the project site has been rated B52i. The land type, B52i represents deep, stony, well-drained, fine-textured soils with slopes ranging from 0 to 10 percent and elevations ranging from sea level to 400 feet. See **Figure 8**.

Additionally, the State Department of Agriculture has established three (3) categories of Agricultural Lands of Importance to the State of Hawai`i (ALISH). "Prime" lands are those lands which possess the soil quality, growing season, and moisture supply needed to produce high yields of crops economically and when treated and managed according to modern farming techniques. "Unique" lands have similar crop specific characteristics, while lands rated "Other" are not classified as "Prime" or "Unique", but are of Statewide or local agricultural importance. Lands not rated "Prime", "Unique" or "Other", are "Unclassified". According to the ALISH map, the lands underlying the tennis courts expansion site are "Unclassified". See **Figure 9**.



Source: University of Hawaii Land Study Bureau
U.S.G.S. Lahaina Quadrangle

Figure 8 Proposed Lahaina Civic Center Tennis Courts Complex Expansion

NOT TO SCALE

Land Study Bureau Classification Map

Prepared for: County of Maui, Dept. of Parks and Recreation

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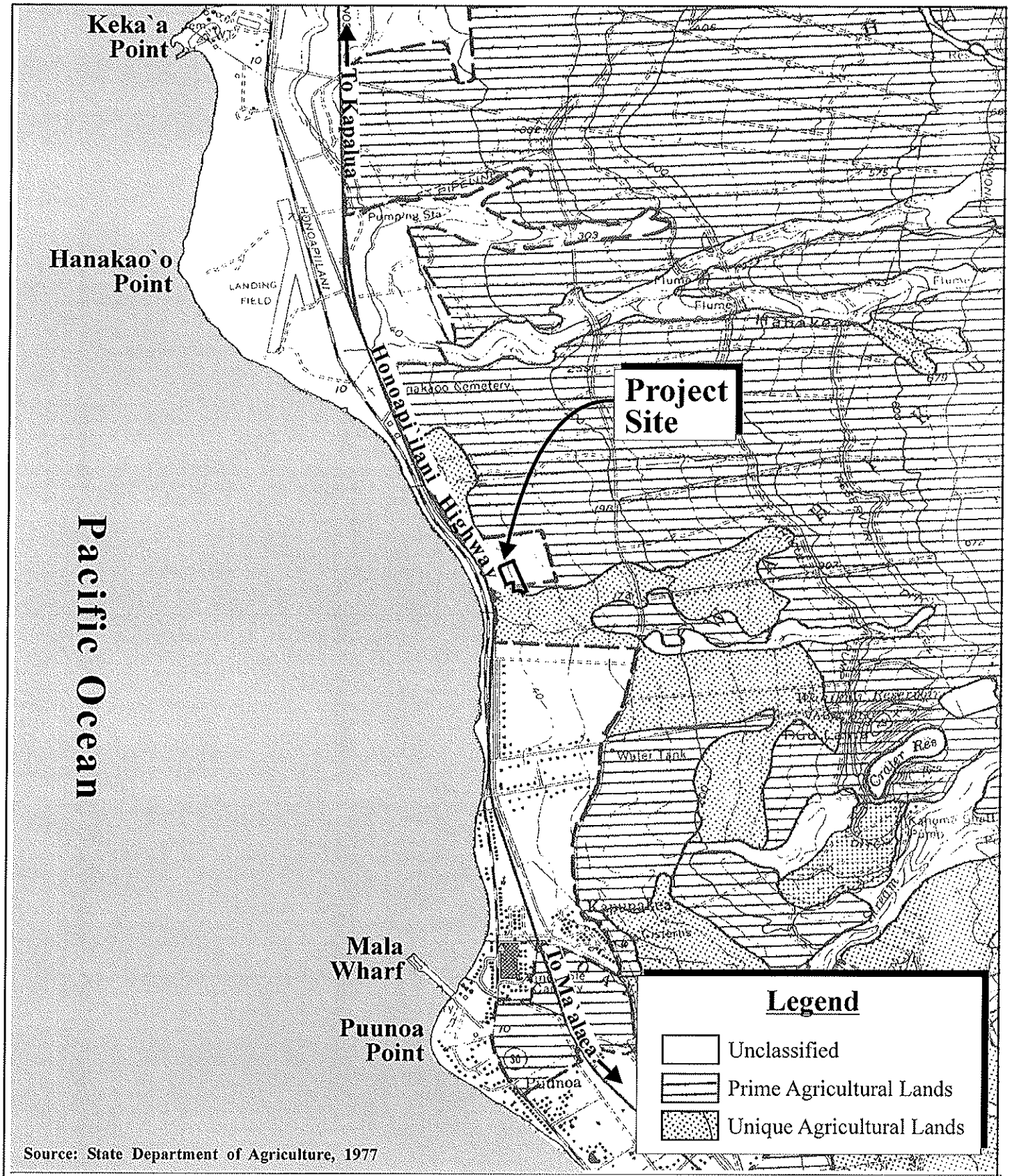


Figure 9

Proposed Lahaina Civic Center Tennis Courts Complex Expansion

ALISH Map

0 500 1000 2000 Feet

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.

RFE/LahainaCC Tennis/ALISH

b. Potential Impacts and Proposed Mitigation Measures

The proposed action will involve the use of land which is no longer utilized for agricultural purposes. The acreage encompassed by this land is not considered significant in the context of the total 246,000 acres of State Agricultural district lands on the island of Maui. The use of this land for the proposed project is not anticipated to adversely affect the inventory of lands available for agricultural cultivation, nor is it expected to affect the inventory of land available for diversified agricultural use. In summary, the proposed action is not anticipated to adversely affect agricultural productivity parameters for the island of Maui.

5. Flood and Tsunami Hazards

a. Existing Conditions

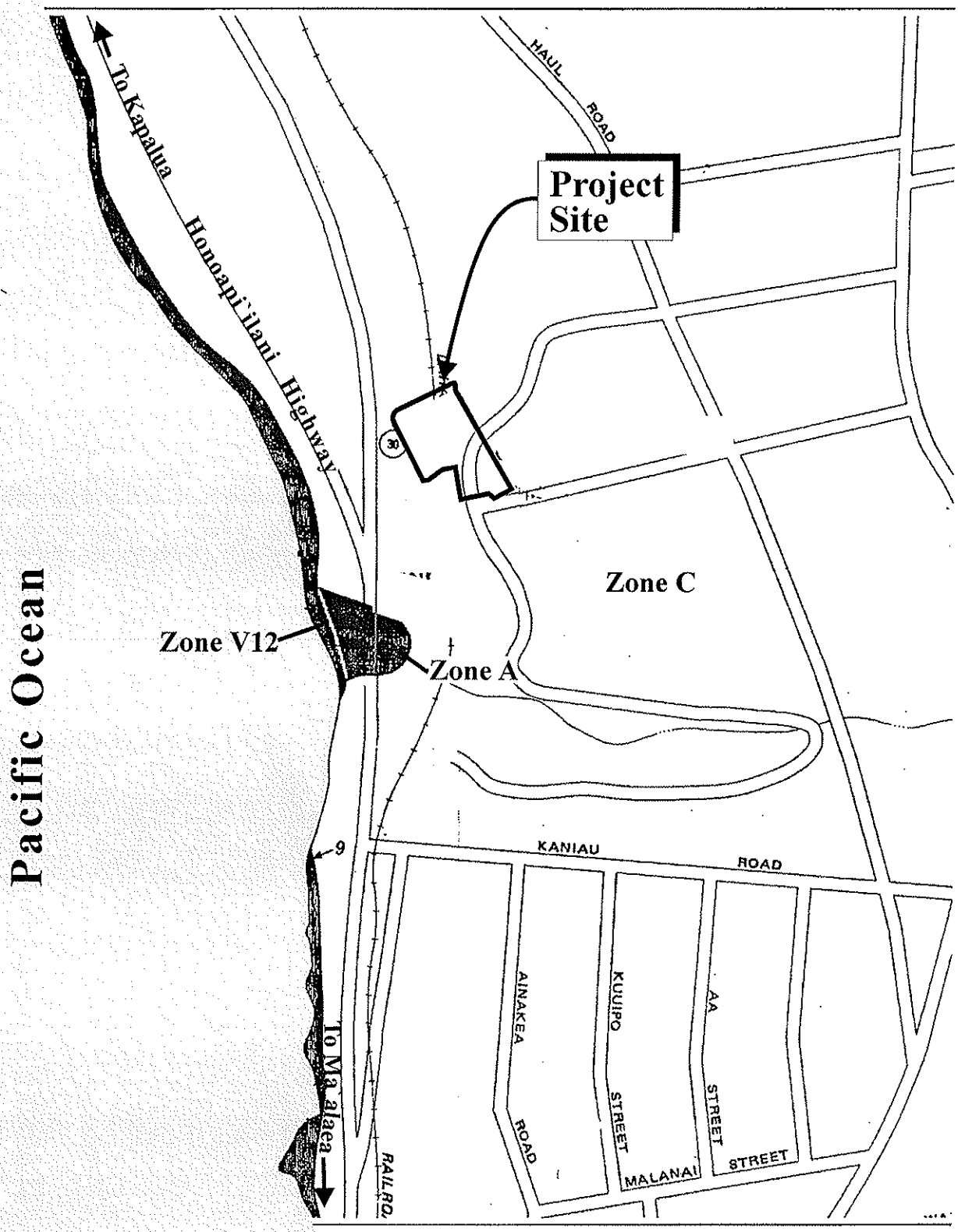
The Federal Emergency Management Agency's Flood Insurance Rate Map (FIRM) indicates that the project site is located in Zone C, identified as areas of low flood risk and minimal flooding with no development restrictions. See **Figure 10**. Specifically, the Federal Emergency Management Agency (FEMA) describes areas in Flood Zone C as follows:

> Areas outside the 1-percent annual chance floodplain, areas of 1-percent annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1-percent annual chance stream flooding where the contributing drainage areas is less than 1 square mile, or areas protected from the 1-percent annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.

In addition, the project site is situated in a location which is outside of the tsunami inundation area.

b. Potential Impacts and Proposed Mitigation Measures

The proposed expansion is not located within a flood hazard district and there are no restrictions on development in Flood Zone C. Moreover, the project site is located outside of the tsunami inundation area and tsunami evacuation



Source: Federal Emergency Management Agency, Flood Insurance Rate Map

Figure 10 Proposed Lahaina Civic Center Tennis Courts Complex Expansion Flood Insurance Rate Map

NOT TO SCALE

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RFE/LahainaCC Tennis/FIRM

zone. The proposed action will include onsite drainage improvements in keeping with County of Maui design standards. No adverse impact to flood conditions is anticipated as a result of the proposed expansion.

6. Flora and Fauna

a. Existing Conditions

The Environmental Impact Statement Preparation Notice (EISPN) prepared for the Ka`anapali 2020 Plan (Munekiyo & Hiraga, 2004) contained an area-wide biological resources survey which identified the vegetation in the immediate vicinity of the subject property to be predominately a weedy mixture of plants commonly associated with agricultural lands. Introduced species of grasses, weeds, shrubs, and trees have occupied the former sugar lands. Strips of vegetation, including haole koa brush and kiawe trees border the Hanakaoo, Wahikuli, and Hahakea Gulches. A few native species, such as the wiliwili, 'ilima, and Kakowakona, are found in the gulch areas.

There are no wetlands located within or in close proximity to the project area as indicated by the U.S. Department of Interior's National Welands Inventory Map.

The feral mammals seen during the field survey and likely to occur in the project area include the mongoose and rats, as well as feral cats and pigs. Avifauna include the Maui Amakihi, Pueo, Black Crowned Night Heron, Pacific Golden Plover, Ruddy Turnstone, Sanderling, and Wandering Tattler. None of these birds are listed as endangered or threatened on Maui.

b. Potential Impacts and Proposed Mitigation Measures

The proposed expansion of the LCC tennis courts complex is not expected to have a negative impact on avifauna, and feral mammal resources. The biological survey revealed that there were no rare, threatened, or endangered species of terrestrial fauna in the project area. None of the plants found in the project area are threatened or endangered species of concern. The proposed expansion is not expected to have a significant negative impact on the botanical resources.

7. Streams, Wetlands, and Reservoirs

a. Existing Conditions

According to the United States Department of the Interior, Fish and Wildlife Service, National Wetland Inventory Map, there are no wetland features in close proximity to the project site. There are no streams or other inland water bodies in proximity to the project site as well.

b. Potential Impacts and Proposed Mitigation Measures

The proposed tennis courts expansion project is not anticipated to have any adverse effects on streams or other natural inland water features in the West Maui region.

8. Air Quality

a. Existing Conditions

There are no point sources of airborne emissions in the immediate vicinity of the project site. Although minimal, airborne pollutants are largely attributable to vehicular exhaust from traffic along Honoapi`ilani Highway and nearby roadways. Windblown dust from fallow fields are another source of indirect emissions in the region. These sources, however, are intermittent and prevailing winds quickly disperse the particulates generated by these temporary sources. Overall, the air quality in the Lahaina region is considered good.

b. Potential Impacts and Proposed Mitigation Measures

In the short term, construction related activities for the proposed LCC tennis courts complex expansion project will be the primary source of airborne pollutants affecting the surrounding area. Site work involving clearing, grubbing, and grading operations will generate fugitive dust. Appropriate Best Management Practices (BMPs) will be utilized to minimize air quality impacts associated with project construction.

The proposed expansion is not an action which will generate adverse long-term air quality impacts.

9. Noise Characteristics

a. Existing Conditions

There are no fixed noise generators in the vicinity of the project site. Existing background noise levels are primarily attributable to vehicular traffic along Honoapi`ilani Highway and aircraft noise from the Kapalua-West Maui Airport operations. Noise sources within the project area also include large events and concerts from the Lahaina Civic Center.

b. Potential Impacts and Proposed Mitigation Measures

Ambient noise conditions may be temporarily affected by construction activities. Heavy construction machinery, such as backhoes, dump trucks, front-end loaders, paving equipment, and material-transport vehicles are anticipated to be the dominant noise-generating sources during the construction period of the proposed expansion of the LCC tennis courts complex. Once completed, the proposed project itself is not anticipated to adversely alter noise conditions at the LCC.

10. Archaeological Resources

a. Existing Conditions

An archaeological field inspection for the project site was conducted by Scientific Consultant Services, Inc. See **Appendix "A"**. The field inspection report notes that the project site has been historically and recently graded and grubbed. The eastern portion of the site contains abundant grasses and *koa haole*, with evidence of modern trash scattered throughout the undeveloped project lands.

The field inspection found no traditional Hawaiian properties at the site, and field observations suggest that there are no readily apparent subsurface cultural deposits.

b. Potential Impacts and Proposed Mitigation Measures

Based on the results of the field inspection and the significant past surface modifications at the property, no further archaeological work is recommended. In this regard, adverse impacts to archaeological resources are not anticipated.

Nonetheless, in the event inadvertent archaeological finds are encountered during construction, work will be halted in the immediate vicinity of the find and appropriate mitigation protocols implemented in coordination with the State Historic Preservation Division.

11. Cultural Resources

a. Existing Conditions

A cultural impact assessment for the proposed action was prepared in accordance with the Office of Environmental Quality Control's Guidelines for Assessing Cultural Impacts. See **Appendix "B"**. The cultural impact assessment establishes a cultural context for the subject area through descriptions of past political boundaries, traditional settlement patterns, legendary places, Lahaina District settlement patterns, the Great Mahele, and historic land uses.

Methodologically, the cultural assessment process also incorporated sending of letters of inquiry to individuals and organizations having cultural resource knowledge and expertise. This process, combined with research on historical and cultural sources was used as a basis for assessing the project's impacts on cultural resources.

b. Potential Impacts and Proposed Mitigation Measures

The cultural impact assessment found that the project area has not been used for traditional cultural purposes in the recent past. Complementary to this finding, the cultural impact assessment notes that there will be no direct adverse effect upon cultural beliefs, including those related to gathering, access or other customary activities.

12. Scenic and Open Space Resources

a. Existing Conditions

The West Maui Mountains are visible to the east and provide a scenic backdrop to the project site. The Wahikuli Wayside Park, located makai of Honoapi`ilani Highway, west of the project site, provides a coastal open space and recreational area landscape. The built environment at the LCC include public/quasi-public buildings and the existing tennis court complex.

b. Potential Impacts and Proposed Mitigation Measures

The project area is located on slopes mauka of Honoapi`ilani Highway. Design of the proposed LCC tennis courts complex expansion will maintain the urban design character established by surrounding public/quasi-public land uses. Design parameters for the proposed tennis court complex expansion will establish landscaping details within the site, similar to the existing tennis courts complex at the LCC and adjacent public/quasi-public facilities, to provide visual continuity and buffers from existing adjacent residential uses to the south of the project site. See **Appendix "C"**. The proposed tennis facility expansion project is not anticipated to have an adverse impact on area's visual resources.

B. SOCIO-ECONOMIC CONDITIONS

1. Land Use and Community Character

a. Existing Conditions

The majority of lands in the West Maui region are designated for either "Conservation" or "Agricultural" use by the State Land Use Commission. Generally, lands designated for "Conservation" and "Agricultural" uses occupy the higher and middle elevations, respectively, while lands designated for "Urban" use are located at the lower elevations along the coast.

Ka`anapali and Kapalua contain Community Plan designations reflective of their resort nature. The communities of Kahana and Napili contain a mixture of resort, residential, and business uses.

Lahaina encompasses a diverse mix of land uses, including residential, business, light industrial, recreational, and agricultural uses. Lahaina town is the commercial center of West Maui and the former first capital of the State of Hawai`i. Lahaina town has also been designated as a National Historic Landmark as the former whaling capital. The town contains several shopping centers and retail business areas, and serves as a hub for the region's residential housing. To the east (mauka) of the Pioneer Mill smokestack in Lahaina, there exists a multitude of single-family homes for island residents.

Part of West Maui's attraction can be attributed to its consistently dry and warm climate, complimented by its many white-sand beaches and scenic landscaped vistas. The vast number of visitor accommodations are located in the town of Lahaina and the resort communities of Ka`anapali, Kapalua, Kahana, and Napili.

The Kapalua-West Maui Airport at Mahinahina provides commuter air services which conveniently link the West Maui region to Oahu and other neighbor islands. The airport is operated by the State Department of Transportation's Airports Division and is located approximately 1.5 miles to the north of the project site.

Pineapple fields and diversified agriculture, such as corn, bananas, melons and papayas, occupy much of the actively cultivated agricultural lands in the West Maui region. Since the closure of its sugar cane cultivation operations in September 1999, Pioneer Mill Company has set aside approximately 1,200 acres of their agricultural lands in Ka`anapali to grow seed corn and coffee. Maui Pineapple Company's pineapple fields span the lowlands below the West Maui Mountains north of Lahaina.

b. <u>Potential Impacts and Mitigation Measures</u>

The project site is situated along the northwestern coast of Maui which includes the residential communities of Lahaina, Honokowai, Kahana, and Napili, as well as the master planned resorts of Ka`anapali and Kapalua.

The proposed expansion of the existing LCC tennis courts complex is needed in the West Maui region in order to provide the community with recreational

facilities sufficient to support continuing growth in population and housing developments in the area. The proposed project will have a positive impact on the accessibility and availability of the current West Maui public recreational facilities. The proposed expansion is not anticipated to adversely alter the community character of West Maui.

2. Population and Demography

a. Existing Conditions

The proposed tennis facility expansion project is located on the mauka side of Honoapi'ilani Highway near the western coast of Lahaina, Maui, within the West Maui Community Plan region.

The County of Maui, specifically the Island of Maui and the West Maui region has exhibited relatively strong growth over the past decade. In 2000, the population of Maui County was 128,241, compared to a 1990 population of about 100,504 (SMS, June 2006). The resident population of the Maui County in 2005 was estimated to be 140,050 and is projected to increase to approximately 151,300 in 2010 (SMS, June 2006).

Just as the County's population has grown, the resident population of the Island of Maui has also increased. In 2000, the estimated population of the Island of Maui was 117,644. It is projected that in 2010 the population will reach approximately 140,289 (SMS, June 2006).

West Maui's growth over the last three (3) decades has kept pace with that of Maui County. Since 1970, West Maui has seen an increase in resident population growing from about 5,500 persons in 1970, to approximately 10,300 persons in 1980, to about 14,600 in 1990. In 2000, the resident population of Lahaina was approximately 17,967 (SMS, June 2006). Population forecasts for this region reflect a West Maui population of 21,577 persons in 2010 (SMS, June 2006). Accounting for visitors and workers, the day-time population increases to approximately 50,000 people in the West Maui region.

Age and ethnicity attributes of the West Maui region for the year 2000 are reflected in **Table 3**.

Table 3. Age and Ethnicity

AGE AND ETHNICITY		
	Maui County	**West Maui**
Population	128,094	17,748
Age		
Under 5	7 percent	7 percent
5 to 19	21 percent	17 percent
20 to 44	37 percent	42 percent
45 to 64	24 percent	24 percent
65 and older	11 percent	10 percent
Median Age	36.8 years	39.3 years
Ethnicity		
Caucasian	34 percent	55 percent
Japanese	10 percent	5 percent
Hawai`ian	9 percent	6 percent
Filipino	17 percent	13 percent
All Others	30 percent	21 percent
Source: U.S. Census Bureau, 2000.		

West Maui has a larger percentage of its population in the eligible labor force than the County as a whole. As noted in the preceding table, in the year 2000, 66 percent (66%) of West Maui's population is in the labor force age bracket of 20 to 64 years, while Countywide, 61 percent (61%) of the population is in this age category. West Maui has a slightly higher median age of 39.3 years, when compared to the Countywide median of 36.8 years.

b. Potential Impacts and Proposed Mitigation Measures

With nearly 18,000 full-time residents and accounting for the visitor population and a fast-growing population, West Maui has sufficient population to support an expansion of the existing LCC tennis court complex. Due to the public nature of this recreational facility, the additional tennis courts accessible to residents, non-residents, and visitors are considered a community benefit. The proposed tennis facility expansion project is not a direct population generator and, as such, is not anticipated to have significant adverse impacts on population or demographic trends of the West Maui region.

3. Labor Force

a. Existing Conditions

In 2000, there were a total of 21,148 civilian jobs in the Lahaina area, of which 4,703 were self-employed jobs. In November, 2007, the non-seasonally adjusted unemployment rate for Maui County and the Island of Maui stood at 3.5 percent and 3.4 percent, respectively, which is a 1.4 percent (1.4%) increase in the rate from the previous year (State Department of Labor and Industrial Relations, December 2007).

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

Table 4. Labor Force Characteristics

Occupational Category	Maui County	West Maui
Agriculture	3 percent	2 percent
Manufacturing	2 percent	<1 percent
Construction	4 percent	2 percent
Transportation, Communication, and Utility	4 percent	2 percent
Trade	20 percent	22 percent
Banking & Finance	4 percent	4 percent
Service	31 percent	40 percent
Government	10 percent	4 percent
Self-employed	23 percent	23 percent
Source: SMS, June 2006		

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

b. Potential Impacts and Proposed Mitigation Measures

On a short-term basis, the project will support construction and construction-related employment. This project is not anticipated to have significant negative impacts on labor conditions.

C. PUBLIC SERVICES AND FACILITIES

1. Police and Fire Protection Services

a. Existing Conditions

The project site is within the service area of the Maui Police Department's Lahaina patrol district which services the West Maui region. The Lahaina Police Station is located in the Lahaina Civic Center complex, to the north of the project site, and was built in the early 1970's. The Lahaina patrol district

includes management level officers, field police officers, and additional personnel, which consists of public safety aides and administrative support staff (Maui Police Department Personnel Roster, May 2008). In addition, there is also a police sub-station in Napili. This sub-station is used to allow officers assigned in the outskirts of Lahaina to write police reports without having to travel back into Lahaina town.

Fire prevention, suppression and protection services for the West Maui region are provided by the County Department of Fire and Public Safety's Lahaina and Napili Fire Stations. The Lahaina Fire Station is to the north of the project site at the LCC, while the Napili Fire Station is located approximately 7.4 miles to the northeast. The Lahaina Fire Station includes an engine and a ladder company, and is staffed by 30 full-time personnel. It also has a boat for ocean rescues. The Napili Fire Station consists of an engine company with 15 full-time firefighting personnel. All firefighting personnel are first-responder trained to provide emergency medical care.

b. Potential Impacts and Mitigation Measures

The proposed action is not anticipated to affect the capabilities of police and fire services. In addition, the existing operational limits of these services are not expected to be extended or affected.

2. Medical Facilities

a. Existing Conditions

Maui Memorial Medical Center serves as the island's only major medical facility. Located in Wailuku, approximately 25.0 miles southeast of Lahaina, the 231-bed facility provides general, acute, and emergency care services for the island's residents and visitors. In addition, the Kaiser Permanente Medical Clinic, West Maui Healthcare Center, Maui Medical Group, Lahaina Physicians, and other private medical and dental offices provide health care services for the region's residents and visitors.

b. Potential Impacts and Mitigation Measures

The proposed project is not anticipated to adversely affect medical services and delivery capacities in the area.

3. Recreational Facilities

a. Existing Conditions

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

Recreational facilities in Lahaina Town include the Lahaina Aquatic Center, the West Maui Youth Center, the Lahaina Recreation Center, and the LCC. The Lahaina Aquatic Center contains an Olympic-size swimming pool, a children's wading pool, a paved parking lot and office and storage space, as well as shower, restroom and changing room facilities. The 15-acre Wainee Park expansion, includes new fields, parking and washroom facilities. The West Maui Youth Center has a building for youth activities, as well as paved parking, an outdoor playground and a basketball court. The Lahaina Recreation Center includes baseball fields and playfields for soccer and football, as well as restrooms and paved parking facilities. The LCC includes a gymnasium, amphitheater and tennis courts complex, as well as restrooms and paved parking facilities. Refer to **Figure 4.**

Additionally, the clear ocean waters and well-developed reef system along the Lahaina and Ka`anapali coastline offer many recreational opportunities for residents and visitors. Many tourism-based businesses also rely on the ocean and reef system for their operation.

Fishing by shorecasting and netting is practiced in the ocean waters near Lahaina Town, Ka`anapali Beach, Hanakaoo Point and Honokowai Point. Edible seaweed collecting, octopus fishing and spearfishing occur on the adjacent reef flat fronting Ka`anapali. During periods of wave activity, the area is a good location for surfing.

b. Potential Impacts and Mitigation Measures

The proposed expansion of the tennis courts complex at LCC will provide residents with accessibility to more public recreational facilities in the West Maui region. This project is viewed as a community benefit for island residents.

4. Educational Facilities

a. Existing Conditions

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

Table 5. Actual and Projected Enrollments at Department of Education Schools

School	Capacity	Actual Enrollment		Projected Enrollment					
	SY 05-06	SY 04-05	SY 05-06	SY 06-07	SY 07-08	SY 08-09	SY 09-10	SY 10-11	SY 11-12
Lahainaluna High School	969	1,038	1,033	1,000	907	810	765	762	796
Lahaina Intermediate	571	637	578	596	565	581	545	500	490
Kamehameha III Elementary	646	702	744	766	817	869	958	1,033	1,077
Princess Nahi`ena`ena Elementary	612	664	598	630	620	617	636	651	653

Source: Department of Education, 2006.

Maui Community College (MCC), which is located in Kahului, is a branch of the University of Hawai`i system. In addition, there is an MCC-Lahaina Education Center that opened in Fall 2007. MCC is the primary higher education institution serving Maui.

b. Potential Impacts and Proposed Mitigation Measures

The proposed project is not a direct population generator and, as such, is not anticipated to impact educational facilities in the region.

5. Solid Waste Collector and Disposal Services

a. Existing Conditions

Residential refuse collection is provided by the County's Department of Environmental Management, Solid Waste Division. Private refuse collectors provide solid waste disposal services for commercial and institutional accounts. With the exception of the Hana region, residential and commercial solid waste from throughout the island is transported to the Central Maui Landfill at Puunene, about 30.0 miles to the southeast of the project site.

A refuse transfer station located at Olowalu, approximately 8.0 miles south of the project site, accepts household and green wastes, as well as used oil, for transport to the Central Maui Landfill in Puunene. The disposal of

commercial and institutional refuse is not permitted at the Olowalu transfer station.

b. Potential Impacts and Mitigation Measures

As applicable, a solid waste management plan will be developed for the disposal of materials resulting from the site and construction activities. Once completed, it is anticipated that the project would be served by the County's solid waste collection service. Currently, the County of Maui's Solid Waste Division is in the process of completing a landfill expansion project, estimated to provide the island with sufficient capacity for several years, which takes into account future growth of residential and non-residential uses. In addition, lands adjacent to the existing landfill are currently utilized for rock quarrying and will likely be available for County expansion of the landfill, further increasing available capacity.

The proposed action is not anticipated to adversely impact solid waste collection and disposal capabilities and capacities.

D. INFRASTRUCTURE

1. Existing Roadway Infrastructure

a. Existing Conditions

Vehicular access to the proposed expansion of the LCC tennis courts complex will be provided via Leali`i Parkway and its intersection with Honoapi`ilani Highway.

Direct vehicular access to the proposed expansion will be provided via West Perimeter Road and South Access Road through the additional 25-stall paved parking lot that is included in the site plans for the additional tennis courts complex. Refer to **Figure 3**. The parking lot will be located on the south side of South Access Road and east of West Perimeter Road. The South Access Road runs perpendicular to Honoapi`ilani Highway and intersects with West Perimeter Road on the east side. West Permiter Road runs parallel to Honoapi`ilani Highway and intersects with Leali`i Parkway to the north.

Access to the Lahaina region is provided by Honoapi`ilani Highway from Central (Wailuku/Kahului) and South (Kihei/Wailea) Maui. Extending from Wailuku to Kapalua, it is the only State highway serving the West Maui region. With the exception of a four-lane segment from Lahainaluna Road to Lower Honoapi'ilani Road, the typical highway section consists of two (2) lanes bordered by paved shoulders which also function as bike routes.

b. Potential Impacts and Mitigation Measures

A traffic impact assessment (TIA) for the proposed action was prepared by Phillip Rowell and Associates. See **Appendix "D"**. The TIA examined existing levels of service at the Honoapi`ilani Highway-Leali`i Parkway intersection, Honoapi`ilani Highway-Front Street intersection, and the Honoapi`ilani Highway-Ka`anapali Parkway intersection. As reflected in Table 3 of **Appendix "D"**, these intersections operate at levels of service "A", "B", and "D", which are considered acceptable operating thresholds.

To establish a buildout year level-of-service basis of analysis, trip generation for the proposed new tennis courts were calculated and added to projected year 2010 background traffic. Trip generation for the tennis courts are estimated at three (3) inbound and four (4) outbound trips during the morning peak hour. During the afternoon peak hour, the proposed tennis expansion project would generate eight (8) inbound trips and eight (8) outbound trips. Based on the analysis set forth in the TIA, the following conclusions have been advanced.

1. The intersection of Honoapi`ilani Highway at Leiali`i Parkway will operate to Level-of-Service "C" during the morning peak hour and Level-of Service "D" during the afternoon peak hour, without and with project generated traffic. There is no change of level-of-service of any movement as a result of project generated traffic.

2. The intersection of Honoapi`ilani Highway at Front Street will operate at Level-of-Service "B" during the morning peak hour and Level-of-Service "D" during the afternoon peak hour, without and with project generated traffic. There is no change of level-of-service of any movement as a result of project generated traffic.

3. The intersection of Honoapi`ilani Highway at Ka`anapali Parkway will operate at Level-of-Service "C" during the morning peak hour and Level-of-Service "F" during the afternoon peak hour, without and with project generated traffic. There is no change of level-of-service of any movement as a result of project generated traffic.

In summary, the proposed action is not expected to adversely impact traffic operating conditions at key intersection in vicinity of the project site.

2. Water

a. Existing Conditions

The West Maui region is served by the County's Department of Water Supply domestic water system. The County water system services the coastal areas from Launiupoko to Ka`anapali and from Honokowai to Napili. The County's system includes two (2) surface and nine (9) groundwater sources.

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

The County of Maui provided water service for the LCC. The existing distribution system within the LCC site includes 8-inch lines and fire hydrants. Existing water laterals tap into these main lines and serve various buildings and areas within the civic center. An existing 2-inch meter serves the existing tennis court restroom and surrounding areas. See **Appendix "E"**.

b. Potential Impacts and Proposed Mitigation Measures

The proposed project is not anticipated to require substantial potable water usage over that which is currently being used at the project site. The

proposed expansion is being pursued to improve accessibility to tennis court facilities in the West Maui area. Included in the site plans are the relocating of the existing water meter, rerouting of existing water service lines between the water meter and the existing restroom, and installing a new irrigation system within the graded area. According to the Preliminary Engineering Report (PER) prepared by Ronald M. Fukumoto Engineering, Inc. (RFE), the total water usage attibutable to the project will be reduced by 2,100 gallons per day or about 11 percent (11%) of the current usage. This reduction is due to an overall reduction in irrigation requirements. Therefore, a positive outcome as it relates to the water supply is anticipated as a result of the proposed action.

3. Wastewater Systems

a. Existing Conditions

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

Wastewater from the Ka`anapali and Lahaina areas is treated at the County's Lahaina Wastewater Reclamation Facility (WWRF), which is part of the project site. The WWRF's potential total treatment capacity is 9.0 million gallons per day (mgd), with 6.0 mgd for secondary treatment and 3.0 mgd for R-1 treatment. Presently, the facility treats about 5.4 mgd of wastewater. About 1.2 mgd of the R-1 treated effluent is used to irrigate the Royal Ka`anapali golf courses, the landscaped areas along Honoapi`ilani Highway, and the landscaped median of Ka`anapali Parkway. The remaining treated effluent (4.2 mgd) is disposed into four (4) injection wells located within the facility. Under the conditions of its Environmental Protection Agency (EPA) permit, the County is allowed to dispose a maximum flow of 6.7 mgd into the injection wells.

A newly constructed gravity sewerline is located within the LCC site along the LCC driveway, across the adjoining DHHL site. This sewerline connects to an existing sewerline which carries the wastewater to the County of Maui collection system within Honoapi`ilani Highway.

b. Potential Impacts and Proposed Mitigation Measures

The average wastewater flow rates for the project area were estimated using County of Maui Standards. The total projected wastewater flows generated by the proposed LCC tennis courts complex expansion is approximately 900 gallons per day. Combined with the existing wastewater demand for the five (5) existing tennis courts, the total projected wastewater flow from the tennis facility is 2,025 gallons per day. Refer to **Appendix "E"**.

Adverse impacts to wastewater collection, treatment and disposal capacities are not anticipated from the proposed action.

4. Drainage

a. Existing Conditions

The project site gently slopes down from east to west with site elevations ranging from approximately 40 feet to 60 feet above mean sea level. The steepest areas are the easterly and southwesterly ends with slopes that range from about 20 to 40 percent. The flattest areas are at the northwesterly end of the site with slopes that range from about 4 to 8 percent.

Existing onsite drainage improvements include: catch basins and inlets which collect storm runoff from the site; drain pipes, channels, and swales which carry the collected runoff to the makai side of the site; and manholes and outlet structures.

Two (2) separate drainageways route the onsite and offsite flows through the site from the easterly side of the site to the northwesterly and southwesterly corners of the project site. The surface runoff from the project site is conveyed through a culvert under Honoapi`ilani Highway and under the Wahikuli Wayside Park, ultimately discharging into the Pacific Ocean. Refer to **Appendix "E"**.

b. Potential Impacts and Mitigation Measures

The proposed expansion will only affect the existing drainage improvements located at the easterly side of the site. The proposed drainage improvements include swales, inlets, manholes, drain pipes, and a subsurface

detention/retention basin and will consist of two (2) separate parts corresponding to onsite and offsite flows.

Maui County drainage standards require the use of a 50-year, 1-hour rainfall for computing volumes and rates of flow. Due to the location of the project site, further guidelines are imposed by the West Maui Watershed Management Advisory Committee which include the maintenance of pre-development runoff volumes for a 2-year, 24-hour storm and pre-development peak flow rates for a 50-year, 1-hour storm. In accordance with the Maui County Rules for the Design of Storm Drainage Facilities, the proposed drainage system will be designed to handle a storm with a recurrence interval of 50 years. The hydrologic design data, which shows the runoff volumes and peak flow rates for the proposed improvements, indicates an increase compared to the existing conditions. However, the runoff rate and volume will be mitigated by the construction of the drainage/retention basin. Refer to **Appendix "E"**.

Since peak flow rates and runoff volumes will be maintained at pre-development levels, the proposed expansion, including the on-site drainage improvements, is not anticipated to adversely affect the adjacent or downstream properties.

5. Electrical, Telephone, and Cable Television Systems

a. Existing Conditions

Electrical, telephone, and cable television services for the West Maui region are provided by Maui Electric Company, Ltd., Hawaiian Telcom, and Oceanic Time Warner Cable Company, respectively. These distribution systems consisting of underground and overhead lines are located along Honoapi`ilani Highway.

b. Potential Impacts and Mitigation Measures

The electrical improvements for this project include new lighting for the four (4) additional tennis courts, parking lot, and walkways. The requirements of the proposed improvements will be discussed with Maui Electric Company during the design phase and prior to the commencement of construction.

There are no improvements in the telephone and cable television services planned for this proposed expansion.

In summary, the proposed action is not anticipated to have an adverse impact on existing electrical, telephone or cable television systems, nor is it expected to extend existing service area limits.

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

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

A. STATE LAND USE DISTRICTS

Chapter 205, Hawai`i Revised Statutes, relating to the Land Use Commission, establishes four (4) major land use districts in which all lands in the state are placed. These districts are designated as "Urban", "Rural", "Agricultural", and "Conservation". The subject property is located within the "Urban" district. See **Figure 11**. The proposed LCC tennis courts complex expansion is a permitted use within the "Urban" designation.

B. HAWAI`I STATE PLAN

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

1. **Section 226-14, Objective and policies for facility systems – in general. To achieve this objective, it shall be State policy to:**

    a. Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.

    b. Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.

    c. Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.

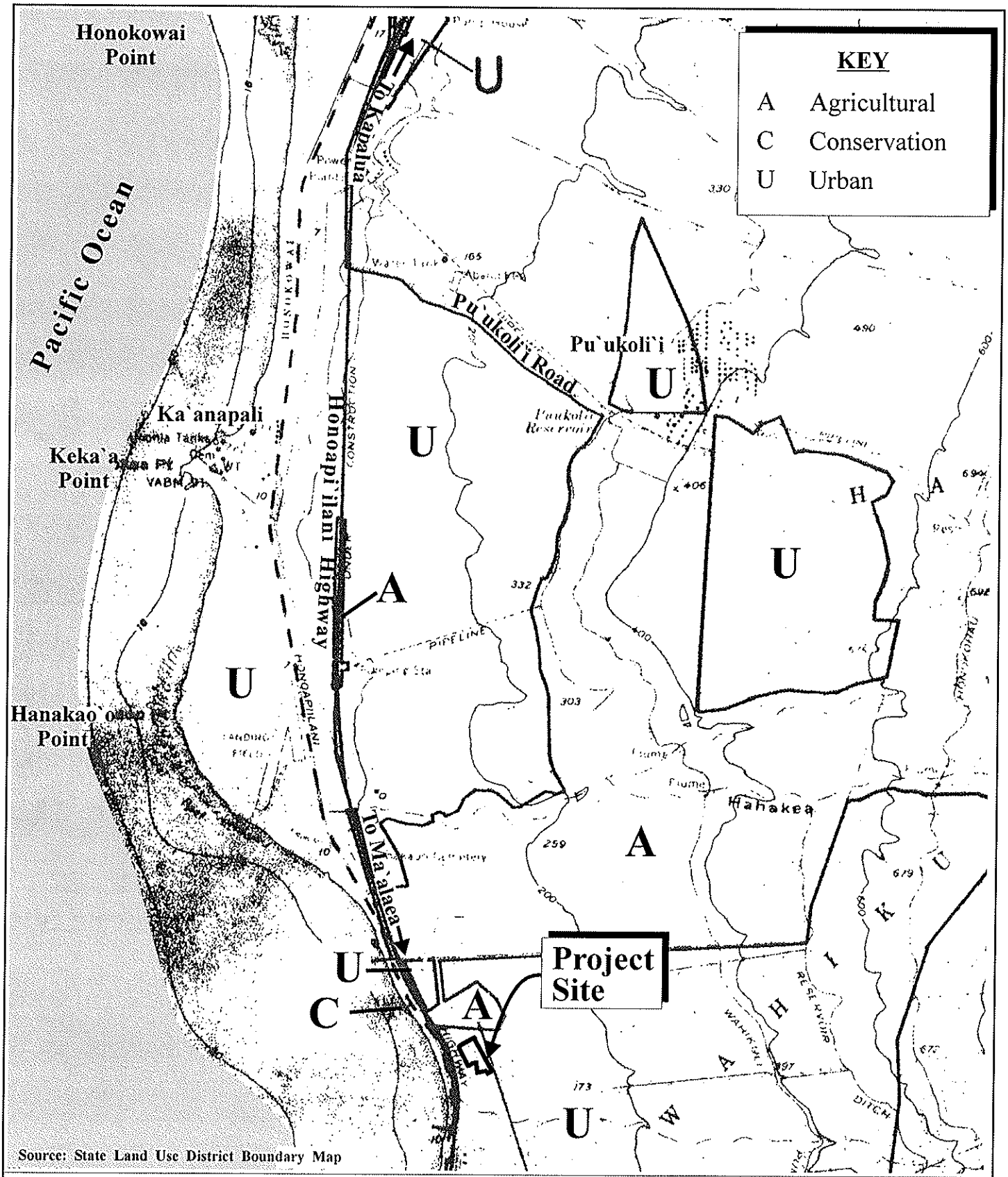

Figure 11

Proposed Lahaina Civic Center Tennis Courts Complex Expansion

Existing State Land Use Classification

NOT TO SCALE

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.

RFE/LahainaCC Tennis/SLUC

2. **Section 226-23 Objective and policies for socio-cultural advancement--leisure. To achieve this leisure objective, it shall be State policy to:**

a. Foster and preserve Hawaii's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.

b. Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.

c. Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.

d. Ensure opportunities for everyone to use and enjoy Hawaii's recreational resources.

e. Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.

The objective of the proposed project is to provide access to additional recreational tennis court facilities which respond to the public's need for these facilities. The proposed expansion of the LCC tennis courts complex will ensure that there is sufficient availability and access to these recreational facilities to meet the existing demand for tennis court facilities in the region. This recreational facility expansion will be developed in accordance with applicable parks standards. In this regard, the proposed project is consistent with the goals, objective, policies, and priorities of the Hawai`i State Plan.

C. MAUI COUNTY GENERAL PLAN

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

> *". . . 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 proposed action is in keeping with the following General Plan objectives and policies.

PUBLIC UTILITIES AND FACILITIES

Objective

- To improve the quality and availability of public facilities throughout Maui County.

Policies

- Continue the development of community centers throughout the County.
- Seek improvement in the maintenance and operation of public facilities.
- Encourage the development of public facilities which will be architecturally and ecologically compatible with their surroundings and foster community development.

SOCIAL INFRASTRUCTURE

Objectives

- To provide high-quality recreational facilities to meet the present and future needs of our residents of all ages and physical ability.
- To provide a wide range of recreational, cultural and traditional opportunities for all our people.

Policies

- Maintain and upgrade existing recreational facilities to meet the community needs.
- Maintain recreational facilities for both active and passive pursuits.
- Develop facilities that will meet the different recreational needs of the various communities.
- Develop multipurpose recreational facilities.
- Encourage the transfer of underutilized State and Federal land to the County for public recreation and cultural use.
- Publicize the availability of the County's recreational programs and facilities.
- Encourage the use of public facilities for both cultural and recreational activities.
- Support Federal, State and County and community initiatives to preserve open space, expand recreational facilities and provide after school programs for youth.
- Encourage the use of public lands to expand and enhance outdoor recreational and cultural opportunities.

The proposed project will improve the conditions of the existing recreational tennis court facilities in the West Maui region and will ensure that there are sufficient recreational facilities to accommodate population growth in accordance with the West Maui Community Plan. In the process of expanding the LCC tennis courts complex, potential impacts to the County's unique environmental resources will be minimized. The proposed expansion is in accordance with the objectives and policies of the Maui County General Plan.

D. WEST MAUI COMMUNITY PLAN

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

The project site is located within the West Maui Community Plan region and is designated "Public/Quasi-Public" and "Agricultural" in the community plan. See **Figure 12**. The proposed project is in keeping with, among others, the following goals, objectives, and policies of the West Maui Community Plan.

LAND USE

Goal

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

Objectives and Policies

- Preserve and enhance the mountain and coastal scenic vistas and the open space areas of the region.

- Establish an appropriate supply of urban land within the region to meet the needs of the community over the next 20 years. The Community Plan and its map shall define the urban growth limits for the region and all zoning requests and/or proposed land uses and developments shall be consistent with the West Maui Community Plan and its land use map.

SOCIAL INFRASTRUCTURE

Goal

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

Objectives and Policies

- Provide adequate community-oriented park facilities including facilities for field and court games, children's play, and picnicking within, or adjacent to, existing and future residential areas at the following existing or planned park sites:

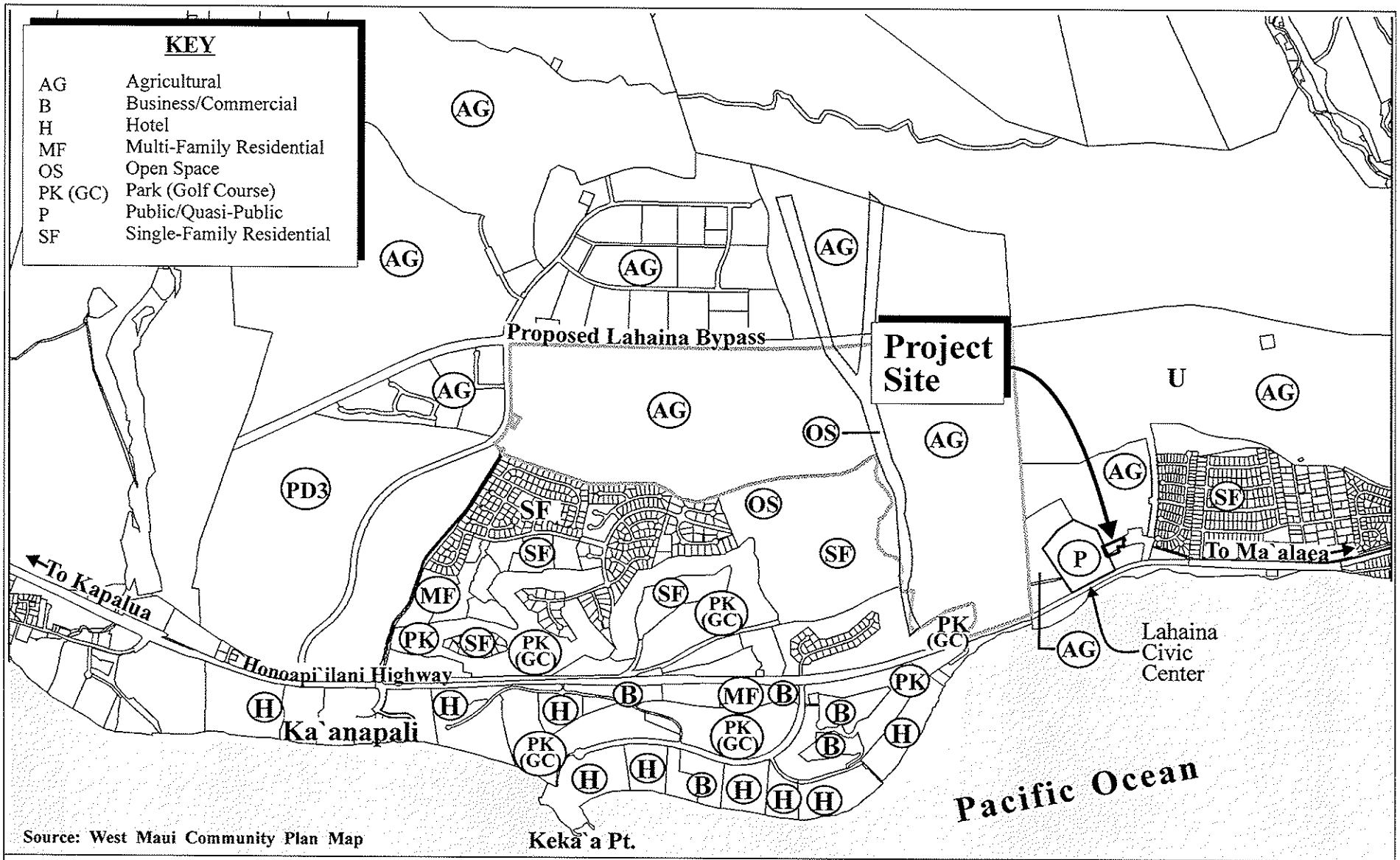

Figure 12

Proposed Lahaina Civic Center Tennis Courts Complex Expansion

West Maui Community Plan Land Use Map

NOT TO SCALE

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.

RFE/LahainaCC Tennis/CPLU

a. Wainee area near the existing swimming pool and youth center.

b. Major residential projects.

c. Napili.

- Provide urban park space for passive activities which allow respite from shopping and sightseeing activities within Lahaina town.

- Support programs to enhance youth-oriented recreational opportunities such as Malu-ulu-olele Park, and the West Maui Youth Center.

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

GOVERNMENT

Goal

Coordinate and direct future public and private development, including capital improvement projects, consistent with the Community Plan and the island-wide directed and managed growth plan required by the General Plan.

Objectives and Policies

- Coordinate and direct future public and private development, including capital improvement projects, consistent with the Community Plan and the island-wide directed and managed growth plan required by the General Plan.

- Insure that adequate infrastructure is or will be available to accommodate planned development.

- Improve the availability of government services to the community.

As noted, the proposed project is in conformance with various goals, objectives, and policies of the West Maui Community Plan. The project will be undertaken to satisfy the current and future demands of recreational facilities, specifically tennis courts, in the West Maui region. Moreover, the proposed expansion of the LCC tennis courts complex is consistent with the underlying "Agriculture" and "Public/Quasi-Public" community plan designations.

E. COUNTY ZONING

The lands underlying the project sites are zoned "Agricultural" by Maui County zoning. According to Maui County Code Section 19.30A.050, parks for public use, not including golf courses and not including commercial uses except when under the supervision of a government agency in charge of parks and playgrounds are allowed uses within the "Agricultural" zoning district. Therefore, the proposed project is in conformance with the underlying Maui County zoning designations.

F. COASTAL ZONE MANAGEMENT/SPECIAL MANAGEMENT AREA

The Hawai`i Coastal Zone Management Program (HCZMP), as formalized in Chapter 205A, HRS, establishes objectives and policies for the preservation, protection, and restoration of natural resources of Hawai`i's coastal zone. The proposed project site is located within the County of Maui's Special Management Area, thus, consideration of County coastal zone objectives and policies will be carried out. See **Figure 13**.

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

1. Recreational Resources

Objective

Provide coastal recreational opportunities accessible to the public.

Policies

(A) Improve coordination and funding of coastal recreational planning and management; and

(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

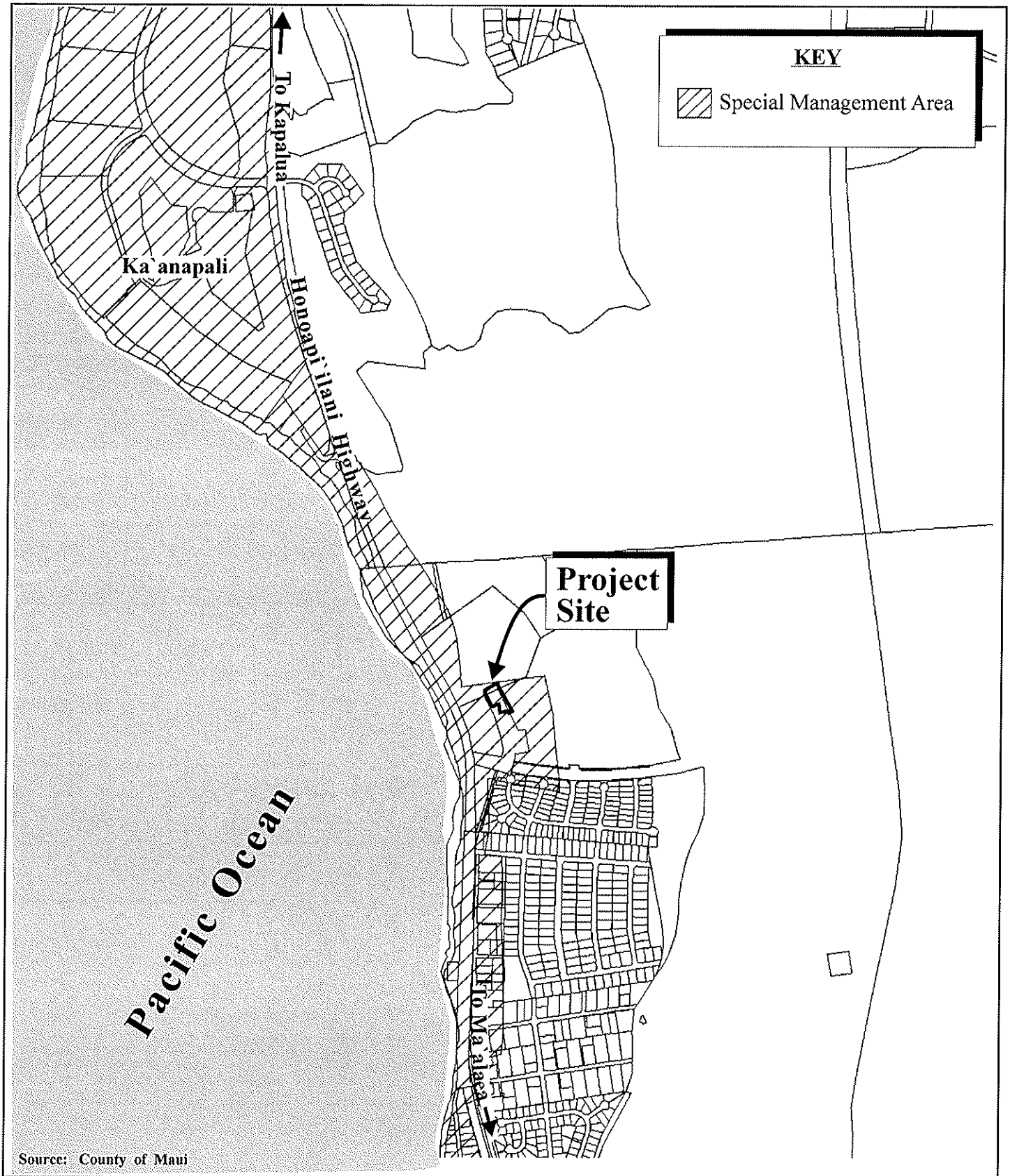

Figure 13

Proposed Lahaina Civic Center Tennis Courts Complex Expansion

SMA Boundary Map

NOT TO SCALE

Prepared for: County of Maui, Dept. of Parks and Recreation

MUNEKIYO & HIRAGA, INC.

RFE/LahainaCC Tennis/SMA

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(ii) Requiring replacement of coastal resources having significant fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

(vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;

(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of Section 46-6, HRS.

Response: The proposed action is considered an important element in enhancing recreational opportunities in West Maui. There are no adverse effects to coastal-related recreational facilities resulting from the project.

2. Historic Resources

Objective

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

Policies

(A) Identify and analyze significant archaeological resources;

(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and

(C) Support state goals for protection, restoration, interpretation, and display of historic resources.

Response: An archaeological field inspection was undertaken for the subject property. There were no historic or cultural features identified at the property. Refer to **Appendix "A".** However, in the event archaeological features are inadvertently encountered during construction, work will stop in the immediate vicinity of the find and applicable mitigation protocols will be initiated in coordination with the State Historic Preservation Division.

3. Scenic and Open Space Resources

Objective

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

Policies

(A) Identify valued scenic resources in the coastal zone management area;

(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

(D) Encourage those developments which are not coastal dependent to locate in inland areas.

Response: The project site is not located within a significant coastal view corridor. The proposed improvements, sited within and between existing public buildings and facilities, are not anticipated to have an adverse impact on shoreline views or open space resources.

4. Coastal Ecosystems

Objective

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

Policies

(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

(B) Improve the technical basis for natural resource management;

(C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

(D) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

(E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Response: With implementation of Best Management Practices (BMPs), the proposed project should not have adverse effects on downstream coastal ecosystems.

5. Economic Uses

Objective

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

Policies

(A) Concentrate coastal dependent development in appropriate areas;

(B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

(C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

(i) Use of presently designated locations is not feasible;

(ii) Adverse environmental effects are minimized; and

(iii) The development is important to the State's economy.

Response: Short-term employment opportunities during project construction will be generated, and there will be no significant, adverse economic impacts associated with the proposed project. Further, the proposed action is not contrary to the objective and policies for economic use.

6. Coastal Hazards

Objective

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

Policies

(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;

(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

(D) Prevent coastal flooding from inland projects.

Response: According to the Flood Insurance Rate Map for the area, the project site is located within Zone "C", an area of minimal flooding. In addition, the project site is not located within environmentally sensitive areas that are subject to natural hazards. The proposed project is not anticipated to affect the region's susceptibility to coastal hazards.

7. Managing Development

Objective

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

Policies

(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

(B) Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and

(C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Response: Opportunities for public understanding of the proposed project are provided for during processing of the Environmental Assessment (EA) in accordance with Chapter 343, HRS, notice and public review provisions. All aspects of development will be conducted in accordance with applicable Federal, State, and County standards. Early consultation with agencies and interested parties was conducted for formulation of this Draft EA. Additionally, public input opportunity will be provided in connection with the County's SMA application process.

Specifically, a public hearing before the Maui Planning Commission will be conducted on the SMA application.

8. Public Participation

Objective

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

Policies

(A) Promote public involvement in coastal zone management processes;

(B) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and

(C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Response: As previously mentioned, the EA document will be processed in accordance with Chapter 343, HRS, and opportunity for comment by agencies and the public will be provided. The SMA application process, as well, offers opportunity for public comment. The proposed project does not contradict the objectives of public awareness, education, and participation.

9. Beach Protection

Objective

Protect beaches for public use and recreation.

Policies

(A) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;

(B) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering

solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

(C) Minimize the construction of public erosion-protection structures seaward of the shoreline.

Response: In broad objective terms, the proposed project will utilize appropriate BMPs to manage overall drainage and erosion control for the project site. Further, the proposed project will not involve construction near shoreline areas and is not, therefore, anticipated to have an adverse effect on the local beach environment.

10. Marine Resources

Objective

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

Policies

(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

(B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;

(C) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

(D) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

(E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

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

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

> No special management area use permit or special management area minor permit shall be granted for structures that allow artificial light from floodlights, uplights, or spotlights used for decorative or aesthetic purposes when the light:
>
> (1) Directly illuminates the shoreline and ocean waters; or
>
> (2) Is directed to travel across property boundaries toward the shoreline and ocean waters.

Response: The project does not contain lighting which is directed across property boundaries towards the shoreline. Lighting standards will be shielded downlighting. See **Appendix "F"**.

IV. SUMMARY OF UNAVOIDABLE ENVIRONMENTAL IMPACTS

IV. SUMMARY OF UNAVOIDABLE ENVIRONMENTAL IMPACTS

The proposed project will result in certain unavoidable construction-related environmental impacts as outlined in Chapter II.

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

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

In the long term, the proposed project is not anticipated to result in any significant, long-term, adverse environmental effects.

V. ALTERNATIVES TO THE PROPOSED ACTION

V. ALTERNATIVES TO THE PROPOSED ACTION

The Department of Parks and Recreation has looked at a variety of options in accommodating the proposed project.

A. PREFERRED ALTERNATIVE

The proposed development plan, outlined in Section I. Project Overview, represents the preferred alternative. This alternative, which entails an expansion of the existing LCC tennis courts complex, presents the most cost-effective and viable alternative as much of the capital infrastructure is already existent onsite.

B. NO ACTION ALTERNATIVE

As previously mentioned, there is already a need for an increase in the availability of tennis court recreational facilities in the West Maui region. Due to growth in population and housing development, the no action alternative would not satisfy the current and future needs of residents and visitors in regards to the availability of tennis courts for public use.

C. POSTPONED ACTION ALTERNATIVE

Similar to the no action alternative, the postponed action alternative does not address the current need for recreational tennis court facilities in the West Maui region.

D. ALTERNATIVE LOCATIONS

Alternative locations were not extensively considered due to cost considerations and the space availability adjacent to the existing LCC tennis courts complex. The proposed expansion at the proposed LCC site would require limited modifications to the existing water, wastewater, drainage and electrical systems already in place onsite. Furthermore, the proposed site holds a synergistic relationship with other LCC recreational facilities including a gymnasium, amphitheater and social hall, providing convenience and accessibility to a

variety of recreational activities all in close proximity. This methodology of public expenditure for capital projects is consistent with the County plans and policies to provide adequate public recreational facilities for the general public.

VI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

VI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The development of the proposed project would involve the commitment of State lands and County of Maui funds. In addition, labor and material resources would be expended as part of the project's construction phase. Commitments of these resources are considered irreversible and irretrievable. These commitments, however, are also considered appropriate in the context of providing sufficient recreational tennis court facilities to satisfy the current and future demands of the West Maui region. Development of the proposed expansion will involve the commitment of land for a needed public facility which would preclude other land use options for the site. This commitment of land resources, however, is consistent with existing and future land uses in and around the project site.

VII. SIGNIFICANCE CRITERIA ASSESSMENT

VII. SIGNIFICANCE CRITERIA ASSESSMENT

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

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

   There are no significant natural resources which will be impacted by the proposed tennis complex expansion. Biological resources in and around the project site do not include rare or threatened species, nor are there sensitive natural environments (e.g., wetlands and streams) in the vicinity of the project site. There are no archaeological or culturally significant features in the project vicinity as well.

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

   The proposed project will not curtail the range of beneficial uses of the environment. Best Management Practices (BMPs) will be employed where needed, to minimize any construction-related impacts to the environment.

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

   The proposed project does not conflict with the State's Environmental Policy and Guidelines as set forth in Chapter 344, Hawai`i Revised Statutes (HRS).

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

   The proposed project will directly benefit the local economy by providing construction and construction-related employment in the short term. The project will provide increased public accessibility to recreational tennis court facilities by means

of the expansion of the current LCC tennis courts complex. No impacts to cultural practices are anticipated as a result of the project.

5. **Substantially affects public health.**

No adverse impacts to the public health and welfare are anticipated as a result of the proposed expansion.

The proposed project will have an indirect beneficial effect on public health by enhancing existing recreational activities in the West Maui region.

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

The proposed expansion of the LCC tennis courts complex will beneficially impact the recreational facilities in the area by providing increased access to tennis court facilities and the availability of tennis courts for public use.

The project is not anticipated to have any adverse effects on public services, such as police, fire, medical, educational, and solid waste collection services, nor will it have a negative impact on population parameters for the West Maui region.

From a land use standpoint, the proposed project, is in keeping with the objectives and policies of the West Community Plan, complements and is compatible with surrounding land uses.

The proposed expansion is not anticipated to adversely impact water and wastewater capacities and facilities. Post-development onsite surface runoff is expected to be accommodated by the proposed drainage system improvements.

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

Aside from the short-term impacts related to dust and noise generated during the construction phase, there will not be a degradation of environmental quality. These potential dust and noise impacts will be mitigated through utilization of appropriate Best Management Practices (BMP).

The proposed expansion is not anticipated to adversely affect the open space and scenic character of the area. Additionally, there are no sensitive environments (e.g., wetlands, streams, erosion prone areas, etc.) which are likely to be affected by the proposed action.

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

The proposed project does not involve a commitment to larger actions. The impacts assessed in this document are based on the entire action.

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

As previously notes, the flora and fauna are generally limited to non-native, abundant species at the project site. There are no rare, threatened, or endangered species of flora, fauna, or avifauna and their habitats at the project site which will be adversely affected by the proposed expansion of the LCC tennis courts complex.

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

Construction activities will result in short-term air quality and noise impacts. Dust control measures, such as regular watering and sprinkling, and installation of dust screens will be implemented to minimize wind-blown emissions. Noise impacts will occur primarily from construction equipment. Equipment mufflers or other noise attenuating equipment, as well as proper equipment and vehicle maintenance, will be used during construction activities. Construction noise impacts will be mitigated through compliance with the provisions of the State of Hawai`i, Department of Health Administrative Rules Title 11, Chapter 46, "Community Noise Control". These rules require a noise permit if the noise levels from construction activities are expected to exceed the allowable levels set forth in the Chapter 46 rules. No long-term air or water quality or ambient noise level impacts are anticipated.

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

The project site is not located within and would not affect environmentally sensitive areas. The project site is located within Flood Zone C, an area of minimal flooding, and thus is not subject to flooding or tsunami inundation. Soils underlying the

project site are not erosion-prone and there are no geologically hazardous lands, estuaries, or coastal waters within or adjacent to the project site. No other foreseeable environmental effects are anticipated in conjunction with the proposed expansion.

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

The project site is not identified as a scenic vista or viewplane and thus will not affect scenic corridors and costal scenic and open space resources, nor will it adversely impact the visual character of the areas surrounding the project site.

13. Requires substantial energy consumption.

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

In addition, coordination with Maui Electric Company (MECO) will be undertaken during the electrical upgrade work to ensure all operational parameters are addressed for the proposed project. 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.

Based on the foregoing analysis, it is anticipated that the proposed action will result in a Finding of No Significant Impact (FONSI).

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

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

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

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County of Maui
Department of Housing and Human Concerns
200 South High Street
Wailuku, Hawai`i 96793

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

25. Thomas Phillips, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, Hawai`i 96793

26. Milton Arakawa, Director
County of Maui
Department of Public Works
200 South High Street
Wailuku, Hawai`i 96793

27. Cheryl Okuma, Director
County of Maui
Department of Environmental Management
2200 Main Street, Suite 176
Wailuku, Hawai`i 96793

28. Donald Medeiros, Director
County of Maui
Department of Transportation
200 South High Street
Wailuku, Hawai`i 96793

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

30. **Hawaiian Telcom**
60 South Church Street
Wailuku, Hawai`i 96793

31. Greg Kauhi, Manager, Customer Operations
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, Hawai`i 96733

32. Joe Pluta, President
West Maui Improvement Foundation
P. O. Box 10338
Lahaina, Hawai`i 96761

33. Zeke Kalua, Executive Director
West Maui Taxpayers Association
P.O. Box 10338
Lahaina, Hawai`i 96761

MAY 2 2 2008

LINDA LINGLE
GOVERNOR

JANICE TAKAHASHI
INTERIM EXECUTIVE DIRECTOR

STATE OF HAWAII

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

IN REPLY REFER TO:

08:PEO/60

May 20, 2008

Munekiyo & Hiraga, Inc.
Attn: Kimberly Skog, Planner
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Skog:

Re: Early Consultation Request for Proposed Expansion of Lahaina Civic Center Tennis Courts Complex at TMK (2)4-5-5021:010, 016, and 020(por.), Lahaina, Maui, Hawaii

Thank you for consulting the Hawaii Housing Finance and Development Corporation on the above-referenced project.

We have no housing-related comments to offer at this time.

Sincerely,

Janice Takahashi
Interim Executive Director

MAY 2 8 2008

LINDA LINGLE
GOVERNOR OF HAWAII

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

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

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

May 27, 2008

Ms. Kimberly Skog
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai`i 96793

Dear Ms. Skog:

Subject: **Early Consultation Request for the Expansion of Lahaina Civic Center Tennis Courts Complex**
TMK: (2) 4-5-021: 010, 016 and 020 (por.)

Thank you for the opportunity to participate in the early review and consultation process for the expansion of the Lahaina Civic Center Tennis Courts Complex. The following comments are offered:

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

2. National Pollutant Discharge Elimination System (NPDES) permit coverage is required for this project. The Clean Water Branch should be contacted at 808 586-4309.

It is strongly recommended that the Standard Comments found at the Department's website: http://hawaii.gov/health/environmental/env-planning/landuse/landuse.html be reviewed, and any comments specifically applicable to this project should be adhered to.

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

Sincerely,

Herbert S. Matsubayashi
District Environmental Health Program Chief

MUNEKIYO HIRAGA, INC.

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

MARK ALEXANDER ROY
KYLE GINOZA

June 13, 2008

Herbert S. Matsubayashi
District Environmental Health Program Chief
State of Hawai`i
Department of Health
Maui District Health Office
54 High Street
Wailuku, Hawaii 96793-2102

SUBJECT: Early Consultation Request for the Proposed Expansion of the Lahaina Civic Center Tennis Courts Complex at Tax Map Key (2) 4-5-021:010 (por.), 016 (por.), and 020 (por.)

Dear Mr. Matsubayashi:

Thank you for your letter of May 27, 2008, providing pre-assessment comments on the proposed expansion of the Lahaina Civic Center Tennis Courts Complex. We provide the following information to address the comments which you have provided.

1. As applicable, a noise permit will be secured by the contractor pursuant to Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control".

2. A National Pollutant Discharge Elimination System Permit will be obtained from the Department prior to construction.

We note that other applicable requirements of the Department's standard comments will be adhered to.

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

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

Thank you again for your valuable input.

Very truly yours,

for Kimberly Skog, Planner

KS:yp
cc: Baron Sumida, Department of Parks and Recreation
Ronald Fukumoto, Ronald M. Fukumoto Engineering, Inc.
S:\DATA\RFE\LahainaCC Tennis\DOHMaui.ecres.wpd

MAY 3 0 2008

LINDA LINGLE
GOVERNOR

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1133.8

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

MAY 2 8 2008

Ms. Kimberly Skog, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Skog:

Subject: Early Consultation Request for Proposed Expansion of Lahaina Civic Center Tennis Courts Complex at TMK (2)4-5-021.010, 016, and 020(por.), Lahaina, Maui, Hawaii

Thank you for the opportunity to provide early consultation comments on the subject project. This proposed project should have minimal effect on the Lahaina Comprehensive Health Center and Lahaina District Court and we have no comments to offer at this time.

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

Sincerely,

Russ K. Saito

RUSS K. SAITO
State Comptroller

LINDA LINGLE
GOVERNOR

MAY 3 0 2008

PATRICIA HAMAMOTO
SUPERINTENDENT

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

OFFICE OF THE SUPERINTENDENT

May 28, 2008

Ms. Kimberly Skog, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai`i 96783

Dear Ms. Skog:

SUBJECT: Early Consultation Request for Proposed Expansion of Lahaina Civic Center Tennis Courts Complex at TMK (2) 4-5-021:010,016 and 020 (por.) Lahaina, Maui, Hawai`i

The Department of Education has no comment or concern to offer as early consultation for the proposed expansion of the tennis complex.

Should you have any questions, please call George Casen of the Facilities Development Branch at (808) 377-8308.

Very truly yours,

Patricia Hamamoto
Superintendent

PH:jmb

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

JUN 0 2 2008

LINDA LINGLE
GOVERNOR

GEORGINA K. KAWAMURA
DIRECTOR

ROBERT N. E. PIPER
DEPUTY DIRECTOR

EMPLOYEES' RETIREMENT SYSTEM
HAWAII EMPLOYER-UNION HEALTH BENEFITS TRUST FUND
OFFICE OF THE PUBLIC DEFENDER
PUBLIC UTILITIES COMMISSION

STATE OF HAWAII
DEPARTMENT OF BUDGET AND FINANCE
P.O. BOX 150
HONOLULU, HAWAII 96810-0150

ADMINISTRATIVE AND RESEARCH OFFICE
BUDGET, PROGRAM PLANNING AND
MANAGEMENT DIVISION
FINANCIAL ADMINISTRATION DIVISION

May 29, 2008

Ms. Kimberly Skog, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Skog:

Your request for comments on the proposed expansion of Lahaina Civic Center Tennis Courts Complex project located in Lahaina, Maui, has been reviewed. In accordance with Chapter 343, HRS, we have no substantive pre-assessment comment to provide.

If you should have any questions regarding this matter, please contact Mr. Neal Miyahira, Administrator of the Budget, Program Planning and Management Division at (808) 586-1530.

Aloha,

Georgina K. Kawamura

GEORGINA K. KAWAMURA
Director of Finance

JUN 0 3 2008

PHONE (808) 594-1888

FAX (808) 594-1865

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

HRD08/3675B

May 30, 2008

Kimberly Skog, Planner
Munekiyo & Hiraga Inc.
305 High Street, Suite 104
Wailuku, HI 96793

RE: Pre-consultation for the proposed expansion of the Lahaina Civic Center tennis courts complex, Maui, TMK: (2) 4-5-021: 010, 016 and 020.

Aloha e Kimberly Skog,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-mentioned request for pre-consultation, dated May 13, 2008. Maui County's Department of Parks and Recreation proposes to expand and improve the existing tennis complex at the Lahaina Civic Center. OHA has reviewed the project and offers the following comments.

OHA requests that a comprehensive archaeological inventory survey for the project area be conducted and submitted to the Department of Land and Natural Resources – Historic Preservation Division for review and approval. OHA should be allowed the opportunity to comment on the criteria assigned to any cultural or archaeological sites identified within the archaeological inventory survey. Consideration must also be afforded to any individuals accessing the project area for constitutionally protected traditional and customary purposes, in accordance with the Hawai'i State Constitution, Article XII, section 7.

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

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

Further, OHA notes that two of the parcels are designated as Section 5(b) Ceded Lands, which hold a considerable amount of sentimental, historical and legal significance for Native Hawaiians and OHA. These lands were illegally taken from the Hawaiian Kingdom after the 1893 overthrow and later transferred ("ceded") by the United States government to the State of Hawai'i upon statehood. Today, the state holds the Ceded Lands corpus in trust for Native Hawaiians and the general public.

Thank you for the opportunity to comment. If you have further questions, please contact Sterling Wong (808) 594-0248 or e-mail him at sterlingw@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Administrator

C: OHA Maui CRC Office

MUNEKIYO & HIRAGA, INC.

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

MARK ALEXANDER ROY
KYLE GINOZA

June 13, 2008

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

SUBJECT: Early Consultation Request for Proposed Expansion of the Lahaina Civic Center Tennis Courts Complex, Maui; TMK Nos. 4-5-021:010, 016 and 020

Dear Mr. Namu`o:

We are writing to you on behalf of the applicant, the County of Maui Department of Parks and Recreation, to thank you for your letter dated May 30, 2008, providing comments on the proposed expansion of the Lahaina Civic Center tennis courts complex located in Lahaina, Maui, Hawai`i.

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

1. A comprehensive archaeological field inspection report was completed for approximately 5.71 acres of the Wahikuli Ahapua`a in Lahaina, Maui on April 11, 2008 and will be included in the Draft EA for your review. The results further indicate that there were no cultural or archaeological resources identified within the study parcels. As applicable, consideration will be afforded to any individuals accessing the project area for constitutionally protected and traditional and customary purposes.

2. In accordance with Section 6E-43.6, Hawai`i Revised Statues and Chapter 13-300, Hawai`i Administrative Rules, should iwi kupuna or Native Hawaiian cultural or traditional deposits be found during ground disturbance or excavation during the construction of the project, the applicant assures that work will cease and the State Historic Preservation Division of the Department of Land and Natural Resources (SHPD/DLNR) will be contacted.

3. The applicant will use native vegetation in its landscaping plan for the subject parcels, to the extent practicable, to promote the traditional Hawaiian concept of malama `aina and create a more Hawaiian sense of place.

4. Your comments in regards to two (2) of the parcels designated as Section 5(b) Ceded Lands have been forwarded to the County of Maui Department of Parks and Recreation for review.

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

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

Very truly yours,

for Kimberly Skog, Planner

KS:tn
cc: Baron Sumida, Department of Parks and Recreation
Ronald Fukumoto, Ronald M. Fukumoto Engineering, Inc.
S:\DATA\RFE\LahainaCC Tennis\OHAecIresp.ltr.wpd

JUN 0 5 2008

LINDA LINGLE
GOVERNOR OF HAWAII

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

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

In reply, please refer to
EMD / CWB

06007PMT.08

June 3, 2008

Ms. Kimberly Skog
Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Skog:

Subject: Early Consultation Request – Draft Environmental Assessment (DEA)
Proposed Expansion of Lahaina Civic Center Tennis Courts Complex
TMK: (2) 4-5-021:010, 016, and 020 (portion)
Lahaina, Maui, Hawaii

The Department of Health, Clean Water Branch (CWB), has reviewed your letter dated May 13, 2008, regarding the subject project and offers these comments. Please note that our review is based solely on the information provided in your letter for the subject project and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. The Wahikuli State Wayside Park is identified as a Priority Category 5 waters in the Section 303(d) of the Clean Water Act list of impaired water bodies. Priority 5 waters are described as surface waters where available data and/or information indicate that at least one (1) designated use is not being supported or is threatened, and a Total Maximum Daily Load is needed. Accordingly, the subject DEA should also include this consideration toward ensuring the protection and improvement of this water body with respect to the subject project.

3. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

   a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the start of the construction activities.

   b. Hydrotesting water.

   c. Construction dewatering effluent.

   d. Treated effluent from well drilling activities.

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

4. For other types wastewater not listed in Item No. 3 above or wastewater discharging into Class 1 or Class AA waters, will need to be covered under an NPDES individual permit. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html.

5. You must also submit a copy of the NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the CWB that SHPD has or is in the process of evaluating your project. Please submit a copy of your request for review by SHPD or SHPD's determination letter for the project along with your NOI or NPDES permit application, as applicable.

6. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage is required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

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

Sincerely,

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

MT:np

MUNEKIYO & HIRAGA, INC.

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

MARK ALEXANDER ROY
KYLE GINOZA

June 13, 2008

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

SUBJECT: Early Consultation Request for Proposed Expansion of Lahaina Civic Center Tennis Courts Complex; TMK Nos. 4-5-021:010, 016 and 020 (portion), Lahaina, Maui, Hawai`i

Dear Mr. Wong:

We are writing to you on behalf of the applicant, the County of Maui Department of Parks and Recreation, to thank you for your department's letter dated June 3, 2008, providing comments on the proposed expansion of the Lahaina Civic Center Tennis Courts Complex in Lahaina, Maui, Hawai`i.

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

1. There are no potential impacts to State waters identified at this time. Nonetheless, the project will be implemented in a manner which ensures strict compliance with Chapter 11-54, Hawai`i Administrative Rules.

2. As noted, there are no anticipated impacts to State waters associated with the project. BMPs will be implemented during the construction of the proposed project towards ensuring the protection of the Wahikuli State Wayside Park water body.

3. Applicable National Pollutant Discharge Elimination System (NPDES) general permits will be obtained.

4. If applicable, individual NPDES permits will be obtained for other types of wastewater not listed under Item No. 3 or wastewater discharging into Class 1 or Class AA waters.

5. If applicable, a NOI will be submitted for review by the State Historic Preservation Division of the Department of Land and Natural Resources. The applicant will submit a copy of its request for review by SHPD or SHPD's determination letter for the project along with the NOI or NPDES permit application, as applicable.

6. All discharges related to project construction or operation activities will comply with the applicable State Water Quality Standards as specified in HAR, Chapter 11-54 and/or permitting requirements as specified in HAR, Chapter 11-55. Discharges will be kept to a minimum through the application of engineering BMPs.

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

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

Very truly yours,

for Kimberly Skog, Planner

KS:tn
cc: Baron Sumida, Department of Parks and Recreation
Ronald Fukumoto, Ronald M. Fukumoto Engineering, Inc.
S:\DATA\RFE\LahainaCC Tennis\DOHCWBeclresp.ltr.wpd

JUN 0 9 2008

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

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 6, 2008

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

Attention: Ms. Kimberly Skog
Planner

Dear Ms. Skog:

SUBJECT: Early Consultation Request for Proposed Expansion of Lahaina Civic Center Tennis Courts Complex, located in Lahaina, Island of Maui; TMK: (2) 4-5-021:010,016, and 020 (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 or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the Engineering Division on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at 587-0417. Thank you.

Sincerely,

Darlene D. Unoki
for Morris M. Atta
Administrator

Enclosure

LINDA LINGLE
GOVERNOR OF HAWAII

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

'08 MAY 20 PM 1 ENGINEERING RECEIVED LAND DIVISION

2008 MAY 27 P 3:56

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 19, 2008

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
_x_Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
_x_Commission on Water Resource Management
_x_Office of Conservation & Coastal Lands
_x_Land Division – Maui District

FROM: Morris M. Atta, Administrator
SUBJECT: Early Consultation Request for Proposed Expansion of Lahaina Civic Center Tennis Courts Complex
LOCATION: Lahaina, Island of Maui; TMK: (2) 4-5-021:010, 016 and 020 (por.)
APPLICANT: Maui Department of Parks and Recreation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by June 2, 2008.

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

Attachments

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

Signed: [signature]
Date: 5/23/08

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/MorrisAtta
Ref.: EarlyConLahainaCivicCenter
Maui.411

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ____.

(X) **Please take note that based on the map the you provided, the project site according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone D. The National Flood Insurance Program does not have any regulations for developments within Zone D.**

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.

( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.

( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

( ) The applicant should include water demands and infrastructure required to meet project needs. Please note that projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments:_____

_____

( ) Other:_____

_____

Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: Eric T. Hirano

ERIC T. HIRANO, CHIEF ENGINEER

Date: 5/23/08

MUNEKIYO & HIRAGA, INC.

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

MARK ALEXANDER ROY
KYLE GINOZA

June 13, 2008

Laura Thielen
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawai`i 96809

SUBJECT: Early Consultation Request for Proposed Expansion of Lahaina Civic Center Tennis Courts Complex, located in Lahaina, Island of Maui
TMK Nos. 4-5-021:010, 016 and 020 (por.)

Dear Ms. Thielen:

We are writing to you on behalf of the applicant, the County of Maui Department of Parks and Recreation, to thank you for your department's letter dated June 6, 2008, providing comments on the proposed expansion of the Lahaina Civic Center tennis courts complex in Lahaina, Maui, Hawai`i.

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

1. We confirm that the project site is located in a flood zone identified as an area of low flood risk and minimal flooding with no development restrictions.

We appreciate the input received from your office. A copy of the draft environmental assessment will be provided for your review and comment.

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

Very truly yours,

Kimberly Skog, Planner

KS:tn
cc: Baron Sumida, Department of Parks and Recreation
Ronald Fukumoto, Ronald M. Fukumoto Engineering, Inc.
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LINDA LINGLE
GOVERNOR

JUN 13 2008

BRENNON T. MORIOKA
DIRECTOR

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

IN REPLY REFER TO:

STP 8.2906

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

June 12, 2008

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

Dear Ms. Skog:

Subject: Early Consultation – Tennis Court Complex Expansion
Lahaina Civic Center

The proposed tennis court expansion project is not anticipated to significantly impact the Department of Transportation's (DOT) facilities. As the project is upland of Honoapiilani Highway, the DOT requests that drainage from the additional surface areas of the tennis courts and parking lot does not runoff to Honoapiilani Highway.

The DOT also requests advance opportunity for DOT Highways Division review of the collective traffic activity on Leialii Parkway and Honoapiilani Highway. The Highways Division is interested in traffic impact analysis reports of phasing and timetables of future projects with accesses to the State highway.

The DOT appreciates the courtesy of your early consultation. The Highways Division Maui District Office or Planning Branch should be contacted whenever the tennis court project is modified and the modifications result in potential impacts to Honoapiilani Highway.

Very truly yours,

Francis Paul Keeno

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

MUNEKIYO & HIRAGA, INC.

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

MARK ALEXANDER ROY
KYLE GINOZA

June 13, 2008

Brennon T. Morioka, Ph. D, P. E.
Director of Transportation
State of Hawai`i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai`i 96813-5097

SUBJECT: Early Consultation Request for the Proposed Expansion of the Lahaina Civic Center Tennis Courts Complex at Tax Map Key (2) 4-5-021:010 (por.), 016 (por.), and 020 (por.)

Dear Mr. Morioka:

Thank you for your letter of June 12, 2008, providing pre-assessment comments on the subject project. We are providing the following information in response to your comments.

1. Drainage improvements will be installed in connection with the four (4) new tennis courts and new parking lot. The design of the drainage improvements will ensure that no additional runoff will flow onto Honoapi`ilani Highway.

2. A traffic impact assessment report has been prepared for the proposed action. A copy of the report will be included in the Draft EA for your review.

3. Should there be future modifications to the tennis court complex, appropriate coordination will be undertaken with the Department's Maui District Office.

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

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

Very truly yours,

Kimberly Skog, Planner

KS:yp
cc: Baron Sumida, Department of Parks and Recreation
Ronald Fukumoto, Ronald M. Fukumoto Engineering, Inc.
F:\DATA\RFE\LahainaCC Tennis\SDOT.ecres.wpd

MAY 2 2 2008

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

CHARMAINE TAVARES
Mayor

VANESSA A. MEDEIROS
Director

LORI TSUHAKO
Deputy Director

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

May 19, 2008

Ms. Kimberly Skog, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Skog:

SUBJECT: Early Consultation Request for Proposed Expansion of Lahaina Civic Center Tennis Courts Complex at TMK (2) 4-5-021:010, 016, and 020(por.), Lahaina, Maui, Hawaii

We have reviewed the Early Consultation Request for the above subject project and wish to inform you that this Department has no comment to offer.

Thank you for the opportunity to comment.

Sincerely,

Vanessa A Medeiros

VANESSA A. MEDEIROS
Director of Housing and Human Concerns

xc: Housing Division

MAY 2 7 2008

CHARMAINE TAVARES
MAYOR

JEFFREY A. MURRAY
CHIEF

ROBERT M. SHIMADA
DEPUTY CHIEF

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

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

May 22, 2008

Munekiyo & Hiraga, Inc.
Attention: Kimberly Skog, Planner
305 High Street, Suite 104
Wailuku, Hawaii 96793

SUBJECT: EARLY CONSULTATION REQUEST FOR PROPOSED EXPANSION OF LAHAINA CIVIC CENTER TENNIS COURTS COMPLEX, TMK (2)4-5-021:010, 016, and 020. LAHAINA, MAUI, HAWAII

Dear Ms. Skog,

I have had an opportunity to review the request for comments regarding the tennis courts project in Lahaina. We are excited about the new facilities for the public and support the project in general. The existing courts are close to the service road bordering the post office. Users of the existing courts park along the service road when playing tennis. With the addition of the new parking lot, will all players be required to park in the parking lot? Would it be in the public's best interest to prohibit parking along the service road leading to the emergency services?

As you are well aware, three emergency service agencies utilize the roadway with emergency vehicles. At times, a fire truck that is responding to Lahaina town needs to make way for vehicles traveling uphill towards the Civic Center. In any case, a slight delay is possible. I would not consider this to be a tremendous problem or concern but mostly an inconvenience and delayed response on the part of the emergency personnel responding. There is enough room if someone pulls to the side when cars are parked. A detailed look at this topic would be welcomed and appreciated. Please feel free to contact me if there are any questions or concerns regarding these comments.

Sincerely,

Valeriano F. Martin
Captain
Fire Prevention Bureau

MUNEKIYO & HIRAGA, INC.

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

MARK ALEXANDER ROY
KYLE GINOZA

June 13, 2008

Valeriano F. Martin, Captain
County of Maui
Department of Fire and Public Safety
Fire Prevention Bureau
780 Alua Street
Wailuku, Hawaii 96793

SUBJECT: Early Consultation Request for the Proposed Expansion of the Lahaina Civic Center Tennis Courts Complex at Tax Map Key (2) 4-5-021:010 (por.), 016 (por.), and 020 (por.)

Dear Captain Martin:

Thank you for your letter of May 22, 2008, providing pre-assessment comments on the proposed expansion of the Lahaina Civic Center Tennis Courts Complex.

In response to your comments, the Department will review parking conditions along the service road to identify measures for safe passage of emergency vehicles. The Department will consider measures such as limiting parking on one side of the existing 28-foot wide service driveway to provide adequate clearances for emergency vehicles. We note that the additional 25 parking stalls is anticipated to alleviate public parking along the service road.

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

Very truly yours,

for Kimberly Skog, Planner

KS:yp
cc: Baron Sumida, Department of Parks and Recreation
Ronald Fukumoto, Ronald M. Fukumoto Engineering, Inc.
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JUN 0 9 2008

POLICE DEPARTMENT
COUNTY OF MAUI

CHARMAINE TAVARES
MAYOR

OUR REFERENCE
YOUR REFERENCE

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

THOMAS M. PHILLIPS
CHIEF OF POLICE

GARY A. YABUTA
DEPUTY CHIEF OF POLICE

June 4, 2008

Ms. Kimberly Skog
Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Ms. Skog:

SUBJECT: Early Consultation Request for Proposed Expansion of Lahaina Civic Center Tennis Courts Complex
TMK (2) 4-5-021:010, 016, and 020 (por.)

This is in response to your letter May 13, 2008, requesting comments on the above subject.

We have reviewed the information for the above mentioned subject and offer the enclosed comments.

Thank you for giving us the opportunity to comment on this project.

Very truly yours,

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

c: Jeffrey Hunt, Maui County Dept. of Planning

COPY

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

CONCUR:
AC Wayne Ribbs
06/04/08

VIA: CHANNELS

FROM: Lawrence N. KAUHA'AHA'A, ACTING SERGEANT, LAHAINA SPEICALIZED

SUBJECT: EARLY CONSULTATION REQUEST FOR PROPOSED EXPANSION OF LAHAINA CIVIC CENTER. TENNIS COURTS COMPLEX

The following to/from transmittal is being submitted following the review of the attached Proposal.

Based on the information provided this Officer does not anticipate any adverse safety conditions created by this project.

Any additional off street parking created in this area will promote pedestrian safety.

Submitted for your perusal,

Lawrence N. KAUHA'AHA'A, 8851
ACTING SERGEANT, LAHAINA SPECIALIZED
05.30.08 @ 1506 HOURS

6/3/08

JUN 0 3 2008

CHARMAINE TAVARES
Mayor

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

MICHAEL M. MIYAMOTO
Deputy Director

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

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

CARY YAMASHITA, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793

May 30, 2008

Ms. Kimberly Skog, Planner
MUNEKIYO & HIRAGA, INC.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Ms. Skog:

SUBJECT: EARLY CONSULTATION REQUEST FOR PROPOSED EXPANSION OF LAHAINA CIVIC CENTER TENNIS COURTS COMPLEX; TMK: (2) 4-5-021:010, 016 AND 020 (POR.)

We reviewed the subject application and have the following comment:

1. The Lahaina Civic Center roads need to be better maintained and that the existing roads be resurfaced.

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

Sincerely,

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

MMA:MMM:ls
xc: Highways Division
Engineering Division
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MUNEKIYO & HIRAGA, INC.

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

MARK ALEXANDER ROY
KYLE GINOZA

June 13, 2008

Milton Arakawa, Director
Department of Public Works
200 South High Street, Room 434
Wailuku, Hawai`i 96793

SUBJECT: Early Consultation Request for Proposed Expansion of Lahaina Civic Center Tennis Courts Complex; TMK Nos. 4-5-021:010, 016 and 020 (por.)

Dear Mr. Arakawa:

We are writing to you on behalf of the applicant, County of Maui Department of Parks and Recreation, to thank you for your letter dated May 30, 2008, regarding the proposed expansion of the Lahaina Civic Center tennis courts complex in Lahaina, Maui, Hawai`i.

In response to your comments, we note that maintenance requirements for Lahaina Civic Center roads are being reviewed with implementation programming to be formulated.

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

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

Very truly yours,

for Kimberly Skog, Planner

KS:tn
cc: Baron Sumida, Department of Parks and Recreation
Ronald Fukumoto, Ronald M. Fukumoto Engineering, Inc.
S:\DATA\RFE\LahainaCC Tennis\DPWeclresp.ltr.wpd

Maui Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96733-6898 • (808) 871-8461

May 19, 2008

Ms. Kimberly Skog, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai`i 96793

Dear Ms. Skog,

Subject: Early Consultation Request for Proposed
Expansion of Lahaina Civic Center Tennis Courts Complex
Lahaina, Maui, Hawaii
TMK: (2) 4-5-021:010, 016 and 020 (por.)

Thank you for allowing us to comment on the early consultation phase of the proposed subject project, which was received on May 15, 2008.

In reviewing our records and the information received, Maui Electric Company (MECO) has no objection to the project at this time. However, we highly encourage the developer's electrical consultant to submit its electrical demand requirements and project time schedule as soon as practical so that service can be provided on a timely basis.

In addition, may we suggest that the developer and/or their consultant make contact with Ray Cibulskis of our Demand Side Management (DSM) group at 872-3226 to review potential energy conservation and efficiency opportunities for their project.

Should you have any other questions or concerns, please don't hesitate to contact me at 871-2345.

Sincerely,

Kimberly Kawahara
Engineer I

cc: Ray Cibulskis – MECO DSM

MUNEKIYO & HIRAGA, INC.

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

MARK ALEXANDER ROY
KYLE GINOZA

June 13, 2008

Kimberly Kawahara, Engineer I
Maui Electric Company, Ltd.
210 West Kamehameha Avenue
P. O. Box 398
Kahului, Hawai`i 96733-6898

SUBJECT: Early Consultation Request for the Proposed Expansion of the Lahaina Civic Center Tennis Courts Complex at Tax Map Key (2) 4-5-021:010 (por.), 016 (por.), and 020 (por.)

Dear Ms. Kawahara:

Thank you for your letter of May 19 2008, providing pre-assessment comments on the proposed expansion of the Lahaina Civic Center Tennis Courts Complex.

In response to your comments, the Department's design team will continue to work with Maui Electric Company to ensure that electrical demand requirements can be addressed in a timely manner. In this connection, coordination with the Demand Side Management group will be undertaken, as needed, to facilitate utilization of energy conservation measures.

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

Thank you again for your valuable input on this proposed action.

Very truly yours,

for Kimberly Skog, Planner

KS:yp
cc: Baron Sumida, Department of Parks and Recreation
Ronald Fukumoto, Ronald M. Fukumoto Engineering, Inc.
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IX. REFERENCES

IX. REFERENCES

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APPENDIX A.

Archaeological Field Inspection

SCIENTIFIC CONSULTANT SERVICES, Inc.

711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

Ronald M. Fukumoto, PE, LS
Ronald M. Fukumoto Engineering, Inc.
1721 Wili Pa Loop, Ste. 203
Wailuku, HI 96793

April 11, 2008

Re: Archaeological Field Inspection at the Lahaina Civic Center, Lahaina, Maui [TMK:4-5-21: 010 & 020]

Dear Mr. Fukumoto:

Scientific Consultant Services, Inc (SCS) conducted a systematic Field Inspection of 5.71 acres in Lahaina, Wahikuli Ahupua'a, Lahaina District, Maui Island [TMK 4-5-021:010 and 020]. The project area is bounded by a graded field to the east, Leiali'i Parkway to the south, the Lahaina Post Office to the west, and the Lahaina Health Center to the north.

Project Location and Natural Setting

The project area is situated at a variable elevation of 20-60 feet A.M.S.L. and lies less than 100 m from the coastline, across from Wahikuli State Wayside Park. Historic-period and recent grubbing and grading have altered the natural topography of the project area and approximately 70-80% of the study parcel is occupied by tennis courts and manicured lawns (read: built environment). The eastern portion of the project area contains abundant introduced grasses and *koa haole* (*Leucaena leucocephala*). The surface soil consists of stony silt loam. Modern trash (concrete fragments, pvc pipe) is scattered throughout unmanicured portions of the project area.

Methods

Systematic, 100% pedestrian survey was conducted on April 10, 2008 by SCS Inc. archaeologist David Perzinski, under the supervision of Michael Dega, Ph.D. (Principle Investigator). The survey included 100% survey of the project area by way of 5 m transects. Ground visibility was good. Notes were taken on landform, alterations, the presence/absence of surface features, and any potential for identifying cultural deposits in subsurface contexts.

Results

No traditional Hawaiian properties were identified within the study parcel. A basalt and concrete drainage was observed on the north side of the tennis courts and extends into the park grass area. This feature is historic-modern. An approximate 100 m long bulldozer push pile was observed running parallel to the eastern side of the tennis courts, within the non-landscaped area. In addition, pvc pipe was observed interminglied with boulders, which suggests recent grubbing.

Overall, no significant historic properties were identified during the Field Inspection and no areas were readily apparent to suggest subsurface cultural deposits. Soil in the area is predominantly composed of silt loam and silty clays, these likely overlying bedrock.

Recommendations

Based on the results of this Field Inspection and the large modifications to the surface of the project area within historic-recent times, no further archaeological work is recommended for this project area. The negative results achieved through this survey would most probably be duplicated if additional work is required.

Thank you again for contracting SCS for this Field Inspection. Please call (597-1182) or email (mike@scshawaii.com) if you have any questions or need additional information.

Best Regards,

Michael Dega, Ph.D.
Senior Archaeologist
Scientific Consultant Services, Inc.

APPENDIX B.

Cultural Impact Assessment

SCS Project Number 943-CIA-1

A CULTURAL IMPACT ASSESSMENT OF A PORTION OF THE LAHAINA CIVIC CENTER PARCEL, WAHIKULI AHUPUA`A, LAHAINA DISTRICT, MAUI ISLAND, HAWAI`I [TMK 4-5-021:010]

Prepared by:
Leann McGerty, B.A.
and
Robert L. Spear, Ph.D.

May 2008

Prepared for:
Ronald M. Fukumoto Engineering, Inc.
1721 Wili Pa Loop, Suite 203
Wailuku, Hawaii 96793

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INTRODUCTION

Scientific Consultant Services (SCS), Inc. has been contracted by Ronald M. Fukumoto Engineering, Inc., to conduct a Cultural Impact Assessment of a portion of the Lahaina Civic Center parcel, Wahikuli Ahupua`a, Lahaina District, Maui Island, Hawai`i [TMK: 4-5-021:010] (Figures 1, 2, and 3). According to exhibits provided by Ronald M. Fukumoto Engineering, Inc., proposed plans for this lot portion includes the construction of four tennis courts, 24-stall parking lot, an accessible walkway, and landscaping plantings.

The Constitution of the State of Hawai`i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to "protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by *ahupua`a* tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778" (2000). In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the peoples traditional right to subsistence. As a result in 1850, the Hawaiian Government confirmed the traditional access rights to native Hawaiian *ahupua`a* tenants to gather specific natural resources for customary uses from undeveloped private property and waterways under the Hawaiian Revised Statutes (HRS) 7-1. In 1992, the State of Hawai`i Supreme Court, reaffirmed HRS 7-1 and expanded it to include, "native Hawaiian rights...may extend beyond the *ahupua`a* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner" (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

Act 50, enacted by the Legislature of the State of Hawaii (2000) with House Bill 2895, relating to Environmental Impact Statements, proposes that:

> ...there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii's culture, and traditional and customary rights...[H.B. No. 2895].

Act 50 requires state agencies and other developers to assess the effects of proposed land use or shoreline developments on the "cultural practices of the community and State" as part of the HRS Chapter 343 environmental review process (2001). Its purpose has broadened, "to promote and protect cultural beliefs, practices and resources of native Hawaiians [and] other

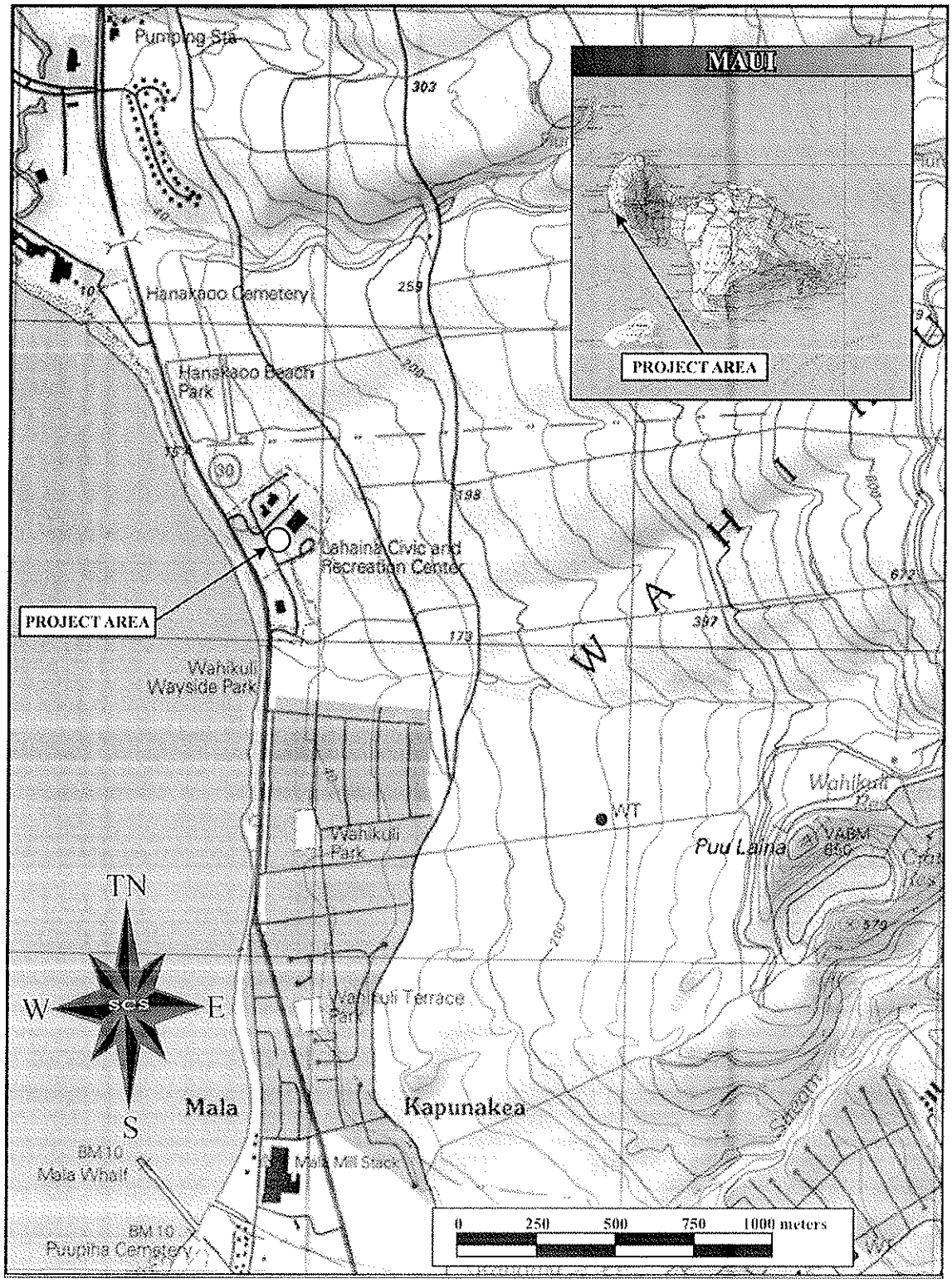

Figure 1: USGS Quadrangle Map Showing Project Area Location.

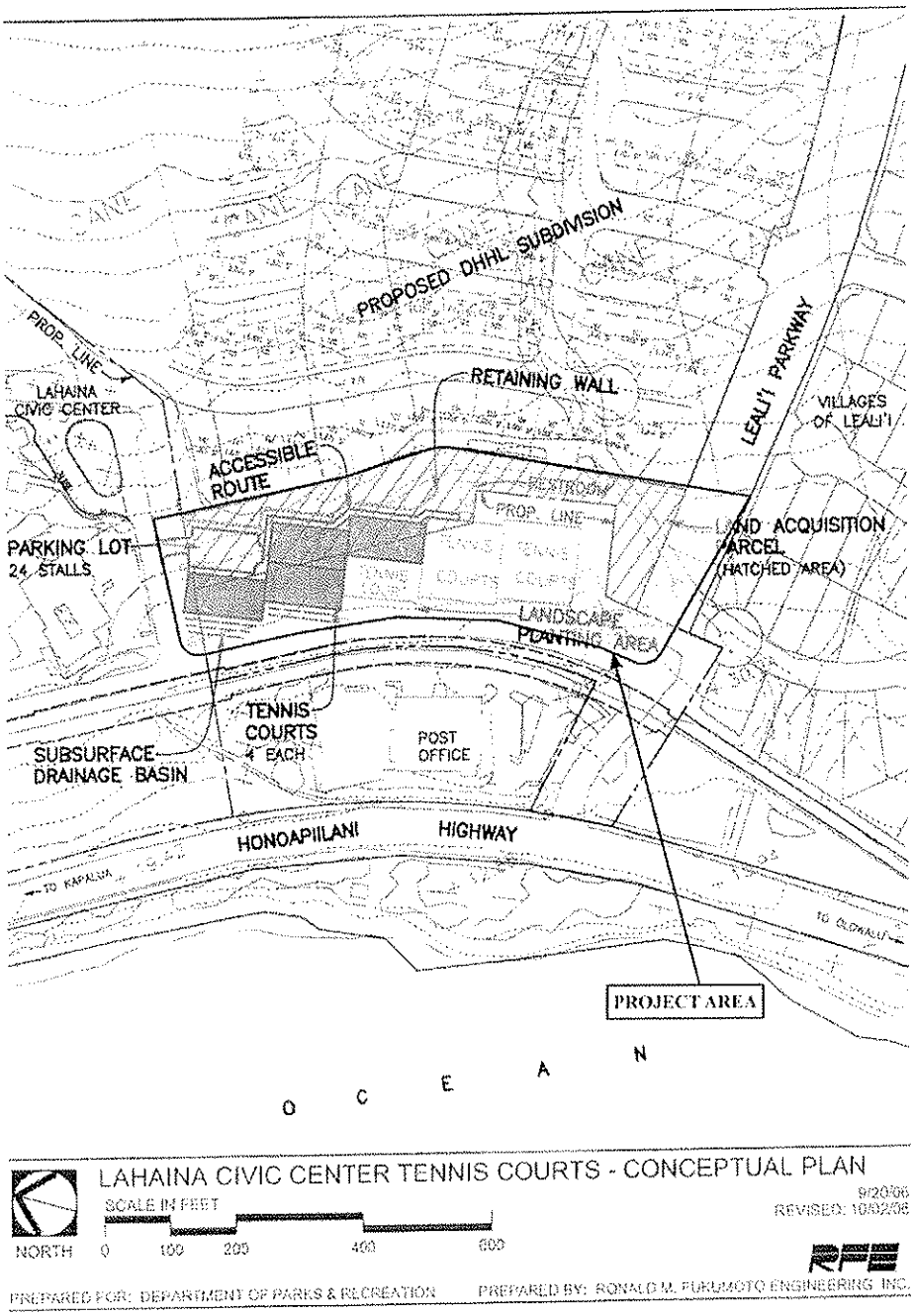

Figure 2: Plan View Map of Project Area (Courtesy of Ronald M. Fukumoto Engineering, Inc.)

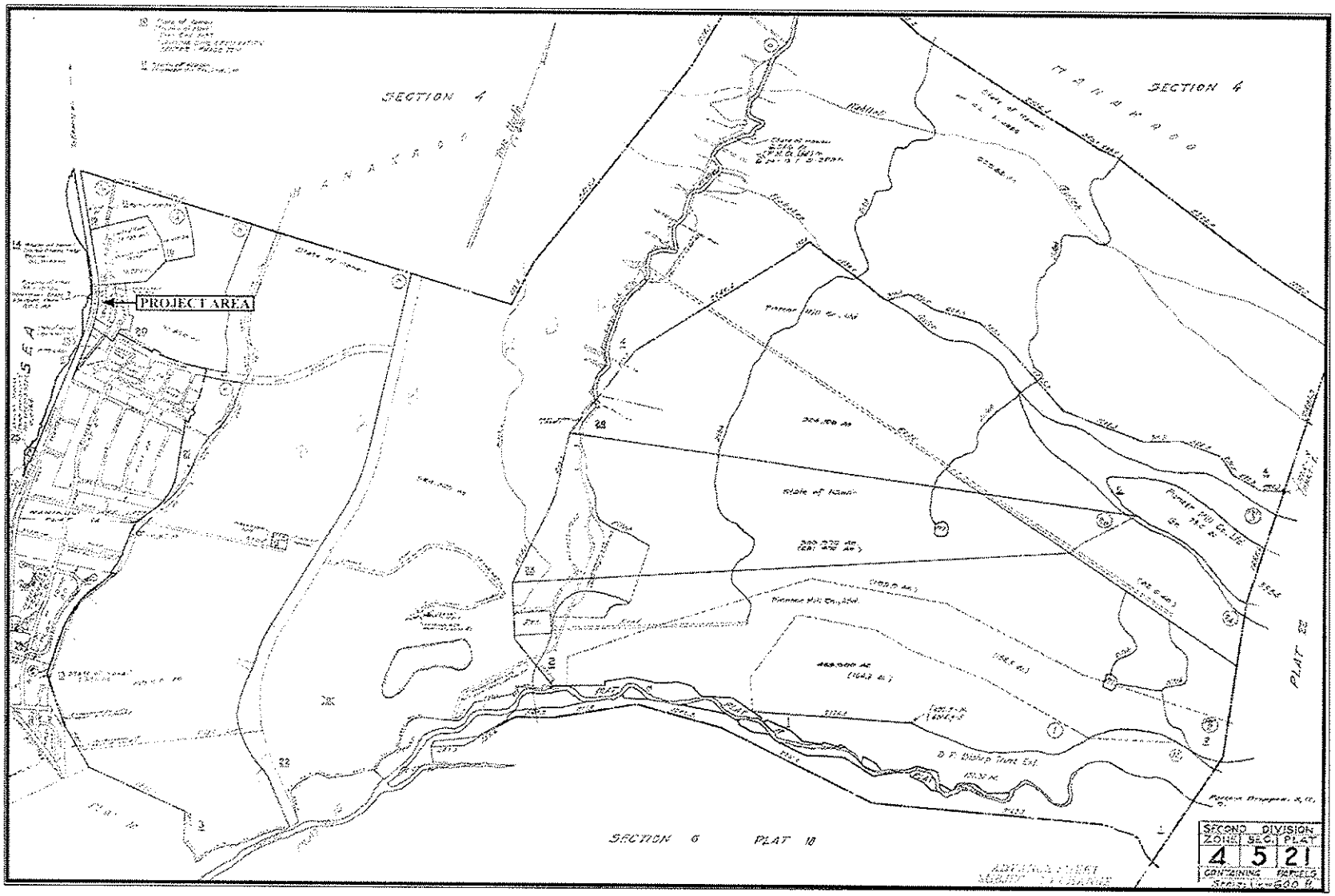

Figure 3: Tax Map Key [TMK] Showing Project Area.

ethnic groups, and it also amends the definition of 'significant effect' to be re-defined as "the sum of effects on the quality of the environment including actions that are...contrary to the State's environmental policies...or adversely affect the economic welfare, social welfare, or cultural practices of the community and State" (H.B. 2895, Act 50, 2000). Thus, not only are properties evaluated for impact to Native Hawaiians, but also for other ethnic groups as well.

Act 50 requires an assessment of cultural practices to be included in the Environmental Assessments and the Environmental Impact Statements, and to be taken into consideration during the planning process. The concept of geographical expansion is recognized by using, as an example, "the broad geographical area, e.g. district or *ahupua`a*" (OEQC 1997). It was decided that the process should identify 'anthropological' cultural practices, rather than 'social' cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997):

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural which support such cultural beliefs.

This Cultural Impact Assessment involves evaluating the probability of impacts on identified cultural resources, including values, rights, beliefs, objects, records, properties, and stories occurring within the project area and its vicinity (H.B. 2895, Act 50, 2000).

METHODOLOGY

This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the "Cultural Impact Assessment Methodology", the OEQC state:

> ...information may be obtained through scoping, community meetings, ethnographic interviews and oral histories...[1997].

This report contains archival and documentary research, as well as communication with organizations having knowledge of, or believed to have knowledge of, the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). The assessment concerning cultural impacts should address, but not be limited to, the following matters:

(1) a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints of limitations which might have affected the quality of the information obtained;

(2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;

(3) ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;

(4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;

(5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;

(6) a discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site;

(7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;

(8) an explanation of confidential information that has been withheld from public disclosure in the assessment;

(9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;

(10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;

(11) the inclusion of bibliography of references, and attached records of interviews which were allowed to be disclosed.

Based on the inclusion of the above information, assessments of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological project reports.

INTERVIEW METHODOLOGY

Interviews are conducted in accordance with Federal and State laws and guidelines. Individuals and/or groups who have knowledge of traditional practices and beliefs associated with a project area or who know of historical properties within a project area are sought for consultation. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their relevant information. Often people are recommended for their expertise, and indeed, organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs, historical societies, Island Trail clubs, and Planning Commissions are depended upon for their recommendations of suitable informants. These groups are invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview.

If knowledgeable individuals are identified, personal interviews are sometimes taped and then transcribed. These draft transcripts are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the information available for this study. When telephone interviews occur, a summary of the information is often sent for correction and approval, or dictated by the informant and then incorporated into the document. Key topics discussed with the interviewees vary from project to

project, but usually include: personal association to the *ahupua`a*, land use in the project's vicinity; knowledge of traditional trails, gathering areas, water sources, religious sites; place names and their meanings; stories that were handed down concerning special places or events in the vicinity of the project area; evidence of previous cultural activities identified in the project area.

In this case, letters, briefly outlining the development plans along with maps of the project area, were sent to organizations whose jurisdiction includes knowledge of the area with an invitation for consultation. Consultation was sought from the Maui Office of Hawaiian Affairs, Community Resource Coordinator, Maui (Thelma Shimaoka); the Office of Hawaiian Affairs, O`ahu (Kai Markell); the Cultural Resources Commission of Planning Maui Planning Department; Nā Kupuna O Maui (Patty Nishiyama); Hinano Rodrigues, the Cultural Historian with the State Historic Preservation Division, Holuamoku Ralar of the Hawaiian Civic Club, Lahaina Chapter; Kamika Kepa`a, a member of the Native Hawaiian Historic Preservation Council; and Ke`eaumoku Kapu with Kuleana Ku`ikāhi. If cultural resources are identified based on the information received from these organizations and additional informants, an assessment of the potential effects on the identified cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

PROJECT AREA AND VICINITY

The project area is located on a portion of State-owned land which will be acquired by the County adjacent to the Lahaina Civic Center. The Maui Planning Department has determined that the project area is within the Special Management Area (see Figures 2 and 3).

CULTURAL HISTORICAL CONTEXT

The island of Maui ranks second in size of the eight main islands in the Hawaiian Archipelago. Pu`u Kukui, forming the west end of the island (1,215m above mean sea level), is composed of large, heavily eroded amphitheater valleys that contain well-developed permanent stream systems that watered fertile agricultural lands extending to the coast. The deep valleys of West Maui and their associated coastal regions have been witness to many battles in ancient times and were coveted productive landscapes.

PAST POLITICAL BOUNDARIES

Traditionally, the division of Maui's lands into districts (*moku*) and sub-districts was performed by a *kahuna* (priest, expert) named Kalaiha`ōhia, during the time of the *ali`i* Kaka`alaneo (Beckwith 1940:383; Fornander places Kaka`alaneo at the end of the 15th century or the beginning of the 16th century [Fornander 1919-20, Vol. 6:248]). Land was considered the property of the king or *ali`i `ai moku* (the *ali`i* who eats the island/district), which he held in trust for the gods. The title of *ali`i `ai moku* ensured rights and responsibilities pertaining to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him and, in turn, distributed smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land.

In general, several terms, such as *moku, ahupua`a, `ili* or *`ili`ā ina* were used to delineate various land sections. A district (*moku*) contained smaller land divisions (*ahupua`a*) which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua`a* were therefore, able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *`ili `āina* or *`ili* were smaller land divisions next to importance to the *ahupua`a* and were administered by the chief who controlled the *ahupua`a* in which it was located (*ibid*:33; Lucas 1995:40). The *mo`o `āina* were narrow strips of land within an *`ili*. The land holding of a tenant or *hoa `āina* residing in a *ahupua`a* was called a *kuleana* (Lucas 1995:61). The project area is located in the *ahupua`a* of Hanakaō`ō, which translated means literally "the digging stick bay" and perhaps refers to the gardens known in the area (Pukui *et al.*:74).

TRADITIONAL SETTLEMENT PATTERNS

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various *ahupua`a*. During pre-Contact times, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River valleys provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *kō* (sugar cane, *Saccharum officinaruma*) and *mai`a* (banana, *Musa* sp.), were also grown and, where appropriate, such crops as *`uala* (sweet potato, *Ipomoea batatas*) were produced. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985). Agricultural development on the leeward side of Maui

was likely to have begun early in what is known as the Expansion Period (AD 1200-1400, Kirch 1985).

WAHI PANA (LEGENDARY PLACES)

Scattered amongst the agricultural and habitation sites were other places of cultural significance to the *kama`āina* of the district. At least eight *heiau* were recorded in the vicinity of the ancient village of Lāhainā (old pronunciation of Lahaina), fishing *ko`a* (shrine) were present along the beach and on the slopes above the bays, and petroglyphs were inscribed in many places whose meanings have yet to be fully understood (Thrum 1908, 1916, 1917; Walker 1930:103). Pearl shell was gathered from Makaiwa Beach for the eyes of the *ki`i* (image, picture) and battles were fought along the coast (Sterling 1998:45). A portion of the paved trail built by Kihapi`ilani, son of the great chief Pi`ilani, was identified along the Kā`anapali coast (Sterling 1998).

To the north was Pu`u Keka`a, made famous by being the birthplace of the sons of chiefs and long associated with ghosts, strange occurrences, and the skeletons of defeated invaders (Fornander 1918–19, Vol. 5:542). In Fornander, S. Kaha stated:

> Concerning the great amount of human bones at this place. On account of the great number of people at this place there are numerous skeletons [this was the vicinity of several bloody battles], as if thousands of people died there; it is there that the Lahainaluna students go to get skeletons for them when they are studying anatomy. The bones are plentiful there; they completely cover the sand.
>
> This is a ghostly place. Some time a number of people came from Kaanapali (from the other side) going to Lahaina in the dark. When they came to Kekaa stones rolled down from the top of the hill without any cause. Listening to it, it seemed as if the hill was tumbling down; the people going along were startled and they explained, Kekaa is ghostly! Kekaa is ghostly!" Certainly this is a strange thing for this hill to do [*Ibid*].

It was also believed that Pu`u Ka`a was a *leina a ka`uhane*, or soul's leap similar to O`ahu's Ka`ena Point. Naha says:

> It is said that when a person dies his spirit journeys to Kekaa; if he has a friend there who had previously died, that one would drive it away when the spirit is nearing Kekaa. Sometimes the spirit of a person would return and re-enter the body, and cause it to come to life again; that is what happened to those who are living again.

> Many souls came to this place Kekaa. It is called the Leina-a-ka-uhane, the leaping place of the soul...[*Ibid*].

According to legend, the lands surrounding Pu`u Keka`a were once areas of intense cultivation and the capital and home of the Maui chief, Kaka`alaneo, when he ruled West Maui. Kaka`alaneo lived on the *pu`u* with his wife, a chiefess from Moloka`i.

> Kekaa was the capitol of Maui when Kalaalaneo was reigning over West Maui...Many houses were constructed and people cultivated a great deal of potatoes, bananas, sugar cane, and things of a like nature. I have been told that the country from Kekaa to Hahakea and Wahikuli –that country now covered by cactus, in a northwesterly direction for Lahaina-was all cultivated. This chief [Kakaalaneo] also planted bread fruit and kukui trees down at Lahaina. Some of these trees southwest of the Lahaina fort, were called the bread fruit trees of Kauheana [Fornander 5:540–541].

Kaka`alaneo's possessions included fishponds in Hana and a famous breadfruit grove he planted outside of Lāhainā (Handy and Handy 1972). His son, Ka`ulula`au, became famous for traveling around Lāna`i fighting ghosts (Sterling 1998). Maui, the demi-god himself, was associated with the hill:

> At Kekaa lived Maui and Moemoe...The great desire of one [Moemoe] was to sleep. The other [Maui] desired to travel. When Moemoe slept, Maui was traveling, each according to his taste...[Moemoe] made up his mind...to search for his friend, Maui. A road on the northeast side of Kekaa was named after one of these men; it is called "Ke alanui kikeekee a Maui"-the zig zag pathway of Maui" [Fornander 1918-19, Vol. 5:540–544].

> It is recorded that Pu`ū Keka`a was the burial place for Kekaulike's oldest son, Kauhi`aimoku-a-kama who was defeated by his brother and Uncle at the Battle of Koko-o-na-moku further south at Makaiwa Beach (Sterling 1998). Kahekili succeeded his brother Kamehameha-Nui as ruler of Maui and to prove he was a true descendant of the gods, he leapt from the `Ū-ha-ne lele or Soul-Leaping Place of Maui. No ordinary man would dare to do this (*Ibid.*).

LĀHAINĀ DISTRICT SETTLEMENT PATTERNS

In Hawai`i, much of the coastal lands were preferred for chiefly residence. Easily accessible resources such as offshore and onshore fish ponds, the sea with its fishing and

surfing—known as the sports of kings, and some of the most extensive and fertile wet taro lands were located in the area (Kirch and Sahlins, 1992 Vol. 1:19). Inland resources necessary for subsistence, could easily be brought to the *ali`i* residences on the coast from nearby inland plantations. The majority of farming was situated in the lower portions of stream valleys where there were broader alluvial flat lands or on bends in the streams where alluvial terraces could be modified to take advantage of the stream flow. Dry land cultivation occurred in colluvial areas at the base of gulch walls or on flat slopes (Kirch 1985; Kirch and Sahlins 1992, Vol. 2:59). Lāhainā had the added advantage of a calm roadstead and close proximity to Lāna`i, and Moloka`i (Handy and Handy 1972).

Trails extended from the coast to the mountains, linking the two for both economic and social reasons. A trail known as the *alanui* or "King's trail" built by Kihapi`ilani, extended along the coast passing through all the major communities between Lāhainā and Mākena, After the conquest of Maui by Kamehameha I, Lāhainā became the capitol of the Hawaiian Kingdom until it moved to Honolulu in 1855.

From early times, Lāhainā was favored by the *ali`i*. Kahekili, who became ruler of Maui in the 1700s, maintained his home and royal court here until his death in 1794. After laying waste to Lāhainā in the process of subjugating Maui, Kamehameha I proceeded to O`ahu, where he finally united all the islands (except Kaua`i) under his rule. He later returned and established residence and his seat of government in Lāhainā, constructing the first brick house in the town a short way north of the project area. During Kamehameha's time, Lāhainā thrived as a center for the lucrative sandalwood trade. His son, Liholiho, and his wife resided in Lāhainā until they sailed to England in 1823 never to return alive to their kingdom. Kamehameha III (Kauikeaouli) built a new royal residence, a complex of fine, thatched-roofed houses, for his entourage called Pākalā. In addition, he began to construct a palace of coral rock, two stories high, known as Hale Piula, close to the sea.

Whaling ships began coming to Hawai`i by the hundreds in the 1820s. The peak year of 1859 brought 549 whaling ships to the roadstead. Lāhainā became saturated with sailors, whalers, deserters, and other unsavory types as well as western businessmen. Soon missionaries followed to set straight, both sailor and Hawaiian, and to impose their foreign standards on the population, whether they wanted it or not. The golden age of whaling was between 1843 and 1860, when Lāhainā underwent a building frenzy initiated by those hoping to buy and sell and make their fortune. Kamehameha III built a private residential complex on the Moku`ula, a tiny island located in a freshwater fishpond near the project area. The death of his sister,

Nāhe`ena`ena, affected the king deeply. He had her body and that of their mother brought to Moku`ula where they were laid to rest in a specially constructed mausoleum and where he was to reside for the next eight years. In 1845, the court moved to O`ahu, as the port of Honolulu had become the commercial center oaf the kingdom.

Ethnographic and historic literature, often our only link to the past, reveals that the land around Lāhainā was rich in agricultural areas irrigated by aqueducts originating in well-watered valleys with permanent occupation predominately on the coast. Handy and Handy have stated the space cultivated by the natives of Lāhainā at about "...three leagues [9 miles] in length, and one in its greatest breadth. Beyond this all is dry and barren; everything recalls the image of desolation" (1972:593). Crops cultivated included coconut, breadfruit, paper mulberry, banana, taro, sweet potato, sugar cane, and gourds.

Menzies, the naturalist and surgeon on board HMS Discovery during Captain George Vancouver's 1793 tour, made these observations of the Lāhainā coast and village:

> [We]...soon entered the verge of the woods where we observed the rugged bands of a large rivulet that came out of the chasm cultivated and watered with great neatness and industry. Even the shelving cliffs of rock were planted with esculent roots, banked in and watered by aqueducts from the rivulet with as much art as if their level had been taken by the most ingenious engineer...[Menzies 1920:105].

> ...to see the village of Lahaina, which we could scattered along shore on a low tract of land that was nearly divided into little fields and laid out in the highest state of cultivation and improvement by being planted in the most regulated manner with the different esculent roots and useful vegetables of the country, and watered at pleasure by aqueducts that ran here and there along the banks intersecting the fields, and in this manner branching through the greatest part of the plantation [Menzies 1920:112].

Little had changed twenty-six years later when J. Arago visited Hawai`i with Captain Louis de Freycinet in 1819. He recorded:

> The environs of Lahaina are like a garden. It would be difficult to find a soil more fertile, or a people who can turn it to greater advantage...various sorts of vegetables and plants...amongst which we distinguish the Caribee-cabbage, named here taro; double rows of banana, bread-fruit, cocoa-nut, palma-christi, and

> the paper-mulberry trees...[Arago cited in Handy and Handy 1972:493].

Rev. C.S. Stewart, a missionary in 1823 assigned to the Lāhainā station, also commented on the attractiveness of the environs:

> The settlement is far more beautiful than any place we have yet seen on the Islands. The entire district stretching nearly three miles along the seaside, is covered with luxuriant groves, not only of the cocoanut, the only tree we have before seen except on the tops of the mountains, but also of the breadfruit and the kou...while the banana plant, kappa and sugar-cane are abundant, and extend almost to the beach, on which a fine surf constantly rolls [Taylor 1928:42].
>
> ...The breadfruit trees stand as thickly as those of a regularly planted orchard, and beneath them are kalo patches and fishponds, 20 or 30 yards square, filled with stagnant water, and interspersed with kappa trees, groves of banana, rows of the sugar cane, and bunches of the potato and melon...It scarcely ever rains, not oftener, we are told, than half a dozen times during the year, and the land is watered entirely by conducting streams, which rush from the mountains, by artificial courses, on every plantation. Each farmer has a right, established by custom, to the water every fifth day [Taylor 1928:43].

THE GREAT MĀHELE

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kauikeaouli (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kame`eleihiwa 1992:169-70, 176; Kelly 1983:45, 1998:4; Daws 1962:111; Kuykendall 1938 Vol. I:145). The Great Māhele of 1848 divided Hawaiian lands between the king, the chiefs, the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were thus made available and private ownership was instituted, the *maka`āinana* (commoners), if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, *`okipū* (on O`ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame`eleihiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and

issued a Royal Patent after which they could take possession of the property (Chinen 1961:16). There were no awarded LCAs in the vicinity of the project area (Waihona `Aina Data Base 2006). According to Puku`i *et al.* (1974:218), Wahikuli literally means "noisy place".

HISTORIC LAND USE

Lāhainā, long the port of choice and where commercial endeavors had succeeded the traditional economy, suffered with the demise of the whaling industry and the change in Capitol of the Hawaiian Kingdom to Honolulu. By the mid-1800s the Kā`anapali area was being converted from traditional agriculture to commercial sugar cane. As early as 1849, Judge A.W. Parsons operated a sugar mill in Lāhainā. Henry Dickenson began a sugar plantation in 1859 that was quickly followed by the Pioneer Mill Co. By 1883, Pioneer Mill Co. had assets in excess of $50,000,000 (Simpich 1974). Pioneer Mill's railroad extended from the center of Lāhainā Village to a point north of the town of Pu`ukoli`i in Hanaka`ō`ō and was as close as 350 feet above mean sea level at its northern end (Condé 1975). Pioneer Mill Co. reorganized in 1900 at which time its cane fields were located along the coast for 10 miles with some areas extending back as far as two and one half miles:

> The bulk of the crop is raised on lands that range from 10 feet to 700 feet elevation above sea level; the highest being cultivated at 1500 feet [Condé and Best 1973:254].

Sugar was processed and bagged at the mill in Lāhainā and then taken by train to the landing at Pu`u Keka`a (Black Rock). Other buildings had been constructed there to aid in the plantations activities, such as oil and molasses tanks, as well as a pavilion and some beach cottages on the beach for the use of Pioneer Mill Company's personnel (Clark 1980:61). To add to the enjoyment, a quarter-mile track had been constructed on the tidal flats (previously the site of the Battle of Koko-o-na-moku) behind Hanaka`ō`ō for horse racing on holidays. The Kā`anapali Landing was abandoned before World War II and by 1957 plans were in motion for a multi-million dollar resort to be built around Pu`u Keka`a. The shift to tourism in the 1950s sent the plantations into decline, however, the development of golf courses, hotels, condominiums, and shops have continued the popularity of Lahaina up to and including the present.

SUMMARY

The "level of effort undertaken" to identify potential effect by a project to cultural resources, places or beliefs (OEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people

who may be affected by the project or who know its history, research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential. Sending inquiring letters to organizations concerning development of a piece of property that has already been totally impacted by previous activity and is located in an already developed industrial area may be a "good faith effort". However, when many factors need to be considered, such as in coastal or mountain development, a good faith effort might mean an entirely different level of research activity.

In the case of the present parcel, letters of inquiry were sent to organizations whose expertise would include the project area. Consultation was sought from the Maui Office of Hawaiian Affairs, Community Resource Coordinator, Maui (Thelma Shimaoka); the Office of Hawaiian Affairs, O`ahu (Kai Markell); the Cultural Resources Commission of Planning Maui Planning Department; Nā Kupuna O Maui (Patty Nishiyama); Hinano Rodrigues, the Cultural Historian with the State Historic Preservation Division, Holuamoku Ralar of the Hawaiian Civic Club, Lahaina Chapter; Kamika Kepa`a, a member of the Native Hawaiian Historic Preservation Council; and Ke`eaumoku Kapu with Kuleana Ku`ikāhi.

Historical and cultural source materials were extensively used and can be found listed in the References Cited portion of the report. Such scholars as I`i, Kamakau, Beckwith, Chinen, Kame`eleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Puku`i and Elbert, Thrum, Sterling, and Cordy have contributed, and continue to contribute to our knowledge and understanding of Hawai`i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona `Aina 2005 Data base.

CULTURAL ASSESSMENT

Analysis of the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is a requirement of the OEQC (No. 10, 1997). To our knowledge, the project area has not been used for traditional cultural purposes within the recent past. Based on historical research and the lack of response at the time of this reports production (May 22, 2008), from the Maui Office of Hawaiian Affairs, Community Resource Coordinator, Maui (Thelma Shimaoka); the Office of Hawaiian Affairs, O`ahu (Kai Markell); the Cultural Resources Commission of

Planning Maui Planning Department; Nā Kupuna O Maui (Patty Nishiyama); Hinano Rodrigues, the Cultural Historian with the State Historic Preservation Division, Holuamoku Ralar of the Hawaiian Civic Club, Lahaina Chapter; Kamika Kepa`a, a member of the Native Hawaiian Historic Preservation Council; and Ke`eaumoku Kapu with Kuleana Ku`ikāhi, it is reasonable to conclude that, pursuant to Act 50, the exercise of Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities within the project parcel will not be affected and there will be no direct adverse effect upon cultural practices or beliefs.

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APPENDIX A: CONSULTATION REQUSTS

(No figures included)

SCIENTIFIC CONSULTANT SERVICES, Inc.
711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

Holoua moku Ralar
Hawaiian Civic Club, Lahaina Chapter
P.O. Box 10965
Lahaina, Hawai'i 96761

Dear Holoua moku:

Scientific Consultant Services, Inc. (SCS) has been contracted by Ronald M. Fukumoto Engineering, Inc., to conduct a Cultural Impact Assessment (CIA) on a portion of the Lahaina Civic Center site, Lahaina District, Maui (TMK: 4-5-021:010). Exhibits provided by Ronald M. Fukumoto Engineering, Inc., proposes the construction of four tennis courts, 24-stall parking lot, an accessible walkway, and landscaping plantings. As you know, this involves assessing the probability of impacting cultural values and rights within the project area. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs…The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs…

We are asking you for any information that might contribute to the knowledge of traditional activities, or traditional rights that might be impacted by the project's proposed construction. The assessment results are dependent on the response and contributions made by individuals and organizations such as yours.

Enclosed are maps showing the proposed project area. Please contact me at our SCS Honolulu office at (808) 597-1182; my cell phone, 225-2355; or home, (808) 637-9539, with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosures (2)

SCIENTIFIC CONSULTANT SERVICES, Inc.
711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

May 1, 2008

Patty Nishiyama
Nā Kupuna O Maui
320 Kaeo Place
Lahaina, Hawaii 96761

Dear Ms. Nishiyama:

Scientific Consultant Services, Inc. (SCS) has been contracted by Ronald M. Fukumoto Engineering, Inc., to conduct a Cultural Impact Assessment (CIA) on a portion of the Lahaina Civic Center site, Lahaina District, Maui (TMK: 4-5-021:010). Exhibits provided by Ronald M. Fukumoto Engineering, Inc., proposes the construction of four tennis courts, 24-stall parking lot, an accessible walkway, and landscaping plantings. As you know, this involves assessing the probability of impacting cultural values and rights within the project area. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs…The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs…

We are asking you for any information that might contribute to the knowledge of traditional activities, or traditional rights that might be impacted by the project's proposed construction. The assessment results are dependent on the response and contributions made by individuals and organizations such as yours.

Enclosed are maps showing the proposed project area. Please contact me at our SCS Honolulu office at (808) 597-1182; my cell phone, 225-2355; or home, (808) 637-9539, with any information or recommendations concerning this Cultural Impact Assessment.

Sincerely yours,

Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosures (2)

SCIENTIFIC CONSULTANT SERVICES, Inc.
711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

May 1, 2008

Kai Markell
Director of Native Rights
C/o Office of Hawaiian Affairs
711 Kapi'olani Blvd, Suite 500
Honolulu, HI 96813

Dear Mr. Markell:

Scientific Consultant Services, Inc. (SCS) has been contracted by Ronald M. Fukumoto Engineering, Inc., to conduct a Cultural Impact Assessment (CIA) on a portion of the Lahaina Civic Center site, Lahaina District, Maui (TMK: 4-5-021:010). Exhibits provided by Ronald M. Fukumoto Engineering, Inc., proposes the construction of four tennis courts, 24-stall parking lot, an accessible walkway, and landscaping plantings. As you know, this involves assessing the probability of impacting cultural values and rights within the project area. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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Senior Archaeologist
Enclosures (2)

SCIENTIFIC CONSULTANT SERVICES, Inc.
711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

May 1, 2008

Thelma Shimaoka
c/o Office of Hawaiian Affairs
140 Hoohana St.
Suite 206
Kahului, HI 96732

Dear Ms. Shimaoka:

Scientific Consultant Services, Inc. (SCS) has been contracted by Ronald M. Fukumoto Engineering, Inc., to conduct a Cultural Impact Assessment (CIA) on a portion of the Lahaina Civic Center site, Lahaina District, Maui (TMK: 4-5-021:010). Exhibits provided by Ronald M. Fukumoto Engineering, Inc., proposes the construction of four tennis courts, 24-stall parking lot, an accessible walkway, and landscaping plantings. As you know, this involves assessing the probability of impacting cultural values and rights within the project area. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosures (2)

Ph: 808-597-1182 SCS... SERVING ALL YOUR ARCHAEOLOGICAL NEEDS Fax: 808-597-1193
Neighbor Island Offices • Hawai'i Island • Maui • Kaua'i

SCIENTIFIC CONSULTANT SERVICES, Inc.
711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

May 1, 2008

County of Maui
Department of Planning
Cultural Resources Commission
250 S. High Street
Wailuku, HI 96793

Dear Sir or Madam:

Scientific Consultant Services, Inc. (SCS) has been contracted by Ronald M. Fukumoto Engineering, Inc., to conduct a Cultural Impact Assessment (CIA) on a portion of the Lahaina Civic Center site, Lahaina District, Maui (TMK: 4-5-021:010). Exhibits provided by Ronald M. Fukumoto Engineering, Inc., proposes the construction of four tennis courts, 24-stall parking lot, an accessible walkway, and landscaping plantings. As you know, this involves assessing the probability of impacting cultural values and rights within the project area. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosures (2)

SCIENTIFIC CONSULTANT SERVICES, Inc.
711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

May 1, 2008

Hinano Rodrigues, Cultural Historian
DLNR Maui Office
130 Mahalani Street
Wailuku, HI 96791

Dear Hinano:

Scientific Consultant Services, Inc. (SCS) has been contracted by Ronald M. Fukumoto Engineering, Inc., to conduct a Cultural Impact Assessment (CIA) on a portion of the Lahaina Civic Center site, Lahaina District, Maui (TMK: 4-5-021:010). Exhibits provided by Ronald M. Fukumoto Engineering, Inc., proposes the construction of four tennis courts, 24-stall parking lot, an accessible walkway, and landscaping plantings. As you know, this involves assessing the probability of impacting cultural values and rights within the project area. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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Sincerely yours,

Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosures (2)

SCIENTIFIC CONSULTANT SERVICES, Inc.
711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

Ke`eaumoku and U`i Kapu
Kuleana Kuikahi, LLC.
P.O. Box 11524
Lahaina, Maui 96791

May 1, 2008

Dear Mr. and Mrs. Kapu:

Scientific Consultant Services, Inc. (SCS) has been contracted by Ronald M. Fukumoto Engineering, Inc., to conduct a Cultural Impact Assessment (CIA) on a portion of the Lahaina Civic Center site, Lahaina District, Maui (TMK: 4-5-021:010). Exhibits provided by Ronald M. Fukumoto Engineering, Inc., proposes the construction of four tennis courts, 24-stall parking lot, an accessible walkway, and landscaping plantings. As you know, this involves assessing the probability of impacting cultural values and rights within the project area. According to the *Guidelines for Assessing Cultural Impacts* (Office of Environmental Quality Control, Nov. 1997):

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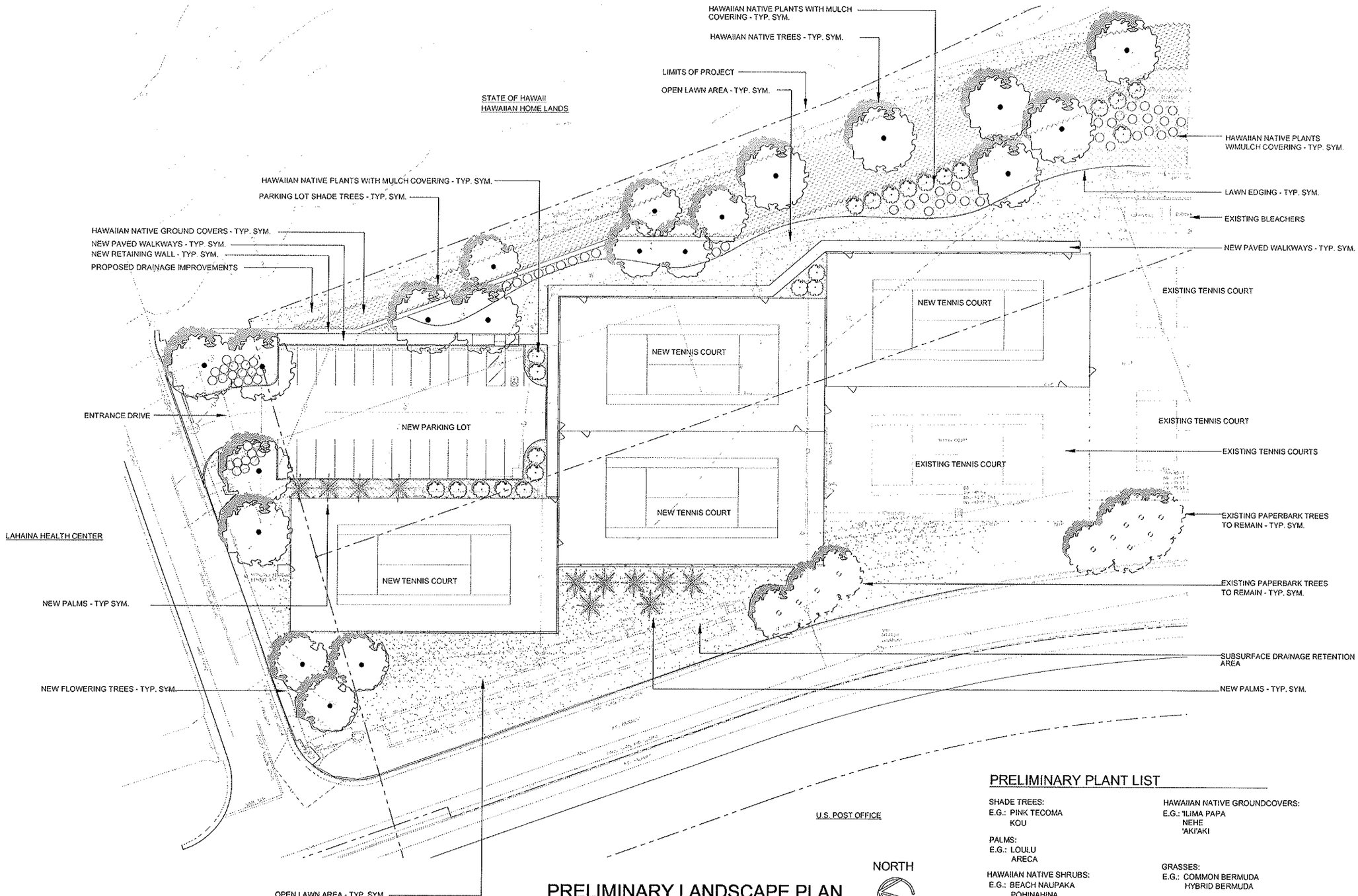
Sincerely yours,

Leann McGerty

Leann McGerty,
Senior Archaeologist
Enclosures (2)

APPENDIX C.

Preliminary Landscape Plan



PRELIMINARY LANDSCAPE PLAN

NORTH

SCALE: 1" = 20' - 0"

PRELIMINARY PLANT LIST

SHADE TREES:
E.G.: PINK TECOMA
KOU

PALMS:
E.G.: LOULU
ARECA

HAWAIIAN NATIVE SHRUBS:
E.G.: BEACH NAUPAKA
POHINAHINA
'AKIA
MA'O
'ULEI
KOKI'O KE'OKE'O

HAWAIIAN NATIVE GROUNDCOVERS:
E.G.: 'ILIMA PAPA
NEHE
'AKI'AKI

GRASSES:
E.G.: COMMON BERMUDA
HYBRID BERMUDA

RUSSEL Y. GUSHI
LANDSCAPE ARCHITECT

44 SOUTH MARKET STREET
P.O. BOX 1411
WAILUKU, MAUI, HAWAII 96793
TEL: (808) 242-6505 FAX: (808) 244-0131
e-mail: rygushi.maui@hawaiiantel.net

RUSSEL Y. GUSHI · LICENSED PROFESSIONAL LANDSCAPE ARCHITECT · No. 0032 · HAWAII, U.S.A.

LAHAINA CIVIC CENTER TENNIS COMPLEX
at
LAHAINA, MAUI, HAWAII

PRELIMINARY LANDSCAPE PLAN

Project No:
Drawn By: RYG
Designed By: RYG
Checked By: RYG
Date: May 16, 2006
Revisions:

Sheet :

LP-1

of Sheets

APPENDIX D.

Traffic Impact Assessment Report

Phillip Rowell and Associates
47-273 'D' Hui Iwa Street Kaneohe, Hawaii 96744 Phone: (808) 239-8206 FAX: (808) 239-4175 Email:prowell@gte.net

May 19, 2008

Ronald M. Fukumoto Engineering, Inc.
1721 Wili Pa Loop, Suite 203
Wailuku, Maui, HI 96793

Attn: Mr. Ronald Fukumoto

Re: **Traffic Impact Assessment Report**
Proposed Lahaina Civic Center Tennis Courts

Dear Mr. Fukumoto:

Phillip Rowell and Associates have completed the following Traffic Impact Assessment Report for the proposed new tennis courts at the Lahaina Civic Center. The report is presented in the following format:

A. Project Location and Description
B. Purpose and Objective of Study
C. Methodology
D. Description of Existing Streets and Intersection Controls
E. Existing Peak Hour Traffic Volumes
F. Level-of-Service Concept
G. Existing Levels-of-Service
H. 2010 Background Traffic Projections
I. Project Trip Generation
J. 2010 Background Plus Project Traffic Projections
K. Impact Analysis of 2010 Conditions
L. Mitigation
M. Other Issues
N. Summary and Conclusions

A. Project Location and Description

The proposed project is located adjacent to the existing tennis courts at the Lahaina Civic Center and consist of four (4) additional tennis courts. See Attachment A.

Access to and egress from the project will be via the intersection of Honoapiilani Highway at Leali'i Parkway.

B. Purpose and Objective of Study

1. Quantify and describe the traffic related characteristics of the proposed project.

2. Identify potential deficiencies adjacent to the project that will impact traffic operations in the vicinity of the proposed project.

C. Methodology

1. *Define the Study Area*

The first step in defining the study area was to estimate the number of peak hour trips that the proposed project will generate. It was estimated that the project will generate 7 trips during the morning peak hour and 16 trips during the afternoon peak hour. Typically, the study area would be limited to the access and egress point closest to the project, the intersection of Honoapiilani Highway at Leali'i Parkway. However, because of the sensitivity of area's community to traffic, the study area was expanded to the next adjacent major intersections north of and south of Leali'i Parkway. Thus, the study area includes the following intersections:

- Honoapiilani Highway at Leali'i Parkway
- Honoapiilani Highway at Front Street
- Honopiilani Highway at Kaanapali Parkway

2. *Analyze Existing Traffic Conditions*

Existing traffic volumes at the study intersections were obtained from traffic counts completed October and November, 2005 for the Honoapiilani Highway traffic signal coordination project[1]. These counts were considered valid based of additional traffic counts at the intersection of Honoapiilani Highway at Lahainaluna Street that concluded that traffic along morning peak hour traffic along Honoapiilani Highway decreased 8% between 2005 and 2006 and that during the afternoon peak hour, northbound traffic along Honoapiilani Highway decreased 9%. Southbound traffic during the afternoon peak hour did not change.

The intersection configurations and right-of-way controls were verified during a field reconnaissance of the study area during May 2008. Existing traffic operating conditions of the study intersection were determined using the methodology described in the 2000 *Highway Capacity Manual* (HCM)[2].

3. *Estimate Horizon Year Background Traffic Projections*

Background traffic conditions are defined as future traffic conditions without the proposed project and are estimated by superimposing traffic generated by related projects in the vicinity onto existing traffic volumes.

The year 2010 was used as the horizon year. This does not necessarily represent the project completion date. It represents a date for which future background traffic projections were estimated. The year 2010 is also consistent with recently completed traffic studies in the area.

Horizon year background traffic conditions were estimated using background traffic growth rates provided in the *Maui Long Range Land Transportation Plan*, adding traffic generated by anticipated development in the area and adjusting the estimated traffic volumes to account for new roadways in the area.

---

[1] Austin, Tsutsumi & Associates, *Traffic Signal Synchronization of Honoapiilani Highway from Shaw Street to Lower Honoapiilani Highway*, May 15, 2006

[2] *Highway Capacity Manual*, Institute of Transportation Engineers, Washington, D.C., 2000

4. *Estimate Project-Related Traffic Characteristics*

The number peak-hour trips that the proposed project will generate was estimated using standard trip generation procedures outlined in the *Trip Generation Handbook*[3] and data provided in *Trip Generation*[4]. These trips were distributed and assigned based on the available approach and departure routes and trip distribution data from other recently completed traffic studies in the area.

5. *Analyze Project Related Traffic Impacts*

The project-related traffic was then superimposed on 2010 background traffic volumes at the study intersections. The traffic impacts of the project were assessed by analyzing the changes in traffic volumes and levels-of-service at the study intersections. The purpose of this analysis was to identify potential operational deficiencies in the vicinity of the proposed project.

D. Description of Existing Streets and Intersection Controls

A schematic diagram indicating the existing lane configurations and right-of-way controls of the study intersections is presented as Attachment B.

Honoapiilani Highway is a four-lane, undivided highway with a north-south orientation. The posted speed limit is 40 miles per hour in both directions. The study intersections along Honoapiilani Highway are signalized with separate left turn lane and separate left turn phases for the northbound and southbound approaches.

E. Existing Peak Hour Traffic Volumes

The existing morning and afternoon peak hour traffic volumes are summarized in Attachment C.

1. The traffic counts include buses, trucks and other large vehicles. Mopeds and Bicycles were not counted.

2. The midday peak hour was not analyzed based on the traffic data contained in the Honoapiilani Highway signalization project that indicated that the morning commute and midday peak hours were comparable.

3. The traffic volumes of adjacent intersections may not match the volumes shown for an adjacent intersection because the peak hours of the adjacent intersections may not coincide and there are driveways between the intersections.

4. Pedestrian activity was negligible.

F. Level-of-Service Concept

"Level-of-Service" is a term which denotes any of an infinite number of combinations of traffic operating conditions that may occur on a given lane or roadway when it is subjected to various traffic volumes. Level-of-service (LOS) is a qualitative measure of the effect of a number of factors which include space, speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience.

There are six levels-of-service, A through F, which relate to the driving conditions from best to worst, respectively. The characteristics of traffic operations for each level-of-service are summarized in Table 1. In general, LOS A represents free-flow conditions with no congestion. LOS F, on the other hand, represents

---

[3] *Trip Generation Handbook*, Institute of Transportation Engineers, Washington, D.C., 1998

[4] *Trip Generation*, Institute of Transportation Engineers, Washington, D.C., 2003

severe congestion with stop-and-go conditions. Level-of-service D is typically considered acceptable for peak hour conditions in urban areas.

Corresponding to each level-of-service shown in the table is a volume/capacity ratio. This is the ratio of either existing or projected traffic volumes to the capacity of the intersection. Capacity is defined as the maximum number of vehicles that can be accommodated by the roadway during a specified period of time. The capacity of a particular roadway is dependent upon its physical characteristics such as the number of lanes, the operational characteristics of the roadway (one-way, two-way, turn prohibitions, bus stops, etc.), the type of traffic using the roadway (trucks, buses, etc.) and turning movements.

Table 1 Level-of-Service Definitions for Signalized Intersections[1]

Level of Service	Interpretation	Volume-to-Capacity Ratio[2]	Stopped Delay (Seconds)
A, B	Uncongested operations; all vehicles clear in a single cycle.	0.000-0.700	<20.0
C	Light congestion; occasional backups on critical approaches	0.701-0.800	20.1-35.0
D	Congestion on critical approaches but intersection functional. Vehicles must wait through more than one cycle during short periods. No long standing lines formed.	0.801-0.900	35.1-55.0
E	Severe congestion with some standing lines on critical approaches. Blockage of intersection may occur if signal does not provide protected turning movements.	0.901-1.000	55.1-80.0
F	Total breakdown with stop-and-go operation	>1.001	>80.0

Notes:
(1) Source: *Highway Capacity Manual*, 2000.
(2) This is the ratio of the calculated critical volume to Level-of-Service E Capacity.

Like signalized intersections, the operating conditions of intersections controlled by stop signs can be classified by a level-of-service from A to F. However, the method for determining level-of-service for unsignalized intersections is based on the use of gaps in traffic on the major street by vehicles crossing or turning through that stream. Specifically, the capacity of the controlled legs of an intersection is based on two factors: 1) the distribution of gaps in the major street traffic stream, and 2) driver judgement in selecting gaps through which to execute a desired maneuver. The criteria for level-of-service at an unsignalized intersection is therefore based on delay of each turning movement. Table 2 summarizes the definitions for level-of-service and the corresponding delay. A subsequent calculation to determine an overall LOS was made, and these results are presented in tables to summarize traffic conditions using parameters similar to those used for signalized intersections.

Table 2 Level-of-Service Definitions for Unsignalized Intersections[1]

Level-of-Service	Expected Delay to Minor Street Traffic	Delay (Seconds)
A	Little or no delay	<10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	See note (2) below	>50.1

Notes:
(1) Source: *Highway Capacity Manual*, 2000.
(2) When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement of the intersection.

G. Existing Levels-of-Service

The existing levels-of-service of the study intersections are summarized in Table 3. Shown in the table are the volume-to-capacity ratios, delays and levels-of-service of the overall intersections.

Table 3 Existing Levels-of-Service

	AM Peak Hour			PM Peak Hour		
Intersection, Approach and Movement	V/C	Delay	LOS	V/C	Delay	LOS
Honoapiilani Highway at Leali'i Parkway	***0.64***	***7.7***	***A***	***0.75***	***11.6***	***B***
Eastbound Left, Thru & Right	0.05	36.5	D	0.03	36.3	D
Westbound Left & Thru	0.56	45.1	D	0.55	42.7	D
Westbound Right	0.00	40.9	D	0.00	45.2	D
Northbound Left	0.21	44.2	D	0.28	52.7	D
Northbound Thru & Right	0.63	5.4	A	0.71	8.9	A
Southbound Left	0.96	155.9	F	0.87	107.6	F
Southbound Thru & right	0.53	4.0	A	0.76	8.6	A
Honoapiilani Highway at Front Street	***0.59***	***9.6***	***A***	***0.74***	***14.4***	***B***
Eastbound Left, Thru & Right	0.66	29.5	C	0.79	32.1	C
Westbound Left, Thru & Right	0.47	23.2	C	0.24	17.9	B
Northbound Left	0.24	35.0	C	0.24	34.0	C
Northbound Thru & Right	0.63	8.8	A	0.80	14.6	B
Southbound Left	0.24	35.0	C	0.24	34.0	C
Southbound Thru	0.57	8.1	A	0.78	14.0	B
Southbound Right	0.16	0.2	A	0.22	0.3	A
Honoapiilani Highway at Kaanapali Parkway	***0.74***	***17.5***	***B***	***1.02***	***46.7***	***D***
Eastbound Left	0.78	33.0	C	1.04	96.6	F
Eastbound Thru	0.03	18.0	B	0.01	28.1	C
Eastbound Right	0.18	9.7	A	0.51	17.5	B
Westbound Left, Thru & Right	0.05	18.1	B	0.04	28.4	C
Northbound Left	0.78	31.2	C	1.04	90.9	F
Northbound Thru	0.52	9.9	A	0.60	18.3	B
Northbound Right	0.01	6.4	a	0.02	11.6	B
Southbound Left	0.59	43.5	D	0.53	56.2	E
Southbound Thru	0.70	17.5	B	0.98	52.0	D
Southbound Right	0.09	11.2	b	0.11	21.0	C

NOTES:
1. V/C denotes ratio of volume to capacity. V/C ratio is not calculated for unsignalized intersections.
2. Delay is in seconds per vehicle.
3. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. LOS is based on delay.

H. 2010 Background Traffic Projections

2010 background traffic projections are defined as future background traffic conditions without the proposed project. Future traffic growth consists of two components. The first is ambient background growth that is a result of regional growth and cannot be attributed to a specific project. This growth factor also accounts for smaller development projects in the area for which a traffic impact study is not available or are not identified as a related project during the data collection process. The second component is estimated traffic that will be generated by other development projects (related projects) in the vicinity of the proposed project.

Background Traffic Growth

The *Maui Long Range Transportation Plan*[5] concluded that traffic in Maui would increase an average of 1.6% per year from 1990 to 2020. This growth rate was used to estimate the background growth between 2005 and 2010, the horizon year for this project. 2005 was used as the baseline as the traffic counts were completed in that year. The growth factor was calculated using the following formula:

$$F = (1 + i)^n$$

where F = Growth Factor
i = Average annual growth rate, or 0.016
n = Growth period, or 5 years

This growth factor was applied to all major traffic movements at the study intersections. The background growth assignments are shown in Attachment D.

Related Projects

The second component in estimating background traffic volumes is traffic generated by other proposed projects in the vicinity. Related projects are defined as those projects that are under construction or have been approved for construction and would significantly impact traffic in the study area. Related projects may be development projects or roadway improvements.

The projects that were identified as related projects are listed in Table 4.

Table 4 Related Project and Sources of Traffic Assignments

Project	Source of Traffic Assignments
Lanikeha	TIAR for Lanikeha
The Pinnacle	TIAR for Lanikeha
The Summitt	TIAR for Lanikeha
Pulelehua	TIAR for Pulelehua
Maui Preparatory Academy	TIAR for Pulelehua
Kapalua Mauka	TIAR for Pulelehua
Kaanapali 2020	TIAR for Pulelehua
Kaanapali Coffee Farms	TIAR for Pulelehua
Honokowai DHHL	Trip Generation Estimate
Kaanapali Residences (LandTech)	See Note (1)
Starwood	See Note (1)
Intrawest Honua Kai	See Note (1)
Kaanapali Ocean Resort Westin	See Note (1)
Kahana Ridge Villas	See Note (1)
Napilihau Mauka	Draft TIAR for Project
Marriott Ocean Club	TIAR for Marriott Ocean Club
DHHL Subdivision	See Note (1)
Villages at Leali'i	See Note (1)
Hyatt Regency Timeshares	Traffic Impact Assessment Report for Hyatt

Notes:
(1) The number of trips was estimated using the project description and Institute of Transportation Engineers trip generation data and distributed along the adjacent roadway network.

[5] Kaku Associates, *Maui Long-Range Land Transportation Plan*, October 1996

Traffic assignments for the projects shown were obtained from their respective traffic studies or the number of trips that the project will generate was estimated, distributed and assigned to the study intersections. The total trip assignments for the related projects are shown on Attachment E. The 2010 background traffic projections are shown in Attachment F.

I. Project Trip Generation

Future traffic volumes generated by the project were estimated using the procedures described in the *Trip Generation Handbook*[6] and data provided in *Trip Generation*[7]. This method used trip generation rates to estimate the number of trips that the project will generate during the peak hours of the project and along the adjacent streets.

The assumptions used for the trip generation analysis are:

1. The proposed project will consist of 4 tennis courts.

2. Trip Generation provides trip generation data for tennis courts. The data is based on the number of courts.

The trip generation calculations are summarized in Table 5. As shown the proposed project will generate 4 inbound and 3 outbound trips during the morning peak hour. During the afternoon peak hour, the project will generate 8 inbound and 8 outbound trips.

The project generated traffic was distributed and assigned based on the existing approach and departure pattern of traffic at the study intersections. The project trip assignments are shown in Attachment G.

Table 5 Trip Generation Calculations for Proposed Project

		49 Single-Family units		
Time Period	Direction	Rate or %(1)	Units	Trips
AM Peak Hour	Total	1.67	4	7
	In	50%		4
	Out	50%		3
PM Peak Hour	Total	3.88		16
	In	50%		8
	Out	50%		8

NOTES:
(1) Institute of Transportation Engineers, *Trip Generation*, Seventh Edition, 2003.

J. 2010 Background Plus Project Projections

2010 background plus project traffic projections were estimated by superimposing the peak hourly traffic generated by the proposed project on the 2010 background (without project) peak hour traffic projections. This assumes that the peak hourly trips generated by the project coincide with the peak hour of the adjacent street. This represents a worse-case condition as it assume that the peak hours of all the intersection approaches, the peak hours of all the related projects and the peak hour of the study project coincide and the all the related projects and the study project are 100% occupied. The resulting 2010 background plus project peak hour traffic projections are shown in Attachment H.

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[6] Institute of Transportation Engineers, *Trip Generation Handbook*, Washington, D.C., 1998, p. 7-12

[7] Institute of Transportation Engineers, *Trip Generation*, 7th Edition, Washington, D.C., 2003

K. Impact Analysis of 2010 Conditions Impact Analysis of 2010 Conditions

Based on criteria recommended by the Institute of Transportation Engineers, a traffic impact study is not warranted because the project will generate only 8 outbound trips per hour during the afternoon peak hour, which is less than the 100 trips per hour required to warrant a traffic impact analysis. However, an analysis of the changes in peak hourly traffic at the study intersections and a level-of-service was performed to identify operational deficiencies adjacent to the project for 2010 background plus project conditions.

Analysis of Project's Share of Total Intersection Approach Volumes

An analysis of the project's share of 2010 background plus project intersection approach volumes at the study intersections is summarized in Table 6. The table summarizes the project's share of total 2010 peak hour approach volumes at each study intersection. Also shown are the percentage of 2010 background plus project traffic that is the result of background growth and traffic generated by related projects. The conclusion of this analysis is that project generated traffic will represent 0.3%, or less, of the total traffic at the study intersections.

Table 6 Analysis of Project's Share of Total Intersection Approach Volumes [1]

Intersection	Period	Existing	2010 Background	2010 Background Plus Project	Background Growth		Project Traffic	
					Trips	Percent of Total Traffic [2]	Trips	Percent of Total Traffic [3]
Honoapiilani Hwy at Leali'i Pkwy	AM	3025	4100	4107	1075	26.2%	7	0.2%
	PM	3730	5040	5056	1310	25.9%	16	0.3%
Honoapiilani Hwy at Front Street	AM	2865	3870	3874	1005	25.9%	4	0.1%
	PM	3420	4585	4593	1165	25.4%	8	0.2%
Honoapiilani Hwy at Kaanapali Pkwy	AM	2925	3795	3798	870	22.9%	3	0.1%
	PM	4325	5415	5423	1090	20.1%	8	0.1%

Notes:
(1) Volumes shown are total intersection approach volumes or projections.
(2) Percentage of total 2010 background plus project traffic.

Analysis of Project's Pro Rata Share of Intersection Traffic Growth

An analysis of the project's pro rata share of the increase of traffic volumes between 2005 and 2010 summarized in Table 7. This table summarizes the growth between 2005 and 2010 and indicates the percentage of growth resulting from background growth and related projects and the percentage growth resulting from project generated traffic. The conclusion of this analysis is that the changes in traffic volumes as a result of project generated traffic are 1.2%, or less, which are significantly less than the changes as a result of background traffic growth, which are greater than 98%.

Table 7 Analysis of Project's Share of Total Intersection Approach Volumes Growth [1]

Intersection	Period	Existing	2010 Background	Background Plus Project	Background Growth [2]		Project Trips [3]	
					Volume	% of 2005 to 2010 Growth	Volume [4]	% of 2005 to 2010 Growth
Honoapiilani Hwy at Leali'i Pkwy	AM	3025	4100	4107	1075	99.4%	7	0.6%
	PM	3730	5040	5056	1310	98.8%	16	1.2%
Honoapiilani Hwy at Front Street	AM	2865	3870	3874	1005	99.6%	4	0.4%
	PM	3420	4585	4593	1165	99.3%	8	0.7%
Honoapiilani Hwy at Kaanapali Pkwy	AM	2925	3795	3798	870	99.7%	3	0.3%
	PM	4325	5415	5423	1090	99.3%	8	0.7%

Notes:
(1) Volumes shown are total intersection approach volumes or projections.
(2) Background versus existing.
(3) Background plus project versus background.
(4) Project generated traffic.

Level-of-Service Analysis

The results of the level-of-service analysis for existing and 2010 conditions are summarized in Attachment I. Shown in the table are the volume-to-capacity ratios, average vehicle delays and the levels-of-service of the controlled movements.

1. The Synchro software package was used to performed level-of-service analyses. Synchro uses the *Highway Capacity Manual* methodology.

2. We have used the Institute of Transportation Engineers standard that a Level-of-Service D is the minimum acceptable level-of-service and that the criteria is applicable to the overall intersection. If project generated traffic causes the level-of-service to drop below Level-of-Service D, then mitigation should be provided to improve the level-of-service to Level-of-Service C or better. Minor movements, such a left turns and side street approaches may operate at Level-of-Service E for short periods. "Level-of-Service E is sometimes tolerated for minor movements such as left turns when there are no feasible mitigating measures or if it helps maintain the main through movements at acceptable levels-of-service."

3. As the *Highway Capacity Manual* defines level-of-service by delay, we have used the same definitions.

4. The level-of-service analysis used the existing traffic signal cycle lengths and phasing.

The results of the Level-of-Service analysis are

1. The intersection of Honoapiilani Highway will operate at Level-of-Service C during the morning peak hour and Level-of-Service D during the afternoon peak hour.

    - The westbound left and through movement will operate at Level-of-Service F, without and with the project. The delay indicates Level-of-Service F but the volume-to-capacity ratio indicates Level-of-Service D during the morning peak hour and Level-of-Service E during the afternoon peak hour.

    - The northbound left turn will operate at Level-of-Service F, without and with the project, based on the average vehicle delay. The volume-to-capacity ratio indicates Level-of-Service A or B. The long delay and therefore the low level-of-service is the result of the long traffic signal cycle rather than a lane deficiency. The project adds no traffic to this movement.

    - The southbound left turn will operate at Level-of-Service F during the morning and afternoon peak hour, without and with the project. The volume-to-capacity ratio indicates Level-of-Service D during the morning peak hour and Level-of-Service F during the afternoon peak hour.

    - There is no change in the Level-of-Service of any movement as the result of project generated traffic.

2. The intersection of Honoapiilani Highway at Front Street will operate at Level-of-Service B during the morning peak hour and Level-of-Service C during the afternoon peak hour.

    - There is no change in the Level-of-Service of any movement as the result of project generated traffic.

    - During the morning peak hour, the eastbound approach, and northbound left and the southbound left will operate at Level-of-Service E, without and with the project. The volume-to-capacity ratios indicate at all movements will operate at Level-of-Service C, or better.

- During the afternoon peak hour, the eastbound approach, and northbound left and the southbound left will operate at Level-of-Service E or F, without and with the project. The volume-to-capacity ratios indicate at all movements will operate at Level-of-Service D, or better.

3. The intersection of Honoapiilani Highway at Kaanapali Parkway will operate at Level-of-Service C during the morning peak hour and Level-of-Service F during the afternoon peak hour.

   - During the morning peak hour, the eastbound approach, the northbound left and the southbound left will operate at Level-of-Service E or F, without and with project generated traffic. The volume-to-capacity ratios all indicate Level-of-Service D, or better. This implies that the long delays are the result of the long traffic signal cycle. It should also be noted that there is no change in the volume-to-capacity ratio or delay as a result of project generated traffic because the number of project generated trips through this intersection is so small.

   - During the afternoon peak hour, the eastbound left turn, the westbound approach, the northbound left turn, the southbound left turn and the southbound through movements will operate at Level-of-Service E or F, without and with project generated traffic. All the volume-to-capacity ratios change 0.01, or less, which implies that the volume-to-capacity ratios will change less than 1% as a result of project generated traffic.

   - There is no change in the Level-of-Service of any movement as the result of project generated traffic. The maximum number of trips added to any movement us two (2) trips per hour.

L. Mitigation

Level-of-Service D is generally considered to be the minimum acceptable peak hour level-of-service for urban intersections.[8] Side street approaches and minor movements, such as left turn lanes may operate at Level-of-Service E or F for short periods, especially of the volume-to-capacity ratio indicates a higher Level-of-Service as this implies that the long delay and therefore the low Level-of-Service is a result of the traffic signal cycle length rather than a lane deficiency.

Several movements at the study intersections operate at levels-of-service below Level-of-Service D. However, in all the cases the long delays and low levels-of-service are the result of background traffic rather than traffic generated by the study project. There are no changes in the level-of-service of any traffic movement as a result of project generated traffic. The largest change in the volume-to-capacity ratio of any movement is 0.02, which is the westbound approach of Leali'i Parkway at Honoapiilani Highway

M. Other Traffic Issues

Regional Traffic Impacts

As the users of the project will come from the West Maui area. Therefore, it is reasonable to assume that the traffic impacts will be limited to the West Maui are.

Honoapiilani is a major State highway and the majority of the traffic to and from the project will use this highway, it is reasonable to assume that project generated traffic will have an impact beyond the immediate vicinity of the project. The further away one is from the project, the less the impact since traffic will dissipate over distance. Since the impact in the immediate vicinity of the project is minimal, it is reasonable to assume that the traffic impacts of the project will also be dissipate at locations more distant from the project.

---

[8] Institute of Traffic Engineers *Transportation Impact Analyses for Site Development, A Recommended Practice,* Washington, D.C., 2006, p 60.

N. Summary and Conclusions

The conclusions of the traffic impact assessment are:

1. The proposed project will generate 4 inbound and 3 outbound trips during the morning peak hour. During the afternoon peak hour, the project will generate 8 inbound and 8 outbound trips.

2. The Institute of Transportation Engineers recommends that a traffic impact study should be performed if, in lieu of another locally preferred criterion, development generates an additional 100 vehicle trips in the peak direction (inbound or outbound) during the site's peak hour. Based on the criterion, a traffic impact analysis is not warranted.

3. An analysis of the anticipated traffic volumes at the study intersections along Honoapiilani Highway concluded:

    a. Traffic volumes will increase 0.3% or less as a result of project generated traffic during the peak hours. This compares to increases of 99.0% or more as a result of background growth and related projects' traffic.

    b. Project generated traffic will represent 1.2% or less of the total growth in traffic at the intersection of Honoapiilani Highway at Leali'i Parkway between 2005 and 2010. The growth at the remaining intersections as a result of project generate traffic will be significantly less.

4. The level-of-service analysis for background plus project conditions concluded the following:

    a. The intersection of Honoapiilani Highway at Leali'i Parkway will operate t Level-of-Service C during the morning peak hour and Level-of-Service D during the afternoon peak hour, without and with project generated traffic. There is no change of level-of-service of any movement as a result of project generate traffic.

    b. The intersection of Honoapiilani Highway at Front Street will operate at Level-of-Service B during the morning peak hour and Level-of-Service D during the afternoon peak hour, without and with project generated traffic. There is no change of level-of-service of any movement as a result of project generate traffic.

    c. The intersection of Honoapiilani Highway at Kaanapali Parkway will operate at Level-of-Service C during the morning peak hour and Level-of-Service F during the afternoon peak hour, without and with project generated traffic. There is no change of level-of-service of any movement as a result of project generate traffic.

Respectfully submitted,
PHILLIP ROWELL AND ASSOCIATES

Phillip J. Rowell, P.E.
Principal

List of Attachments

A. Schematic Site Plan

B. Existing Lane Configurations and Right-of-Way Controls

C. Existing Peak Hour Traffic Volumes

D. Background Traffic Growth (2005 to 2010)

E. Related Projects' Trip Assignments

F. 2010 Background Peak Hour Traffic Projections

G. Project Trip Assignments

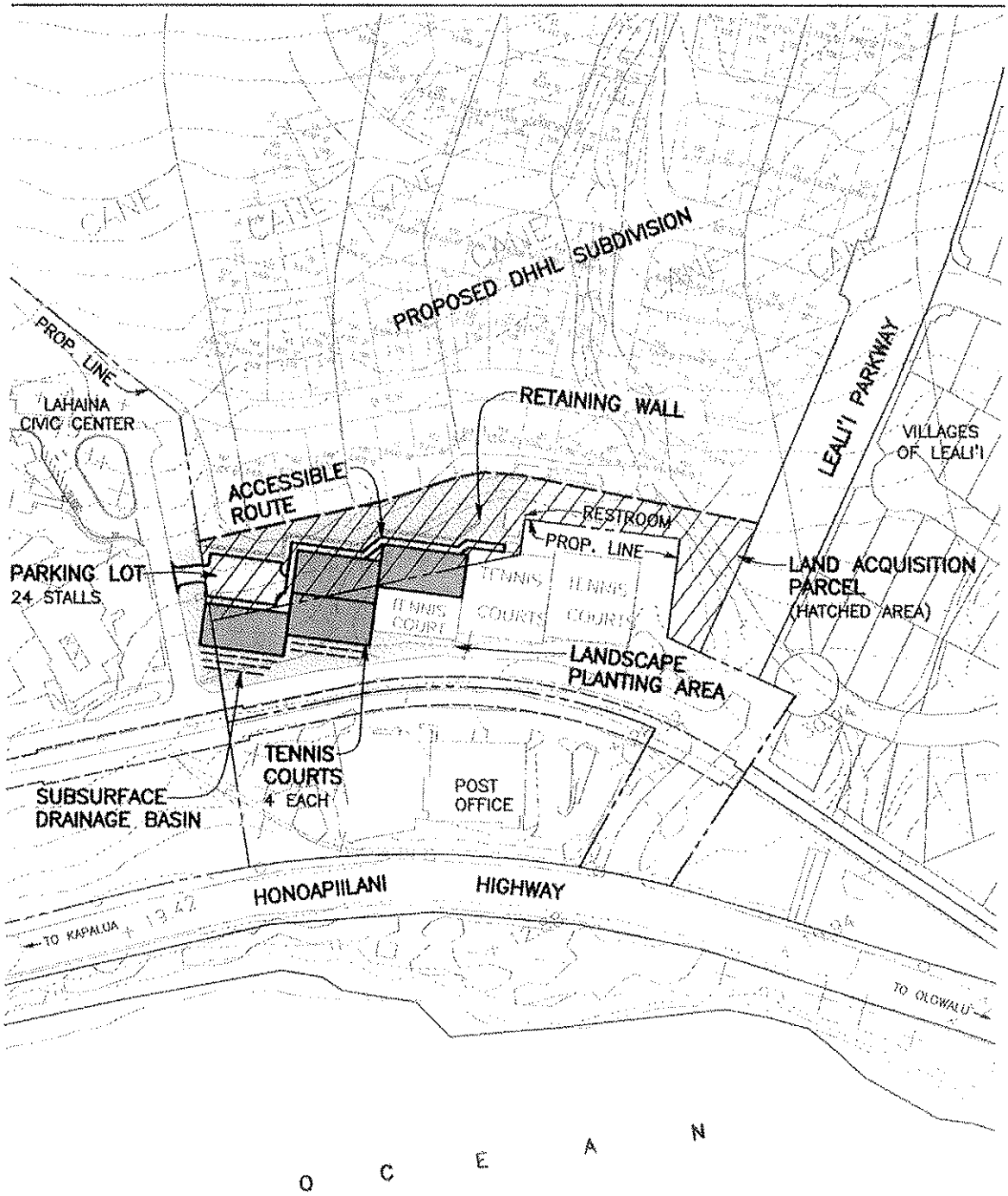
H. 2010 Background Plus Project Peak Hour Traffic Projections

I. Results of Level-of-Service Analysis (Background and Background Plus Project)

Attachment A

SCHEMATIC SITE PLAN

(Source: Ronald M. Fukumoto Engineering,Inc.)



LAHAINA CIVIC CENTER TENNIS COURTS - CONCEPTUAL PLAN

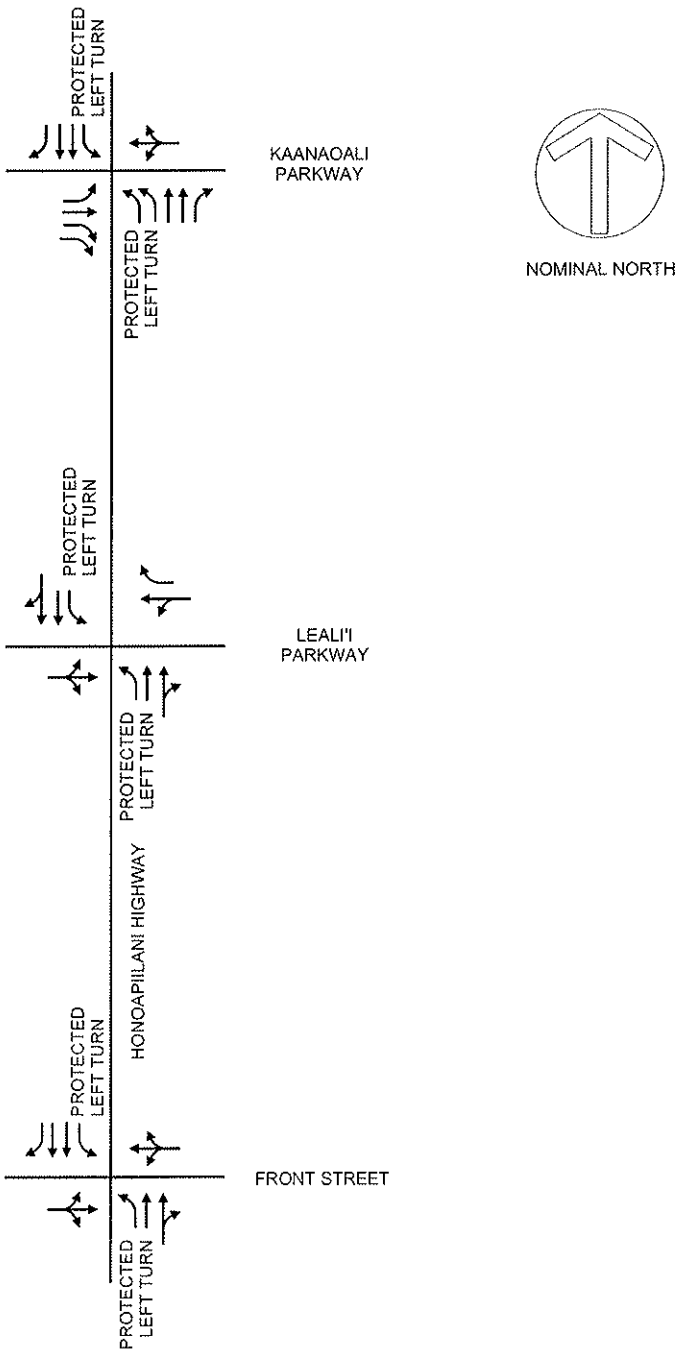
SCALE IN FEET

NORTH 0 100 200 400 600

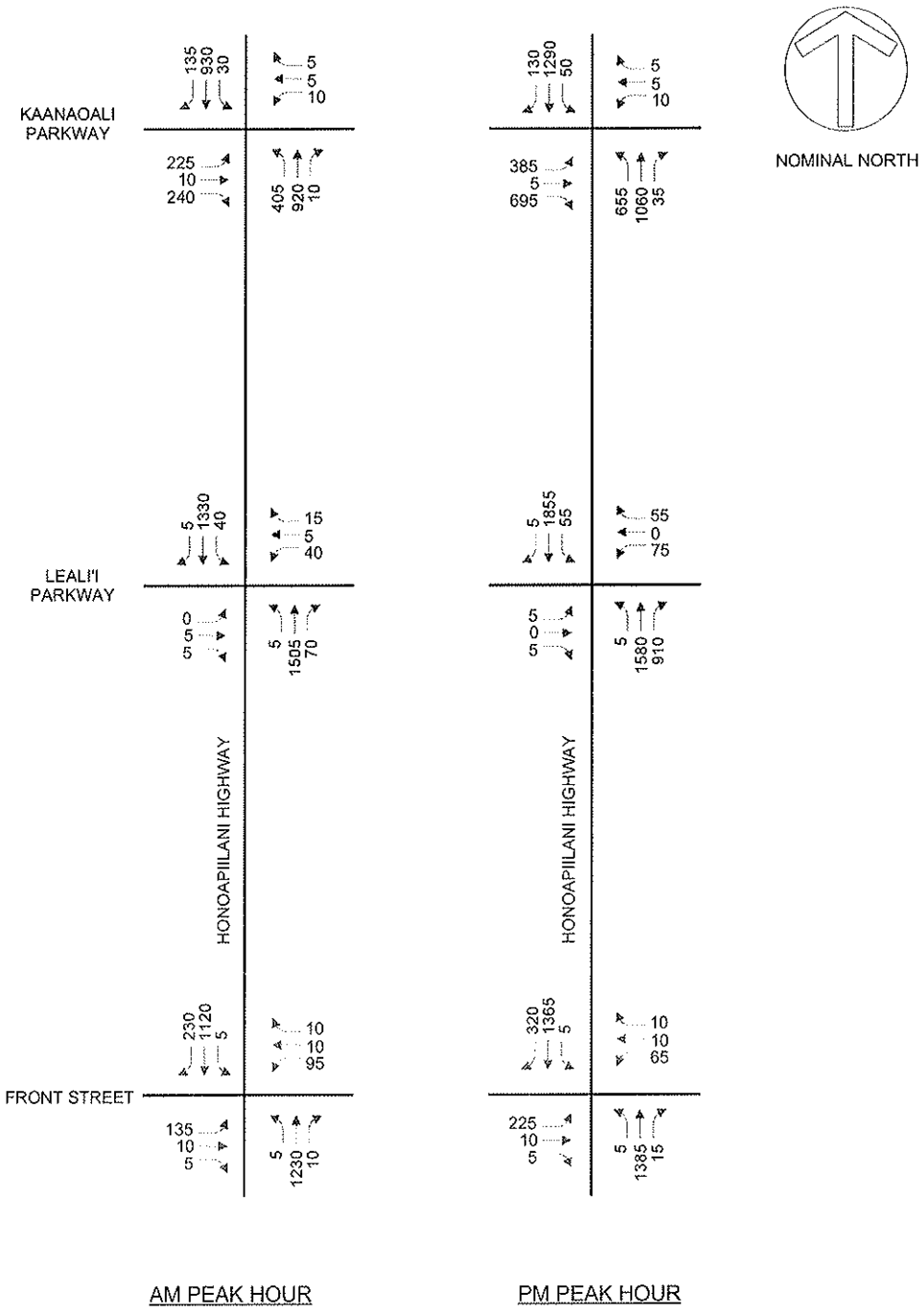
9/20/06
REVISED: 10/02/06

PREPARED FOR: DEPARTMENT OF PARKS & RECREATION

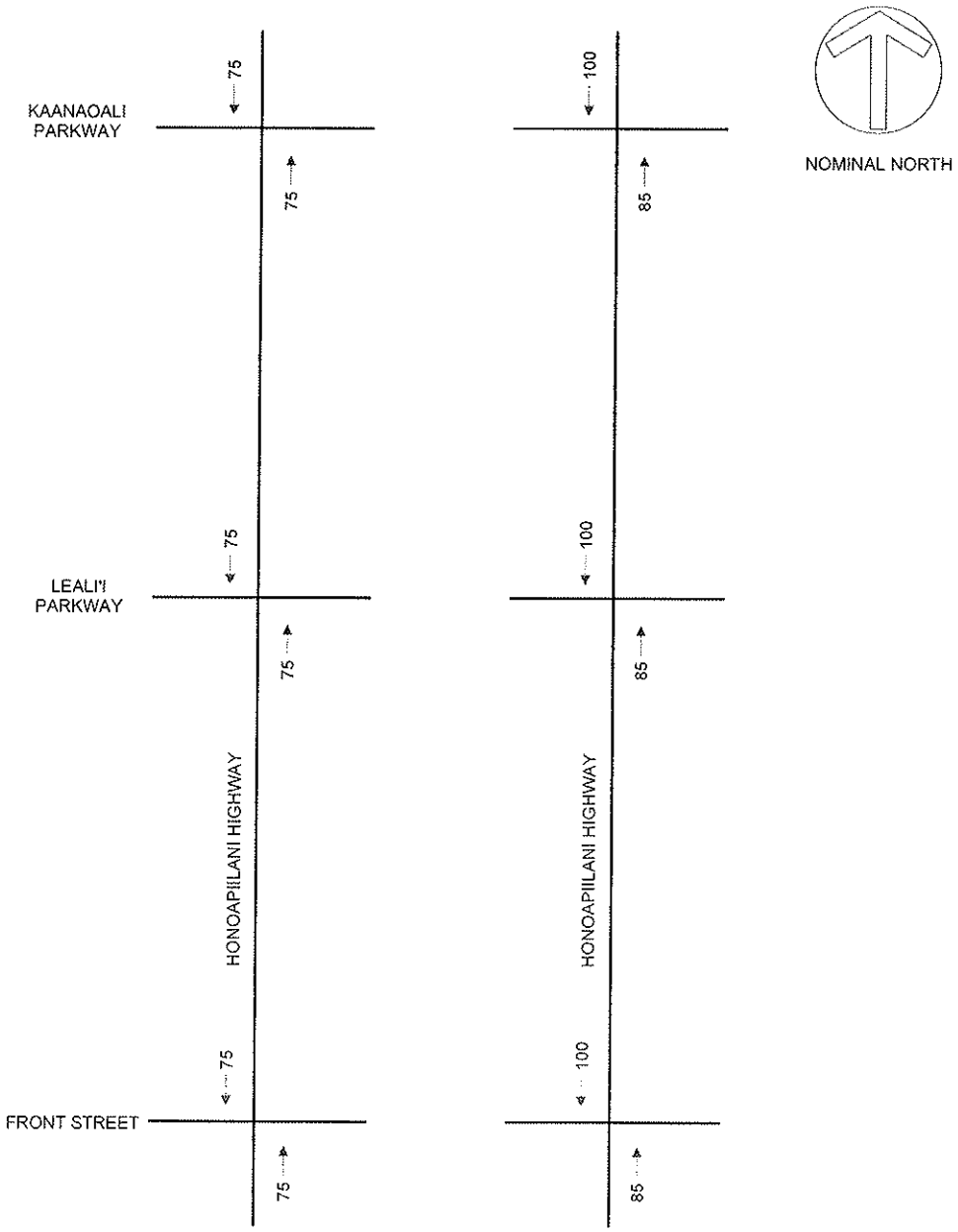
PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.



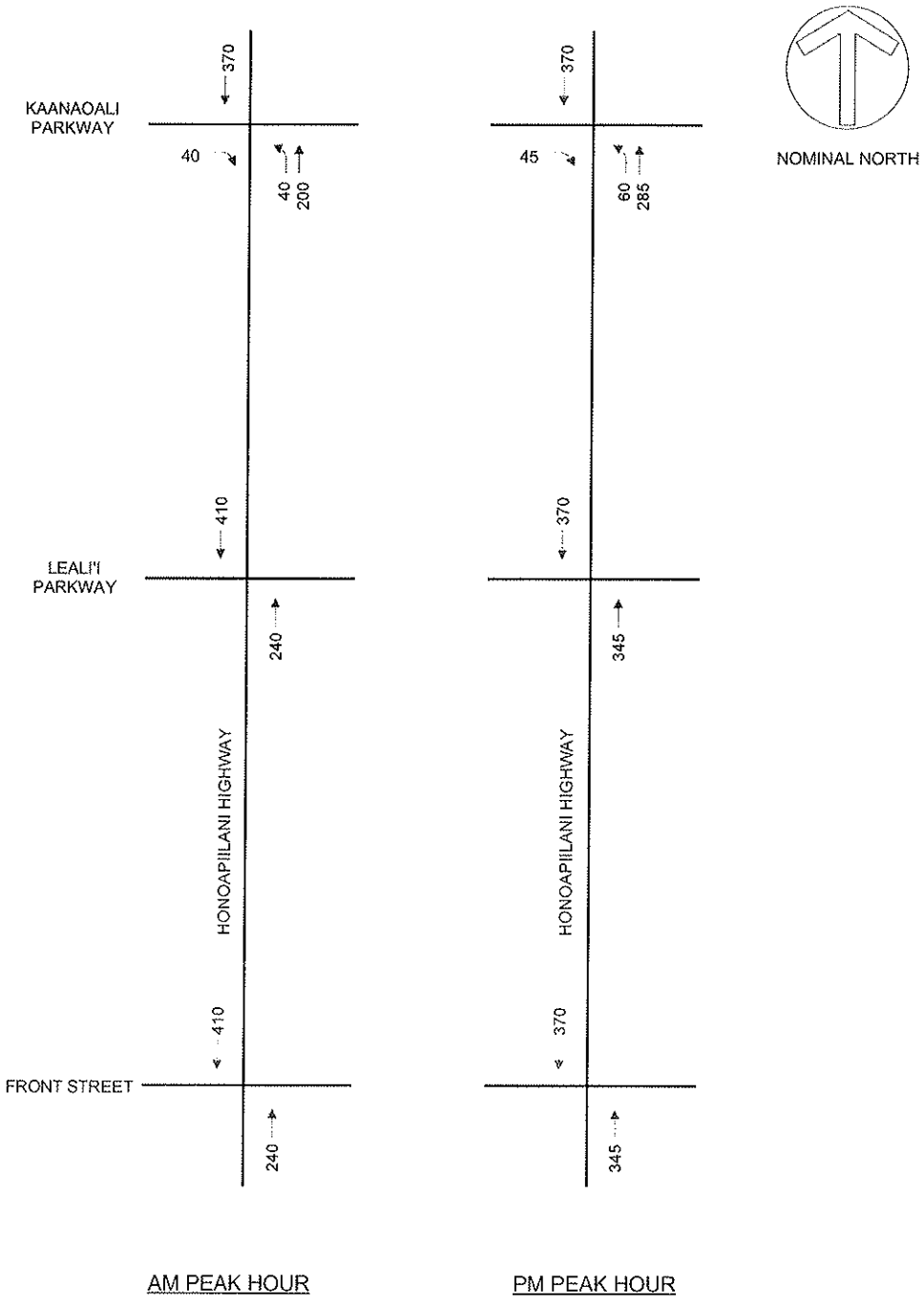
Attachment B
EXISTING LANE CONGIFURATIONS AND RIGHT-OF-WAY CONTROLS



Attachment C
EXISTING PEAK HOUR TRAFFIC VOLUMES



Attachment D
BACKGROUND TRAFFIC GROWTH (2005 TO 2010)



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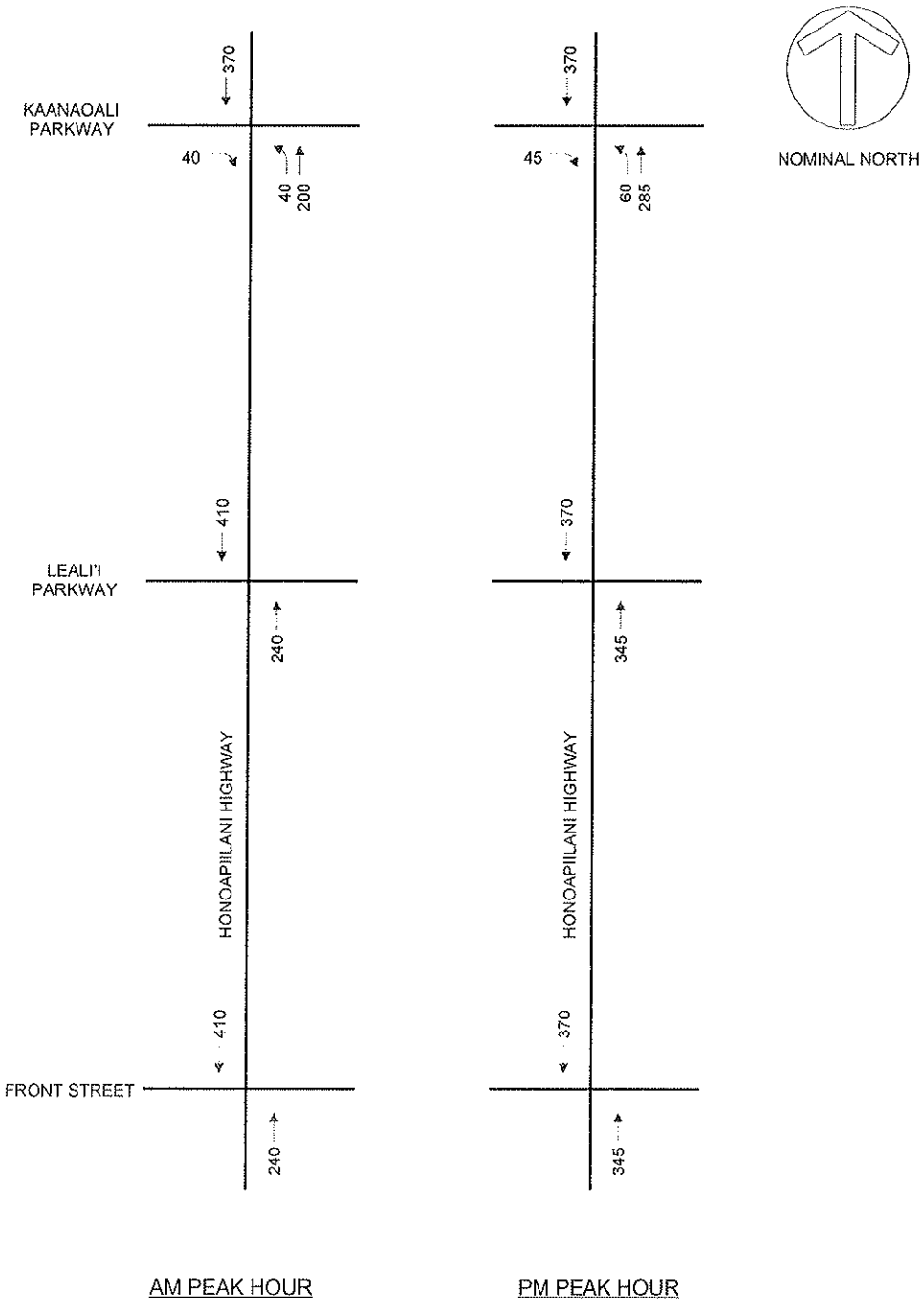
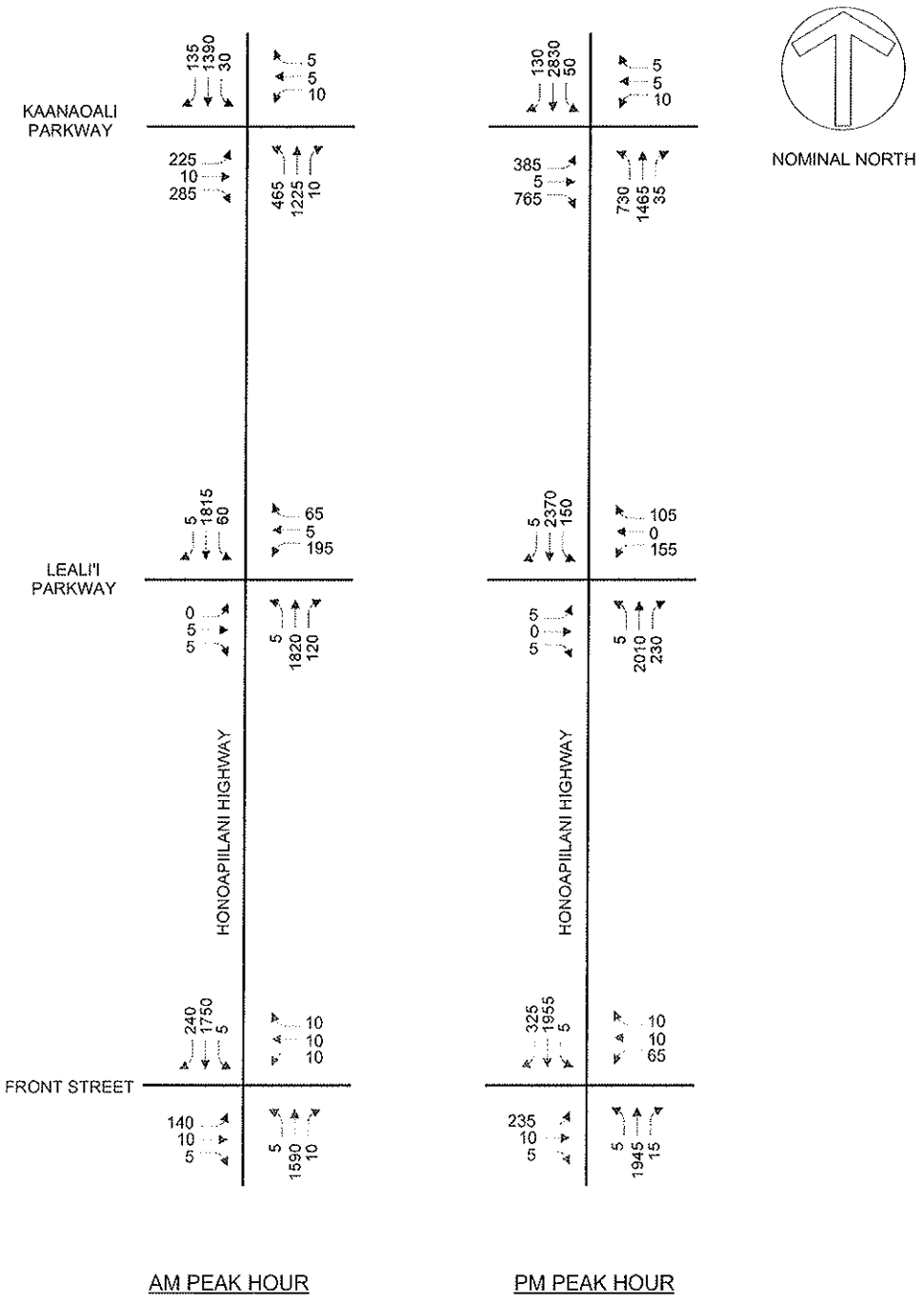
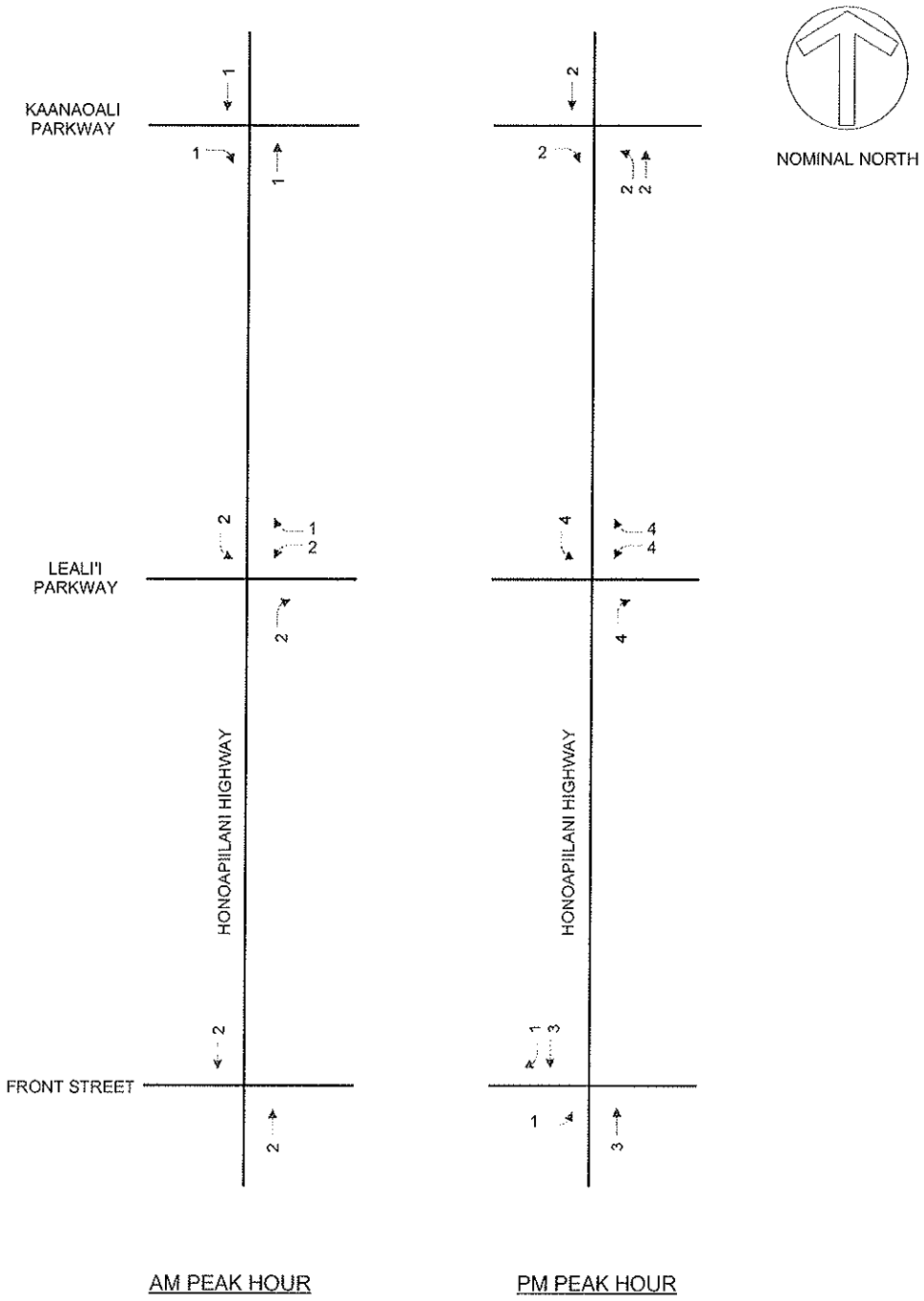


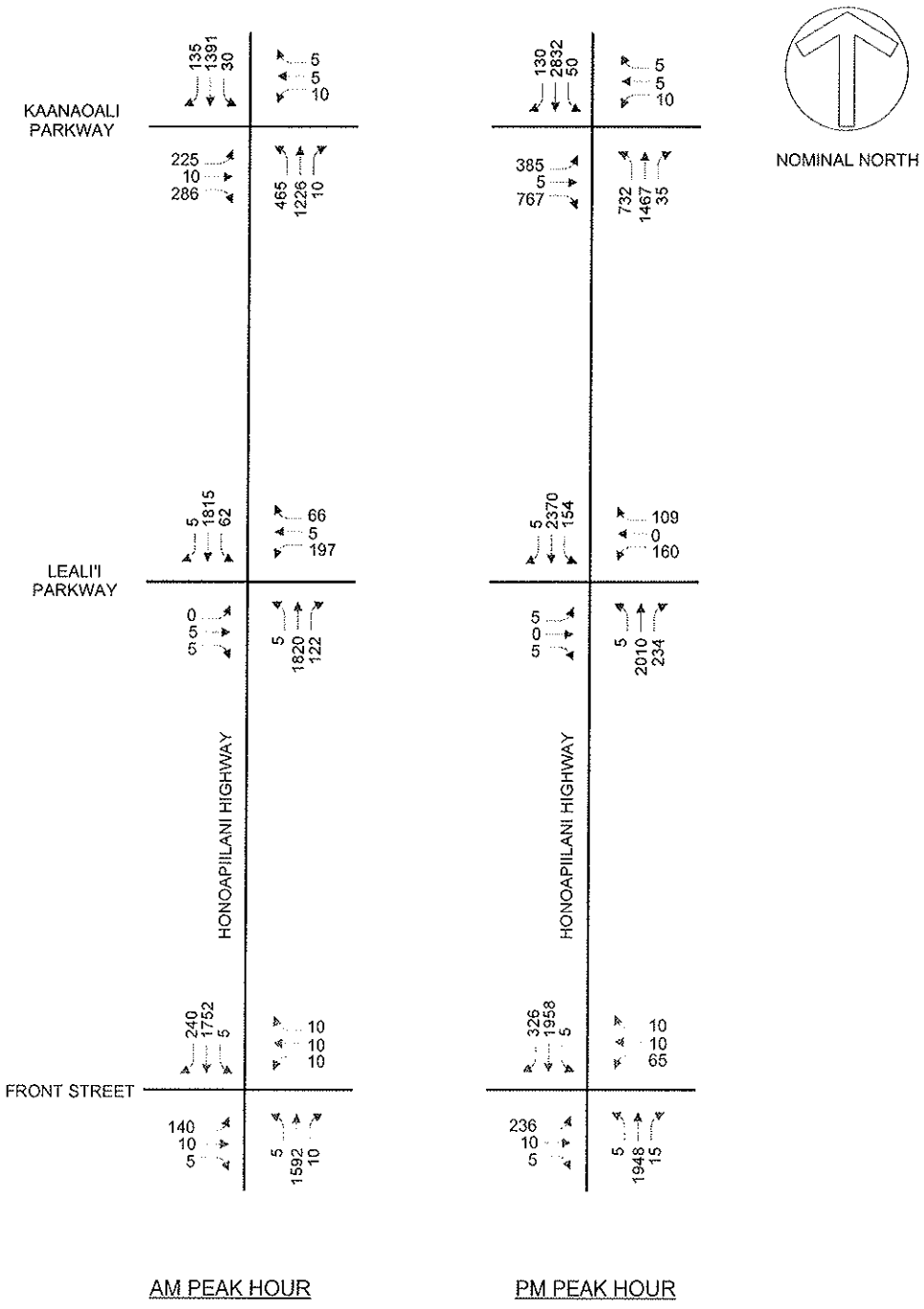
Attachment E
RELATED PROJECTS' TRIP ASSIGNMENTS



Attachment F
2010 BACKGROUND PEAK HOUR TRAFFIC PROJECTIONS



Attachment G
PROJECT TRIP ASSIGNMENTS



Attachment H
2010 BACKGROUND PLUS PROJECT PEAK HOUR TRAFFIC PROJECTIONS

Attachment I 2010 Levels-of-Sevice

Roadway, Approach and Movement	AM Peak Hour								PM Peak Hour							
	Background			Background Plus Project			Changes		Background			Background Plus Project			Changes	
	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay
Honoapiilani Highway at Leall'i Parkway	0.87	23.1	C	0.88	23.4	C	0.01	0.3	1.00	37.2	D	1.01	38.5	D	0.01	1.3
Eastbound Left, Thru & Right	0.02	46.9	D	0.02	46.9	D	0.00	0.0	0.03	52.4	D	0.03	52.3	D	0.00	-0.1
Westbound Left & Thru	0.90	88.5	F	0.91	89.9	F	0.01	1.4	0.91	101.6	F	0.93	105.7	F	0.02	4.1
Westbound Right	0.07	47.4	D	0.07	47.4	D	0.00	0.0	0.09	53.0	D	0.11	53.1	D	0.02	0.1
Northbound Left	0.50	103.0	F	0.50	103.1	F	0.00	0.1	0.50	103.3	F	0.50	103.1	F	0.00	-0.2
Northbound Thru & Right	0.87	21.2	C	0.87	21.4	C	0.00	0.2	1.01	43.3	D	1.02	44.7	D	0.01	1.4
Southbound Left	0.82	112.9	F	0.85	118.9	F	0.03	6.0	0.98	126.7	F	1.01	134.3	F	0.03	7.6
Southbound Thru & right	0.77	13.8	B	0.77	13.8	B	0.00	0.0	0.94	20.8	C	0.94	21.2	C	0.00	0.4
Honoapiilani Highway at Front Street	0.71	13.7	B	0.71	13.7	B	0.00	0.0	0.90	26.0	C	0.90	26.3	C	0.00	0.3
Eastbound Left, Thru & Right	0.76	64.6	E	0.76	64.6	E	0.00	0.0	0.90	76.1	E	0.90	76.0	E	0.00	-0.1
Westbound Left, Thru & Right	0.51	50.3	D	0.51	50.3	D	0.00	0.0	0.26	40.3	D	0.26	40.2	D	0.00	-0.1
Northbound Left	0.33	75.3	E	0.33	75.3	E	0.00	0.0	0.50	97.5	F	0.50	97.6	F	0.00	0.1
Northbound Thru & Right	0.67	10.2	B	0.67	10.2	B	0.00	0.0	0.90	23.8	C	0.90	24.2	C	0.00	0.4
Southbound Left	0.33	75.3	E	0.33	75.3	E	0.00	0.0	0.50	97.5	F	0.50	97.6	F	0.00	0.1
Southbound Thru	0.73	11.5	B	0.73	11.5	B	0.00	0.0	0.90	23.6	C	0.90	23.9	C	0.00	0.3
Southbound Right	0.16	0.2	A	0.16	0.2	A	0.00	0.0	0.26	9.1	A	0.26	9.1	A	0.00	0.0
Honoapiilani Highway at Kaanapali Parkway	0.83	30.5	C	0.83	30.5	C	0.00	0.0	1.18	100.5	F	1.18	101.0	F	0.00	0.5
Eastbound Left	0.88	76.9	E	0.88	76.9	E	0.00	0.0	1.20	168.5	F	1.20	168.5	F	0.00	0.0
Eastbound Thru	0.03	42.8	D	0.03	42.8	D	0.00	0.0	0.01	35.9	D	0.01	35.9	D	0.00	0.0
Eastbound Right	0.26	26.4	C	0.26	26.4	C	0.00	0.0	0.62	27.0	C	0.62	27.0	C	0.00	0.0
Westbound Left, Thru & Right	0.05	43.0	D	0.05	43.0	D	0.00	0.0	0.21	63.7	E	0.21	63.7	E	0.00	0.0
Northbound Left	0.84	63.6	E	0.84	63.6	E	0.00	0.0	1.31	208.8	F	1.32	210.9	F	0.01	2.1
Northbound Thru	0.55	11.7	B	0.55	11.7	B	0.00	0.0	0.76	23.0	C	0.76	23.1	C	0.00	0.1
Northbound Right	0.01	6.8	A	0.01	6.8	A	0.00	0.0	0.03	11.5	B	0.03	11.5	B	0.00	0.0
Southbound Left	0.73	110.8	F	0.73	110.8	F	0.00	0.0	0.76	102.4	F	0.76	102.4	F	0.00	0.0
Southbound Thru	0.80	29.0	C	0.80	29.0	C	0.00	0.0	1.22	143.6	F	1.23	144.1	F	0.01	0.5
Southbound Right	0.12	15.8	B	0.12	15.8	B	0.00	0.0	0.14	21.9	C	0.14	21.9	C	0.00	0.0

NOTES:

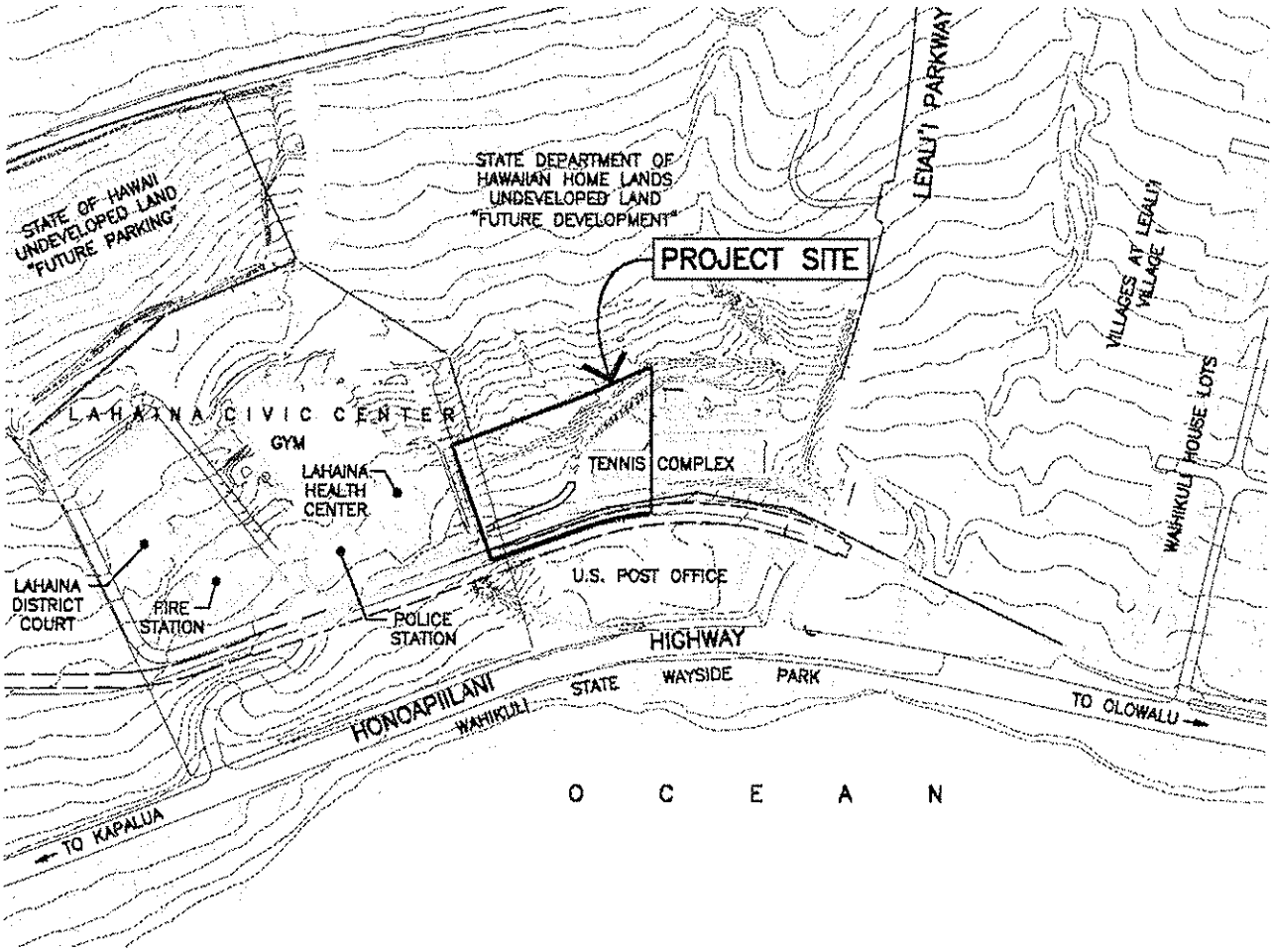
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the project.
2. V/C denotes ratio of volume to capacity. V/C ratio is not calculated for unsignalized intersections.
3. Delay is in seconds per vehicle.
4. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. LOS is based on delay.

APPENDIX E.

Preliminary Engineering Report

PRELIMINARY ENGINEERING REPORT
For Lahaina Civic Center Tennis Courts

Lahaina, Maui, Hawaii
Tax Map Key (2) 4-5-021:010, 016 and 020



Project:

Lahaina Civic Center Tennis Courts
Lahaina, Maui, Hawaii

Date:

June 6, 2008

Client:

Department of Parks & Recreation
County of Maui
700 Hali'a Nakoa Street, Unit 2
Wailuku, Hawaii 96793

Consultant:

Ronald M. Fukumoto Engineering, Inc.
1721 Wili Pa Loop, Suite 203
Wailuku, Hawaii 96793
Phone: (808) 242-8611
Fax: (808) 244-7510
E-Mail: office@rfemaui.com

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Appendix

Preliminary Drainage Information A-1

I. PURPOSE

The purpose of this report is to evaluate the effects of the project on existing infrastructure. This report will review the water system, wastewater system, and electrical, telephone, and cable television systems serving the project. This report will also provide an analysis of existing and proposed drainage systems. The drainage analysis will describe existing drainage conditions, present preliminary grading and drainage plans, and provide drainage design information for incorporation into the final designs.

II. PROJECT DESCRIPTION

A. General Location

The project involves an expansion of the tennis complex at the Lahaina Civic Center (LCC). The LCC lies on two State-owned parcels on the mauka side of Honoapiilani Highway. Various State and County offices, including the Lahaina Health Center, Lahaina Police Station, Lahaina Fire Station, Lahaina District Court, and the gymnasium, are located on the larger 16.782-acre parcel (Tax Map Key: (2) 4-5-021:016). The existing tennis complex lies on the smaller 3.849-acre parcel (Tax Map Key: (2) 4-5-021:010).

The proposed site encompasses an area of about 2.0 acres and affect portions of three parcels. The site affects a 0.2-acre portion of the larger LCC parcel, a 0.7-acre portion of the smaller LCC parcel, and a 1.1-acre portion of the adjoining undeveloped land owned by the State of Hawaii Department of Hawaiian Home Lands (DHHL). The County is seeking an agreement to use a 1.859-acre portion of the DHHL parcel for the project. The DHHL parcel includes a total area of 50.858 acres and is designated on the tax maps as Tax Map Key (2) 4-5-021:020. (See Figure 1 – Location Map (USGS Map), page 9; Figure 2 – Vicinity Map (Tax Map), page 10; and Figure 5 – Regional Topographic Map, page 13.)

The undeveloped DHHL land adjoins the easterly side of the site, the Villages at Leialii - Village I adjoins the southerly side of the site, the Lahaina Post Office adjoins the westerly side of the site, and the larger LCC parcel adjoins the northerly side of the site. Other developed properties in the vicinity include the Wahikuli House Lots subdivision to the South of the Villages at Leialii - Village I and Wahikuli Wayside Park to the East of the site on the makai side of Honoapiilani Highway. Undeveloped State-owned property lies to the North and East of the larger LCC parcel.

B. Project Components

The expansion of the tennis complex consists of four tennis courts with sports lighting, fencing, and windscreens; a 25-stall paved parking lot with lighting; accessible walkways with lighting; retaining walls; landscape plantings and irrigation, and site utilities.

Site utilities include water, wastewater, drainage, and electrical systems. Water system

improvements consist of relocation of a water meter manhole, relocation of a fire hydrant, water service lines, and drinking fountains. Wastewater system improvements include a sewer lateral for the existing tennis court restroom and the closure of its existing cesspool. Drainage system improvements consist of channels, inlets, manholes, drain pipe, and a subsurface detention/retention basin. Electrical system improvements include underground distribution lines for the lighting.

III. WATER SYSTEM

The County of Maui provides water service for the LCC. The existing distribution system within the civic center site includes 8-inch lines and fire hydrants. Existing water laterals tap into these main lines and serve various buildings and areas within the civic center. An existing 2-inch meter serves the existing tennis court restroom and surrounding area.

Water meter records for the existing 2-inch meter for the past three years show an average daily use of about 18,800 gallons per day. Estimated domestic use and irrigation use are about 1,100 gallons per day and 17,700 gallons per day, respectively. Projected water use will be based on an increase in domestic water demands due to more tennis court users, an increase in irrigation demands due to new landscape irrigation, and a decrease in current irrigation demands due to a reduction in the current irrigated area.

The projected domestic water use will be based on the number of tennis court users per hour, the number of available playing hours per day, percent of time the courts are used, and domestic water demand of 5 gallons per person. It is anticipated that each tennis court will be used by four persons per court per hour; that each tennis court will be available for play from 7:00 a.m. to 10:00 p.m. or 15 hours per day; and that the courts will be used 75 percent of the time. The projected domestic water use is therefore 900 gallons per day. (4 courts x 4 persons/court/hour x 15 hours/day x 0.75 x 5 gallons/person = 900 gallons/day)

The projected irrigation water use will be based on the area of new plantings and an average irrigation water application rate. Approximately 43,500 square feet of area will be planted and irrigated. Average irrigation demand based on grass is 5,800 gallons per day. Existing irrigation demands will be reduced by about 50 percent due to a reduction in planted area.

The total projected water use is therefore 16,700 gallons per day—a reduction of 2,100 gallons per day or about 11 percent of current usage. (1,100 + 900 + 17,700 – 8,850 + 5,800 = 16,650 ≈ 16,700 gallons per day) The existing water system, including the source, distribution system, meter, and service lines, can provide this amount.

Water system improvements include relocating the existing water meter, rerouting of existing water service lines between the water meter and the restroom, and installing a new irrigation system within the graded area.

IV. WASTEWATER SYSTM

The County of Maui has wastewater collection and treatment facilities in Lahaina. The collection system consists of gravity sewers, force mains, and pump stations. The collection system carries wastewater to the Lahaina Wastewater Reclamation Facility for treatment and disposal.

The Department of Parks and Recreation recently completed a large cesspool closure project at the LCC. Improvements for the recent project consisted of closure of a large capacity cesspool serving the majority of the facilities, and construction of a gravity sewer along the civic center driveway, across the adjoining DHHL site, with a connection to the County collection system. The newly-constructed sewer line collects wastewater and directs it South to an existing manhole on the DHHL site. From this point, an existing sewer line carries the wastewater to the County of Maui collection system within Honoapiilani Highway.

The recent large cesspool closure project, however, did not include the closure of the cesspool for the tennis court restroom. Wastewater system improvements for this project will therefore consist of closure of the existing cesspool and construction of a sewer lateral from the restroom to the newly-constructed sewer line within the civic center driveway.

Projected wastewater flows will be based on a similar method used to determine domestic water use. The wastewater produced by users of the four new tennis courts is therefore 900 gallons per day. (4 courts x 4 persons/court/hour x 15 hours/day x 0.75 x 5 gallons/person = 900 gallons/day) In addition to this amount, wastewater produced by users of the existing five tennis courts will also be considered due to closure of the cesspool. The wastewater produced by users of the five existing tennis courts is therefore 1,125 gallons per day. The total projected wastewater flows is therefore 2,025 gallons per day.

V. ELECTRICAL, TELEPHONE & CABLE TELEVISION SYSTEMS

Maui Electric Company, Hawaiian Telcom, and Oceanic Time Warner Cable provide electrical, telephone, and cable television service for the area. Major existing overhead lines run along Honoapiilani Highway. Electrical improvements for this project include new lighting for the tennis courts, parking lot, and walkways. No telephone and cable television improvements are planned for this project.

VI. DRAINAGE SYSTEM

A. Topography

Improvements on the smaller LCC parcel include the civic center driveway, tennis complex, and landscaped areas. The civic center driveway is a two-lane road with concrete curb and gutter. Utility systems within the driveway include catch basins, drain lines, and a recently-constructed sewer line. The tennis complex consists of five tennis courts with lighting, fencing, and windscreens, open bleachers, a restroom building, asphalt walkways, retaining walls, and utility systems. Utility systems for the tennis complex include water service for the restroom, a cesspool for wastewater disposal, drainage swales, inlets, manholes, and pipes, underground electrical lines, and landscape irrigation. Landscape plantings include grass, and a few trees and shrubs.

Elevations of the site range from about 40 feet to 60 feet above mean sea level. The site generally slopes down from East to West. The steepest areas are at the easterly and southwesterly ends with slopes that range from about 20 to 40 percent. The flattest areas are at the northwesterly end of the site with slopes that range from about 4 to 8 percent. (See Figure 6 – Topographic Map, page 14.)

B. Soil

According to the Soil Conservation Service, the on-site soils include Wahikuli stony silty clay, 3 to 7 percent slopes (WcB) and Wahikuli very stony silty clay, 3 to 7 percent slopes (WdB). The Wahikuli series consists of well-drained soils on uplands on the island of Maui. The survey characterizes the soil as having a dark reddish-brown surface layer approximately 15 inches thick with stones that hinder cultivation, moderate permeability, slow to medium runoff, and slight to moderate erosion hazard. (See Figure 3 – Soil Map, page 11.)

C. Flood and Tsunami Hazard

The flood insurance rate map of the area shows there are no flood hazard areas on the site. The flood insurance rate map designates the site as Zone C, an area subject to minimal flooding. (See Figure 4 - Flood Insurance Rate Map, page 12.)

D. Existing Drainage Improvements

Existing on-site drainage improvements include catch basins, inlets, drain pipes, manholes, outlet structures, channels, and swales. Catch basins and inlets collect storm runoff from the site and drain pipes, channels, and swales carry the collected runoff to the makai side of the site.

There are two separate drainageways that route the on-site and off-site flows through the site. These drainageways convey flows from the high point at the easterly side of the site

to the northwesterly and southwesterly corners of the site. The following discussion will refer to these drainageways as the Northwest System and the Southwest System.

The Northwest System begins at the high point at the easterly side of the site. From this point, runoff enters a cut-off grassed swale which prevents off-site runoff from entering the tennis complex and directs runoff to the Northwest. Runoff continues through a concrete and rock channel, and flows through another grassed swale to an inlet on the back side of a catch basin at the intersection of the civic center driveway and the rear service road. At this point, runoff enters an underground drainage system which conveys runoff under the service road and civic center driveway, and discharges runoff downstream of the civic center driveway. The underground system consists of a series of 18-inch and 36-inch drain pipes, catch basins, and an outlet structure. Runoff from the outlet structure continues downstream through a concrete and rock channel to a 48-inch culvert at Honoapiilani Highway. The culvert conveys runoff under the highway and discharges it into the Wahikuli Wayside Park and into the ocean.

The Southwest System also begins at the high point at the easterly side of the site. From this point, runoff enters a cut-off grassed swale which prevents off-site runoff from entering the tennis complex and directs runoff to the South. The swale discharges runoff into a gully on the South side of the tennis complex. A concrete and rock channel intercepts flows from the gully and directs it to an underground drainage system which carries runoff under the civic center driveway and Leialii Parkway. The underground drainage system includes an inlet structure, 30-inch drain pipes, catch basins, a manhole, and an outlet structure. Runoff from the outlet structure continues downstream through another grassed swale to a triple 48-inch culvert at Honoapiilani Highway. The culvert conveys runoff under the highway and under the Wahikuli Wayside Park, and discharges it into the ocean. (See Figure 7 – Existing Drainage Plan, page 15.)

E. Proposed Drainage Improvements

The expansion of the tennis complex will affect the existing drainage improvements of the Northwest System. However, existing drainage improvements, of the Southwest System will remain. The proposed drainage improvements include swales, inlets, manholes, drain pipes, and a subsurface detention/retention basin. The proposed improvements consist of two separate parts that correspond to off-site and on-site flows. (See Figure 9 – Preliminary Grading and Drainage Plan, page 17.)

An existing paved roadway above the DHHL parcel with a cut-off ditch forms the upper limits of the off-site drainage area. From this upper limit, runoff flows across the undeveloped DHHL parcel and towards the proposed parking lot and tennis courts. To prevent this runoff from entering the tennis complex, a ditch will be constructed at the mauka boundary of the expansion area. Inlets within the ditch will collect runoff and direct it to the existing drainage system within the rear service road. (See Figure 8 – Drainage Area Map, page 16.)

The easterly property line forms the upper limits of the on-site drainage area. Under existing conditions, swales and channels capture runoff and direct it to an underground drainage system. The expansion will displace these existing improvements and will replace them with drain inlets, manholes, drain pipes, and a subsurface detention/retention basin. The subsurface detention/retention, consisting of a large-diameter perforated pipe in a gravel bed, a flow control manhole, and an outlet pipe, will keep the post-development flow rates and volumes and pre-development levels. (See Figure 9 – Preliminary Grading and Drainage Plan, page 17.)

The County drainage standards require the use of a 50-year, 1-hour rainfall for computing volumes and rates of flow. However, there are more stringent guidelines contained in the West Maui Watershed Owner's Manual prepared by the West Maui Watershed Management Advisory Committee. Because this project is in West Maui, the more stringent guidelines will be used.

The design criteria for the on-site area include:

- Maintaining pre-development runoff volumes for a 2-year, 24-hour storm
- Maintaining pre-development peak flow rates for a 50-year, 1-hour storm

Drainage improvements that involve transmission of storm flows will conform to the "Rules for the Design of Storm Drainage Facilities in the County of Maui." The rules will be applied to the sizing and spacing of inlets and manholes, and sizing of drain lines, channels, and culverts. Based on the County rules, the drainage system will be designed to handle a storm with a recurrence interval of 50 years since the drainage area is less than 100 acres.

The following is a summary of hydrologic design data for on-site area. (See Appendix A - Preliminary Drainage Information.)

Item	Existing	Developed
Drainage Area	2.04 acres	2.04 acres
2-year, 24-hour Rainfall	3.2 inches	3.2 inches
2-year, 24-hour Volume	6,900 cubic feet	10,400 cubic feet
50-year, 1-hour Rainfall	2.5 inches	2.5 inches
50-year, 1-hour Peak Flow	3.90 cfs	8.37 cfs

The increase in the rate of runoff and volume of runoff will be mitigated by constructing the detention/retention basin. The detention/retention basin will collect runoff, regulate the outflow of runoff, and retain a portion of the collected runoff. As shown in the preliminary computations, a detention volume of 2,500 cubic feet is required to reduce the peak outflow from 8.37 cubic feet per second to 3.90 cubic feet per second. Also as shown in the preliminary computations, a retention volume of 3,500 cubic feet is required to keep runoff volumes at pre-development levels. The required volumes will be provided by a 5-foot

diameter by 230-foot long subsurface perforated pipe embedded in a 1-foot thick rock cradle.

The Preliminary Grading and Drainage Plan shows the proposed grading and drainage improvements. (See Figure 9 - Preliminary Grading and Drainage Plan, page 17.)

The following is a summary of preliminary design data for the drainage/retention basin. These figures are subject to adjustment as the designs are further refined.

Detention Volume	2,500 cubic feet
Retention Volume	3,500 cubic feet
Flow Rate In	8.37 cubic feet per second
Flow Rate Out	3.90 cubic feet per second

D. Conclusion

There will be no adverse effects on the adjacent or downstream properties due to this project. This conclusion is based on maintaining peak discharge rates and volumes at pre-development levels.

VII. REFERENCES

1. City and County of Honolulu, Department of Public Works, Division of Engineering, *Storm Drainage Standards*, Honolulu, Hawaii, May 1988.

2. County of Maui, "Title MC-15, Department of Public Works and Waste Management, Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui," Wailuku, Hawaii, November 1995.

3. Federal Emergency Management Agency, Federal Insurance Administration, *Flood Insurance Study, Maui County, Hawaii*, December 1, 1980.

4. R. M. Towill Corporation, *Drainage Master Plan for the County of Maui*, Honolulu, Hawaii, October 1971.

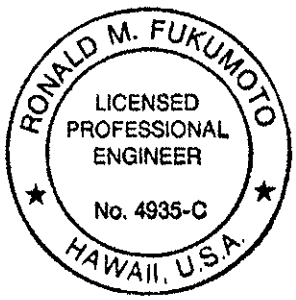
5. U. S. Department of Agriculture, Soil Conservation Service, *Erosion and Sediment Control Guide for Hawaii*, Honolulu, Hawaii, March 1981.

6. U. S. Department of Agriculture, Soil Conservation Service, *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*, Washington, D.C., August 1972.

7. U. S. Department of Agriculture, Soil Conservation Service, *Urban Hydrology for Small Watersheds*, Technical Release 55, Second Edition, Washington, D.C., June 1986.

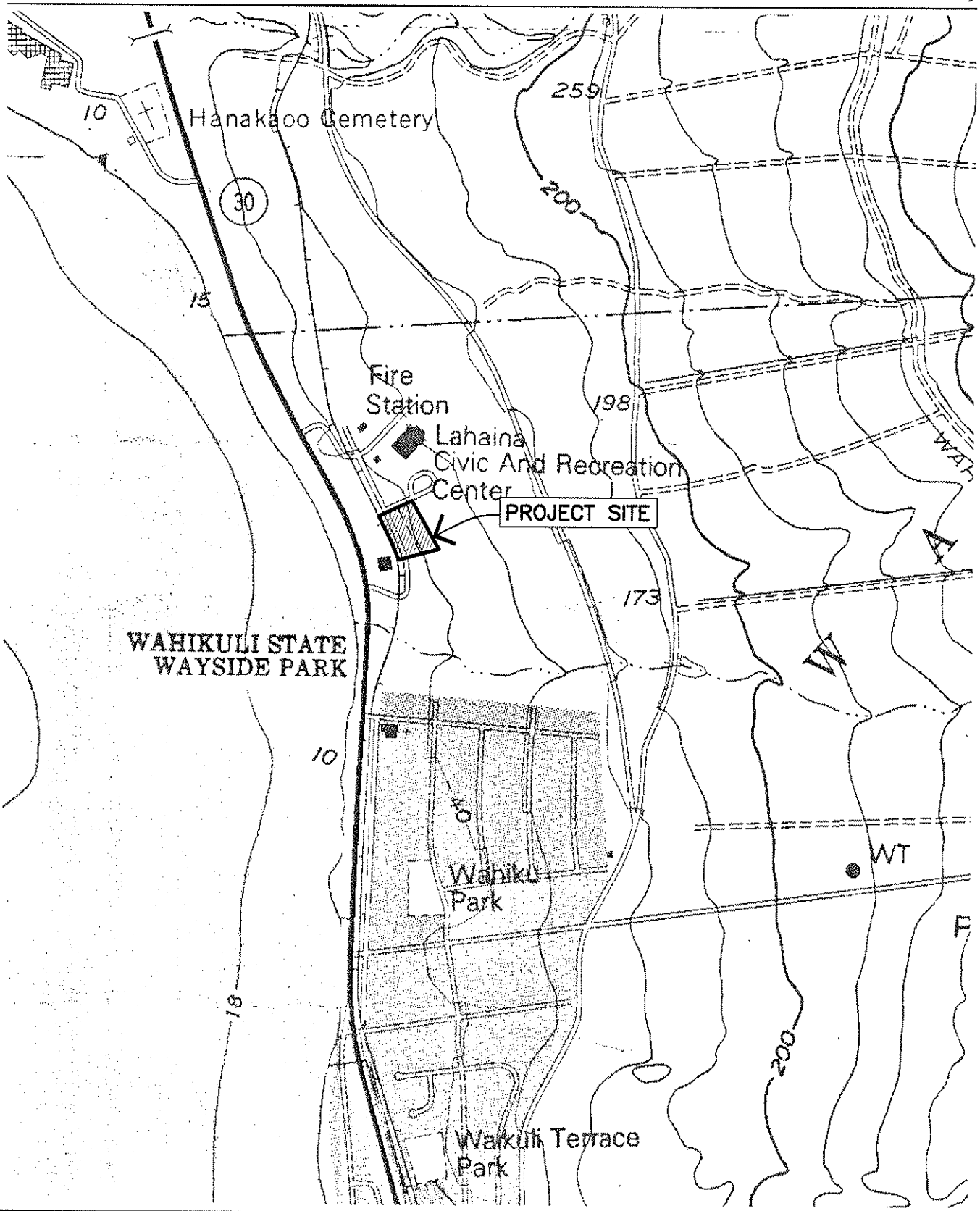
8. U. S. Department of Commerce, Weather Bureau, *Rainfall-Frequency Atlas of the Hawaiian Islands for Areas to 200 Square Miles, Durations to 24 Hours, and Return Periods from 1 to 100 Years*, Technical Paper No. 43, Washington, D.C., 1962.

9. West Maui Watershed Management Advisory Committee, *West Maui Watershed Owners Manual*, Honolulu, Hawaii, November 1997.



This work was prepared by
me or under my supervision.

Ronald M. Fukumoto



LOCATION MAP (USGS MAP)

Figure 1

SOURCE: USGS LAHAINA QUADRANGLE MAP

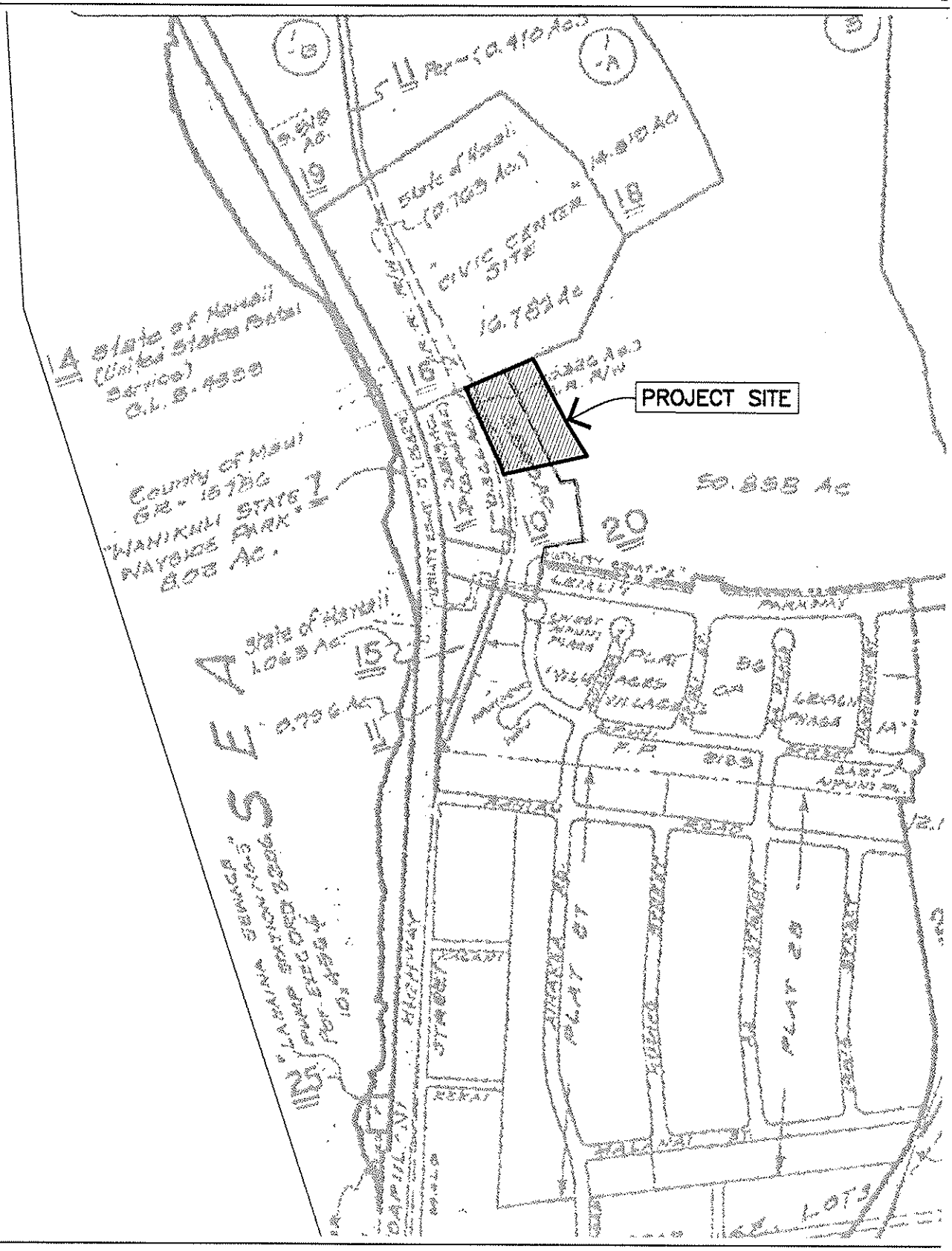
NORTH

SCALE IN FEET

0 500 1000 2000 3000

PREPARED FOR: DEPT. OF PARKS & RECREATION, COUNTY OF MAUI

PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.



VICINITY MAP (TAX MAP)

Figure 2

SOURCE: TAX MAP KEY (2) 4-5-021-010 & 020

SCALE IN FEET

NORTH 0 250 500 1000 1500

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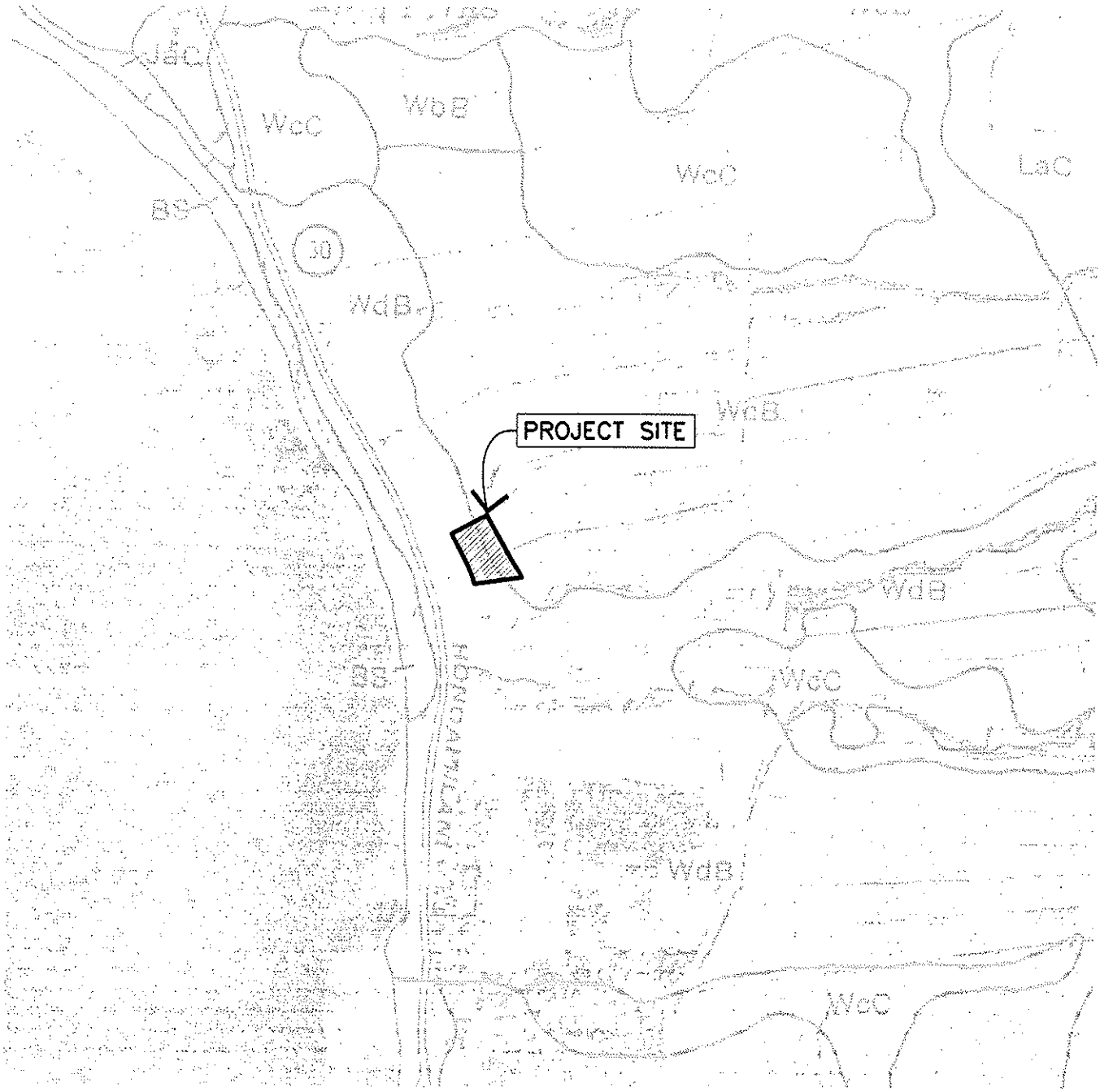


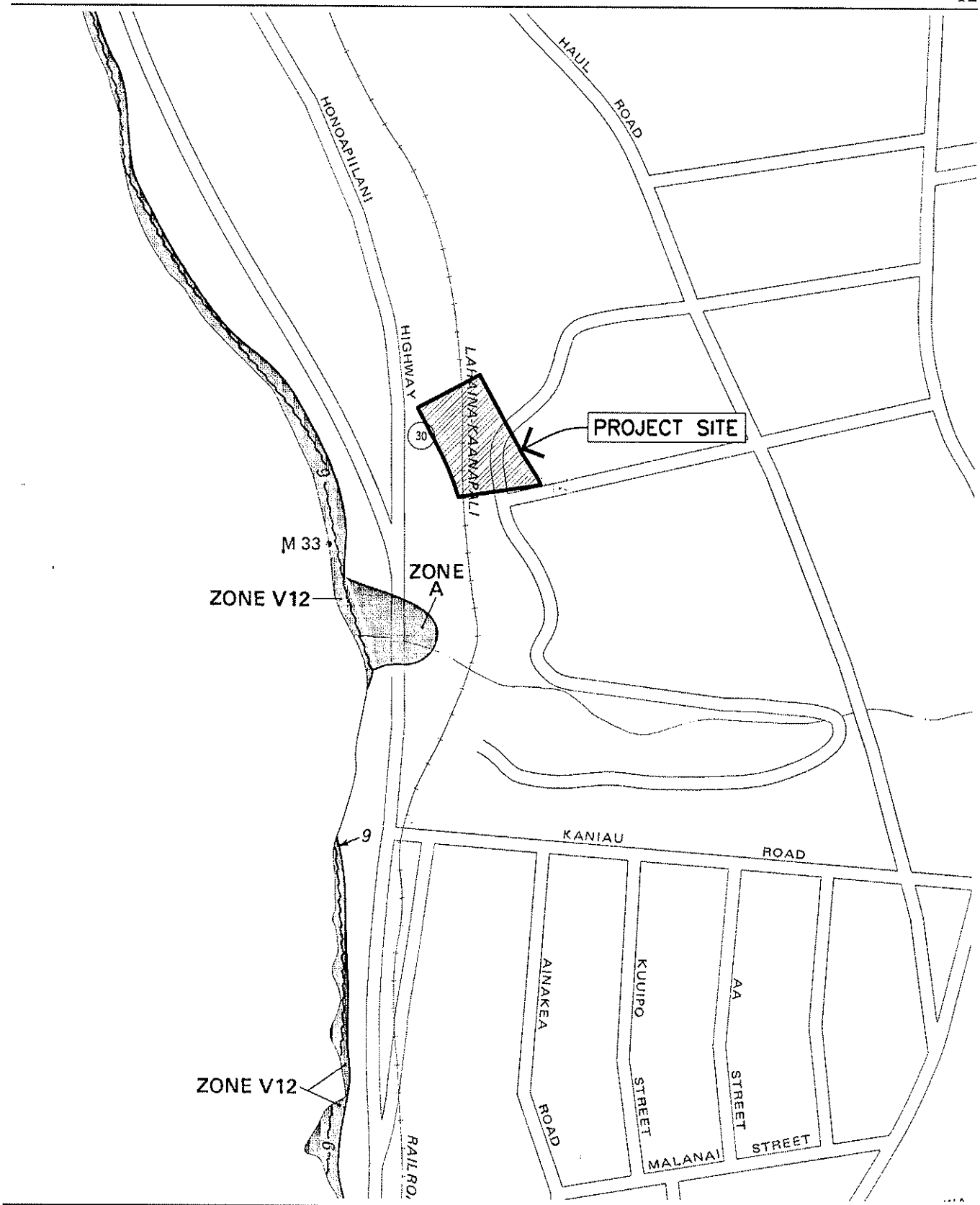
SOIL MAP

SCALE IN FEET

NORTH 0 500 1000 2000 3000

Figure 3

SOURCE: SOIL SURVEY



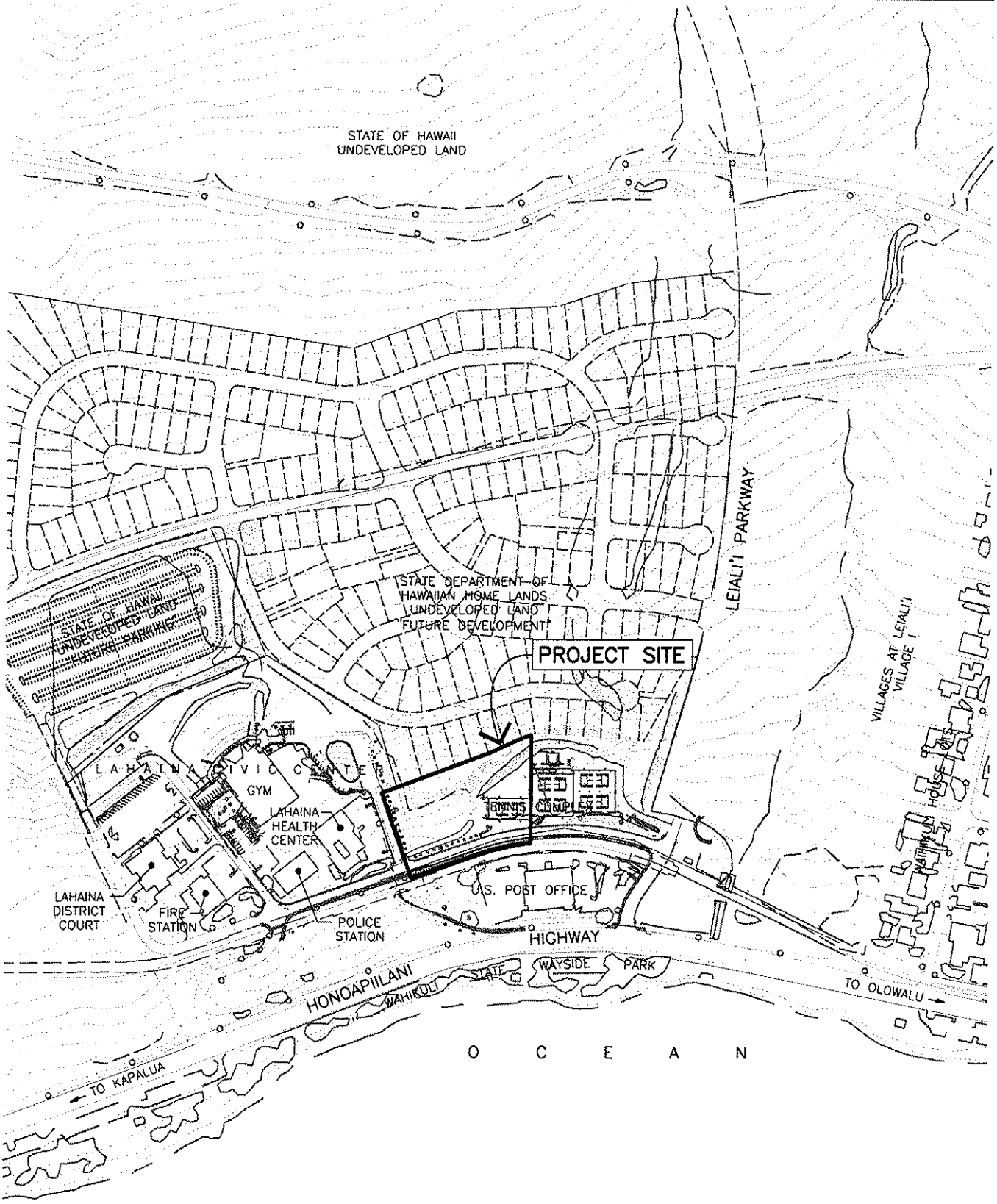
FLOOD INSURANCE RATE MAP

Figure 4

SCALE IN FEET

NORTH 0 250 500 1000 1500

SOURCE: FIRM COMM. PANEL NO. 150003 0161C



REGIONAL TOPOGRAPHIC MAP

SCALE IN FEET

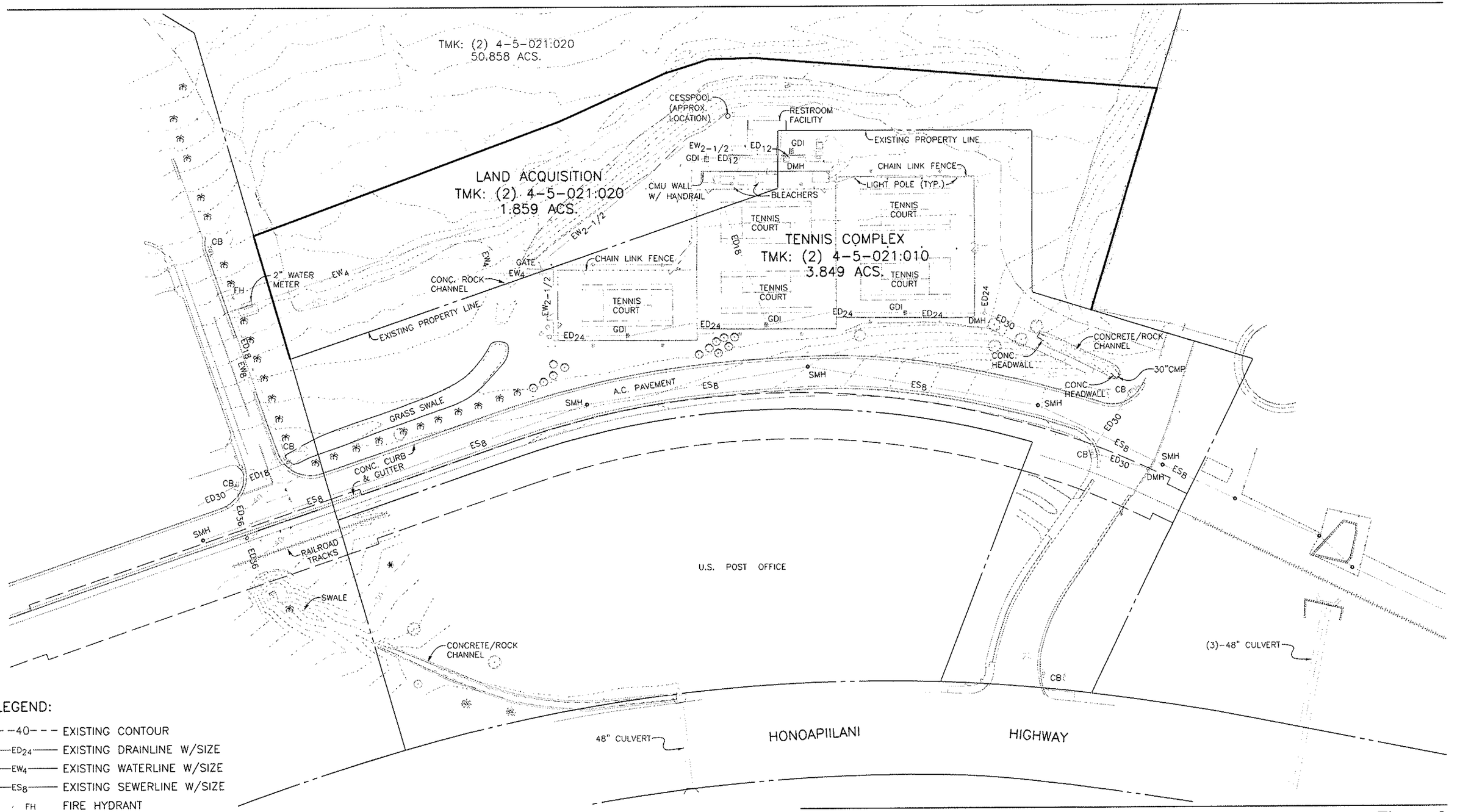
NORTH 0 200 400 800 1200

Figure 5

DATE: 6/06/08

PREPARED FOR: DEPT. OF PARKS & RECREATION, COUNTY OF MAUI

PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.



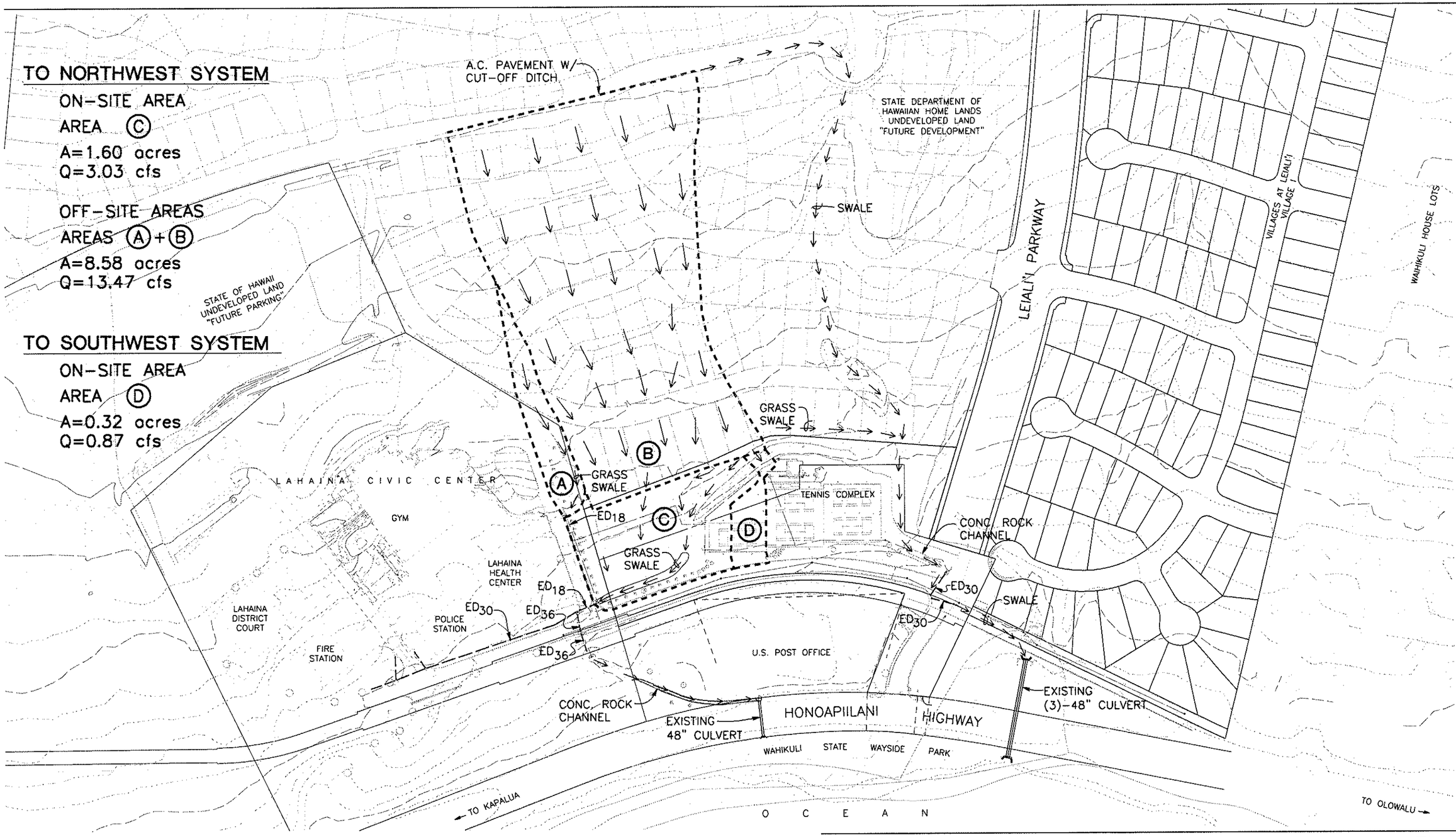
TOPOGRAPHIC MAP

SCALE IN FEET

Figure 6
DATE: 6/06/08

PREPARED FOR: DEPT. OF PARKS & RECREATION, COUNTY OF MAUI

PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.



LEGEND:

- - - - - - LIMITS OF DRAINAGE AREA

NORTH

DRAINAGE AREA MAP - EXISTING

SCALE IN FEET 0 100 200 400 600

Figure 7

DATE:6/06/08

PREPARED FOR: DEPT. OF PARKS & RECREATION, COUNTY OF MAUI

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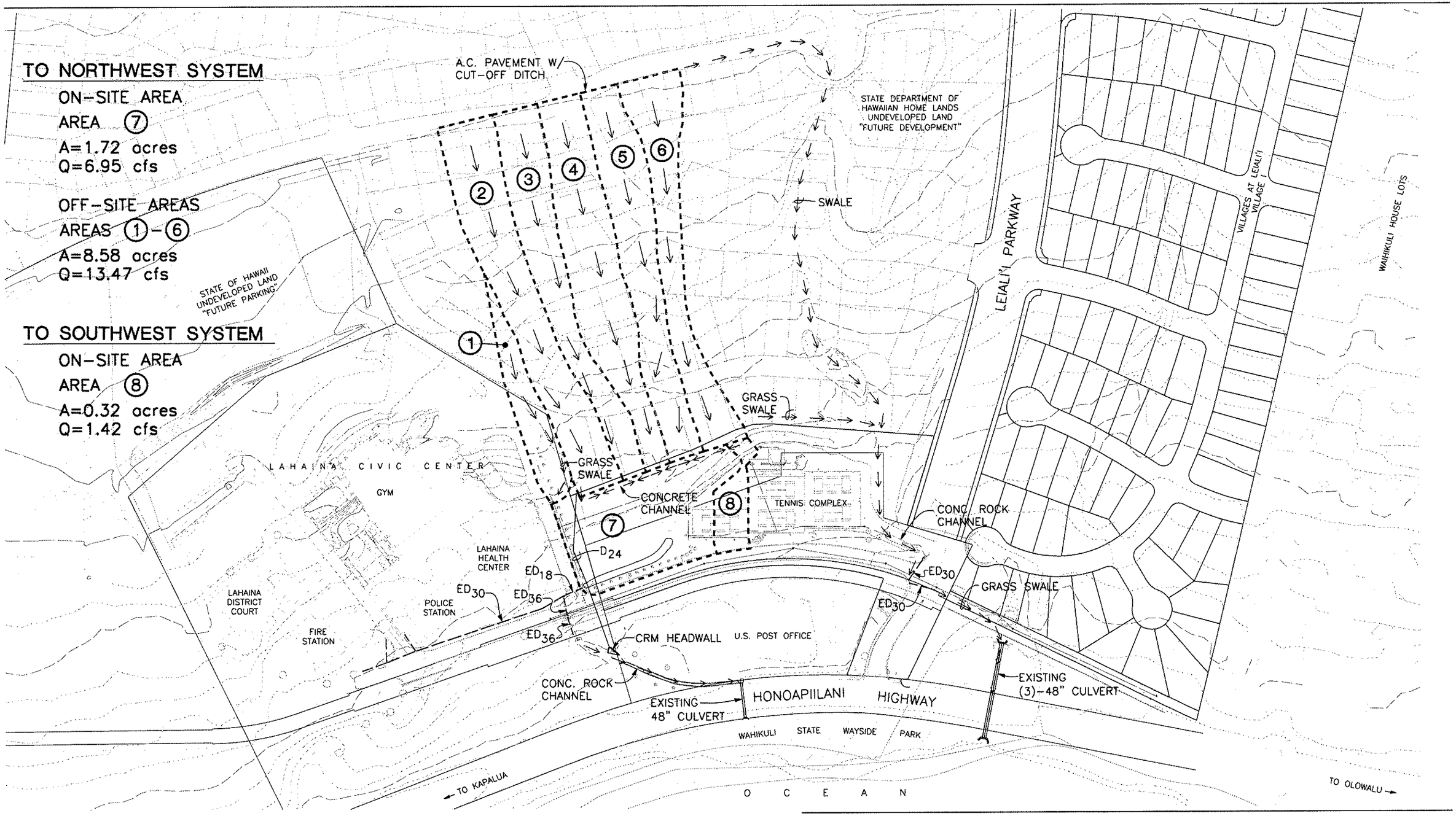


LEGEND:

------ LIMITS OF DRAINAGE AREA

DRAINAGE AREA MAP - DEVELOPED

SCALE IN FEET

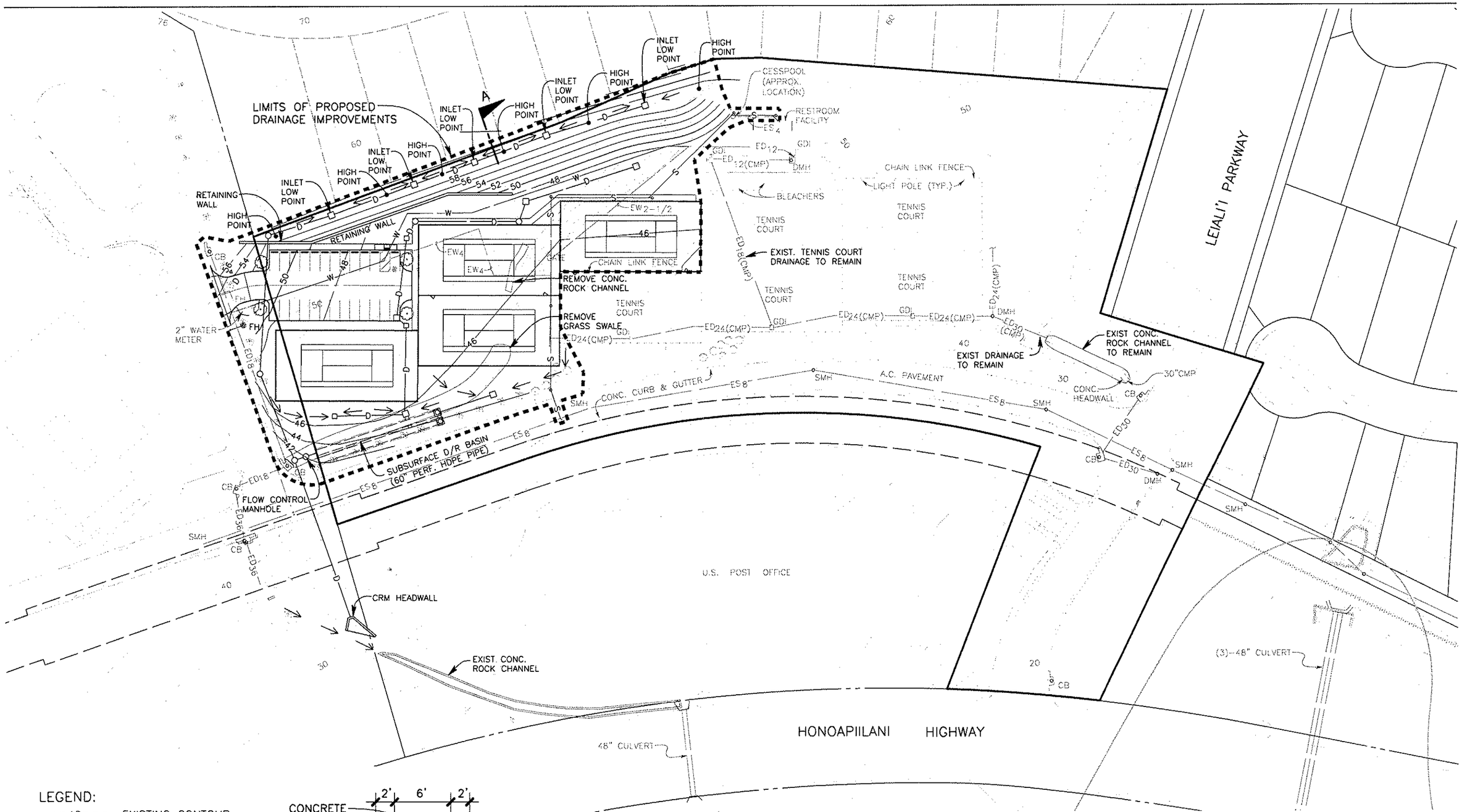
NORTH 0 100 200 400 600

Figure 8

DATE: 6/06/08

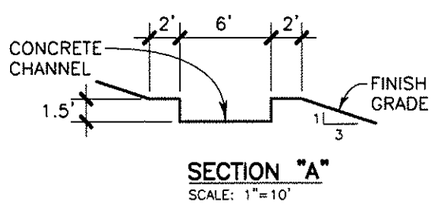
PREPARED FOR: DEPT. OF PARKS & RECREATION, COUNTY OF MAUI

PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.



LEGEND:

- 40 EXISTING CONTOUR
- 40 PROPOSED CONTOUR
- DRAIN MANHOLE
- DRAIN INLET
- SWALE



SECTION "A"
SCALE: 1"=10'

PRELIMINARY GRADING & DRAINAGE PLAN

SCALE IN FEET

NORTH 0 40 80 160 240

Figure 9
DATE: 6/06/08

PREPARED FOR: DEPT. OF PARKS & RECREATION, COUNTY OF MAUI

PREPARED BY: RONALD M. FUKUMOTO ENGINEERING, INC.

PRELIMINARY DRAINAGE INFORMATION

A. RUNOFF COEFFICIENT

1. Existing Conditions

	Area(acres)	Coefficient
Off-site areas draining to Northwest System		
a. Area A		
Landscaped/Unimproved Areas	0.51	0.30
Buildings/Roadways/Walkways	0.07	0.90
Total Area A =	0.58	
$C_{composite}$ = [(0.51x 0.30) + (0.07 x 0.90)] / 0.58 =	0.37	
b. Area B		
Landscaped/Unimproved Areas	8.00	0.30
Total Off-site Area (Areas A and B) = 8.58 acres		
On-site areas draining to Northwest System		
c. Area C		
Landscaped/Unimproved Areas	1.60	0.30
Buildings/Roadways/Walkways	0.12	0.90
Subtotal Area C =	1.72	
$C_{composite}$ = [(1.60 x 0.30) + (0.12 x 0.90)] / 1.72 =	0.34	
On-site areas draining to Southwest System		
d. Area D		
Landscaped/Unimproved Areas	0.20	0.30
Buildings/Roadways/Walkways	0.12	0.90
Subtotal Area D =	0.32	
Total On-site Area (Areas C and D) = 2.04 acres		

2. Developed Conditions – Subdivision Site

On-site areas draining to Northwest System		
a. Area 7		
Landscaped/Unimproved Areas	0.77	0.30
Buildings/Roadways/Walkways	0.95	0.90
Subtotal Area C =	1.72	
$C_{composite}$ = [(0.77 x 0.30) + (0.95 x 0.90)] / 1.72 =	0.63	
On-site areas draining to Southwest System		
b. Area 8		
Landscaped/Unimproved Areas	0.11	0.30
Buildings/Roadways/Walkways	0.21	0.90
Subtotal Area D =	0.32	

$C_{composite} = [(0.11 \times 0.30) + (0.21 \times 0.90)] / 0.32 = 0.69$

B. RECURRENCE INTERVAL & RAINFALL
   1. Recurrence interval $T_m = 50$ years (due to sump conditions)
   2. One-hour rainfall $I_{50} = 2.5$ inches

C. TIME OF CONCENTRATION
   1. Existing Conditions $T_c = 10$ minutes
   2. Developed Conditions $T_c = 5$ minutes

D. EXISTING RUNOFF (Rational Method)
   1. Off-site Area (Areas A and B)
      a. C = 0.305
      b. i = 2.5 x 2.06 = 5.15
      c. a = 8.58 acres
      d. Q = Cia = 0.30 x 5.15 x 8.58 = 13.47 cfs
   2. On-site Area (Areas C and D)
      a. C = 0.371
      b. I = 2.5 x 2.06 = 5.15
      c. a = 2.04 acres
      d. Q = Cia = 0.371 x 5.15 x 2.04 = 3.90 cfs

E. DEVELOPED RUNOFF (Rational Method)
   1. On-site Area (7 and 8)
      a. C = 0.641
      b. I = 2.5 x 2.56 = 6.40
      c. a = 2.04 acres
      d. Q = Cia = 0.64 x 6.40 x 2.04 = 8.37 cfs

F. INCREASE DUE TO DEVELOPMENT (Rational Method)
   1. On-site Area (Lahaina Civic Center – Tennis Center including land acquisition)
      $\Delta Q = 8.37 - 3.90 = 4.47$ cfs (for 50-year, 1-hour storm)

G. CURVE NUMBER (CN) COMPUTATION
   1. Existing

Open Space	CN = 69	Area = 1.80 acres
Building, Parking, & Walkways	CN = 95	Area = 0.24 acres
	CN = [(69x1.80)+(95x0.24)/2.04] = 72	

   2. Developed

Open Space	CN = 61	Area = 0.88 acres
Building, Parking, & Walkways	CN = 95	Area = 1.16 acres
	CN = [(61x0.88)+(95x1.16)/2.04] = 80	

H. RAINFALL DATA
   1. 50-year, 1-hour P = 2.5 inches
   2. 2-year, 24-hour P = 3.2 inches

I. RETENTION VOLUME

1. 50-year, 1-hour
   a. Existing – 2.04 acres
      $S = (1000/CN) - 10 = (1000/72) - 10 = 3.89$
      $Q = (P-0.2S)^2/(P+0.8S) = (2.5-0.2x3.89)^2/(2.5+0.8x3.89) = 0.53$ inch
      Volume = (0.53/12)x2.04x43,560 = 3,914 cu. ft.
   b. Developed – 2.04 acres
      $S = (1000/CN) - 10 = (1000/80) - 10 = 2.50$
      $Q = (P-0.2S)^2/(P+0.8S) = (2.5-0.2x2.50)^2/(2.5+0.8x2.50) = 0.89$ inch
      Volume = (0.89/12)x2.04x43,560 = 6,582 cu. ft.
   c. Increase due to development
      ΔV= 3,914 – 6,582= 2,688 cu. ft.
2. 2-year, 24-hour
   a. Existing – 2.04 acres
      $S = (1000/CN) - 10 = (1000/72) - 10 = 3.89$
      $Q = (P-0.2S)^2/(P+0.8S) = (3.2-0.2x3.89)^2/(3.2+0.8x3.89) = 0.93$ inch
      V = (0.93/12)x2.04x43,560 = 6,884 cu. ft.
   b. Developed – 2.04 acres
      $S = (1000/CN) - 10 = (1000/80) - 10 = 2.50$
      $Q = (P-0.2S)^2/(P+0.8S) = (3.2-0.2x2.50)^2/(3.2+0.8x2.50) = 1.40$ inch
      V = (1.40/12)x2.04x43,560 = 10,382 cu. ft.
   c. Increase due to development
      ΔV= 6,884 – 10,382 = 3,498 cu. ft.
3. Required Retention Volume
   The County drainage rules require retaining the increase in runoff volume due to a 50-year, 1-hour storm. However, the West Maui Watershed Owners Manual guidelines recommend retaining the increase in runoff volumes due to a 2-year, 24-hour storm. The computations above show that the 2-year, 24-hour storm results in large volumes; therefore, the larger amounts will be used.

J. DETENTION VOLUME

RATIONAL METHOD DETENTION BASIN SIZING

Design Data

Drainage Area = A =	2.04	acres
Developed Runoff Coefficient = C =	0.64	
Design Storm =	50	year
One Hour Rainfall = i =	2.50	inches
Present Peak Discharge = Q_{OUT} =	3.90	cfs
Developed Peak Discharge = Q_{IN} =	8.37	cfs
Q_{OUT} / Q_{IN} =	0.47	
Outflow Adjustment Coefficient = k =	0.86	

Storm Duration, minutes	Correction Factor	Rainfall Intensity, in./hr.	Runoff Volume, cu. ft.	Outflow Volume, cu. ft.	Storage Volume, cu. ft.	
T	*f*	*I = fi*	*CIAT*	$kQ_{OUT}T$	(4) - (5)	
(1)	(2)	(3)	(4)	(5)	(6)	
5.0	2.5575	6.394	2,525	1,006	1,519	
10.0	2.0576	5.144	4,063	2,012	2,051	
11.0	2.0135	5.034	4,374	2,214	2,160	
12.0	1.9689	4.922	4,666	2,415	2,251	
13.0	1.9244	4.811	4,940	2,616	2,324	
13.8	1.8894	4.724	5,149	2,777	2,372	
13.9	1.8850	4.713	5,174	2,797	2,377	
14.0	1.8807	4.702	5,199	2,817	2,382	
15.0	1.8381	4.595	5,445	3,019	2,426	
16.0	1.7971	4.493	5,678	3,220	2,458	
17.0	1.7578	4.395	5,901	3,421	2,480	
18.0	1.7205	4.301	6,116	3,622	2,494	
19.0	1.6855	4.214	6,324	3,824	2,500	
20.0	1.6529	4.132	6,528	4,025	2,503	
21.0	1.6227	4.057	6,729	4,226	2,503	peak
22.0	1.5946	3.987	6,928	4,427	2,501	
23.0	1.5684	3.921	7,123	4,629	2,494	
24.0	1.5438	3.860	7,317	4,830	2,487	
25.0	1.5206	3.802	7,507	5,031	2,476	
26.0	1.4986	3.747	7,694	5,232	2,462	
27.0	1.4775	3.694	7,878	5,433	2,445	
28.0	1.4572	3.643	8,057	5,635	2,422	
29.0	1.4376	3.594	8,233	5,836	2,397	
30.0	1.4184	3.546	8,403	6,037	2,366	

Required Detention Volume = 2,503 ≈ 2,500 cubic feet to reduce developed flow from 8.37 cfs to pre-development flow of 3.90 cfs.

K. DETENTION/RETENTION PIPE PRELIMINARY DESIGN

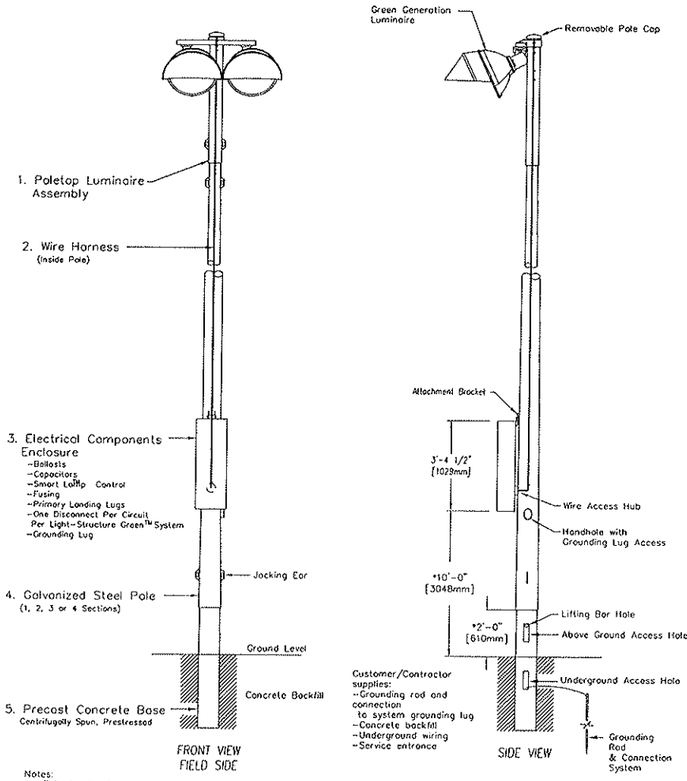
The drainage basin will consist of large-diameter corrugated aluminum pipe in a gravel bed of filter rock. The basin will be designed to keep peak flow rates due to a 50-year, 1-hour storm at pre-development levels and to keep runoff volumes due to a 2-year, 24-hour storm at pre-development levels. The following are preliminary sizing computations.

1. Required detention volume = V = 2,500 cubic feet
2. Required retention volume = V = 3,500 cubic feet
3. Use 5-foot diameter perforated corrugated aluminum pipe in 7-foot deep by 7-foot wide gravel bed consisting of "4-C" filter rock.
4. Pipe Area = Πr^2 = Π x 2.5^2 = 19.63 square feet
5. Gravel Area = (7x7) – 19.63 = 29.37 square feet
6. Gravel Void Area = 29.37 x 0.45 = 13.21 square feet
7. Allowable Gravel Void Area = 13.21x 0.50 = 6.61 square feet
8. Pipe Area + Allowable Gravel Void Area = 19.63 + 6.61 = 26.24 square feet
9. Required Length = (2,500 + 3,500) / 26.24 = 6,000 / 26.24 = 230 feet
10. Set height of outlet pipe within D/R pipe so that 3,500 cubic feet of runoff is retained within pipe.

APPENDIX F.

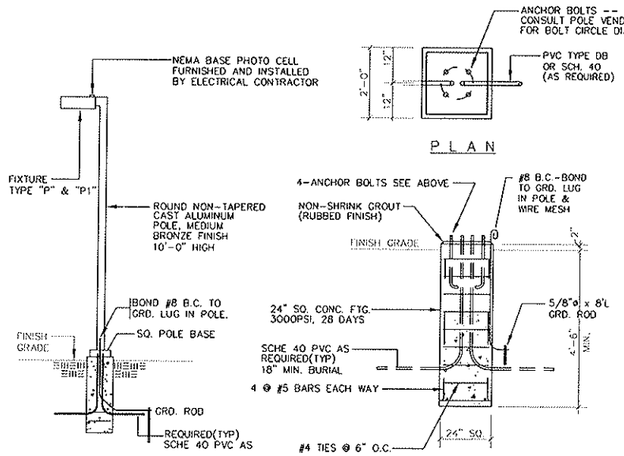
Light Pole Details

LIGHT FIXTURE SCHEDULE			
TYPE	DESCRIPTION	MANUFACTURER	LAMPS
A	METAL HALIDE POLE MOUNTED FIXTURE, TWO FIXTURES PER POLE, DIE CAST ALUMINUM HOUSING. HIGH IMPACT RESISTANT LENS, SEALED AND GASKETED. REMOTE BALLAST SUITED FOR 208V, 1 PHASE, 60 HZ. POLE: 40' TAPERED ROUND STEEL GALVANIZED POLE ON A CONCRETE BASE.	MUSCO FIX: (2)LV8-1500-MZ POLE: LSS4042-SC2-1500	1-1500W MH
A1	SIMILAR TO TYPE 'A' EXCEPT ONLY ONE FIXTURE ON POLE.	MUSCO FIX: (2)LV8-1500-MZ POLE: LSS4042-SC2-1500	1-1500W MH
B	HIGH PRESSURE SODIUM, POLE MTD. AREA LIGHT, FULL CUT-OFF, 120V WITH PHOTOCELL, MTD ON 12' ANODIZED ALUMINUM POLE.	STERNER EXEC/SQR19/100HPS/120/C/10/N/PRL/BZ POLE: RA112.5/4.5X3.0/0.125/10/BZ	100W HPS
C	HIGH PRESSURE SODIUM, POLE MTD. PARKING LIGHT, FULL CUT-OFF, 120V WITH PHOTOCELL, MTD ON 16' ANODIZED SQUARE NON-TAPERED ALUMINUM POLE.	KIM 1A/CC25A3/150HPS120/CC-P/A-31/PRA16/34188/CC-P	150W HPS

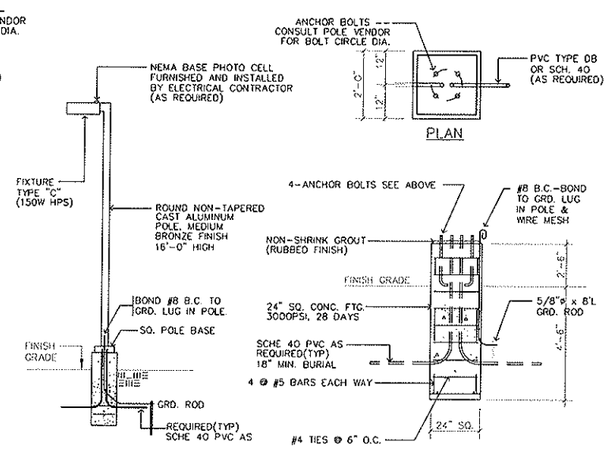


Notes:
1. This drawing is not to scale.
2. * This dimension for reference only. Variances may occur depending on steel pole tolerances, concrete tolerances, galvanizing thickness, hole depth accuracy.
3. Musco provides a base installation bar, an installation level modified for taper, and installation wedges.
4. Provisions for auxiliary equipment such as speaker or security lighting can be incorporated.
5. Copyright 1991, 2005 Musco Lighting. Patents issued and pending.

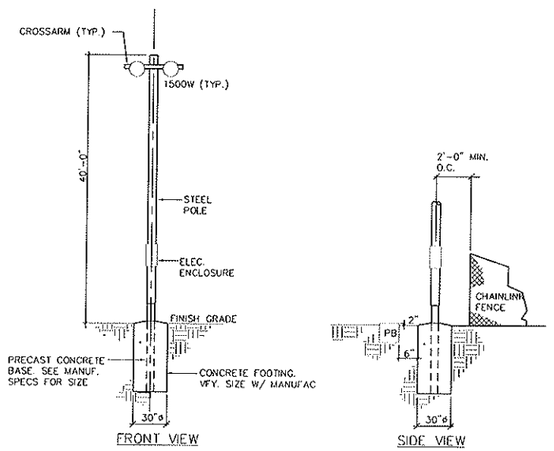
A / E-5 POLE DETAIL
NOT TO SCALE



AREA/WALKWAY LIGHT DETAIL
NOT TO SCALE



PARKING LIGHT DETAIL
NOT TO SCALE



GENERAL NOTES:

1. ALL POLES AND FIXTURES BY MUSCO SPORTS LIGHTING, INC. REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. ALL REQUIREMENTS TO BE COORDINATED AND VERIFIED WITH MANUFACTURER PRIOR TO INSTALLATION.

LIGHTING SYSTEM SUMMARY (TENNIS COURT A) :
4-40' POLES, 4-1500W FIXTURES
(1-1500W FIXTURES PER POLE)
AT 208V, 1 PHASE.

LIGHTING SYSTEM SUMMARY (TENNIS COURT B & C) :
4-40' POLES, 8-1500W FIXTURES
(2-1500W FIXTURES PER POLE)
AT 208V, 1 PHASE.

B / E-5 TYPICAL POLE LIGHT DETAILS
NOT TO SCALE

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MARK P. RICARD
LICENSED PROFESSIONAL ENGINEER
No. 8991-E
HAWAII, U.S.A.

APRIL 2010
EXPIRATION DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION (SUPERVISION OF CONSTRUCTION AS DEFINED UNDER SECTION 16-82-2 OF CHAPTER 82 RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND LAND SURVEYORS, STATE OF HAWAII)

Note: Contractor shall check and verify all dimensions at job before job before proceeding with work

REVISIONS			
NO	DATE	DESCRIPTION	INI

JOB NO. 26072
DATE: 5/08
DRAWN BY: RMB
DESIGNED BY: MPR
CHECKED BY: MPR

ELECTRICAL PLANS FOR:
LAHAINA CIVIC CENTER
TENNIS COURTS
LAHAINA, MAUI, HAWAII TMK: (2) 4-5-021:010

SHEET NO.
E-5
7 OF 8 SHEETS

26072-E5