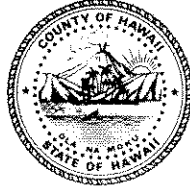


Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii **RECEIVED**
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

'04 APR 27 P2:22
OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

April 21, 2004

Honorable Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813-2437

Dear Ms. Salmonson:

SUBJECT: Final Environmental Assessment
Lako Street Extension
TMK: 3rd Div. 7-7-04
North Kona, Hawaii

As a follow up to our letter dated April 12, 2004, we have determined that the project will have no significant impact on the environment. We are therefore requesting that a Finding of No Significant Impact (FONSI) be issued for the project. Please call Mr. Galen Kuba, P.E., Hawaii County Department of Public Works, phone (808) 961-8422, if you have any questions.

Respectfully submitted,

Bruce McClure,
Director of Public Works

Enclosures

cc: Hilo Engineering, Inc.
Mr. William Y. Thompson

2004-04-23 FONSI
LAKO ST. EXTENSION

FILE COPY

FILE COPY

APR 28 2004

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII

101 Pauahi Street, Suite 7
Hilo, HI 96720-3043

FINAL

ENVIRONMENTAL ASSESSMENT

LAKO STREET EXTENSION

Holualoa 3 and 4, North Kona, Hawaii
TMK: 7-07-04

Prepared by:
Hilo Engineering, Inc.
484 Kalanikoa Street
Hilo, HI 96720
Phone: (808) 961-3706

APRIL 2004

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII

101 Pauahi Street, Suite 7
Hilo, HI 96720-3043

FINAL

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APRIL 2004

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- C. TRAFFIC STUDY
- D. ARCHAEOLOGICAL ASSESSMENT AND INVENTORY SURVEY
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- F. PUBLIC MEETINGS

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- | | (End of:) |
|---|------------|
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| 3. KEAKEALANIWAHINE COMPLEX, LAKO STREET
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TAX MAP KEYS: DRAWING NO. 3 | " |
| 4. COUNTY ZONING AND LAND USE BOUNDARIES:
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| 7. FLOOD ZONE AND TSUNAMI INUNDATION AREAS:
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**DRAFT ENVIRONMENTAL ASSESSMENT
FOR THE
LAKO STREET EXTENSION PROJECT
Holualoa 3 & 4, North Kona, HI**

SUMMARY

The Lako Street Extension project is part of a long range plan to provide a road network system to distribute and ease traffic in the Kailua to Keauhou sector. Three road alignment alternatives were considered. The final choice, Alternate C, is for a 1,855 feet long road in Holualoa 3. This will provide another access route from the coastal Alii Drive to Kuakini Highway. The proposed roadway will ease traffic on Royal Poinciana Drive; provide easy access to Alii Drive from Komohana Kai Subdivision; and provide another escape route for the residents along Alii Drive in the event of an emergency. The terminus of the Kahului-Keauhou Parkway 1st Phase will be at Lako Street.

The general area of the project site is replete with archaeological features. The Keolonahihi State Historical Park, a site on the National Register of Historical Places, is situated in the general area of the project. In proximity to the road project, is a significant historical area, the *Keakealaniwahine* Complex, now an addition to the Keolonahihi State Historical Park. Ancient history has *'Umi a Liloa*, a ruler said to have unified the island, as having moved the royal court from Waipio Valley to the Kona district. This lasted through the reign of *Kamehameha I*. The *Keakealaniwahine* complex is named for a chiefess who was a descendant of *'Umi*.

The proposed roadway lies north of 16-acre *Keakealaniwahine* Complex and includes a buffer zone. The proposed alignment will affect the least archaeological features of the alternatives studied. Mitigation measures will include data recovery.

Construction plans will be authorized after acceptance of the final EA. Construction will most likely start in mid-year of 2005. The roadway is estimated to cost over \$2 million.

SECTION 1
PROPOSING AGENCY AND APPROVING AGENCY

APPLICANT FOR THE PROJECT:

The applicant for this project, Lako Street Extension, is the Department of Public Works, County of Hawaii. The address is:

Department Public Works
County of Hawaii
101 Pauahi Street, Suite 7
Hilo, Hawaii 96720-3043

The person responsible for this project is:

Mr. Bruce McClure, P.E.
Director
Department of Public Works
County of Hawaii
101 Pauahi Street, Suite 7
Hilo, Hawaii 96720-3043

APPROVING AGENCY:

The approving agency is the Department of Public Works Director. The address is:

Department of Public Works
County of Hawaii
101 Pauahi Street, Suite 7
Hilo, Hawaii 96720-3043
Mr. Bruce McClure, P.E.
Director

SECTION 2
CONSULTED PARTIES

Agencies, Organizations and Individuals consulted or contacted.

County: Office of the Mayor
Department of Water Supply
Department of Planning
Department of Research and Development
Civil Defense
Police Department
Fire Department
County Council: Curtis Tyler
County Council: Joe Reynolds

State: Department of Land and Natural Resources (4)
Department of Planning, Economic Development and Tourism
Department of Health (3)
Department of Transportation
Department of Hawaiian Homes Lands
Office Hawaiian Affairs
U.S. Environmental Center
Senator Lorraine Inouye
Senator Paul Whalen
Representative Jim Rath
Representative Mark G. Jernigan
Kona Libraries

Federal:
U.S. Fish and Wildlife Service
U.S. Geological Survey
U.S. National Parks Service
U.S. National Resources Conservation Service
U.S. Army Engineer District, Honolulu

Others:	Kulana Huli Honua	William Halliday
	Audubon Society	Ric Elhard
	Sierra Club	Pat Boyer
	Hawaii Leeward Planning Conference	Plan to Protect Kona
	Kona-Kohala Chamber of Commerce	Pat Leshar
	Hawaiian Civic Club	Frances Schobel
	Komohana Kai Community Organization	Lily Kong
	Kona Palisades Community Organization	Nancy Pisicchio
	Kamehameha Schools	Pocobo, LLC
	Keauhou Beach Hotel	R.M. Towill Corp
	Friends of Kamo Point	Kona Outdoor Circle
	Pulama Ia Kona	Villas at Keauhou
	Joseph N. Castelli	Kahana O Na Kupuna
	Lutheran Church	Kai Opua Canoe Club
	Josephine Keliipio	West Hawaii Today

SECTION 3
SUMMARY DESCRIPTION OF AFFECTED ENVIRONMENT

General Description:

The proposed Lako Street Extension project is located in the North Kona district, Island and County of Hawaii. North Kona is one of the nine districts comprising the County of Hawaii. The County has a land area of 4,028 square miles, and is often referred to as the Big Island, with the North Kona district having 489 square miles. **DRAWING NO. 1** is a LOCATION MAP showing the project site in the North Kona district.

The upland skyline of North Kona is dominated by two mountains - Hualalai (elevation 8,271 feet) and the towering Mauna Loa (13,677 feet). Hualalai lava flows have been recorded in historic times; its last eruption was in 1800-1801. Mauna Loa is considered an active volcano as it erupted last in 1984. Being on an island of volcanic origin, there is the potential threat of new eruptions on the island. When such eruptions will occur, where they will occur and which direction the resulting lava flows will take is a matter of conjecture. This is generally accepted as a way of life on the Big Island, concomitant with living on a volcanic island.

The Komohana Kai subdivision is about 3.2 miles from Kailua Village traveling on Kuakini Highway. The project site is 3.0 miles from Kailua Village as measured along Alii Drive and 2.8 miles from Kamehameha III Road above Keauhou Bay. **DRAWING NO. 2** is a VICINITY MAP of project site.

Immediately below the project area on the oceanside of Alii Drive is a historic site on Kamo Point. It was in 1980, due to mounting public pressure, that this parcel was purchased by the State in order to prevent urban development on this site that possessed archaeological remains of significant cultural value. The Kamo Point site was given the name Keolonahihi State

Historical Park, named after a high Chiefess. Some work has been done to the park, mostly selective clearing. The historical park potential is still to be realized. A Final Environmental Impact Statement, dated October 1995, was prepared by the State Division of State Parks. In 1998, an additional 16 acres in Holualoa 4 were donated to the State by its owner as an addition to the Keolonahihi State Historical Park. This addition includes the *Keakealaniwahine* complex and lies above the Keolonahihi State Historic Park. DRAWING NO. 3 shows the location of this 16 acres, KEAKEALANIWAHINE COMPLEX. This is further described in SECTION 5; ARCHAEOLOGICAL SURVEY AND CULTURAL ASSESSMENT.

The discussion during hearings related to the potential urban development of the Kamo Point parcel resulted in a mass of historical data attesting to the ancient cultural history of this general area. Early legends suggest the use of this site earlier than the 15th century. Another way to view this site in a historical perspective is to understand that this Holualoa area was frequented by the chief who first unified the island of Hawaii, 'Umi a Liloa. About this time, half a world away, in the year 1620, the pilgrims in England prepared to set sail for Massachusetts to establish a colony in North America. Two hundred years later, their descendants would land in Kailua-Kona to carry out their missionary work.

Climate:

The prevailing tradewinds from the northeast occur about 70% of the time over the Hawaiian archipelago. The rest of the wind pattern is estimated to be equally distributed from the northwest, southeast and southwest. However, due to the mountains of Hualalai, Mauna Loa and Mauna Kea this is tempered somewhat and breezes are gentle (light and variable) rather than brisk in the Kona districts. This condition exists off southwest Hawaii for about 40 miles out. Windless days with hot and humid weather is often referred to as Kona weather. During this uncomfortable

period what little breeze there is come from the leeward or "Kona" side for which it is named.

Fauna Survey:

The field survey and past records of bird counts conclude that introduced species are most likely to be found in this area. Birds such the common mynah, sparrows, cardinals, finches, egrets, doves and others may be sighted in this area over a span of time. The *kiawe* trees can be nesting sites for some of these avian species.

Native birds that may occasionally fly over this area include the Hawaiian Hawk (*'Io*), Hawaiian Owl (*Pueo*), Pacific Golden Plover (*Kolea*), and Ruddy Turnstone (*Akeake*).

Ground mammals that may probably be found in this general area are all introduced species. These include the mongoose, rat, house mouse, cat, dog, and pig. Cattle once grazed in this general area. The rare Hawaiian Bat may also fly over this area in its nocturnal search for food.

A complete listing of the fauna that may be found or occasionally sighted in this area can be found in **APPENDIX A: FAUNA SURVEY.**

Botanical Survey:

Surveys were conducted along the 120-foot corridors of the proposed alternate road alignments. Due to extensive use of the land for grazing of cattle, the area is highly disturbed. The dominant species were the *Leucaena glauca* (*Ekoa*) or *koa haole*, as it is commonly known; and the *Paspalum* sp. grass. Both species are forage crops for cattle. The *kiawe* tree, *Prosopis chilensis*; and *ekoa* shrub, *Leucaena glauca*; the ivy gourd vine; and the *Paspalum* grasses are in abundance.

Native species were not found during the survey. This is probably due to the introduction of exotic plants, such as forage crops, which have heavily overgrown the area. The use of the area

for grazing undoubtedly led to further decline of native plants. No endangered or threatened species were found. There were no differences in flora species for Alternates A and C. A listing of the plants to be found in the proposed road corridors is shown in **APPENDIX B: BOTANICAL SURVEY**.

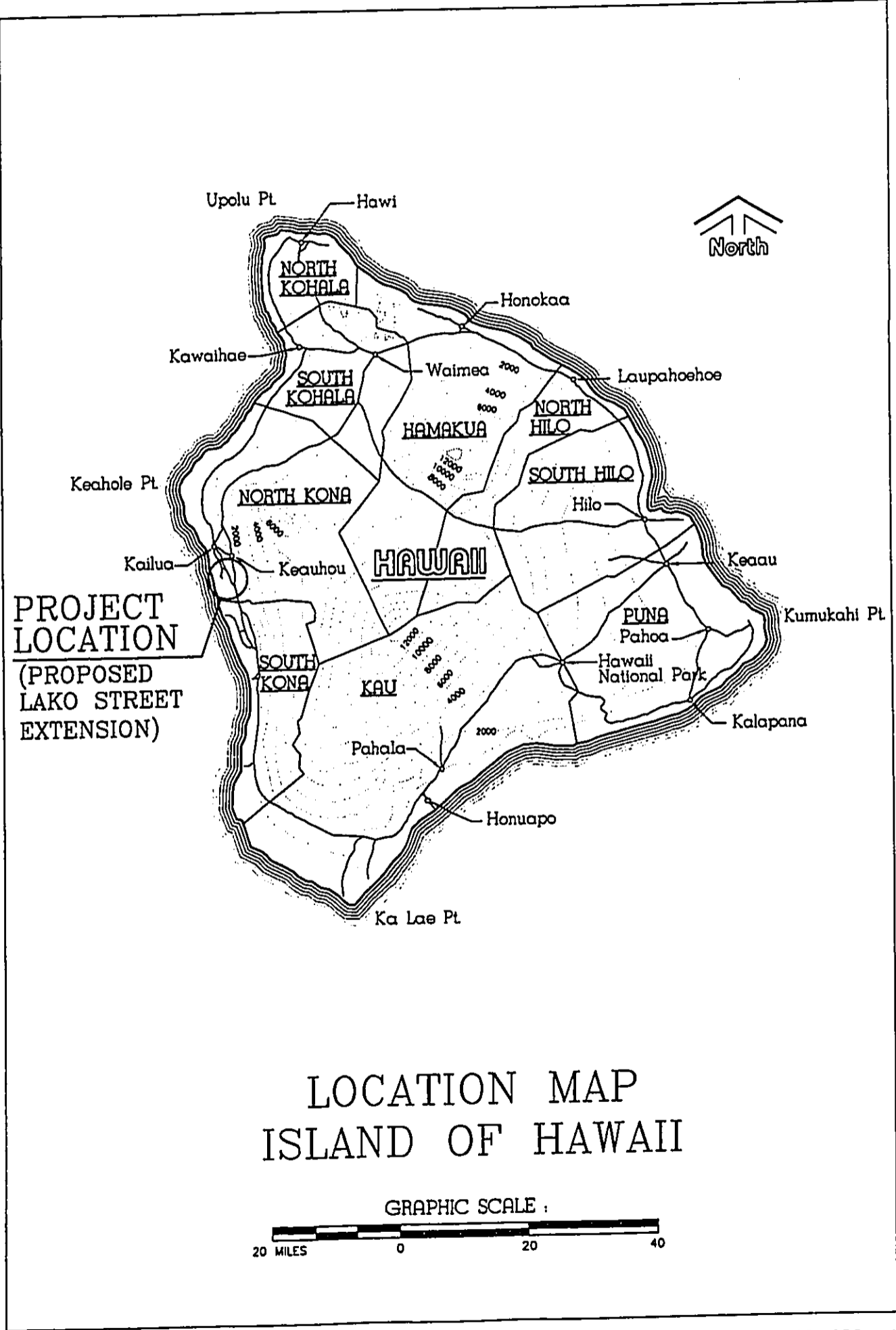
Soils:

The soils of this area are lava lands whose rockiness make them generally untillable. The slopes are generally 6% to 20%; however, the area of the proposed road would have a slope of about 7%. These lands are best suited for grazing. Small areas are used as orchards. Vegetation is heavy in open untended areas. Refer to **APPENDIX B: BOTANICAL SURVEY**. The soils are permeable, runoff is slow and erosion hazard is slight. *Pahoehoe* outcrops can be found in this area as well as loose rocks that were used for constructing the *heiau* platforms, house walls, fences, sealing burial caves and the like. These lands are well below the *mauka* coffee lands that give Kona its reputation for top grade coffee.

Utilities:

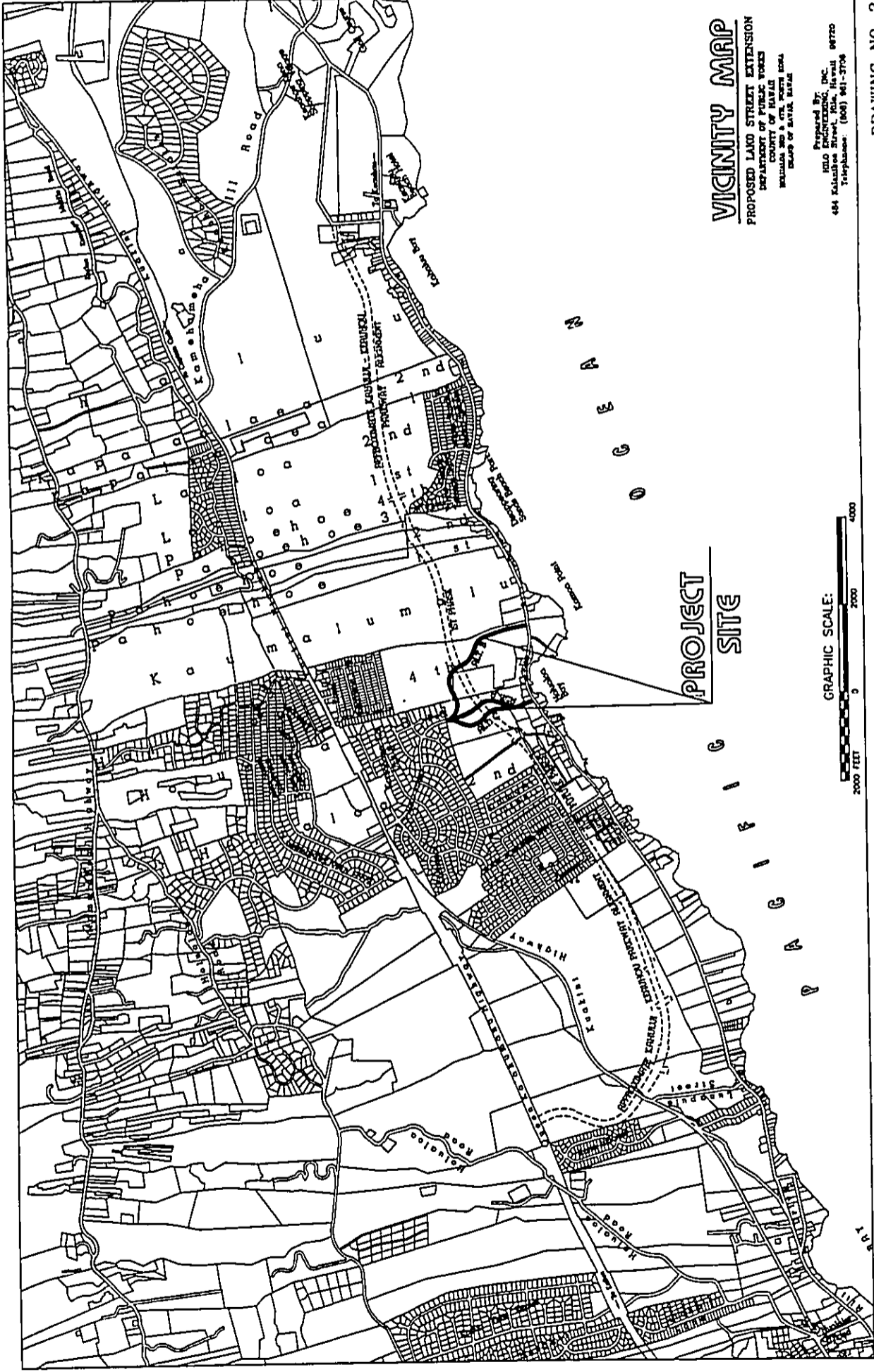
Electric, telephone and water services are available in this urbanized area. There is no sewer service at present within the Komohana Kai Subdivision. The present County wastewater system has sewer treatment plant at Kealakehe. There is a 30-inch sewer main on Alii Drive that can service the proposed Alternates A or C roadways. A 15-inch sewer main fronts the Alternate B proposed roadway. The flow is to the Kealakehe Wastewater Treatment Plant. It should be noted that the project site is located below the Underground Injection Control (UIC) line.

Since this is a public works road project, no utility services are required except for the street lighting system. It is expected that temporary water connections will be made for work-related purposes such as dust suppression.



LOCATION MAP
ISLAND OF HAWAII

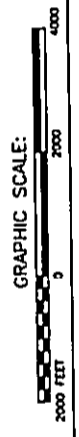




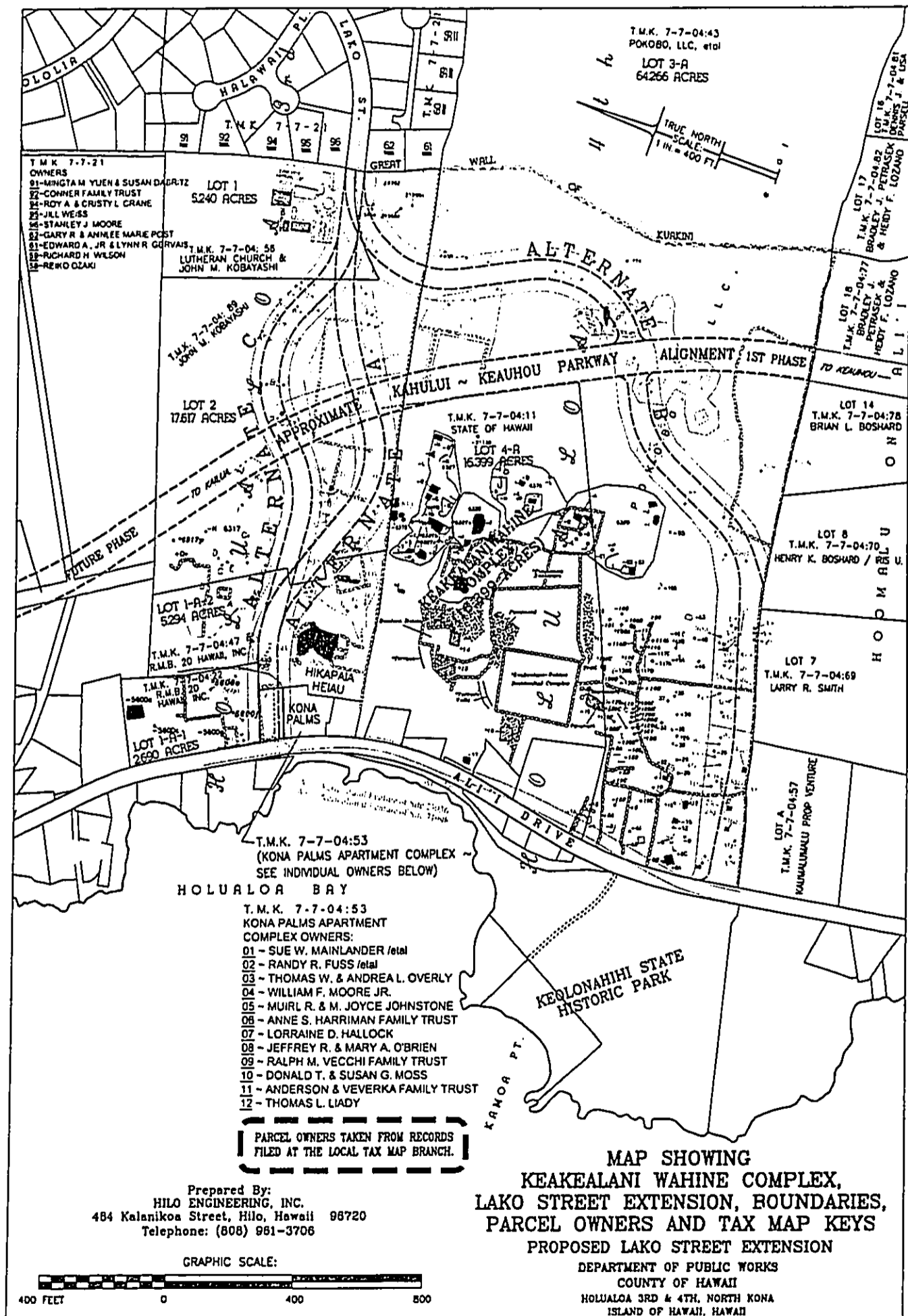
VICINITY MAP
 PROPOSED LAKO STREET EXTENSION
 DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI
 HONOLULU, HAWAII 96804
 DRAWN BY: M. A. BROWN

Prepared by: INC.
 484 Kalaheo Street, Kalaheo, Hawaii 96720
 Telephone: (808) 841-2708

DRAWING NO. 2



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SECTION 4
GENERAL DESCRIPTION

4a: TECHNICAL

The Lako Street road extension is to provide another connection between Alii Drive, Kahului-Keauhou Parkway and Kuakini Highway. This connection is proposed as an extension of Lako Street of the Komohana Kai subdivision. The exact location for the new connecting roadway is not a simple matter as the project area is located above the Kamo Point Keolonahihi Historical Park that is on the National Register of Historical Places. There are archaeological features in the general area of the project site above Alii Drive linking it to the Keolonahihi State Historical Park that is seaward of Alii Drive. These archaeological features make up what has been called the *Keakealaniwahine* complex. **DRAWING NO. 3** is a map of the project area identifying the archaeological features and the property lines. The intent of the road extension will be to minimize intrusion upon the *Keakealaniwahine* complex of historical sites. Among several schemes, three alternate routes for the Lako Street Extension project were surveyed. **DRAWING NO. 3** identifies the locations of the three possible routes studied, Alternates: A, B and C, for a route that provide the least disturbance or impact upon the historical/archaeological features in the project area based on sound engineering practice.

The first phase of the Kahului-Keauhou Parkway is slated to begin construction in December 2004. This first phase will begin from the Keauhou end and terminate at the Lako Street Extension project. The intersection of the Lako Street Extension with the Parkway will be by a "roundabout" in lieu of traffic lights. This first phase of the Parkway, being a major construction project, will require considerable time to complete. It is likely that the Lako Street Extension project may be ready for the Parkway to tie into.

The Lako Street Extension Project is immediately below the

Komohana Kai Subdivision and above Alii Drive. The proposed road extension will be from the existing Lako Street and run in a makai direction to Alii Drive as indicated on DRAWING NO. 2. The Komohana Kai Subdivision, which opened in the 1980's, is near full development with homes on spacious lots of 15,000 square feet.

The project site is classified Urban by the State Land Use Commission (LUC). A map showing the LUC boundaries of this area is DRAWING NO. 4. The County General Plan designation of this area is Agriculture for the most part. The lots bordering Alii Drive have a higher density urban zoning. The County zoning of the project site and vicinity is also shown on DRAWING NO. 4. The project site, for the most part, is on land designated as A-5: Agriculture - 5 acres minimum. A portion along Alii Drive where Alternate A or C meet Alii Drive lies within an RM 1.5 district: - Multiple-Family Residential. This requires 1,500 square feet for each dwelling unit or each separable rental unit and 7,500 square feet minimum building site.

In addition, the project site is located in the Special Management Area (SMA). The SMA boundaries include all those lands below Kuakini Highway that is the mauka boundary; and down to the shoreline below Alii Drive that is the makai boundary. The Keolonahihi State Historical Park, which lies opposite the project site, is zoned Resort by the County. Recommendations to change the zoning to adequately depict the historical nature of the area are still pending.

The North Kona district, more particularly the Keahole Airport - Kailua Village - Keauhou sector has seen a remarkable growth in population. The concentration of population in this sector has led to increased traffic on the roads. The primary roads in this sector are the Queen Kaahumanu Highway that links to Kuakini Highway above Kailua Village. Queen Kaahumanu Highway, which opened to traffic in the 1970's, is 36 miles long and stretches from Kawaihae to a point above Kailua Village. Kuakini Highway, opened to traffic in 1950's, is the main corridor for

under the State as noted on **DRAWING 7**. A portion of Kuakini Highway is under County jurisdiction. The urban area between Kailua Village and Keauhou contains many subdivisions. The subdivision roads either link to the Alii Drive beach road or the Kuakini Highway.

Kuakini Highway is considered to be a middle road joining the *makai* (lower) area to the *mauka* (upper) area. There are insufficient connecting roads between the Alii Drive beach road to Kuakini Highway in relation to the distance between Kailua Village and Keauhou Bay considering the volume of traffic. There are no *makai-mauka* connecting road between Royal Poinciana Drive (in the Alii Kai Subdivision) and Kamehameha III Road, a distance of approximately 3.2 miles. In fact, Royal Poinciana Drive is the only *makai-mauka* road from Lunapule in Kahului to Keauhou, a distance of nearly 4.5 miles. This is shown on **DRAWING NO. 2, VICINITY MAP**.

This lack of interconnection is a cause of traffic slow-up and inconvenience not only the local residents in this sector but those traveling on Kuakini Highway to other destinations. At present, Royal Poinciana Drive handles the *makai-mauka* traffic in this sector; this places a burden for those living in the Alii Kai Subdivision, especially, with increased traffic predicted in the future.

A long range traffic circulation plan was included in a submittal to the State Land Use Commission entitled: **PLANNING AND ENVIRONMENTAL REPORT - KAU TO KEAUHOU** dated August 1994, by the County Planning Department. The study area took in Kau, an *ahupua'a* at Keahole Airport, to Keauhou, a resort area. Traffic concerns were addressed based on the future growth of the region. **DRAWING NO. 5: TRAFFIC CIRCULATION PLAN** is based on a reproduction of a plan from the County Planning Department report. Three *makai-mauka* roads were projected for the future between Kahului and Keauhou; Lako Street extension is the northern most of these three.

Another compelling reason supporting the Lako Street extension is the vulnerability of the low areas along the Alii Drive beach road to high waves and tsunami. The Lako Street extension would provide another escape route from the shoreline areas to safety in the upper sectors.

The significance of the historic/archaeological features found within the proximity of the proposed road extension is discussed in SECTION 5: ARCHAEOLOGICAL SURVEY AND CULTURAL ASSESSMENT.

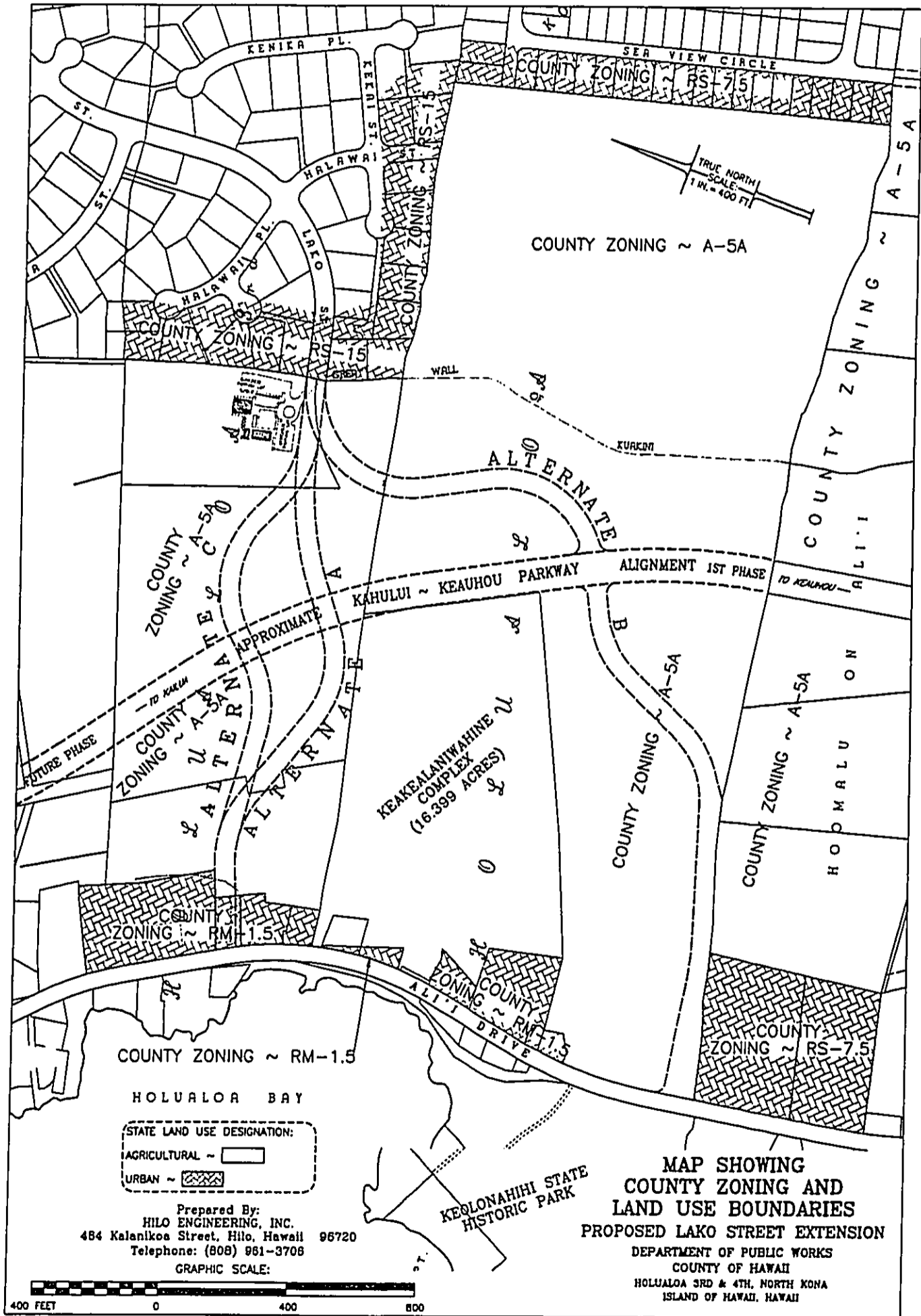
The recommended route is Alternate C which traverses Holualoa 3, as shown on DRAWING NO. 3. The project, based on Alternate C is estimated to cost \$1,900,000. Land acquisition is estimated at \$155,000. Alternate B, which lies in Holualoa 4th, is a longer route, 2,980 lineal feet; it was first thought to have less impact on the archaeological features. However, the archaeological field survey disclosed that it will affect more archaeological sites than Alternate C. The estimated construction cost of Alternate B is \$3,100,000 plus land acquisition cost of \$53,000. The land costs for the shorter Alternate C route is higher due to the Residential Multi-Family zoning of the lower section of the proposed roadway. Construction time is estimated to be less than 12 months. Originally, Alternate A was the recommended route. However, due to its proximity in part to the Keakealaniwahine Complex, Alternate C was developed and became the route selected. Since Alternate A and Alternate C are similar in location and length, construction costs are equal. Less historical features to be affected by Alternate C and additional buffer to the Keakealaniwahine Complex were the deciding reasons for its choice.

The Lako Street road extension, Alternate C will be approximately 1,855 lineal feet in length. The roadway will be a standard 60-foot wide secondary street as specified in the "Hawaii State-wide Uniform Design Manual for Streets and Highways." It will be a sign shared roadway that is wide enough to accommodate bicyclist, if necessary. It will have a 46-foot wide road curb-to-

curb pavement; 7-foot wide concrete sidewalks on each side with curbs and gutters; and street lights with underground wiring. This will be similar to the standards of the existing Lako Street. The road grade will average about 7%. Further, sewer and water mains may be installed concurrently with the road construction. The sewer main will be part of the Division of Wastewater plan for the Kailua-Keauhou sector. The water main will become part of the Water Department grid system.

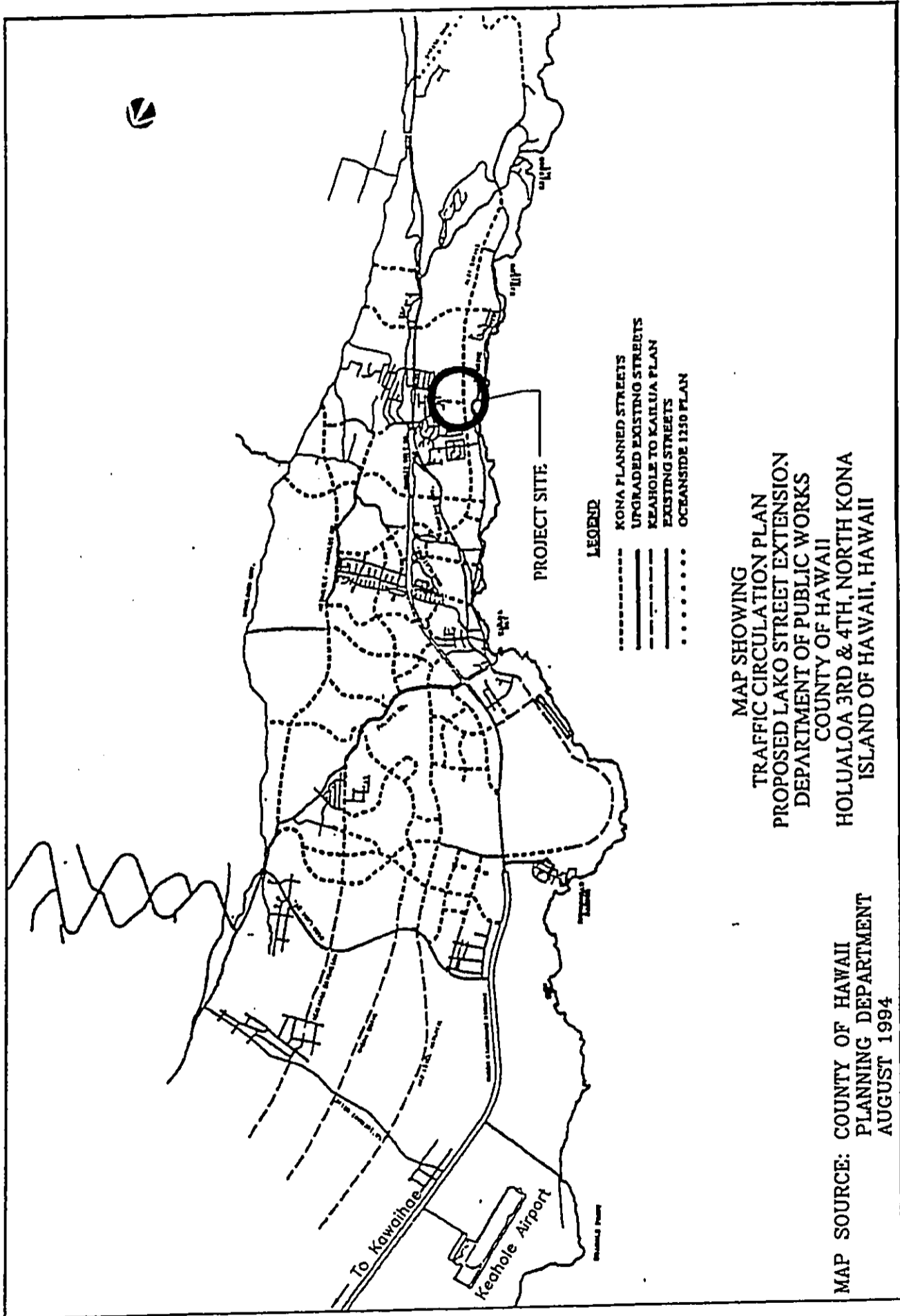
DRAWING NO. 6: TYPICAL 60' RIGHT-OF-WAY SECTION shows the cross-section of the proposed road.

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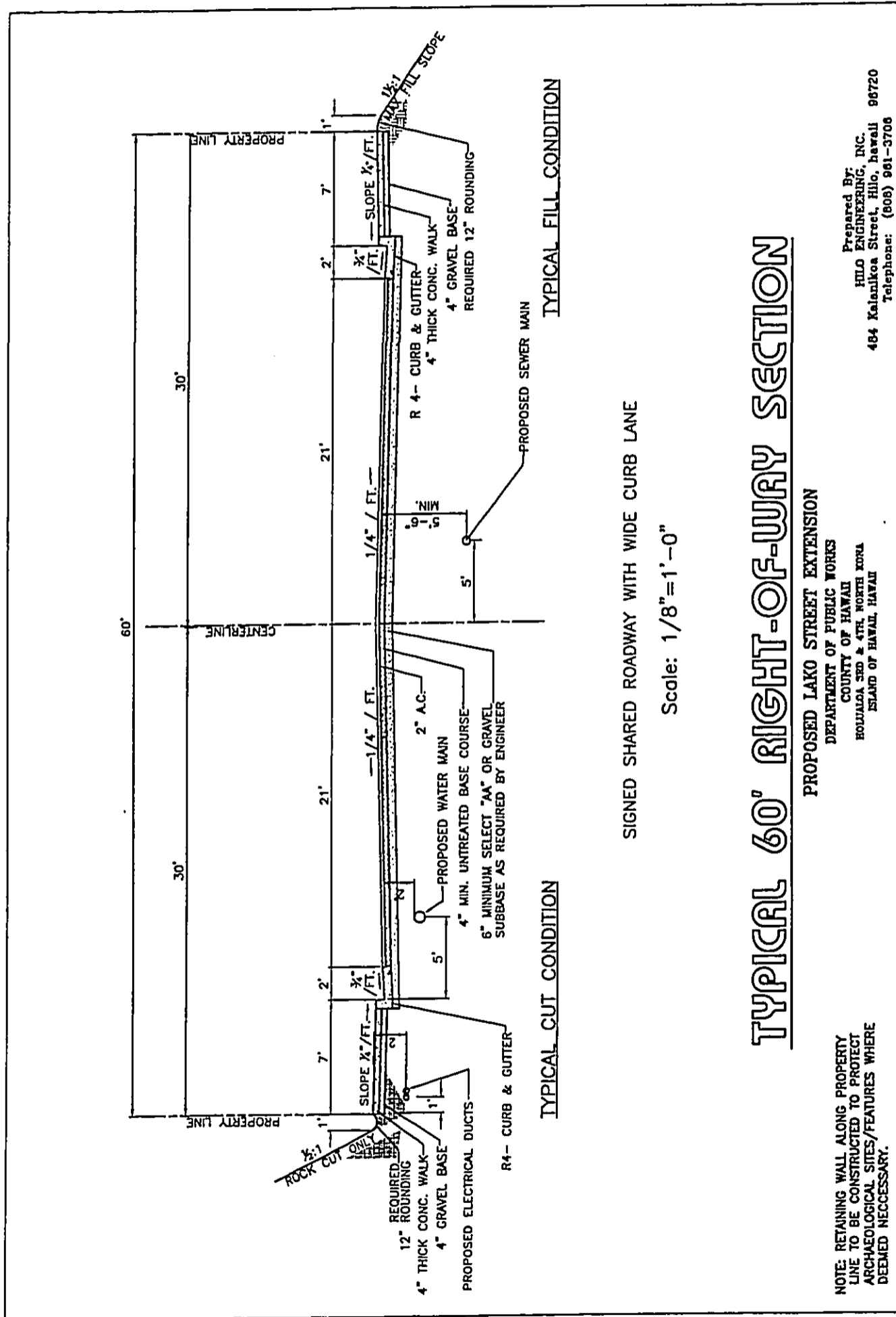


DRAWING NO. 4

RECEIVED AS FOLLOWS



DRAWING NO. 5



SIGNED SHARED ROADWAY WITH WIDE CURB LANE

Scale: 1/8" = 1'-0"

TYPICAL 60' RIGHT-OF-WAY SECTION

PROPOSED LAKO STREET EXTENSION
 DEPARTMENT OF PUBLIC WORKS
 COUNTY OF HAWAII
 HOLEIUALEA RD. & 4TH NORTH KONA
 ISLAND OF HAWAII, HAWAII

NOTE: RETAINING WALL ALONG PROPERTY LINE TO BE CONSTRUCTED TO PROTECT ARCHAEOLOGICAL SITES/FEATURES WHERE DEEMED NECESSARY.

Prepared By:
 HILO ENGINEERING, INC.
 484 Kalaheiko Street, Hilo, Hawaii 98720
 Telephone: (808) 961-3706

SECTION 4
GENERAL DESCRIPTION

4b: SOCIO-ECONOMIC

The North Kona district has experienced continued growth since the advent of water development. It was only in the early '50s that water development through State grants-in-aid opened the potential for the visitor industry forecasted by planners. The water development not only served the residents of Kona who previously depended on roof catchment and redwood storage tanks, but laid the groundwork for hotel construction to accommodate the potential of the visitor industry.

The following tables on the next pages vividly exhibit the increase in population for North Kona. Population statistics for North and South Kona are shown in **TABLE 1: POPULATION**. The ethnicity of the North Kona population is reflected in **TABLE 2: ETHNIC GROUPS**. The job characteristics for North Kona are listed in **TABLE 3: JOB CHARACTERISTICS**. The recent census figures, year 2000, are not presently available for **TABLE NO. 2** and **TABLE 3** at this time; however, the trend of the two previous decades shown is expected to continue.

These tables trace the growth of North Kona from a sparsely settled area into an urban-suburban type character. This transition has brought about important changes to the social fabric of this once remote rural community. Expanded hospital services, new elementary and high schools and a community college have appeared in recent years. This followed the construction of the new Keahole International Airport and the Queen Kaahumanu Highway linking the resorts of South Kohala to Kona. Branch offices of the County government situated in Hilo have sprung up in Kona to serve the West Hawaii residents. As these modern day amenities have taken place at a gradual pace, it has brought subtle changes to the old "Kona way of life" which used to identify Kona.

What is apparent is that new residents making their homes in

Kona have added substantially to the population. What is also clear is that the locals are leaving Kona. Many of the young folks who go on to higher education find jobs elsewhere commensurate with their newly learned skills.

The growing economy of Kona has resulted in construction of new homes and the development of new industrial subdivisions, especially in the area between the airport and Kailua Village. Major discount houses have entered the West Hawaii market as evidenced by the Wal-Mart, K-Mart and Costco developments. The expanding business enterprises and home building boom has created a sizeable construction industry. In **TABLE 4: BUILDING PERMITS**, can be found the number of construction permits issued by the Building Division of the County Department of Public Works during the past eight years for the North and South Kona districts.

The visitor industry expansion began in earnest after the development of the Keahole International Airport. Direct flights from the mainland and Japan are now possible. The **TABLE 5: PASSENGERS: OVERSEAS AND INTRA-STATE** shows number of passenger arrivals/departures at the Kona International Airport at Keahole for the past eleven years.

Recent economic reports paint a rosy picture for the shipping industry. Cruise ships stops at island ports, including the Kailua-Kona Wharf, are projected to increase substantially. It has been estimated that for the Big Island, the total economic impact from maritime activities in 1999 was \$26.1 million. Much of this can be attributed to the Kona area with its large fleet of charter fishing and shoreline cruise ships. There are 235 to 237 ships berthed at Honokohau Small Boat Harbor attesting to the ocean-related activity for which Kona is noted. The fishing industry catch for the Kona and Honokohau landing ports are shown below:

<u>Year</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002*</u>
Pounds caught:	1,599,646	1,119,898	1,174,153	1,242,402
Ex-vessel value:	\$2,105,751	\$1,871,086	\$1,516,816	\$1,810,419

* Preliminary estimates.

TABLE 1. POPULATION
NORTH and SOUTH KONA: 1960 TO 2000

<u>YEAR</u>	<u>N. KONA NO. OF RESIDENTS</u>	<u>S. KONA NO. OF RESIDENTS</u>
1960	4,451	4,292
1970	4,832	4,004
1980	13,748	5,914
1990	22,284	7,658
2000	28,543	8,589

TABLE 2. POPULATION - ETHNIC GROUPS
NORTH KONA - 1980 and 1990

<u>RACE</u>	<u>NUMBER OF PERSONS</u>	
	<u>1980</u>	<u>1990</u>
White	7,202	13,124
Black	48	92
American Indian	69	140
Eskimo	-	7
Aleut	2	7
Chinese	210	409
Filipino	1,031	1,686
Japanese	1,698	2,328
Asian Indian	5	10
Korean	78	135
Vietnamese	6	14
Thai	-	30
Other Asian	-	49
Hawaiian	2,991	3,655
Samoan	36	111
Tongan	-	37
Other Polynesian	-	19
Guamanian	8	14
Other Micronesian	-	14
Melanesian	-	2
Pacific Islander (unspecified)	-	8
Other race	364	393
TOTAL:	<u>13,748</u>	<u>22,284</u>

Note: Year 2000 figures not available at this time.

TABLE 3: JOB CHARACTERISTICS
NORTH KONA- 1980 and 1990

<u>OCCUPATION</u> (Persons over 16 years of age)	<u>NUMBER OF PERSONS</u>	
	<u>1980</u>	<u>1990</u>
<u>TYPE OF JOB</u>		
Executive, etc.	818	1,569
Professional specialty	647	1,368
Technicians, etc.	73	191
Sales occupations	1,069	1,801
Adminis. support, clerical	806	1,236
Private household jobs	47	44
Protective services	130	195
Service - except household and protective	1,309	1,898
Farming, forestry, fishing	491	664
Precision prod., craft and repair	839	1,512
Machine operators, etc.	108	194
Transportation and material moving	264	506
Handlers, equip. cleaners helpers, laborers	<u>315</u>	<u>374</u>
TOTAL:	6,913	11,552

<u>INDUSTRY</u> (Persons over 16 years of age)	<u>NUMBER OF PERSONS</u>	
	<u>1980</u>	<u>1990</u>
<u>BRANCH OR BUSINESS</u>		
Agriculture, forestry, fisheries & mining	430	640
Construction	777	1,485
Manufact'g, nondurable goods	34	137
Manufact'g, durable goods	69	196
Transportation	415	630
Communications & other public utilities	89	216
Wholesale trade	130	301
Retail trade	1,628	2,366
Finance, ins. & real estate	597	857
Business and repair services	331	748
Personal services, entertainment & recreation services	1,433	1,931
Health service	148	527
Educational services	331	462
Other professional & related services	312	659
Public Administration	<u>189</u>	<u>397</u>
TOTAL :	6,913	11,552

Note: Year 2000 figures not available at this time.

**TABLE 4
BUILDING PERMITS: 1995-2000**

<u>YEAR</u>	<u>NUMBER OF PERMITS ISLAND-WIDE</u>	<u>NUMBER OF PERMITS N/S KONA DISTRICTS</u>
1995	3,046	917
1996	2,892	848
1997	2,724	805
1998	3,153	1,206
1999	3,121	1,089
2000	3,461	1,283
2001	8,996	4,432
2002	9,602	4,907

**TABLE 5
PASSENGERS: OVERSEAS AND INTRA-STATE * 1990-2000
Kona International Airport at Keahole**

<u>YEAR</u>	<u>OVERSEAS PASSENGERS</u>		<u>INTRA-STATE</u>	
	<u>ENPLANED</u>	<u>DEPLANED</u>	<u>ENPLANED</u>	<u>DEPLANED</u>
1991	128,630	134,006	941,346	914,795
1992	137,803	141,192	957,567	925,374
1993	145,980	150,796	952,901	929,385
1994	146,820	150,660	981,913	959,190
1995	113,115	108,972	1,051,409	1,029,959
1996	121,704	154,187	1,154,761	1,093,750
1997	157,671	213,268	1,175,607	1,081,611
1998	159,291	251,899	1,184,128	1,057,637
1999	198,599	253,630	1,166,265	1,049,688
2000	254,670	316,211	1,194,754	1,076,462
2001	275,062	356,118	1,054,349	954,789

SECTION 4
GENERAL DESCRIPTION

4c: ENVIRONMENTAL CHARACTERISTICS

The Lako Street Extension is a public works project that is part of a plan to develop a transportation network within the urban area of North Kona between Keahole Airport south to Kailua Village and to Keauhou. The untended project area is mainly overgrown with shrubs and grasses. The *haole koa* shrubs, *kiawe* trees and range grass are predominant in this area. This is expected considering the modern history of the area that tells of cattle grazing. This supports the oft quoted statement that the famed Great Wall of Kuakini (located above the project area) was purported to have been built to keep cattle away from the homes near the coast.

The existing noise levels are typical of a residential zone with traffic movement in the immediate area being the major source. Since the Komohana Kai subdivision does not have a drive-through subdivision road, traffic is mostly local. The project area is heavily overgrown with shrubs and trees that provide a sort of screen or buffer between the upper inhabited areas from the beach road.

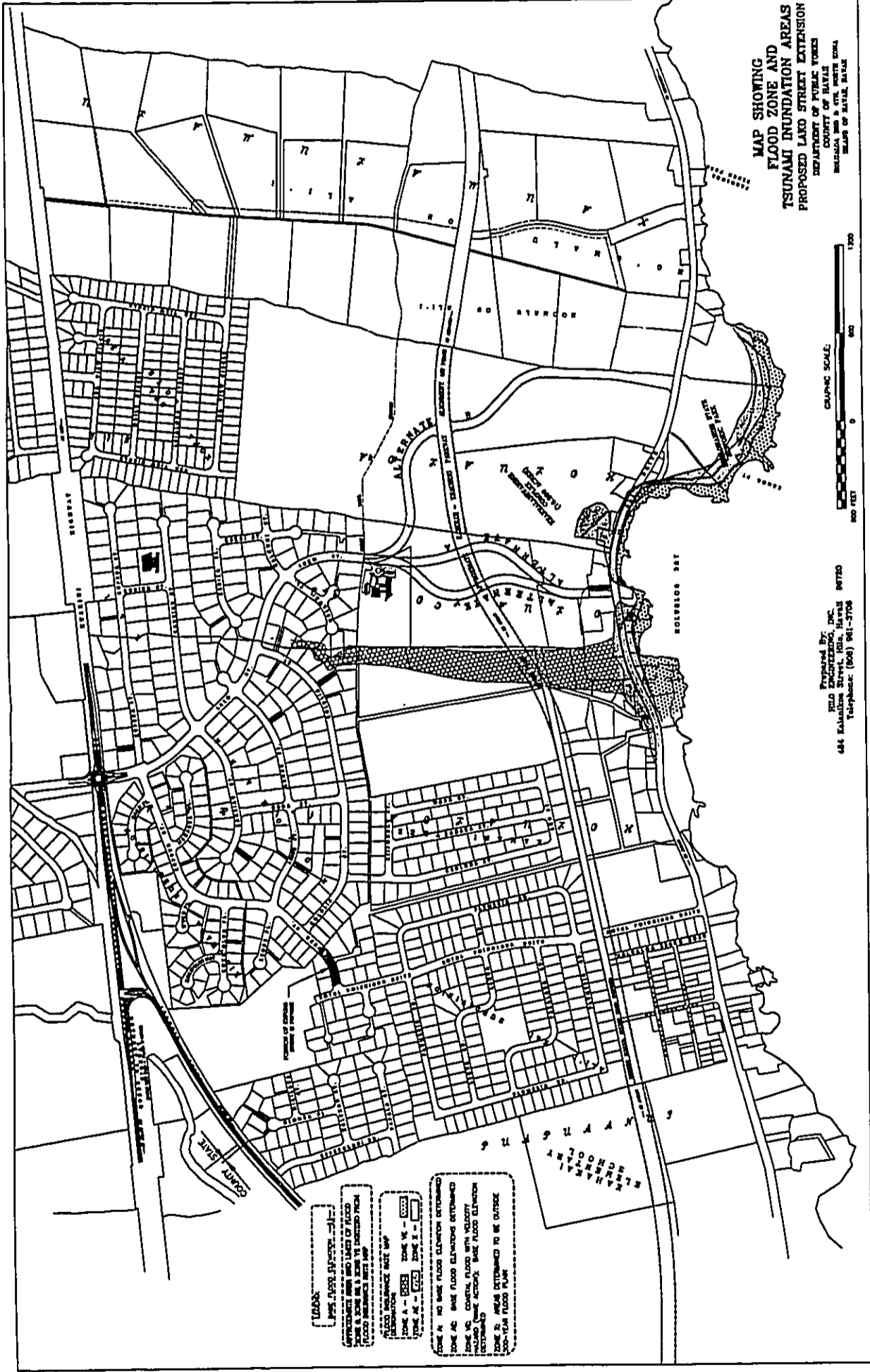
The existing air quality meets ambient quality standards. However, there are times when the volcanic haze (called VOG by locals) will be such as to cause some irritation. As described in an early section on climate, days are warm with cooling ocean breezes at night. Measures to minimize degradation of air quality during construction will be included in the project construction specifications. The clearing of the existing unwanted growth which could emit pollen and spores will improve air quality to some degree.

There will be no adverse effect on the water quality of the municipal water supply in this area due to this construction project. The Department of Water Supply underground water resources are at a distance and located above the elevation of

this project as noted on DRAWING NO 2.

Within the general area are many archaeological sites; however, a few have been identified in APPENDIX F: ARCHAEOLOGICAL ASSESSMENT AND INVENTORY SURVEY within the proposed Alternate A corridor. A discussion of these sites is covered in SECTION 5: ARCHAEOLOGICAL SURVEY AND CULTURAL ASSESSMENT. Below the project site on the seaward side of Alii Drive is the Keolonahihi State Historical Park at Kamo Point. There is little doubt that some of the features in the general area are related to or are extensions of the Keolonahihi Historical Park.

The project area is near but not within a flood plain for runoff from the upper slopes. This is shown on DRAWING NO. 7: FLOOD ZONE AND TSUNAMI INUNDATION AREAS. The land bordering Alii Drive is subject to high waves and tsunami action. The devastating tsunami of 1946 resulted in waves of 8 feet high at nearby Kahuluu Bay. The Lako Street connection to Alii Drive is outside of the designated flood plain zone and tsunami inundation area.



DRAWING NO. 7

SECTION 5
ARCHAEOLOGICAL SURVEY AND CULTURAL ASSESSMENT

Archaeological Survey:

Several designs for the Lako Street Extension project were considered. The goal was to avoid or minimize intrusion upon the archaeological features to be found above Alii Drive in Holualoa 4. These features have been called the *Keakealaniwahine* complex and are within a 16-acre parcel. The site was donated to the State in 1998 as an addition to the Keolonahihi State Historical Park. Three road layouts or alternates were finally decided upon and, subsequently, field surveys were conducted along a 120-foot wide corridor for each alternate road location for the final roadway which will have a 60-foot width. See **DRAWING 8: ROAD EXTENSION ALTERNATES.**

Two of the road alternates surveyed were entirely in Holualoa 3. The other road alternate was mostly in Holualoa 4, starting in Holualoa 3 for a short distance then continuing through Holualoa 4 to Alii Drive. In both instances, the objective was to avoid the *Keakealaniwahine* complex that lies within Holualoa 4.

The results of the inventory survey are detailed in the attached **APPENDIX D: ARCHAEOLOGICAL ASSESSMENT AND INVENTORY SURVEY.** A summary listing of the archaeological sites, prehistoric and historic, documented during the survey are detailed in **Table 6. Site Significance and Recommended Treatment of APPENDIX D.** The findings relating to the archaeological features of the three (3) alternate routes are summarized in the tables on the next pages.

ARCHAEOLOGICAL FEATURES WITHIN CORRIDOR A

SITE NO.	DESCRIPTION/FUNCTION	CRITERIA/TREATMENT
5600-J	Enclosure/Livestock Control	d - No Further Work
6302	Wall/Livestock Control	a,b,c,d,e - Preservation*
6340	Wall/Livestock Control	d - No Further Work
6374	Complex/Perm. Habitation - Agriculture	d - Data Recovery
6375	Platform/Permanent Habitation	d - Data Recovery
9840	Complex/Agriculture	d - Data Recovery
21371	Enclosure/Agriculture	d - Data Recovery
21376	Modified Outcrop/Agriculture	d - No Further Work
21391	Wall/Livestock Control	D - No Further Work
21998	Complex/Agriculture	D - Data Recovery
23048	Enclosure/Temporary Habitation	d - Data Recovery

(* See Note on "Preservation" - Page 23)

ARCHAEOLOGICAL FEATURES WITHIN CORRIDOR B

SITE NO.	DESCRIPTION/FUNCTION	CRITERIA/TREATMENT
6302	Wall/Livestock Control	a,b,c,d,e - Preservation*
6329	Wall/Livestock Control	d - No Further Work
6340	Wall/Livestock Control	d - No Further Work
6377	Complex/Temporary Habitation Agriculture-Livestock Control	d - Data Recovery
9844-E	Enclosure/Permanent Habitation	d - Data Recovery
21372	Complex/Permanent Habitation-Agri.	d - Data Recovery
21374-D	Modified outcrop/Agriculture	d - No Further Work
23036	Complex/Agriculture	d - Data Recovery
23037	Platform/Permanent Habitation	d - Data Recovery
23038	Ahu/Marker	d - No Further Work
23039	Enclosure/Permanent Habitation	d - Data Recovery
23040	Modified Knoll/Temporary Habitation	d - Data Recovery
23041	Enclosure/Permanent Habitation	d - Data Recovery
23042	Wall/Livestock Control	d - No Further Work
23043	Wall/Livestock Control	d - No Further Work
23044	Wall/Livestock Control	d - No Further Work
23045	Wall/Livestock Control	d - No Further Work
23046	Pavement/Burial	d,e - Preservation*
23047	Platform/Permanent Habitation	d - Data Recovery

(* See Note on "Preservation" - Page 23)

ARCHAEOLOGICAL FEATURES WITHIN CORRIDOR C

SITE NO.	DESCRIPTION/FUNCTION	CRITERIA/TREATMENT
6302	Wall/Livestock Control	a,b,c,d,e - Preservation*
6317	Complex/Perm. Habitation	d - Data Recovery
21373	Terrace/Agriculture	d - No Further Work
21998	Complex/Agriculture	d - Data Recovery
23048	Complex/Temp. Habitation	d - Data Recovery

(* See Note on "Preservation" - Page 23)

The significance of the archaeological features were assessed under the criteria outlined in the Rules Governing Procedures for Historic Preservation Review. These rules state that a site must possess integrity of location, design, setting, materials, workmanship, feeling and association and shall meet one or more of the following criteria:

- a- Association with events that have made a significant contribution to the broad patterns of our history; or
- b- Association with the lives of persons significant in our past; or
- c- Embodiment of distinctive characteristics of a type, period or method of construction, or representation of the work of a master, or possession of high artistic values, or representation of a significant and distinguishable entity whose components may lack individual distinction; or
- d- Has yielded or has the potential to yield information important in prehistory or history; or
- e- Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts-- these associations being important to the group's history and cultural identity.

Based on the field survey, the twenty-eight (28) archaeological sites or features located within the roadway corridors were assessed as being significant under Criterion "d" listed above and contained in Table 6 in APPENDIX D. Two of the sites were further assessed as significant under Criterion "e"- Preservation.

(Note: Treatment of the two sites- 6302 and 23046- are listed as Preservation in the preceding tables. Site 6302 is the

Kuakini Wall that had been breached previously. The break may have to be slightly enlarged to accommodate the proposed street extension. A specific mitigation plan will be developed, after the construction drawings have been prepared, for consideration by the SHPO. Site 23046 of Alternate B is a Hawaiian burial site and recommended for preservation as it is not within the selected route and further assessment is not required.)

Based on the findings shown in the preceding tables, it is recommended that the proposed Lako Street Extension be located in Alternate C as it would affect the least number of sites. There will be five (5) sites affected by Alternate C; while eleven (11) sites will be affected by Alternate A and nineteen (19) sites by Alternate B and includes those requiring NFW (No Further Work). A mitigation plan for archaeological sites within Alternate C, will be prepared for review and approval by the State Historic Preservation Officer before a data recovery process is initiated.

Of note are the livestock control features in the project area. These are mainly walls built in historic times following the introduction of cattle. Some of the stone walls used to control cattle may have incorporated some rocks from adjacent prehistoric structures due to its ease of availability. The Great Wall of Kuakini was constructed to keep livestock away from the coastal areas. There were some gated openings. In later times, some of those gaining ownership of the separate parcels of Holualoa allowed cattle grazing on the lands below the Great Wall.

Cultural Assessment:

Alternate C, in Holualoa 3, is the choice for the Lako Street Extension. This selection averts encroachment into the lands of Holualoa 4, thereby, avoiding any direct disturbance on the Keakealaniwahine Complex with its many significant features. The cultural importance of this section of North Kona is due to its

association with chiefs and chiefesses, including 'Umi a Liloa and his descendants. The Keakealaniwahine complex and the Keolonahihi State Historical Park provide a vital link to the past.

The lands of Holualoa 4, still holds evidence of where Keakamahana, a descendant of Liloa, lived. She was five generations after Liloa and five generations before Kamehameha I. She was followed by her daughter, chiefess Keakealaniwahine, who held ceremonies relating to the ali'i or royal dynasty. Ritual on cutting of the navel (*oki piko*) of a high ranking male child; bestowing high honors (*kapu wohi*); conferring a new name; and other ceremonial rites were conducted here. It has also been purported that preserving the bloodline of the ruling dynasty, *ho'omau keiki*, may also have been held within this complex.

The West Hawaii Regional Plan, dated 1989, addresses the need to preserve cultural heritage areas by stating: "It is the practice of government agencies to require inventories of historic sites on properties proposed for development. Some historic sites have been preserved within developed projects, as discussed earlier; other sites undergo archaeological data recovery before the site is lost. Through the historic preservation review process and coordination with developers, significant historic sites will continue to be inventoried and set aside for preservation." The plan further calls for action in expanding Keolonahihi State Historical Park to include Hualani Heiau (also known as Pahika) and Keakealaniwahine's residence.

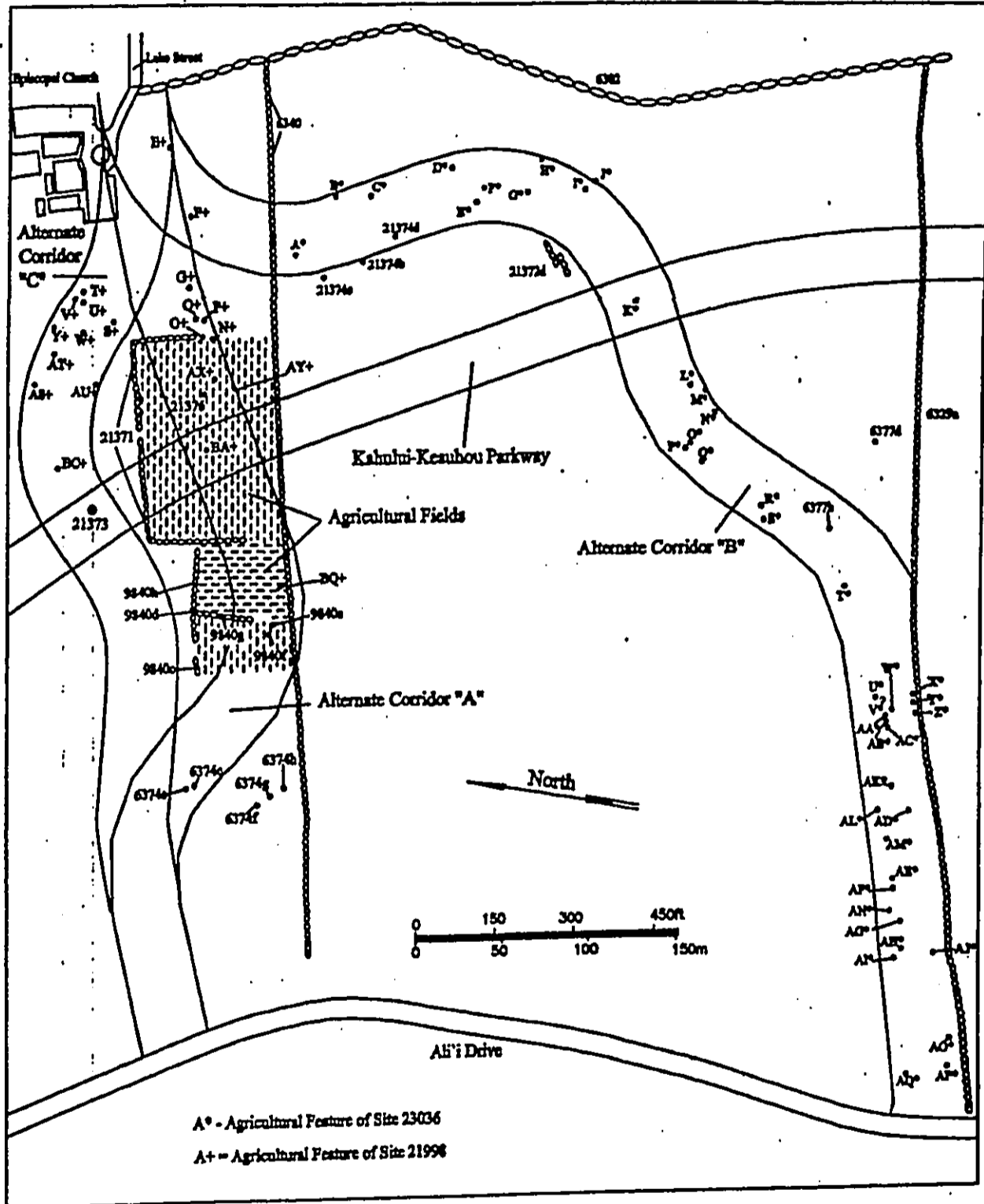
On September 11, 2003, Governor Lingle signed Executive Order No. 4005 transferring jurisdiction of Keakealaniwahine to the Division of State Parks for inclusion in Keolonahihi State Historical Park. Also, the Holualoa 4 Archaeological District, including both the Keakealaniwahine Complex, and the Keolonahihi Complex was listed on the Hawai'i Register of Historic Places on August 2, 2003 and recommended for nomination to the National Register of Historic Places.

Interviews with Kona residents who holds deep concerns

regarding cultural sites and practices, are detailed in APPENDIX F. Those interviewed were for the preservation the Keakealaniwahine complex and that the proposed Lako Street Extension remain a substantial distance from the Complex. They, also, realized that the Lako Street Extension is a community priority item and in this respect, they felt Alternate C would be the preferable choice.

In conclusion, the effect upon cultural practices will not be significantly impacted. The roadway project has taken measures to avoid impacting the nearby historic archaeological and culturally significant Keakealaniwahine Complex. There will be a 200-foot buffer zone between the proposed road extension and the Keakealaniwahine Complex. Unlike the Kahului-Keauhou Parkway right-of-way, which abuts Keakealaniwahine Complex, the goal has been to remain a substantial distance (200-foot) from the Complex boundaries. Those few archaeological sites affected, relating to habitation and agriculture, are outside of the Complex boundaries. The future development of the Keakealaniwahine Complex and its cultural practices will not be significantly impacted by the road extension project.

RECEIVED AS FOLLOWS



MAP SHOWING
ROAD EXTENSION ALTERNATES
PROPOSED LAKO STREET EXTENSION
DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII
HOLIUALOA 3RD & 4TH, NORTH KONA
ISLAND OF HAWAII, HAWAII

FROM: Haun & Associates

DRAWING NO. 8

SECTION 6
MAJOR IMPACTS AND ALTERNATIVES

A. Traffic Impacts and Alternatives:

The Lako Street Extension is primarily to provide another link to the roadway grid system between Alii Drive and Kuakini Highway. When this project was first proposed, it was to have been planned and advertised by the end of year 2002 and completed by the end of year 2003. However, design delays moved the project timetable back and early 2005 may be a reasonable date for completion of the project. In the meantime, the long awaited Kahului-Keauhou Parkway is now designed to be constructed in two segments with the first section being the Kamehameha III Road to the proposed Lako Street Extension. Work is expected to start around September 2003. This has necessitated a complete review of the traffic analysis done in September 2001. Based on this new study, **APPENDIX C: TRAFFIC STUDY**, the earlier results have been revised.

Existing Traffic Conditions:

The existing peak hour traffic were found to be 7:15 AM and 8:15 AM in the morning; and 4:00 PM and 5:PM in the afternoon. The peak morning traffic on Lako Street and Royal Poinciana Drive were: 1) Lako Street below Kuakini Highway carried over 600 vph (vehicles per hour) both ways; and 2) Royal Poinciana Drive also carried over 600 vph both ways. Lako Street above Kuakini Highway carried over 400 vph both ways. For the main roads in the area: 1) Alii Drive carried about 700 vph both directions; 2) Kuakini Highway carried over 1,800 vph; and 3) Queen Kaahumanu Highway carried 1,800 vph both directions. The intersections operated satisfactorily based on Levels of Service (LOS), except for the left turn of the southeast bound Kuakini Highway and the northbound Queen Kaahumanu Highway where the LOS was rated "F" with extreme delays to be expected. See **TABLE 6: INTERSECTION LEVEL OF SERVICE CRITERIA**.

TABLE 6
INTERSECTION LEVEL OF SERVICE CRITERIA

SIGNALIZED INTERSECTIONS

LOS	Delay d (sec/veh)	Description
A	$d \leq 10$	Few stops, little or no delay
B	$10 < d \leq 20$	Good progression, short cycle lengths
C	$20 < d \leq 35$	Cycle failures begin to occur, i.e., vehicles stop at more than one red phase
D	$35 < d \leq 55$	Noticeable number of cycle failures, unfavorable progression
E	$55 < d \leq 80$	Frequent cycle failures, poor progression, long delays
F	$d > 80$	Over saturation, many cycle failures, high delays

UN-SIGNALIZED INTERSECTIONS

LOS	Delay d (sec/veh)	Description
A	$d \leq 10$	Little or no delays
B	$10 < d \leq 15$	Short delays
C	$15 < d \leq 25$	Average delays
D	$25 < d \leq 35$	Long delays
E	$35 < d \leq 50$	Very long delays
F	$d > 50$	Extreme delays

Note: Level of Service (LOS) below C is considered unsatisfactory.

(Taken from: Page 7 of APPENDIX C)

The afternoon traffic during the peak hour were: 1) Lako Street below Kuakini Highway carried over 600 vph both ways; and 2) Royal Poinciana carried about 500 vph both ways. Lako Street above Kuakini Highway carried over 400 vph both ways. As for the main roads in the area: 1) Alii Drive carried a total of 900 vph; and 2) Kuakini Highway carried over 1,800 vph; and 3) Queen Kaahumanu Highway carried a total of 2,100 vph. The intersection of Kuakini Highway at Queen Kaahumanu Highway showed the southeast approach operated at LOS "F"; while the left turn from Royal Poinciana into Alii Drive had LOS "D", long delays. The other intersections operated at satisfactory LOS.

Traffic Conditions without Lako Street Extension Year 2009:

This would be an unacceptable alternative for the following reasons:

- 1) The first phase of the Kahului-Keauhou Parkway would be a dead-end street as the second phase of the Parkway is scheduled for year 2009.
- 2) The AM peak hour traffic at the intersection of Kuakini Highway and Lako Street for left-turn would be operating at LOS "E", very long delays, and the traffic at the following intersections will all be rated LOS "F", extreme delays: a) north bound through movement and the opposing southbound left-turn movement on Kuakini Highway, b) left turn on mauka bound Lako Street, c) southeast approach of Kuakini Highway at Queen Kaahumanu Highway, and d) the left turn from Royal Poinciana Drive into southbound Alii Drive.
- 3) The PM peak hour traffic at the intersection of Kuakini Highway and Lako Street will exceed the carrying capacity of the intersection while operating at LOS "E". The following intersections will operate at LOS "F" at unsatisfactory levels of high delays: a) through movements on both approaches on Kuakini Highway, b) left-turn movements on southbound Kuakini Highway and on mauka bound Lako Street, c) southeast bound approach of Kuakini Highway at Queen

Kaahumanu Highway, and d) makai bound left turn from Royal Poinciana Drive to southbound Alii Drive

- 4) The goals set for the Lako Street Extension,- to wit, alleviate traffic on Royal Poinciana, Lako Street connection to Alii Drive and another escape route to mauka in case of an emergency- would not be met.

Traffic Conditions without Lako Street Extension Year 2020:

Since the alternative not to construct the Lako Street Extension is not an acceptable alternative, no detailed explanation is provided. However, the traffic consultant did assess the traffic for the year 2020 without the Lako Street Extension. This is shown in APPENDIX C: TRAFFIC STUDY, pages 20-23.

Traffic Conditions with Lako Street Extension Year 2009:

With the completion of the Kahului-Keauhou Parkway, and to complement the construction of the Lako Street Extension, several traffic improvements are proposed as positive measures to facilitate the movement of vehicles by year 2009. These improvements are being recommended for consideration by the County Public Works and the State Highway Division. These are:

- 1) Kuakini Highway and Lako Street:
 - a) Re-stripe the northbound and southbound right-turn lanes on Kuakini Highway to provide shared through/right-turn lanes.
 - b) Widen northbound Kuakini Highway to provide an additional through lane between Lako Street and Queen Kaahumanu Highway.
 - c) Widen the south leg of Kuakini Highway at Lako Street to provide an auxiliary merging lane in the southbound direction.
 - d) Widen the makai bound approach of Lako Street to provide an exclusive right-turn lane.
 - e) Maintain the shared through/right-turn lane on makai bound Lako Street to provide double right-turn lanes

- to northbound Kuakini Highway.
- f) Re-stripe the through lane on mauka bound Lako Street to provide a shared left-turn/through lane in addition to the existing left-turn lane to provide double left-turn lanes to northbound Kuakini Highway.
 - g) Modify the traffic signal phasing to provide separate (split) phases for the mauka bound and makai bound approaches of Lako Street.
 - h) Preliminary estimate of probable construction costs for improvements shown above: \$1,140,000 (DPW Est.)
- 2) Queen Kaahumanu Highway and Kuakini Highway:
- a) Signalize the intersection of Queen Kaahumanu Highway and Kuakini Highway. Coordinate signals with the traffic signals at the Kuakini Highway/Lako Street intersection.
 - b) Re-stripe the exclusive right-turn lane on southbound Queen Kaahumanu Highway to provide a shared through/right-turn lane.
 - c) Widen the channelizing island to provide an additional through lane, for a total of two through lanes on southbound Kuakini Highway.
 - d) Widen the north leg of Queen Kaahumanu Highway to provide an auxiliary merging lane in the northbound direction.
 - e) Preliminary estimate of probable construction costs for improvements shown above: \$1,030,000. (DPW Est.)
- 3) Lako Street Extension and Alii Drive:
- a) Install stop controls on the makai bound approach of the Lako Street Extension at Alii Drive.
 - b) Widen southbound Alii Drive at the proposed Lako Street Extension to provide an exclusive left-turn storage lane.
 - c) Widen southbound Alii Drive to provide a median shelter lane to facilitate the left-turn movement

from the proposed Lako Street Extension to Alii Drive.

- d) Provide separate left-turn and right-turn lanes on the proposed Lako Street Extension at Alii Drive.
- e) Preliminary estimate of probable construction costs for improvements shown above: \$450,000. (DPW Est.)

For Alternate A or C the AM peak hour traffic for year 2009 on Royal Poinciana Drive and the Lako Street Extension would operate at satisfactory LOS. The intersection of Lako Street and Kuakini Highway would operate at an unsatisfactory LOS.

For Alternate B, the AM peak hour traffic for the year 2009 on Royal Poinciana Drive would be at an unsatisfactory LOS, while the traffic on Lako Street would be at a satisfactory LOS. Further, left turn from Royal Poicinana into southbound Alii Drive would operate at an unsatisfactory LOS "D". The intersection of Lako Street and Kuakini Highway would operate at an unsatisfactory LOS.

For Alternate A or C, the PM peak hour traffic for year 2009 on Royal Poinciana Drive and the Lako Street Extension would operate at a satisfactory LOS except for the left-turn movement from Royal Poinciana Drive into southbound Alii Drive which would operate at a LOS "D". The intersection of Lako Street and Kuakini Highway is expected to operate at an unsatisfactory LOS.

For Alternate B the PM peak hour traffic for year 2009 on Royal Poinciana Drive and Lako Street would operate at a satisfactory LOS except for the left-turn movement from Royal Poicinana Drive into southbound Alii Drive which would be at an unsatisfactory LOS "D". The intersection of Lako Street and Kuakini Highway is expected to operate at unsatisfactory LOS.

See TABLE 4-5, APPENDIX C for additional details.

Traffic Conditions with Lako Street Extension Year 2020:

Traffic conditions for the year 2020 is expected to operate at satisfactory LOS for the most part during the AM and PM peak hours. This, of course, is predicated on the completion of road

improvements recommended by the traffic consultant. These are:

1) Kuakini Highway and Lako Street:

- a) Re-stripe the shared left-turn/through lane on mauka bound Lako Street to a through-only lane.
- b) Modify the traffic signal phasing to provide protective-permissive left-turn phases on both approaches of Lako Street.

2) Lako Street Extension and Alii Drive:

- a) Signalize the intersection of the Lako Street Extension and Alii Drive.

3) Royal Poinciana Drive and Alii Drive (Alternate B only):

- a) Widen southbound Alii Drive at the Royal Poinciana Drive to provide an exclusive left-turn storage lane.
- b) Widen southbound Alii Drive at the Royal Poinciana Drive to provide a median shelter lane to facilitate the left-turn movement from the Royal Poinciana Drive to southbound Alii Drive.

For Alternate A or C, the AM peak hour traffic is expected to operate at satisfactory LOS except for two intersections: left-turn from mauka bound Lako Street into northbound Kuakini Highway traffic; and left-turn from Royal Poinciana Drive into southbound Alii Drive traffic.

For Alternate B, the AM peak hour traffic is expected to operate at satisfactory LOS except for the left-turn from mauka bound Lako Street into northbound Kuakini Highway traffic.

It was found that Alternate A or C would be more effective in distributing traffic between the Kuakini Highway, Kahului-Keauhou Parkway, and Alii Drive. Under Alternate B, the Lako Street Extension and Royal Poinciana Drive are expected to carry 100-300 vph and 400-600 vph, respectively. Under Alternate A or C, the usage of the Lako Street Extension is expected to increase to 500-600 vph while the Royal Poinciana Drive traffic is expected to be less than 200 vph.

For Alternate A or C, the PM traffic would be at satisfactory

LOS save for two intersections: through mauka bound Lako Street traffic at Kuakini Highway; and left-turn Royal Poinciana Drive traffic into southbound Alii Drive.

For Alternate B, the PM traffic would be at satisfactory LOS at all intersections.

See **TABLE 2-3, APPENDIX C** for additional details.

Other improvements are recommended upon completion of Phase 2 of the Kahului-Keauhou Parkway which were not considered in this traffic study. These recommendations to improve the LOS at Lako Street intersections are:

1) Kuakini Highway and Lako Street:

- a) Shared left-turn/through lane on mauka bound Lako Street should be re-striped to a through lane.
- b) The traffic signal phasing should be modified to provide protective-permissive left-turn phases on both approaches of Lako Street with the completion of the Kahului-Keauhou Parkway.

2) Lako Street Extension and Alii Drive:

- a) The installation of traffic signals should be considered at the intersection of Lako Street Extension and Alii Drive, when it becomes warranted.

Conclusions:

- The Lako Street Extension will not significantly affect the north-south arterials.
- The Lako Street Extension will impact the mauka-makai traffic circulation between the arterials.
- Alternate A or C would operate more efficiently.
- Alternate C would have less impact on historical sites.
- Alternate C is expected to divert higher volumes of through traffic from Royal Poinciana Drive and Kupuna Street during peak hours than Alternate B.
- The subdivision developments above Kuakini Highway on the future Lako Street improvement will affect the intersection of Lako Street and Kuakini Highway in the immediate future

but will be within acceptable LOS by the year 2020.

Alternatives:

Not to proceed with this project presumes that other suitable alternative sites for a *makai-mauka* route may be found. Such a site meeting the criteria for a *makai-mauka* route from Alii Drive to Kuakini Highway is not available without involving much higher construction costs and purchase of private lands. Other archaeological sites may be impacted that may be of more significant value than the few that will be disturbed by the Lako Street Extension project. The existing Lako Street already accounts for at least one-half of the distance from Alii Drive to Kuakini Highway. Beyond the proposed connection to Alii Drive, there are no subdivisions south of Holualoa 4th and *mauka* of Alii Drive that could offer such an advantageous circumstance. The Kona Seaview Subdivision does not have an internal subdivision road system such as is offered by Lako Street. It should be noted that the area below the Kona Seaview Subdivision contains historical sites in the Kaumalumalu *a'hupua* that may be of significant importance. In short, there are no feasible alternatives for a *makai-mauka* connecting road such as proposed by the Lako Street Extension at this time.

B. Archaeological/Cultural Impacts and Alternatives:

The Holualoa lands are interspersed with archaeological features. The proposed Lako Street Extension project in proximity to an area that holds significant prehistoric features. Some minor archaeological sites will be disturbed or impacted. The major features on Holualoa 4 are already protected from urban or agricultural development by the gift stipulation that the area be an extension of Keolonahihi State Historical Park. These sites are associated with cultural practices relating to ancient Hawaiian chiefs and chiefesses of the island. Foremost is 'Umi a Liloa who unified the island of Hawaii under his rule. By war or diplomacy, he is said to have placed the island under one rule. Originally,

he ruled from Waipio Valley as did his father, Liloa, king of all Hawaii. However, 'Umi traveled and moved his court from Waipio to Kona. He built his heiau- Ahua a 'Umi in the plateau between Hualalai and Mauna Loa. His court focused in Kona around royal centers which included Kailua and Kahalu'u. This would last through the time of Kamehameha I. The historical marker in Kailua Village, Pa O 'Umi, records his presence in Kailua.

Traditional lore suggests that the Keolonahihi Complex, opposite the Lako Street Extension project site, was built by the chiefess, Keolonahihi, and her husband which took place 22 generations before Kamehameha I. This Complex is in the land of Holualoa 4th and seaward of Alii Drive.

The Keakealaniwahine Complex is also in the land of Holualoa 4th but separated from the Keolonahihi Complex by Alii Drive. Both complexes were culturally associated and comprised what has been called the Holualoa chiefly residence.

The Lako Street Extension project has been designed to minimize and/or avoid intrusion on the archaeological features. This involved developing alternate routes to accomplish this purpose. In this respect, road alignment "Alternate C" is the recommended route as it provides a buffer over 200 feet from the Complex. Not to proceed would keep the general area in heavy growth that may accelerate the destruction of some archaeological features. In addition, a possible entry into the Keakealaniwahine complex for the expansion of Keolonahihi State Historical Park could result from this road extension project.

The archaeological remains in Holualoa 3 are primarily habitation sites and agricultural features. This is to be expected as the project area is in the kula zone of the Kona Field System. This zone rises from sea level to the 500-foot elevation and traditionally was used for habitation and the cultivation of crops (sweet potato, paper mulberry, gourds, etc.). Later, after cattle were introduced, livestock control features were built.

Some archaeological sites in Holualoa 3 will be disturbed.

This cannot be avoided due to the abundance of remains. However, the proposed road was designed to bypass significant sites such as the *Hikapāia heiau*. About 60 feet separates the *heiau* from the edge of the road right-of-way. The alignment recommended, Alternate C, has the least features to be disturbed as can be seen in the tables shown in SECTION V.

C. Noise Impact and Alternative:

As with any road construction work, noise will be generated by power-driven equipment. The noise created by the contractor will not exceed allowable sound levels. There are no other feasible alternatives to eliminating construction noise for the extension of Lako Street short of relocating the project elsewhere.

The maximum permissible sound level, in dBA, for lands zoned residential, conservation, preservation, public space, open space or similar type during daytime is 55dBA. The maximum permissible sound level, in dBA, for lands zoned multi-family, dwellings, apartment, business, commercial, hotel, resort, or similar type during daytime is 60dBA. The maximum permissible sound level, in dBA, for lands zoned agriculture, country, industrial, or similar type during daytime is 70dBA. For this project, most of the work will be performed in agriculturally zoned lands. Except for the short distances at the beginning and end of the project, there are no homes adjacent to the road alignment where noise may affect those residents.

Should noise levels be above the prescribed levels, the contractor will be required to obtain a permit from the Noise Control Branch of the Department of Health.

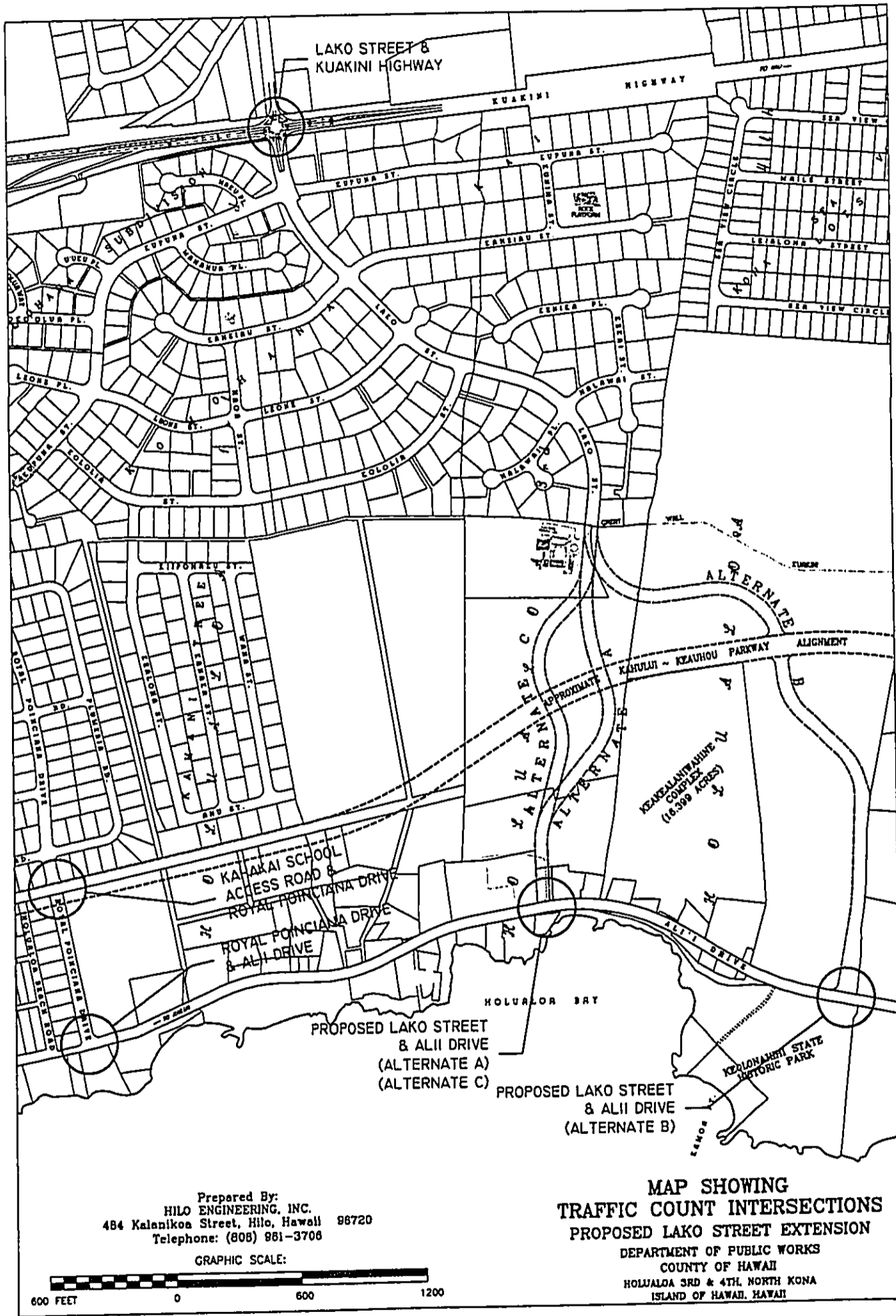
Typical ambient day-time noise levels from different sources for comparison is shown below:

<u>SOURCE</u>	<u>SOUND LEVELS</u>
Quiet wilderness area	20-30 dBA
Quiet suburban residence	48-52 dBA
Business office	50-60 dBA
Noisy urban area	80-90 DBA
Adjacent to a freeway	90 dBA
Jet airplane at 100 feet	120-130 dBA

(Data from U.S. Department of Energy.)

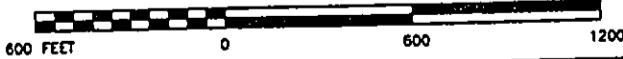
D. Air Quality Impact and Alternative:

Construction activity, which could affect air quality, will be of temporary nature. The location of the proposed roadway in an un-inhabited agricultural land overgrown with forage crops will be almost unnoticeable by residents in the vicinity. Air quality in the long term would be exhaust from traffic that will utilize the new roadway upon completion. Since the road extension is to be constructed for the benefit of the residents, the alternative to move elsewhere is not feasible and negate the purpose of the project.



Prepared By:
HILO ENGINEERING, INC.
 484 Kalanikoa Street, Hilo, Hawaii 96720
 Telephone: (808) 981-3708

GRAPHIC SCALE:



**MAP SHOWING
 TRAFFIC COUNT INTERSECTIONS
 PROPOSED LAKO STREET EXTENSION**
 DEPARTMENT OF PUBLIC WORKS
 COUNTY OF HAWAII
 HOLEWALOA 3RD & 4TH, NORTH KONA
 ISLAND OF HAWAII, HAWAII

DRAWING NO. 9

SECTION 7
MITIGATION MEASURES

A. Traffic Mitigation:

As this is a new road project, no existing traffic pattern will be initially affected. Upon completion, there will be increased traffic on Lako Street. This is to be expected as this project is to construct another roadway connection from Alii Drive to Kuakini Highway. All intersections on the existing Lako Street have left turn lanes for *mauka-makai* traffic. A benefit of this extension is the reduction of traffic volume on Royal Poinciana Drive in the nearby Alii Kai Subdivision. A left-turn pocket will be provided for the Lutheran Church makai of the existing Lako Street.

During construction, the contractor shall not park his trucks/equipment on the existing Lako Street except on a temporary basis for short periods. Every attempt must be made to keep the subdivision roads clear. The contractor shall clear an area, after ascertaining it does not affect any archaeological site, for parking and storing his trucks and earth moving equipment.

The contractor shall notify the Police Department during work involving Alii Drive. Traffic control shall be coordinated with the Police Department and proper signs and flag men shall be used to direct traffic.

B. Historical/Cultural Mitigation:

The design of the proposed roadway extension from Lako Street to Alii Drive has taken into consideration the archaeological features within the general project site and its relation to the Kamo Point historical site. This was disclosed during hearings relating to the Kamo Point site which was in imminent danger of resort development.

The goal for the Lako Street Extension project was to develop a plan that avoids or minimizes impact on significant

archaeological features. Field surveys along 120-foot wide corridors were conducted within the project area to identify the various items that make up the complexes of archaeological remains in this region. The location of the various sites: *heiau*, *pu'uhonua*, house sites, burials, walls, etc., were plotted. In view of the rich historical and archaeological features found within the over-all project area, several possible road locations were considered. Then, three of the most promising routes were surveyed. These are shown on **DRAWING NO. 3** delineated as Alternates A and C which lie wholly in Holualoa 3; and Alternate B which lies partly in Holualoa 3, but mostly in Holualoa 4 along its southern boundary. **DRAWING NO. 3** also depicts the tax key numbers of the lots and the property owners and boundaries of this general area.

The archaeological/cultural assessment that was part of this effort assisted in the evaluation of these sites and their probable importance. Many of the ancient persons of importance of the island have been associated with this general area of North Kona- that is, the Holualoa-Kaumalumalu-Kahalu'u sector. Much of the knowledge of these historical sites are embellished by legends and myths. However, it is from knowledge passed down from generation to generation, including chants, which provides us with some conclusive facts.

The preferred route, Alternate C, does not intrude or disturb archaeological remains on the State-owned parcel- TMK: 7-7-04:11 that is the *Keakealaniwahine* Complex, a prime archaeological find. The preferred route lies entirely in Holualoa 3rd and north of the *Keakealaniwahine* Complex which is in Holualoa 4. In the absence of a development/management plan of the *Keakealaniwahine* Complex, a buffer zone of 200 feet, or so, has been provided as the best means of mitigating possible impacts. This route, Alternate C lies *makai* of the Komohana Kai Subdivision. Alternate B, which is located in Holualoa 4, was not selected as it contained more archaeological features, one of which is a burial site, than found

within the Alternate C corridor. Locating the roadway away from significant historical features without affecting good engineering roadway design is a mitigating action. Further, mitigation measures, such as data recovery, will begin only after a mitigation plan has been submitted for review and approval by the State Historic Preservation Officer.

C. Noise Mitigation:

Construction operations will generate noise, dust and increase traffic in the general area. These impacts are of temporary nature. The noise levels for construction equipment will be those associated with typical secondary road construction unlike major arterial type roads. In this respect, compliance with applicable noise regulations will ensure minimal impacts during the one year construction period. Such things as having vehicles and machinery equipped with proper type of mufflers, and properly tuned engines will be required. Proper muffler devices shall be used on all gas or diesel driven equipment. Working hours will be limited to normal daylight hours; no work shall be allowed at night. Work shall not be permitted during weekends and holidays. Project activities shall comply with the Administrative Rules of the Department of Health: Chapter 11-46, Community Noise Control.

D. Air Quality Mitigation:

The contractor shall prepare a dust control management plan which will be reviewed and approved by the Clean Air Branch, Department of Health. Construction activities must comply with the provisions of the HAR, Title 11, Chapter 60.1-33, Air Pollution control. The contractor's plan for dust control shall cover the different phases of the construction.

Focus shall be on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact.

The contractor shall make suitable arrangements with the Department of Water Supply for use of water sources, which are available at each end of the project for dust control.

The contractor will be required to landscape and cover bare areas including slopes.

The contractor shall provide adequate dust control measures during week-ends, after hours and during start-up times.

The contractor shall control dust from debris being hauled away from the project site. No burning of debris or rubbish will be permitted on the project site.

Exhaust fumes from the contractor's equipment will be controlled by ensuring mufflers on power-driven equipment are in good working condition; and motors are tuned or adjusted properly.

E. Water Quality Mitigation:

Construction specifications will provide for the control of noxious substances, such as gas, oil, grease, solvents, etc., by having such substances secured. This is to prevent such materials, from spills or careless handling, from entering the substrata.

Construction specifications will include a Best Management Practice (BMP) plan for an National Pollution Discharge Elimination System (NPDES) permit in accordance with applicable Department of Health regulations.

SECTION 8
DETERMINATION

It is anticipated that the proposed Lako Street Extension project which had been proposed by the County of Hawaii in its planning for the Kailua-Keauhou region will fulfill a community need. It will relieve congestion that exists on Royal Poinciana Drive; provide another route from Alii Drive to reach the mauka areas to avoid high seas and flooding; and facilitate the commute between Kuakini Highway and Alii Drive.

The proposed Lako Street Extension is located on a portion of an area termed the Holualoa Royal Court. The road Alternate C alignment disturbs the least number of historical sites. Further, it provides a buffer from the Keakealaniwahine Complex, a very significant archaeological and cultural site.

While total non-disturbance of the historical sites in this area is not possible in constructing a mauka-makai road in this general area, the selected route affects a minimum number of archaeological features, the least of the three alternatives studied.

Therefore, Alternate C is the route of choice.

SECTION 9
FINDINGS AND REASONS SUPPORTING DETERMINATION

The completion of the Lako Street Extension will relieve congestion on the Royal Poinciana Drive, the only *makai-mauka* road in this sector between Kahului and Keauhou. According the study, the traffic on Royal Poinciana Drive will be reduced 33% during the morning peak hour; and reduced 40% during the afternoon peak hour.

Another escape road, in the event of tsunami or high seas, from the coastal area to the *mauka* lands will be provided. This alignment is outside of the F.I.R.M. designated flood plain area.

The presence of the Keakealaniwahine Complex with its rich features of archaeological and cultural values largely dictated the choice of Alternate C. The least number of archaeological features will be disturbed by this selected route. Also, care has been taken to provide a buffer between the road and the Keakealaniwahine Complex. The alignment of the future Kahului-Keauhou Parkway made it necessary for the Lako Street Extension to intersect the Parkway at the recommended 90° angle for safety reasons.

For years County traffic plans have included a proposal for *makai-mauka* road for this sector to accommodate the growing residential and commercial developments in this resort destination site. The extension of Lako Street was designed for such an eventuality during the construction of Komohana Kai Subdivision and is a logical choice of this traffic planning process.

With proper mitigation measures as described in this assessment, there will be minimal environmental disturbance. The impacts are largely of temporary nature and construction-related.

Funds for this project are available and early completion of this project will keep construction costs from escalating.

In evaluating the potential environmental effects of the

project based on the significance criteria of HAR 11-200-12, the following were considered:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resources:

The proposed roadway will be in an area that is zoned agriculture and used in the past for grazing. The general area is rocky, overgrown with trees, shrubs and grasses and not suited for intensive agriculture. No scenic views will be impacted as no building structures are involved. There are archaeological sites within this general area. A few will be disturbed and such action will be mitigated by the data recovery process before road construction commences.

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

The proposed road extension will be in an agricultural zone of limited use. Its use for cattle grazing is incompatible with the development of residential subdivisions in the surrounding area. The road extension benefits the community as a whole by easing adverse traffic conditions.

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 development is consistent with the Environmental Policies established in Chapter 344, HRS, and the National Environmental Policy Act.

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

The road extension project has been a County goal for a number of years. The increase in residential development in North Kona has brought on traffic congestion. This project which has wide community support will reduce the problem in this sector of the Kailua-Keauhou sector of North Kona. This project is part of the County's road network for this area.

5. Substantially affects public health:

This project will have little adverse impacts as most of the impacts will be construction-related and of temporary nature. Removal of the trees, grasses and shrubs will reduce the potential of a fire hazard. One of the goals of this project is to provide an escape route from the lower coastal area in the event of tsunami or high waves.

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

The road extension itself is not part of any land development project. Therefore, it does not have any effect on public facilities. However, the completion of the project may lead to some development by the adjacent land owner. In such case the County Planning Department will have jurisdiction. The road extension may enhance the water distribution network should the Water Department elect to do so. It could also contribute to the waste water management plan of the County; again, if the affected agency chooses to do so.

7. Involves a substantial degradation of environmental quality:

Since unused marginal grazing agricultural land- presently overgrown with trees, shrubs and grasses- will be utilized, the road extension project will have little effect upon the visual quality of environment. The paved road extension will have sidewalks and street lights which will enhance the visual aspects of those utilizing the new roadway.

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

This road extension project completes one facet of a long range plan by the County Planning Department. It is not incompatible with County development plans.

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

No endangered, rare or threatened animal or plant species, or its habitat has been found in the project site.

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

During construction, air quality and noise will be mitigated by complying with Department of Health regulations. Effects generated by construction activities are of temporary nature and will be controlled by applicable regulations. Water quality that may be impacted from construction activities, such as surface run-off, which will be mitigated by preparation of Best Management Plans (BMP) adhering to the NPDES guidelines.

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 is not in an environmentally sensitive area. However, it is adjacent to a valuable historic archaeological site and mitigation measures, such as a buffer zone, have been considered to mitigate its effect upon the archaeological site.

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

The road extension project does not significantly alter scenic views except to provide some views of the coastal areas not otherwise visible heretofore.

13. Requires substantial energy consumption:

The Lako Street Extension will reduce the travel time for many travelling in a *mauka-makai* direction. It also provides a logical terminus for the long-planned Kahului-Keauhou Parkway to ease traffic congestion. The project itself will require energy consumption which is commonly associated with heavy construction activity.

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- Terry, Ron, Ph.D, and Takemoto, Roy, *Final EIS: Keolonahihi State Historical Park*, 1995.
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PERMITS

Permits/Approvals required by this project include:

Special Management Area Permit (SMAP)

County Planning Department

Coastal Zone Management Permit

Office of State Planning

National Pollutant Discharge Elimination System (NPDES)

Department of Health, Clean Water Branch

State Historical Preservation Office

Department of Land & Natural Resources

Various Construction related permits

Participants with Hilo Engineering, Inc., in the preparation of
this environmental assessment are:

Alan E. Haun, Ph.D., Archaeologist

Randall S. Okaneku, P.E., Traffic Management Consultant

Paul Breese, Wildlife Biologist

Bunichi Usagawa, Landscape/Forestry

W.Y. Thompson, P.E., Coordinator

**COMMENTS &
RESPONSES**
September 2003 Draft



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

REPLY TO
ATTENTION OF: CEP0H-EC-T

October 14, 2003


Civil Works Technical Branch

Mr. Bruce McClure
Director
Department of Public Works
County of Hawaii
101 Pauahi Street, Suite 7
Hilo, Hawaii 96720

Dear Mr. McClure:

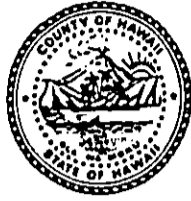
Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the Lako Street Extension, North Kona, Hawaii (TMK 7-7-4). We do not have any additional comments to offer beyond those previously provided in our letter dated March 21, 2002. Should you require additional information, please contact Mr. William Lennan of our Regulatory Branch at 438-6986 and refer to file number 200200244.

Sincerely,


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

14193

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

October 29, 2003

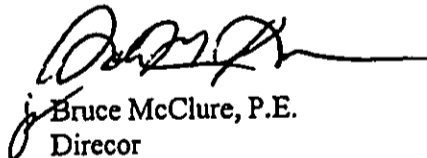
Department of Army
Civil Works Technical Branch
U.S. Army Engineer District, Honolulu
Fort Shafter, HI 96858-5440

Attn: James Pennaz, P.E.
Chief

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004
Reference: File No. 200200244

Thank you for your review of the draft EA for the Lako Street Extension project. We will contact Mr. William Lennan of your Regulatory Branch if we need further assistance.

Sincerely,


Bruce McClure, P.E.
Director

cc: Hilo Engineering, Inc.



Natural Resource Conservation Service
81-948 Waena ' Oihana Loop, Suite 101
Honolulu, HI 96850

United States Department of Agriculture

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

November 5, 2003

Mr. Bruce McClure, PE
Director, Department of Public Works
101 Pauali St. Suite 7
Hilo, HI 96720

Subject: Environmental Assessment (EA) Draft-Lako St. Extension

Dear Mr. McClure,


We have reviewed the above mentioned document and offer the following comments:

The significance of the Kealealaniwahine Complex and its place and value in the history and culture of Kailua-Kona appear to be the highest order. Of the three proposed sites it would appear to NRCS that Option C would be the best option to protect the Kealealaniwahine Complex based on the Draft EA dated September 2003. Option's A and B are too close to the Complex.

Any project site work should be accompanied by an erosion and sediment control plan to address containment of runoff events that might otherwise deposit sediment in and along shoreline and significant cultural resource areas.

Thank you for the opportunity to review this document.

Sincerely,

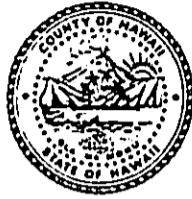

JEFFREY KNOWLES
District Conservationist

14365

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

An Equal Opportunity Provider and Employer

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
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December 3, 2003

Mr. Jeffrey Knowles
District Conservationist
Natural Resource Conservation Service
81-948 Waena 'Oihana Loop, Ste 101
Honolulu, HI 96850

Dear Mr. Knowles:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

Thank you for your comments on the proposed Lako Street Extension project in North Kona, Hawaii. We appreciate your support for Alternate C of the proposed roadway.

Your recommendation relating to erosion and sediment control will be given due consideration in the preparation of the plans and specifications. We expect the contractor on the job to comply with all applicable provisions of the NPDES regulations.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce McClure".

Bruce McClure, P.E.
Director

c: Hilo Engineering, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII



GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETAMA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

October 8, 2003

Bruce McClure
Department of Public Works
101 Pauahi Street, #7
Hilo, Hawaii 96720

Attn: Galen Kuba

Dear Mr. McClure:

Subject: Draft environmental assessment (EA) for Lako Street Extension

We have the following comments to offer:

Cultural impacts assessment:

Act 50, passed by the Legislature in 2000, mandates an assessment of impacts to current cultural practices by the proposed project. You have included an extensive discussion on the historic and archeological resources of the area and an interview with an individual knowledgeable about the region.

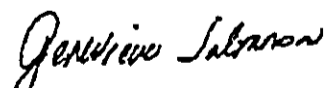
What is lacking is a conclusion drawn from the information presented, i.e., the *assessment* of project impacts on current cultural practices. In the final EA include such an assessment.

Significance criteria: In the final EA include a discussion of findings and reasons, according to the significance criteria listed in HAR 11-200-12, that supports your forthcoming determination, either Finding of No Significant Impact (FONSI) or EIS preparation notice. You may use the enclosed sample as a guideline.

Construction scheduling: Section 4a mentions that the "Lako Street extension may be ready for the Parkway to tie into..." and that "sewer and water mains may be installed concurrently with the road construction." We strongly recommend dovetailing all road disturbance activities so that disruption to the public is minimized. We also recommend that any new power lines be installed underground during road construction.

If you have any questions call Nancy Heinrich at 586-4185.

Sincerely,


GENEVIEVE SALMONSON
Director

Enc.

14155

From: *Mokulele Highway/Puunene Bypass* final EA (1997)

FINDINGS AND REASONS SUPPORTING DETERMINATION

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resources

The proposed project will not impact scenic views of the ocean or any ridge lines in the area. The visual character of the area will change from the current agricultural land to an improved 4-lane highway which is compatible with the surrounding land use plans and programs being implemented for the region. The highway corridor is comprised of "Prime" agricultural land which is an important resource. Development of drainage systems will follow established design standards to ensure the safe conveyance and discharge of storm runoff. In addition, the subject property is located outside of the County Special Management Area (SMA).

As previously noted, no significant archaeological or historical sites are known to exist within the corridor. Should any archaeologically significant artifacts, bones, or other indicators of previous onsite activity be uncovered during the construction phases of development, their treatment will be conducted in strict compliance with the requirements of the Department of Land and Natural Resources.

(2) Curtails the range of beneficial uses of the environment

Although the subject property is suitable for agricultural uses, the land area adjoining the Mokulele Highway is naturally suited for transportation purposes due to its location proximate to an existing highway system. To return the site to a natural environmental condition is not practical from both an environmental and economic perspective.

(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 development is consistent with the Environmental Policies established in Chapter 344, HRS, and the National Environmental Policy Act.

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

The proposed project will provide a significant contribution to Maui's future population by providing residents with the opportunity to "live and work in harmony" in a high quality living environment. The proposed project is designed to support surrounding land use patterns, will not negatively or significantly alter existing residential areas, nor will unplanned population growth or its distribution be stimulated. The project's development is responding to projected population growth rather than contributing to new population growth by stimulating in-migration.

(5) Substantially affects public health

Impacts to public health may be affected by air, noise, and water quality impacts, however, these will be insignificant or not detectable, especially when weighed against the positive economic, social, and quality of life implications associated with the project. Overall, air, noise, and traffic impacts will be significantly positive in terms of public health as compared to the "no action" alternative.

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

Existing and planned large-scale housing development projects within Wailuku-Kahului and Kihei will contribute to a future population growth rate that will require expansion of public and private facilities and services. These improvements will become necessary as the overall population of Maui grows and settlement patterns shift. However, the proposed project will not in itself generate new population growth, but provide needed infrastructure the area's present and future population. In addition, new employment opportunities will generate new sources of direct and indirect revenue for individuals and the County of Maui by providing both temporary and long-term employment opportunities during the construction period. Indirect

employment in a wide range of service related industries will also be created from construction during project development.

(7) Involves a substantial degradation of environmental quality

The proposed development will utilize existing vacant agricultural land. With development of the proposed project, the addition of urban landscaping will significantly mitigate the visual impact of the development as viewed from outside the site while the overall design will complement background vistas. Makai views from the subject property are available, however, they are not significant nor generally available to the public in the property's present restricted condition.

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

By planning now to address the future needs of the community and the State, improvement of the transportation system is consistent with the long term plans for Maui. No views will be obstructed or be visually incompatible with the surrounding area.

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

No endangered plant or animal species are located within the highway corridor.

(10) Detrimentially affects air or water quality or ambient noise levels

Any possible impact to near-shore ecosystems resulting from surface runoff will be mitigated by the establishment of on-site retention basins during the construction phases of development. After development, retention areas within the highway right-of-way will serve the same function to encourage recharge of the groundwater.

(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, freshwater, or coastal waters

Development of the property is compatible with the above criteria since there are no environmentally sensitive areas associated with the project and the physical character of the corridor has been previously disturbed by agricultural uses. As such, the property no longer reflects a "natural environment". Shoreline, valleys, or ridges will not be impacted by the development.

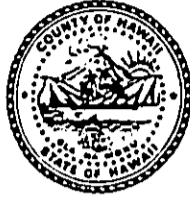
(12) Substantially affects scenic vistas and view planes identified in county or state plans or studies

Due to topographical characteristics of the property, views of the area to be developed are generally not significant although they are visible. The majority of the proposed project will not be visible, except from higher elevations by the general public or from persons traveling along the highway.

(13) Requires substantial energy consumption

The location of the proposed project is between Maui's major growth areas. This relationship will reduce travel times and energy consumption after project build out through efficiencies gained by the increased capacity of the highway. Construction of the proposed project will not require substantial energy consumption relative to other similar projects.

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

October 29, 2003

Office of Environmental Quality Control
Attn: Ms. Genevieve Salmonson, Director
235 South Beretania Street, Ste 702
Honolulu, HI 96813

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-04

Thank you for your letter of October 8, 2003. We will have a conclusion in our final EA based on the material contained in the draft EA.

We regret not having expounded on the significance criteria listed in HAR 11-200-12. This will be remedied in the environmental assessment before it is finalized.

Like you, we would prefer that water and sewer mains to be concurrently installed with the construction of the road extension project. However, funding for the design and construction of these utilities will have to be funded by the responsible agencies, as this project does not have sufficient funds to address this matter. We have alerted these agencies on the advantages to achieve.

Thank you, very much.

Sincerely,

Bruce McClure, P.E.
Director

cc: Hilo Engineering, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

October 23, 2003

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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

LAKOSTREETDEA.RCM

LD-NAV

Honorable Bruce McClure
Director, Department of Public Works
County of Hawaii
101 Pauahi Street, Suite 7
Hilo, Hawaii 96720-3043

Dear Mr. McClure:

Subject: Draft Environmental Assessment (DEA)
Lako Street Extension, Holualoa, North Kona, Hawaii
TMK: (3) 7-7-04

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

A copy of the DEA pertaining to the subject matter was distributed to the following Department of Land and Natural Resources' Divisions for their review and comment:

- Division of Forestry and Wildlife
- Division of State Parks
- Engineering Division
- Land-Hawaii District Land Office

Attached is a copy of the Division of State Parks comment. Based on the attached responses the Department of Land and Natural Resources has no other comment to offer on the subject matter.

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

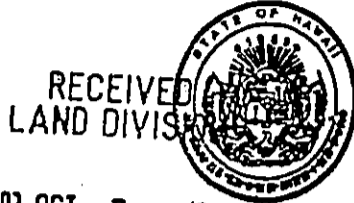
Very truly yours,

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

DIERDRE S. MAMIYA
Administrator

C: HDLO

LINDA LINGLE
GOVERNOR OF HAWAII



2003 OCT -7 A 10:42
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
STATE OF HAWAII OFFICE BOX 621
HONOLULU, HAWAII 96809

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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

October 1, 2003

LD/NAV
Ref.: LAKOSTREETDEA.CMT

Suspense Date: 10/13/03

MEMORANDUM:

TO: Division of Aquatic Resources
XXX Division of Forestry & Wildlife
Na Ala Hele Trails
XXX Division of State Parks
Division of Boating and Ocean Recreation
✓ XXX Engineering Division
Office of Conservation and Coastal Lands
XXX Hawaii District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA)
Lako Street Extension, Holualoa, North Kona, Hawaii
TMK: (3) 7-7-04

Please review the subject DEA and submit your comments (if any) on Division letterhead signed and dated within the time requested above.

Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0384.

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

We have no comments.

Comments attached.

Division: Engineering

Signed: Eric T. Hirano

ERIC T. HIRANO, CHIEF ENGINEER

Date: 10/6/03

Name: _____

03 OCT 02 AM 09:21 ENGINEERING

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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

October 1, 2003

LD/NAV
Ref.: LAKOSTREETDEA.CMT

Suspense Date: 10/13/03

MEMORANDUM:

TO: Division of Aquatic Resources
 Division of Forestry & Wildlife
Na Ala Hele Trails
 Division of State Parks
 Division of Boating and Ocean Recreation
 Engineering Division
 Office of Conservation and Coastal Lands
 Hawaii District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

RECEIVED
LAND DIVISION
2003 OCT - 6 A 10:25
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

SUBJECT: Draft Environmental Assessment (DEA)
Lako Street Extension, Holualoa, North Kona, Hawaii
TMK: (3) 7-7-04

Please review the subject DEA and submit your comments (if any) on Division letterhead signed and dated within the time requested above.

Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0384.

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

We have no comments.

Comments attached.

Division: _____

Signed:

Date: OCT 3 - 2003

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

LINDA LINGLE
GOVERNOR OF HAWAII




STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

October 13, 2003

MEMORANDUM:

TO: Dierdre S. Mamiya, Administrator
Land Division

FROM: Daniel S. Quinn, State Parks Administrator 

SUBJECT: Draft Environmental Assessment for the Lako Street Extension
Hōlualoa, North Kona, Hawai'i TMK: 7-7-04

The Draft Environmental Assessment (DEA) for the extension of Lako Street proposes three alternative routes and identifies a preferred route along the northern side of the archaeological site and cultural complex referred to as the Keākealaniwahine Complex. The Keākealaniwahine Complex, along with the sites in Keolonāhihi State Historical Park, comprise the Hōlualoa royal center dating to circa A.D. 1600 and possibly earlier. Since our previous review of this project in April 2002, there have been two actions affecting the status of the Keākealaniwahine Complex:

- Governor Lingle signed Executive Order No. 4005 on September 11, 2003 which transferred jurisdiction of Keākealaniwahine to the Division of State Parks for inclusion in Keolonāhihi State Historical Park.
- The Hōlualoa 4 Archaeological District, including both the Keākealaniwahine Complex and the Keolonāhihi Complex, was listed on the Hawai'i Register of Historic Places on August 2, 2003 and recommended for nomination to the National Register of Historic Places.

The preferred Alternative C provides a buffer of approximately 200 feet from the wall separating the *ahupua'a* of Hōlualoa 3 and Hōlualoa 4 (Site 6340), which corresponds to the northern boundary of the State-owned parcel containing the Keākealaniwahine Complex (TMK: 7-7-04: 11). Alternative C also provides a buffer of 60 feet from Hikapaia Heiau that is not part of the State-owned complex. However, the exact boundaries of the Hōlualoa royal center are not known and it is highly probable that Hikapaia Heiau was part of this royal center. While we would prefer to see a greater buffer between significant cultural sites and modern developments, the DEA states that the buffer cannot be expanded because of the flood zone and engineering concerns where the Lako Street alignment intersects Ali'i Drive. Because of the close proximity of the roadway alignment to Hikapaia Heiau, we recommend that extra precautions be taken to protect this site during construction.

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

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RECEIVED
LAND DIVISION

Memorandum
October 13, 2003
Page 2

State Parks remains very concerned that the Keākealaniwahine Complex will be surrounded on 3 sides by modern roadways – Lako Street on the north, Kahului-Keauhou Parkway on the east, and Ali'i Drive on the west. To protect the historical setting and cultural landscape of Keākealaniwahine to the greatest extent possible, it is imperative that the impacts of these modern roadways be mitigated. The DEA still does not adequately address the short-term impacts of construction and the long-term visual impacts on the Keākealaniwahine site and Hikapaia Heiau and what mitigative measures will be taken to minimize the impacts of the Lako Street extension. Even though the roadway is not immediately adjacent to the site, a distance of 200 feet is still close enough to have indirect impacts. As mentioned in our previous review, one measure would be landscaping along the edge of the road to buffer some of the noise and visual impacts.

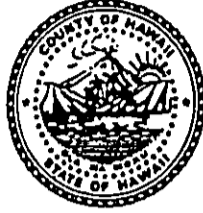
Another mitigative measure would be for the County to explore options for maintaining an open space buffer between the Alternative C alignment and the northern boundary of the Keākealaniwahine parcel. Hikapaia Heiau is within this buffer. Could the County and State offer any incentives to the landowners of parcels 47 and 89 to keep the parcel south of the roadway undeveloped? State Parks would be open to further discussions on this matter.

The one interview with Mikahala Roy is not sufficient to address consultation with the Hawaiian community regarding the cultural impacts of this project on Keākealaniwahine and the Hōlualoa royal center. The County of Hawai'i's contested case on a SMA permit for development of TMK: 7-7-4: 26 adjacent to Keākealaniwahine has identified other individuals and organizations in the Kona community who are knowledgeable about the Hōlualoa area. Consider should also be given to individuals such as Ms. Ruby McDonald, cultural liaison with the Office of Hawaiian Affairs in Kona, who served on the Keolonahihi Advisory Committee and Ms. Pualani Kanaka'ole Kanahele who prepared a 1993 report for Keolonahihi from the perspective of the Hawaiian community. It is recommended that the scope of consultation with the Hawaiian community be broadened to address some of these individuals.

We believe that Alternative C offers a greater buffer to the Keākealaniwahine Complex than had previously been provided in Alternative A. However, we hope that further consideration will be given to the indirect impacts of this project and steps that can be taken to insure the long-term preservation of the historic sites and cultural landscape in Hōlualoa 3 and 4.

cc: Ruby McDonald, OHA-Kona
Pualani Kanaka'ole Kanahele
Mikahala Roy, Kūlana Huli Honua
Maile David and Karen Eoff
Historic Preservation Division
Glenn Taguchi, Hawai'i District Parks Superintendent

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawai'i
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 · Hilo, Hawaii 96720-4224
(808) 961-8321 · Fax (808) 961-8630

December 8, 2003

DANIEL S QUINN
ADMINISTRATOR
DIVISION OF STATE PARKS
P O BOX 621
HONOLULU HI 96809

Dear Mr. Quinn:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

We have received your comments from Ms. Dierdre S. Mamiya, Administrator, Land Division, relating to the draft environmental assessment (EA) for the proposed Lako Street Extension project. Your news: 1) that an Executive Order has transferred jurisdiction of the *Keakealaniwahine* Complex to the Division of State Parks for inclusion in the Keolonahihi State Historical Park; and 2) that the Holualoa 4 Archaeological District, which includes both complexes, is listed on the Hawaii Register of Historic Places and recommended for nomination to the National Register of Historic Places, is timely. We shall include this in our revision of the draft EA.

We appreciate your analysis of road Alternate C with reference to the *Keakealaniwahine* Complex. As suggested previously, during meetings with your office and the State Historic Preservation office, the Alternate C plan was pursued. This route has been surveyed and has become the preferred choice as it provides a good size buffer zone and impacts the least number of archaeological sites.

In the absence of a development plan, the County can only try to lessen adverse impacts on the historical site. We realize that the lands surrounding the *Keakealaniwahine* Complex are privately owned. As to the properties south of the *Keakealaniwahine* Complex which are privately owned, there is little what we can do at this time. Therefore, we tried to lessen adverse

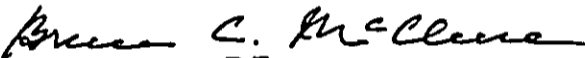
Daniel S. Quinn
December 8, 2003
Page 2

impacts to the land owners while giving the historic nature of the State's complex protection in the selection of Alternate C. Since the buffer zone is privately owned, one way to acquire this area would be by legislative appropriation. Inasmuch as the *Keakealaniwahine* Complex and the Keolonahihi State Historical Park are State properties, we would support such a move by your department. The buffer zone may also be acquired by negotiation. However, this may entail trade-offs. As least, unlike the Parkway, the Lako Street Extension does not abut the State historical property. When construction plans have been prepared, we will welcome your review and recommendations.

We appreciate your recommendation on adding to the cultural assessment. We will contact and make suitable arrangements for oral interviews with Ms. Ruby McDonald and Ms. Pualani Kanaka'ole Kanahale.

Your comments have been invaluable. Thank you.

Sincerely,


Bruce McClure, P.E.
Director

c: Ms. Dierdre Mamiya
Ms. Holly McEldowney
Hilo Engineering, Inc.
Mayor Kim

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

November 5, 2003

Mr. Bruce McClure, Director
Department of Public Works/County of Hawaii
101 Pauahi Street, Suite 7
Hilo, Hawaii 96720-3043

U2U
PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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

LOG NO: 2003.2224
DOC NO: 0310PM12

Dear Mr. McClure:

**SUBJECT: Chapter 6E-8 Historic Preservation Review of a Draft Environmental Assessment for Proposed Lako Street Extension
Holualoa, North Kona, Hawaii Island
TMK: (3) 7-07-04**

Thank you for the opportunity to review and comment on the revised Draft Environmental Assessment (DEA) for the proposed Lako Street Extension, which was received in our office on October 12, 2003. We previously commented on an earlier version of the DEA for this project (Hibbard to Mamiya April 9, 2002; Log No. 29574; Doc No. 0204hm03), which proposes to extend Lako Street from Komohana Kai Subdivision to Ali'i Drive.

We have little to add to the comments in our April 9, 2002 memo, which is reproduced in the Comments & Responses section of the revised DEA. Virtually all of our earlier comments still apply. There is still no approved archaeological inventory survey report for this project. We note that the report, which is included as Appendix D, has been revised. The revised report has never been submitted to our office, however. There is no evidence, moreover, that consultation with native Hawaiian groups and individuals has been undertaken to assess the impacts of the proposed project on the Keakealaniwahine Complex and other significant historic sites in the area. Our earlier memo had indicated that we would not be able to conclude our review of the impacts of the project until the results of the consultation process had been submitted to our office. As previously noted, the Cultural Assessment study (Appendix E) does not address the potential adverse effects of the alternate alignments from the point of view of the native Hawaiian community or how such impacts might be mitigated.

Mr. Bruce McClure, Director
Page 2

If you should have any questions about our review comments please contact our Hawaii Island archaeologist, Patrick McCoy, at 692-8029.

Aloha,

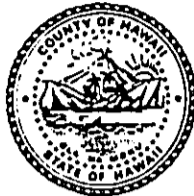
P. Holly McEldowney

P. Holly McEldowney, Acting Administrator
State Historic Preservation Division

c. Chris Yuen, County of Hawaii Planning Department
Dierdre Mamiya, Land Division
Martha Yent, Division of State Parks
Office of Hawaiian Affairs
Nathan Napoka, Branch Chief, History & Culture

PM:ak

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

March 22, 2004

Ms. P. Holly McEldowney
Acting Administrator
Historic Preservation Division
Kakuhihewa Bldg., Room 555
601 Kamokila Boulevard
Kapolei, HI 96707

Dear Ms. McEldowney:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

Thank you for your letter of November 5, 2003. We apologize for not responding sooner. Due to a mishap, your letter was mis-laid; hence, this delay in replying.

In response to your comments, please be advised that the consultation process with native Hawaiian groups has been completed. This will be included in our revised environmental assessment, which will most likely be printed in the OEQC bulletin in early April 2004.

In the consultation process, we had a difficult time assessing impacts since no development plan for the *Keakealaniwahine* Complex is available at this time. However, it appears that the proposed buffer zone (200 feet, more or less) is a positive step in mitigating adverse impacts. Some of those we interviewed have been meeting with the State Parks Division on the future plans of the *Keakealaniwahine* Complex; or are aware of the State's action.

Enclosed are one copy each of the revised archaeological report and cultural assessment.

Sincerely yours,

Handwritten signature of Bruce C. McClure.
Bruce McClure, P.E.
Director

cc: Hilo Engineering, Inc.
State Parks Division
Mr. William Thompson
Alan Haun, Ph. D.

Enclosure

LINDA LINGLE
GOVERNOR
STATE OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

October 8, 2003

Mr. Bruce C. McClure, P.E.
Director, Department of Public Works
County of Hawaii
101 Pauahi Street, Suite 7
Hilo, Hawaii 96720-3043

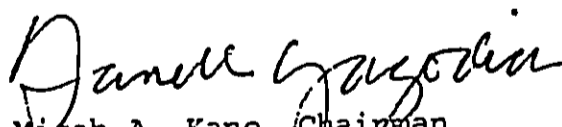
Dear Director McClure:

Subject: Draft Environmental Assessment (EA)
Lako Street Extension, Holualoa,
North Kona, Hawaii; TMK: 7-07-04

Thank you for sending a copy of the subject draft EA report for our review. The Department of Hawaiian Home Lands has no comment to offer.

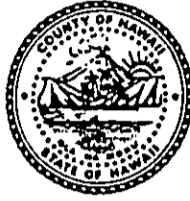
If you have any questions, please call Joe Chu of our Planning Office at 587-6421.

Aloha and maʻnalo,

for 
Micah A. Kane, Chairman
Hawaiian Homes Commission

14149

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

October 29, 2003

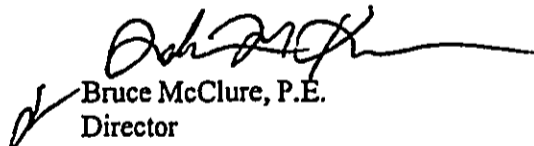
Mr. Micah A. Kane, Chairman
Department of Hawaiian Homes Lands
P.O. Box 1879
Honolulu, HI 96805

Dear Mr. Kane:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

Thank you for your review of the draft EA for the proposed Lako Street Extension project in North Kona, Island of Hawaii. We appreciate your response and will call up Mr. Joe Chu of your planning office should we find it necessary.

Sincerely,


Bruce McClure, P.E.
Director

cc: Hilo Engineering, Inc.

PHONE (808) 594-1885

FAX (808) 594-1885



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

HRD03/1183

December 9, 2003

Bruce McClure P.E.
Director
Department of Public Works
101 Pauahi St., Ste 7
Hilo, HI 96720-3043

RE: DEA Lako St. Extension, Holualoa, North Kona, Hawaii, TMK 7-007-004

Dear Mr. McClure,

Thank you for the opportunity to review the above referenced DEA. We apologize for our late comments and hope they can be incorporated in the Final Environmental Assessment.

We note that great consideration was taken to ensure the least number of archaeological sites would be destroyed when selecting the preferred alternative. OHA appreciates this consideration. However, we find the archaeological report on the sites lacking. OHA believes that at least some of the sites found during the archaeological survey should be classified as significant under criterion "b" because of proximity to the Keakalani Wahine complex which would presume connections to Hawaiian royalty including Umi, Keakamahana, Keakeaklaniwahine and Kamehameha.

Given the proximity of all sites to the Keakealani Wahine complex we feel there should be some discussion as to the relationship of the sites to the complex. Some of that discussion is included in the body of the EA, however, it is entirely lacking from the archaeological report. Since the report lacks a serious discussion of site significance it is difficult to assess how much damage the roadway will really cause to the integrity of sites

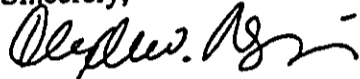
14637

in the entire area. Additionally mitigation for destruction of the sites should address recording any data recovered, curation and ownership of artifacts.

Finally, if Federal funds will be used for the project, Section 106 consultations are implicated. OHA is defined as a Native Hawaiian organization that must be consulted under Section 106 of the National Historic Preservation Act.

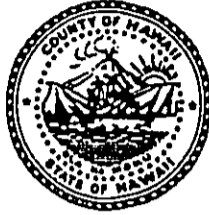
Thank you for this opportunity to comment. We look forward to a revised archaeological report. Please contact Pua Aiu at 594-1931 or by e-mail at paiu@oha.org if you have further questions.

Sincerely,



Clyde W. Namu'o
Administrator

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawai'i
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 · Hilo, Hawaii 96720-4224
(808) 961-8321 · Fax (808) 961-8630

January 9, 2004

Clyde W Namu`o Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard Suite 500
Honolulu HI 96813

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii, TMK: 7-7-004

Thank you for your review of the September 2003 draft EA of the Lako Street Extension project. Even though it's late, we welcome your comments.

Inasmuch as your concern related to the archaeological aspects of the project, your letter was referred to the archaeological consultant. His response was as follows:

"The letter indicates that OHA believes at least some of the sites should be assessed as significant under Criterion "b" because of their proximity to the Keakealani Wahine Complex. The majority of the sites consist of agricultural features that are elements of the Kona Field System. While it is possible that some of these features were used by the occupants of the Keakealani Wahine Complex, there is no archaeological way of demonstrating the association and the majority of such features are typically assessed by the State Historic Preservation Division (SHPD) as solely significant under Criterion "d".

The remaining sites in the corridors consist of historic ranch walls, which post-date use of the complex, habitation features, and a burial. The burial is situated nearly 180 m (590 ft) away from the complex. All except one of the habitation sites are situated between 75 m (246 ft) to 175 m (574 ft) from the Keakealani Wahine Complex, and thus, these are not spatially associated with the complex. One site, 6374, which is interpreted as a potential high status

Clyde W Namu'o Administrator
January 9, 2004
Page 2

residence, is situated immediately north of the complex and the report notes this close proximity (p. 66, para. 4). This site was previously assessed as significant under Criteria "c" and "d" in conjunction with the archaeological survey for the Kahalui-Keauhou Parkway (formerly named Ali'i Highway). This significance assessment was determined in 2001 by SHPD in consultation with OHA. The archaeological report assessed the site as solely significant for Criterion "d". *This assessment will be revised to conform to the prior assessment by OHA and SHPD.*

The letter states that the archaeological report does not sufficiently discuss the Keakealani Wahine Complex and its relationship of the identified sites in the corridors. SHPD review of an earlier draft of the report noted this deficiency and the current report reflects additions (p. 23, para. 2-5) intended to address this concern.

The letter noted a lack of discussion of specific mitigation measures including data recording and curation of recovered materials. The archaeological report only deals with general mitigation recommendations. Specific mitigation measures would be addressed in an archaeological data recovery plan after the specific road corridor is selected.

Finally, the letter advises that if Federal funds are to be used, then Section 106 consultation should occur. No Federal funds will be used for the project."

I trust that the foregoing clarifies the concerns you have expressed. Our revised draft (final) EA will be mailed to you when ready. You may be assured that we will keep you apprised of the progress the project, particularly with the data recovery efforts.



Bruce C. McClure, P.E.
Director

cc: Alan Haun, Ph.D.
Hilo Engineering, Inc.

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

10029PKP.03

October 8, 2003

Mr. Bruce McClure, P.E.
Director
Department of Public Works
County of Hawaii
Aupuni Center
101 Pauahi Street, Suite 7
Hilo, Hawaii 96720-3043

Dear Mr. McClure:

**Subject: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-07-04**

The Department of Health, Clean Water Branch (CWB), has reviewed the subject document and offers the following comments:

1. The Army Corps of Engineers should be contacted at (808) 438-9258 to identify whether a Federal license or permit (including a Department of Army permit) is required for this project. Pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act"), a Section 401 Water Quality Certification is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...."
2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following activities:
 - a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).
 - b. Construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the commencement of the construction activities.

14158

Mr. Bruce McClure, P.E.
October 8, 2003
Page 2

- c. Discharges of treated effluent from leaking underground storage tank remedial activities.
- d. Discharges of once through cooling water less than one (1) million gallons per day.
- e. Discharges of hydrotesting water.
- f. Discharges of construction dewatering effluent.
- g. Discharges of treated effluent from petroleum bulk stations and terminals.
- h. Discharges of treated effluent from well drilling activities.
- i. Discharges of treated effluent from recycled water distribution systems.
- j. Discharges of storm water from a small municipal separate storm sewer system.
- k. Discharges of circulation water from decorative ponds or tanks.

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

- 3. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible. An application for the NPDES permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at <http://www.state.hi.us/doh/eh/cwb/forms/indiv-index.html>.
- 4. Hawaii Administrative Rules, Section 11-55-38, also requires the owner to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD. Please submit a copy of the request for review by SHPD or SHPD's determination letter for the project.

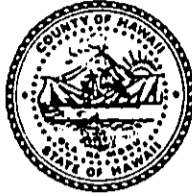
If you have any questions, please contact the CWB at (808) 586-4309.

Sincerely,



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

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

October 29, 2003

Department of Health
Attn: Denis R. Lau, P.E, Chief
Clean Water Branch
P.O. Box 3378
Honolulu, HI 96801-3378

Dear Mr. Lau:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

Thank you for your comments relating to the Lako Street Extension project environmental assessment. In response to your comments, please be advised:

Comment 1: The Army Corps of Engineers have been notified and their review was received. We have been informed that no Department of Army permit will be required as the project now stands.

Comment 2: We appreciate your explanation of the requirement of an NPDES general permit. This subject will be covered in detail in the construction documents when they are prepared. Your division will be consulted.

Comment 3: When project plans are finalized, your division will be consulted as to the requirement for an individual NPDES permit.

Comment 4: The State Historic Preservation Office is aware and is being consulted on the historic/cultural aspects of this project. A permit from said agency will be required before commencing any work.

We appreciate your extensive review.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce McClure".

Bruce McClure, P.E.
Director

cc: Hilo Engineering, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII



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

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

In reply, please refer to:
File:

October 3, 2003

Mr. Bruce McClure, P.E.
Director
County of Hawaii
101 Pauahi Street, Ste 7, Aupuni Ctr
Hilo, HI 96720

Dear Mr. McClure:

**SUBJECT: Comments to the Draft Environmental Assessment
Lako Street Extension
Holualoa, North Kona, TMK 7-7-04**

Our comments should be printed as follows:

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

- Chapter 11-46 Community Noise Control.

Should there be any questions, please contact me at 586-4701.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Takata".

Russell S. Takata
Program Manager
Noise, Radiation & IAQ Branch

14124

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

October 29, 2003

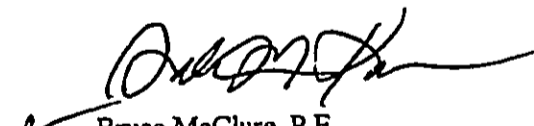
Department of Health
Russell S. Takata, Program Mgr.
Noise, Radiation & IAQ Branch
P.O. Box 3378
Honolulu, HI 96801-3378

Dear Mr. Takata:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

Thank you for your review of the draft EA for the proposed Lako Street Extension project in North Kona, Island of Hawaii. Your comments, as related to mitigation of noise impacts, will be included in SECTION 7: MITIGATION MEASURES, Provision C: Noise Mitigation, of the revised draft EA.

Sincerely,


Bruce McClure, P.E.
Director

cc: Hilo Engineering, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII



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

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

In reply, please refer to:
EMD / WB

October 10, 2003

H77 004.wpd
WP9 030899

Mr. Bruce McClure, P.E.
Director, Department of Public Works
County of Hawaii
101 Pauahi Street Suite 7
Hilo, Hawaii 96720-3043

Dear Mr. McClure:

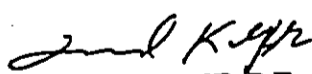
Subject: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: (3) 7-7-004

We have reviewed the subject document which requests comments on the Draft Environmental Assessment for the Lako Street Extension.

The project does not involve the generation of domestic wastewater, therefore, we have no objections to the project and concur with it.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at (808) 586-4294.

Sincerely,


HAROLD K. YEE, P.E., CHIEF
Wastewater Branch

LNK:erm

14190

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:
File:

October 13, 2003

03-1092A CAB

TO: Bruce McClure, P.E., Director
Department of Public Works
County of Hawaii

FROM: Thomas E. Arizumi, P.E., Chief *TE Arizumi*
Environmental Management Division

SUBJECT: Draft Environmental Assessment for Lako Street Extension Project,
Holualoa, North Kona, Hawaii; TMK: 7-7-04

This memo is to transmit the following comments on the subject document:

Control of Fugitive Dust:

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

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

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

- a) Plan the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;

14258

Mr. Bruce McClure, P.E.
October 13, 2003
Page 2

- b) Provide an adequate water source at the site prior to start-up of construction activities;
- c) Landscape and provide rapid covering of bare areas, including slopes, starting from the initial grading phase;
- d) Minimize dust from shoulders and access roads;
- e) Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
- f) Control dust from debris being hauled away from the project site.

If you have any questions, please contact Mr. Barry Ching of the Clean Air Branch at 586-4200.

BC:jhm

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

November 03, 2003

Thomas E. Arizumi, P.E., Chief
Environmental Management Division
Attn: Barry Ching, Clean Air Br.
Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

Thank for your review of the draft EA for the proposed Lako Street Extension project pertaining to fugitive dust. We will amend the provision relating to air quality to read as follows:

Air Quality Mitigation

The contractor shall prepare a dust control management plan which will be reviewed and approved by the Clean Air Branch, Department of Health. Construction activities must comply with the provisions of HAR, Title 11, Chapter 60.1-33, Air Pollution Control. The contractor's plan for dust control shall cover the different phases of the construction:

Focus shall be on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact.

The contractor shall make suitable arrangements with the Department of Water Supply for use of water sources, which are available at each end of the project for dust control.

The contractor will be required to landscape and cover bare areas including slopes.

The contractor shall provide adequate control dust measures during week-ends, after hours and during start-up times.

The contractor shall control dust from debris being hauled away from the project site.

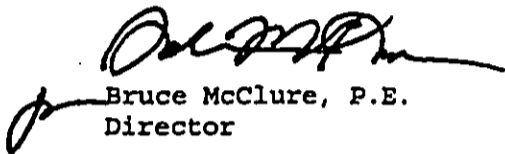
No burning of debris or rubbish will be permitted on the project site.

Thomas Arizumi, P.E.
November 3, 2003
Page 2

Exhaust fumes from the Contractor's equipment will be controlled by ensuring mufflers on power-driven equipment are in good working condition; and motors are tuned or adjusted properly.

I would like to add that these mitigation measures will be expanded in the project specifications document. Thank you for your helpful comments.

Sincerely,



Bruce McClure, P.E.
Director

cc: Hilo Engineering, Inc.

LINDA LINGLE
GOVERNOR



RUSS K. SAITO
COMPTROLLER
KATHERINE H. THOMASON
DEPUTY COMPTROLLER

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

(P)1328.3

OCT 29 2003

Mr. Bruce McClure, P.E., Director
Department of Public Works
County of Hawaii
101 Pauahi Street, Suite 7
Hilo, Hawaii 96720-3043


Dear Mr. McClure:

Subject: Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-07-04
Draft Environmental Assessment

Thank you for the opportunity to review the information regarding the subject project. This project does not impact any of the Department of Accounting and General Services' projects or existing facilities. Therefore, we do not have any comments to offer.

If you have any questions, please have your staff call Mr. Inder Mirchandani of the Planning Branch at 586-0490.

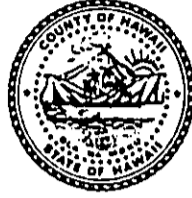
Sincerely,


TADASHI YOSHIZAWA
Acting Public Works Administrator

lm:jp

14312

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

October 29, 2003

State Department of Health
Harold K. Yee, P.E., Chief
Wastewater Branch
P.O. Box 3378
Honolulu, HI 96801

Dear Mr. Yee:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

This is to acknowledge and to thank you for your review of the draft EA for the Lako Street Extension project. We are happy to note that you have no objections since domestic wastewater is not a part of this project.

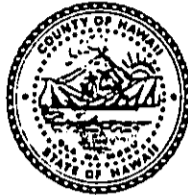
Sincerely,

A handwritten signature in black ink, appearing to read "Bruce McClure".

Bruce McClure, P.E.
Director

cc: Hilo Engineering, Inc.

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

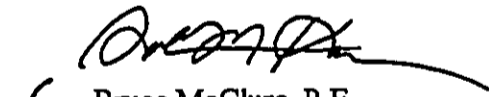
December 3, 2003

Mr. Tadashi Yoshizawa
Acting Public Works Administrator
Department of Accounting & General Services
P.O. Box 119
Honolulu, HI 96810

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

Thank you for your review of the Draft Environmental Assessment for the Lako Street Extension project. We appreciate your comments that this proposed project does not impact any project or facility of the Department of Accounting and General Services.

Sincerely,


Bruce McClure, P.E.
Director

c: Hilo Engineering, Inc.

Harry Kim
Mayor



Patricia G. Engelhard
Director

Pamela N. Mizuno
Deputy Director

County of Hawai'i
DEPARTMENT OF PARKS AND RECREATION
101 Pauahi Street, Suite 6 • Hilo, Hawai'i 96720
(808) 961-8311 • Fax (808) 961-8411

November 6, 2003

Mr. Bruce McClure, P.E., Director
Department of Public Works
County of Hawai'i
Aupuni Center
101 Pauahi Street; Suite 7
Hilo, Hawai'i 96720

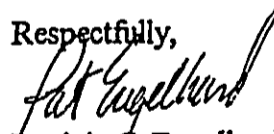
Subject: Draft Environmental Assessment for Lako Street Extension
Holualoa, North Kona, Island of Hawai'i
TMK: (3) 7-7-04: Various Parcels

Dear Mr. McClure:

Thank you for the opportunity to review and provide comment on the Draft Environmental Assessment.

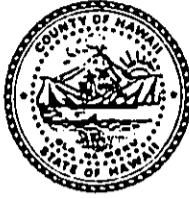
We have no comments and take no exceptions to the proposed action at this time.

Respectfully,


Patricia G. Engelhard
Director

14383

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

December 3, 2003


Ms. Patricia Engelhard
Director
Department of Parks and Recreation
101 Pauahi Street, Ste 6
Hilo, HI 96720

Dear Ms. Engelhard:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

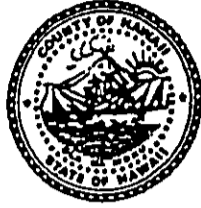
Thank you for your review of the Draft Environmental Assessment for Lako Street Extension project. We appreciate your finding that you take no exception to the proposed action.

Sincerely,


Bruce McClure, P.E.
Director

c: Hilo Engineering, Inc.

Harry Kim
Mayor



Lawrence K. Mahuna
Police Chief

Harry S. Kubojiri
Deputy Police Chief

County of Hawaii

POLICE DEPARTMENT
349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-2389

October 21, 2003

Mr. Bruce McClure
Director
County of Hawaii
Department of Public Works
101 Pauahi Street, Suite 7
Hilo, Hawaii 96720-3043

Dear Director McClure:

SUBJECT: RESPONSE TO DRAFT ENVIRONMENTAL ASSESSMENT,
LAKO STREET EXTENSION

After staff's review of the draft Environmental Assessment, we recommend that both Lako Street and Alii Drive have fully-channelized turning lanes.

Should you have any further questions or comments, please contact our Kona District Commander Captain John Dawrs at Phone No. 326-4211.

Sincerely,

LAWRENCE K. MAHUNA
POLICE CHIEF

A handwritten signature in cursive script that reads "Thomas J. Hickcox".

THOMAS J. HICKCOX
ASSISTANT POLICE CHIEF
AREA II OPERATIONS

TJH:dmv

14261

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

November 3, 2003


Lawrence K. Mahuna, Police Chief
Police Department
349 Kapiolani Street
Hilo, HI 96720-3998

Dear Chief Mahuna:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

Thank you for your review and comments on the draft EA for the Lako Street Extension project. While construction plans have not been authorized as yet, we do intend to have left turn and right turn lanes on Lako Street as it exits to Alii Drive. The intersection will be stop-controlled. An exclusive storage lane on Alii Drive for left into Lako Street; and a median shelter lane on Alii Drive for left-turn movements from Lako Street into Alii Drive will receive our highest priority when plans are finalized.

Sincerely,


Bruce McClure, P.E.
Director

cc: Hilo Engineering, Inc.

Harry Kim
Mayor



Darryl J. Oliveira
Fire Chief

Desmond K. Wery
Deputy Fire Chief

County of Hawai'i

FIRE DEPARTMENT

25 Aupuni Street • Suite 103 • Hilo, Hawai'i 96720
(808) 961-8297 • Fax (808) 961-8296

October 29, 2003

TO : BRUCE MC CLURE, P.E., DIRECTOR, DEPARTMENT OF PUBLIC WORKS

FROM : DARRYL OLIVEIRA, FIRE CHIEF

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
LAKO STREET EXTENSION
HOLUALOA, NORTH KONA, HAWAII
TAX MAP KEY: 7-07-04

We have no comments to offer at this time regarding the draft environmental assessment for the Lako Street Extension project.

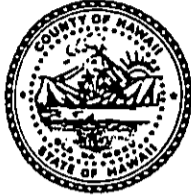

DARRYL OLIVEIRA
Fire Chief

RK:lk

14302



Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

November 7, 2003

Darryl Oliveira, Fire Chief
25 Aupuni Street, Suite 103
Hilo, HI 96720


Dear Chief Oliveira:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

This is to acknowledge your memorandum of October 29, 2003, relating to the proposed Lako Street Extension project. While you did not have any comments on the project, we appreciate your review.

Thank you.

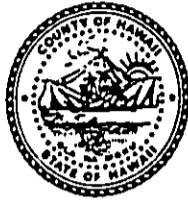
Sincerely,



Bruce McClure, P.E.
Director

cc: Hilo Engineering, Inc.

Harry Kim
Mayor



Barbara Bell
Director

County of Hawaii
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
25 Aupuni Street, Room 208 • Hilo, Hawaii 96720-4252
(808) 961-8083 • Fax (808) 961-8086

MEMORANDUM

Date : September 30, 2003
To : BRUCE MC CLURE, Department of Public Works Director
From : BARBARA BELL, Director *[Signature]*
SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
LAKO STREET EXTENSION
HOLUALOA, NORTH KONA, HAWAII
TMK: 7-07-04

We have reviewed the subject Draft EA and offer the following recommendations:

DEPARTMENT COMMENTS: _____

WASTEWATER DIVISION: *[Signature]*

- No comments
- Require connection of existing and/or proposed structures to the public sewer in accordance with Section 21-5 of the Hawaii County Code.
- Require extension of the sewer system to service the proposed subdivision in accordance with Section 23-85 of the Hawaii County Code.

Other: *1) Note corrections on page 7.
2) Letter dated 9/28/02 responding to WWA's previous comments is inaccurate. I also never received copy of the letter.*

SOLID WASTE DIVISION:

- No comments *[Signature]*
- Commercial operations may not use transfer stations for disposal.
- Aggregates and any other construction/demolition waste should be reused to its fullest extent.
- Ample room should be provided for recycling.
- Greenwaste may be disposed of only at the drop sites located at the Kailua and Hilo transfer stations.

Other: _____

cc: SWD
WWD

3920

14168

for grazing undoubtedly led to further decline of native plants. No endangered or threatened species were found. There were no differences in flora species for Alternates A and C. A listing of the plants to be found in the proposed road corridors is shown in **APPENDIX B: BOTANICAL SURVEY**.

Soils:

The soils of this area are lava lands whose rockiness make them generally untillable. The slopes are generally 6% to 20%; however, the area of the proposed road would have a slope of about 7%. These lands are best suited for grazing. Small areas are used as orchards. Vegetation is heavy in open untended areas. Refer to **APPENDIX B: BOTANICAL SURVEY**. The soils are permeable, runoff is slow and erosion hazard is slight. Pahoehoe outcrops can be found in this area as well as loose rocks that were used for constructing the heiau platforms, house walls, fences, sealing burial caves and the like. These lands are well below the mauka coffee lands that give Kona its reputation for top grade coffee.

Utilities:

Electric, telephone and water services are available in this urbanized area. There is no sewer service at present within the Komohana Kai Subdivision. The present County wastewater system has sewer treatment plants at ~~Kailua Village and Keauhou~~ ^{Keolu and Keolu}. There is a 30-inch sewer main on Alii Drive that can service the proposed Alternates A or C roadways. A 15-inch sewer main fronts the Alternate B proposed roadway. The flow is to the ~~Kailua Wastewater Treatment Plant~~ ^{Keolu Wastewater Treatment Plant}. It should be noted that the project site is located below the Underground Injection Control (UIC) line.

Since this is a public works road project, no utility services are required except for the street lighting system. It is expected that temporary water connections will be made for work-related purposes such as dust suppression.

RECEIVED AS FOLLOWS

Harry Kim
Mayor



Dennis K. W. Lee
Director

Ronald Ueoka
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

April 24, 2002

GALEN KUBA P E ACTING DIRECTOR
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
25 AUPUNI STREET ROOM 208
HILO HI 96720

ATTN: PETER BOUCHER, P.E.

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
LAKO STREET EXTENSION
HOLUALOA, NORTH KONA, HAWAII

We appreciate your review on the draft environmental assessment for the Lako Street Extension project. In response to your comments, we offer the following clarification:

SECTION 6: Impact of opening area to development and subsequent wastewater generation not addressed:

The Lako Street Extension has three objectives: ease traffic on Royal Poinciana Drive; provide another escape route for coastal residents in the event of high seas or tsunami warning; and access for Komohana Kai Subdivision to Alii Drive. This project is not associated with any development.

SECTION 7E: In the EA, this section refers to Water Quality Mitigation:

Your statement recommending the extension of sewer from Alii Drive to serve subdivisions below Kuakini Highway is covered in SECTION 4A: GENERAL DESCRIPTION: TECHNICAL, page 11. It is our understanding that the Division of Wastewater will install sewer mains concurrently with the construction of the Lako Street road extension to achieve cost savings. This is part of the Division of Wastewater plans for the Kailua-Keauhou sector. As stated above, the Lako Street road extension is not part of any development project.

We hope we have addressed your concerns.

Dennis K. W. Lee
DENNIS K. W. LEE, P. E.

DKWL/BMK:sst

cc: Hilo Engineering, Inc.

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

October 29, 2003

Ms. Barbara Bell, Director
Department of Environmental Management
25 Aupuni Street, Room 202
Hilo, HI 96720-4252

Dear Ms. Bell:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

Thank you for your review of the draft Environmental Assessment for the Lako Street Extension project.


As you have noted, we will identify the sewage plant for Kailua as the Kealakehe Treatment Plant and omit reference to Keauhou.

Insofar as the statement by my predecessor, it was based on his understanding with the Waste Water Division staff. However, we have since learned that this is no longer true. In our draft EA you will note that in SECTION 4a: Technical, page 12, we have stated:

" Further, sewer and water mains may be installed concurrently with the road construction."
(Underlining added)

We suggest that savings will be achieved if the sewer main is installed concurrently with the road construction and, also, prevent tearing up a new pavement at a future date. However, you will have to find necessary funds for the design and construction of the sewer main as this project does not have sufficient funds to address this matter.

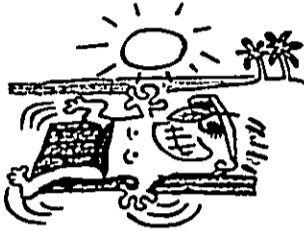
Sincerely,


Bruce McClure, P.E.
Director

cc: Hilo Engineering, Inc.

RECEIVED AS FOLLOWS

Darin & Linda Kraft



P.O. Box 2334 - Kailua-Kona, HI 96745
808-987-1546 (Darin) - 808-987-5828 (Linda)
808-326-7605 (fax) - MED2000NET@hawaii.rr.com

October 7, 2003

Bruce McClure
Director of Public Works
Aupuni Center
101 Pauahi St., Suite 7
Hilo, HI 96720

Dear Mr. McClure:


My husband and I recently read the article in the West Hawaii paper on the proposed extension of Lako Street to Alii Drive.

We have signed in long term lease at the Kona Palms Condos and are very interested in the proposed connection which will be running along our northern boundary.

Could you send us information regarding this proposal, maps of exactly where the proposed road would open showing the extent the road will take up the vacant property between us and Kahili on the north.

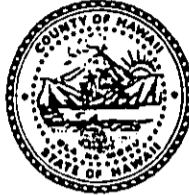
We would be interested in being informed of local meeting dates regarding this plan as it affects our home and the area around our home.

Sincerely,


Linda Kraft
77-6311 Alii Dr. #302
Kailua-Kona, HI 96740

14148

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

October 27, 2003

Mrs. Linda Kraft
77-6311 Alii Drive, #302
Kailua-Kona, HI 96740

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
LAKO STREET EXTENSION
HOLUALOA, NORTH KONA, HAWAII
TMK: 7-07-04

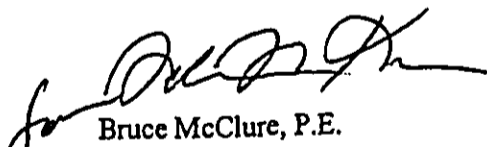
We have received your letter of inquiry relating to the proposed extension of Lako Street.

In answer to your request, a copy of the map showing the proposed Lako Street Extension is enclosed. The preferred route is shown in yellow.

For your information, a copy of the EA was sent to the Resident Manager of Kona Palms. (See enclosed letter.) You may wish to check with him. Also, copies are available for public review at the Kona libraries (Kailua, Holualoa and Kealahou).

I hope this is the information you are seeking.

Sincerely,


Bruce McClure, P.E.
Director

Enclosures

cc: Hilo Engineering, Inc.

78-6800 Alii Dr. #27 ♦ Kailua-Kona HI 96740
Phone (808) 322-7962 ♦ Fax same

November 07, 2003

County of Hawaii
Dept of Public Works
101 Pauahi Ste7
Hilo Hawaii
96720-3043

Dear Mr. McClure

I have received the Lako Street Extention Draft Environmental Assessment, which includes Alternate C and I have reviewed all of its contents. In March of 2001 after reviewing the initial Environmental Assessment which included only Alternate A and Alternate B, I wrote a letter to your office dated March 21, 2002 stating that I believed that Alternate A would be the best selection as it was shorter, less costly and appears to impact fewer archaeological sites,

In that letter I expressed some reservations in that the Alternate A passed within feet of the Hikapaia Heiau and that extreme caution should be used during road construction so as not to damage this Heiau. I also stated that if possible the road routing should be moved slightly to the North so as not to impact this Heiau..

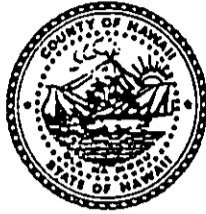
I was pleased to see that in the new Assessment that Alternate C, a third routing, is proposed and that a portion of this new routing has been moved slightly to the North so as not to impact the Hikapaia Heiau..

I do believe that the Lako street extention including Alternate C is the best possible routing that could have selected. No matter what the routing for the Lako Street extention is, a certain amount of sites would have been impacted but this new routing impacts the least. Also as with Alternate A, Alternate C intersects Alii Drive on a convexed portion of the road where by approaching traffic from both directions can be seen thus reducing traffic hazards. (this would not have been so with alternate B which intersects Alii drive on a concaved portion of Alii Drive)

Joseph N. Castelli

14390

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawai'i
DEPARTMENT OF PUBLIC WORKS

Aupuni Center
101 Pauahi Street, Suite 7 · Hilo, Hawaii 96720-4224
(808) 961-8321 · Fax (808) 961-8630

December 3, 2003

Mr. Joseph N. Castelli
78-6800 Alii Drive, #27
Kailua-Kona, HI 96740

Dear Mr. Castelli:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-7-004

Thank you for your review of the Draft Environmental Assessment for the Lako Street Extension project. We appreciate your comments endorsing Alternate C for the roadway project.

We will keep you apprised of the progress of this roadway project and welcome your opinion, especially as related to archaeological matters.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce McClure".

Bruce McClure P.E.
Director

c: Hilo Engineering, Inc.

kai 'opua  canoe club

December 1, 2003

County of Hawaii
Department of Public Works
101 Pauahi Street, Suite 7
Hilo, HI 96720-3043

Attn: Bruce McClure, Director

Re: Draft Environmental Assessment-Lako Street Extension

Dear Mr. McClure:

By letter dated September 3, 2003, you conveyed a copy of the captioned draft document to our club. Thank you very much allowing us to review the document. We regret the delay in responding which was unavoidable, and we understand that we have not met the deadline set out in your letter. However, we thought that we should nevertheless respond.

We have carefully reviewed the draft and discussed it with our Board of Directors, and we believe that it is complete and well done. We have no other observations.

Our membership is very much interested in all cultural issues, so we appreciate very much being included.

Sincerely,


Jerry F. Halverson, Vice President
Kai 'Opua Canoe Club

14545

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Paunhi Street, Suite 7 ☐ Hilo, Hawaii 96720-4224
(808) 961-8321 • Fax (808) 961-8630

December 29, 2003

Kai 'Opua Canoe Club
P.O. Box 3079
Kailua-Kona, HI 96745

Attn: Mr. Jerry F. Halverson, Vice President

Dear Mr. Halverson:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, HI
TMK: 7-7-004

We appreciate your review of the draft Environmental Assessment for the Lako Street Extension project. It was very pleasing to note that your Board of Directors found the document complete and well done. Thank you very much.

Your interest in cultural affairs is recognized and we will place your organization on our list of consulted parties with respect to cultural issues that are under discussion.

Sincerely,

Bruce McClure, P.E.
Director

cc: Hilo Engineering, Inc.

MICHAEL J. MATSUKAWA
Attorney at Law
Territorial Center, Room 201
75-5751 Kuakini Highway
Kailua-Kona, Hawaii 96740
Telephone (808) 329-1385
Fax (808) 329-0512

November 7, 2003

Mr. Bruce McClure
Director of Public Works
Dep't of Public Works
County of Hawaii
101 Aupuni Street, Suite 7
Hilo, Hawaii 96720-3043

HAND DELIVERED TO KONA
OFFICE and MAILED

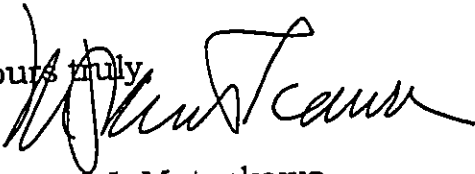
Re: Draft Environmental Assessment (EA)
Lako Street Extension
Hohualoa, North Kona, Hawaii
TMK: (3) 7-07-04:

Dear Mr. McClure:

On behalf of my client, John Kobayashi, who is a landowner affected by the proposal described in the Draft Environmental Assessment, I am submitting several comments and questions that he had directed to you regarding the assessment in question. Because much of Mr. Kobayashi's comments arise out of the absence of information and need for clarification of statements made, he has formulated those comments in the forms of questions as well. Your response to these questions and comments will greatly enhance the depth and scope of the assessment.

I have also added some comments on my own on Mr. Kobayashi's behalf as well. Thank you for the opportunity to provide comments to the assessment.

Yours truly


Michael J. Matsukawa

ENC:

In order to increase efficiency and in order to provide clarify for the understanding of the commentator and the applicant and especially the public, various abbreviations and shorthand forms of questions will be utilized. The abbreviations and shorthand questions are as follows:

ABBREVIATIONS

1. "DPW" means the Department of Public Works for the County of Hawaii, as a governmental agency, its director and employees and agents and consultants in DPW's roles of both applicant and approving agency.
2. "County" means all agencies and governmental departments and divisions, their directors, employees, agents, and consultants, reporting to, or subject to, the management or direction of the executive branch of the County of Hawaii government specifically including the office of the mayor and the departments of water and planning, but not including the City Council.
3. "DEA" means the Draft Environmental Assessment dated September 2003 for the Lako Street extension prepared by Hilo Engineering, Inc.
4. "HE" means Hilo Engineering, Inc., its officers, employees, agents and consultants.
5. "/" means "and/or" including each item in sequence, respectively.
6. "Alii Parkway" means the Kahului-Keauhou Parkway project.
7. "Complex" means the approximately 16 acre site known as the "Kekealani-Wahine Complex."
8. "Sites" or "Features" mean the archeological sites or features identified in Appendix D or any other part of the DEA.
9. "Writings" means all writings and documents and electronic transmissions as defined by the Hawaii and Federal Rules of Evidence.

SHORTHAND QUESTIONS

Whenever these following shorthand abbreviated phrases are utilized in any of the questions or requests for answers, please refer to these expanded explanations of the shorthand definitions. For example, "please describe and explain" has a defined meaning in this document as does the "please identify all relevant writings." Reference in each instance should be made to the following expanded definitions of the shorthand question?

"PLEASE DESCRIBE AND EXPLAIN" is a question that requests that the answer provided in written form describe with particularity all of the facts and considerations related to the answer to the question and the specific topic and that the answer be provided directly and completely with the response. The term "explain" requests that if any explanation is needed in order to make the answer and response not misleading by reason of incompleteness or need for designation or organization or elucidation or preference to any other writing or item, that the facts and conclusions and considerations be provided so that the proposed answer by the DPW/County/HE or any other source answering the question provides the necessary information without the necessity of referring to other documents that must be identified in a subsequent or different location in the response. "Explain" also includes discussion of the rationale of the decision or consideration or analysis.

"PLEASE IDENTIFY ALL RELEVANT WRITINGS" is a question requiring identification of all "writings" as defined in the Federal and Hawaii Rules of Evidence which writings are relevant or related to the answer or explanation provided and relate also to any consideration or evaluation or judgment or determination or finding made by the DPW/County/HE or others who participated in the process and analysis that led to the facts and considerations of underlying the conclusions, findings, or decisions.

The phrase "relevant" means related in anyway to the consideration, evaluation, decision, action, finding, or failure to act or to make a finding with respect to any question or issue presented. If at any time assertion is made that any writing is "privileged" or "confidential" and thus is to be withheld from disclosure to the public and the County's taxpayers, the reasons and basis for such designation and reference are requested to be stated in the answer and response.

[SECTION 1]

001

1-A. Did the DPW/County/HE consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: Are there any conflicts of interest or other ethical considerations that arise because of the circumstance that the DPW is both the applicant and the approving agency? If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

002

1-B Please identify by name, title, address (both office and email) and phone number each of the individuals employed or retained by DPW for the purposes of:

- (1) Evaluating the adequacy of compliance with the legal and regulatory requirements and standards for this environmental assessment and any environmental impact statement.
- (2) Who were consulted or participated in the evaluation of the authorization of the environmental assessment instead of an environmental impact statement to be utilized for analysis of all environmental impacts.
- (3) Each individual who was involved in evaluating providing information to those listed as "consulted parties" in Section 2.

1-C

003 Please identify the relevant writings that describe and constitute the contracts for any consultants or contributing work by any individuals retained or consulted by DPW/County/HE and any governmental agencies and entities who performed work or provided information in connection with the DEA. (2) With respect to the question in 1-C, please include by identification but not by way of limitation those individuals who provided appraisal information, valuation of property information, the information regarding survey routes and choice of specific alignment of the proposed roadways A and C.

[SECTION 2]

2-A

004 Please identify by name, title, address (office and email) phone number each individual consultant who was or is associated with each of the "consulting parties" identified in Section 2 at page 3 of the DEA. If consulted or contacted, please identify the reason and purpose of the consultation and the nature of such consultation and please identify all relevant writings.

2-B

005 Please identify with particularity and describe and explain and please identify any documents related to consultations and contacts with John M. Kobayaski as adjacent land owner.

2-C

006 Please identify with particularity and describe and explain and please identify any documents related to consultations and contacts with Lutheran Church as adjacent land owner.

007 2-D Please identify with particularity and describe and explain and please identify any documents related to consultations and contacts with all others who are listed as having been consulted.

008 2-E Please identify whether there are any "affected landowners" or "affected parties" who have not been contacted or consulted.

009 2-F Please describe and explain all contacts and consultations with "Pocobollic" and please identify all relevant documents.

[SUMMARY DESCRIPTION]

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following:

010 The cost and budget estimates and requirements for data recovery?

011 What buffer zone would be advisable with respect to each archeological site and feature identified in the report?

012 What are to be the locations of contact with the proposed roadway of such buffer zones or zone?

013 The factual basis for the proposed alignment and precisely which features would be affected by direct contact, What are to be the locations of contact with the proposed roadway of such buffer zones or zone?

014 In the summary description at page 1 of the DEA, the statement is made that "the proposed roadway . . . includes a buffer zone." Please describe and explain precisely the dimensions of this "buffer zone" and its purposes. Please identify all relevant writings.

015 The summary section at page 1 states in part that "the Lako Street extension project is part of a long-range plan to provide a road network system to distribute and ease traffic in the Kailua-Keauhou sector." Please describe and explain and please identify the relevant writings with respect to the following questions:

What is the long-range plan? Has it taken a written form at anytime? If so, what is the written form and does it describe the long-range plan and methods to accomplish its stated purposes?

What is the Kailua-Keauhou section and which roads and streets are involved?

- 016 Please identify the "road network system." Please identify, describe and explain how the County plans "to distribute and ease traffic in the Kailua-Keauhou sector, and in what sequence and of construction of roadways and what factual findings under lie the plan?
- 017 Please describe and explain which traffic standards are being utilized to determine distribution and the objective "to ease" the traffic in the Kailua-Keauhou sector?
- 018 As to a final choice, please describe and explain and please identify all relevant writings related to the decision to choose alternate C instead of alternate A.
- 019 Is the primary or sole basis for choosing alternate C rather than alternate A the number of archeological sites that would be, apparently not avoided or disturbed?
- 020 Please describe and explain which features and sites will be affected by the alignments designated by Corridors A and C.
- 021 In the statements made to the public, the DPW and HE stated that surveys had already been done of the road alignments as also confirmed in the DEA. Please identify all relevant writings and please describe and explain the survey made and whether such survey stated or accounted for which sites or features were to be disturbed and avoided.
- 022 The statement is made in the summary that "mitigation measures will include data recovery." Please explain and describe . . .
- 023 The summary states that "the roadway is estimated to cost over \$2 million."
The following questions are made as stated:
- 024 Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: The cost and budget estimates and requirements for data recovery. If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.
- 025 Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: The cost and budget estimates and requirements for the

construction of the road. If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

026 Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: The cost budget estimates for the engineering plans. If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

027 Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: The cost and budget estimates for the nature of the road and materials required. If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

028 Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: The cost of land acquisition from adjacent landowners. If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

029 Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: The cost of administrative costs. If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

030 Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: Has a budget been prepared to justify the estimated cost of "over \$2 million?" If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

031 The public commentary by DPW/HE has stated that there is appropriation and reappropriation by Mayor Kim of \$3 million of county funds pursuant to a bond for this project. Has all of the money been accounted for to date? What are the budget allocations as of this date for any categories of expenditures?

032 Is any of the \$3 million obtained pursuant to the bond authorization and the reappropriation been spent for purposes other than the Lako Street Extension? Please explain and describe and please identify all relevant documents.

What amounts have been set aside for land acquisition costs? Please describe and explain and identify all relevant writings.

033 Have appraisers been retained as part of this budgetary process or are appraisers going to be retained for land acquisition valuation purposes? Please identify which appraisers have been retained and please identify all relevant writings.

034 Assuming that either A or C is chosen as the alternative, what if any, budget allocation has been made for the possibility of denying and condemning any use of any of the parcels along Corridors A and C? Please describe and explain and please identify all relevant writings.

035 Has an allocation and a target determination of dollar amounts for land acquisition been made by the County/DPW/HE? Is there a preliminary or final figure allocated in the budget? Please explain and describe and please identify all relevant writings.

036 What prohibitions are imposed by any legal requirements or regulatory requirements for expending more than the \$3 million, if determined to be advisable, for maximized infrastructure such as sewer lines, utilities and water lines that are clearly foreseeable necessary for future development and efficient management of public works projects?

037 If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

[INDEPENDENT DETERMINATION]

Only brief reference is made to the Alii Parkway in the DEA and the questions that relate to such brief references follow:

- 038 1. Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: whether there is any environmental impact whatsoever or archeological or cultural impact presented by the Alii Parkway in relationship to the Lako Street Extension? Clearly, the Lako Street Extension and the Alii Parkway intersect at what is now proposed to be a roundabout location for whichever corridor A or C has chosen for the Lako Street Extension. Is it the position and contention of the DPW/County/HE that the two roadways are entirely and wholly unrelated for purposes of environmental, archeological, or cultural or any other impact? If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.
- 039 2. Do the DPW/County/HE deny that there is any interrelationship whatsoever for purposes of environmental, archeological, cultural or other environmental or social impact or for any engineering purposes?
- 040 3. Do the DPW/County/HE admit that there is a relationship between the Lako Street extension and the Alii Parkway that affects the evaluation of environmental assessments, environmental impact, archeological considerations, cultural survey considerations and other social and physical impacts?
- 041 4. Does the DPW/County/HE deny that there will be future development residential or commercial in connection with both the Lako Street Extension and the Alii Parkway?
- 042 5. Do the DPW/County/HE deny that there will be any such future development?
- 043 6. Do the DPW/County/HE deny that there is a need for planning for future growth and development in connection with either or both the Lako Street Extension or the Alii Parkway?
- 044 7. Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: future growth and future needs of surrounding properties. If so, or if not, in either case, please describe and

explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

045

8. Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: planning that includes the considerations of maximizing the infrastructure for future planning in connection with the Lako Street Extension roadway or the Alii Parkway? If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

046

9. Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: the value and cost benefit analysis of providing a sewer line sufficient to handle future development or convert the sewer system from cesspools in the Komohana-Kai subdivision from cesspools to county sewer lines. If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

047

10. Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: the advisability of providing water lines as part of the roadway sufficient to service future growth and transport water that may be necessary for such future growth or increased usage of water by others. If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

048

11. Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: placement of underground utility lines and adequate utility power sources in the main roadway or along the main

roadway for service that is more efficient and less costly for future growth. If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

049

12. Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: the advisability and cost _____ of providing these infrastructure improvements at this time rather than in the future when the entire roadway would have to be dug up and new planning and permits would be required. If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

[VARIOUS GENERAL QUESTIONS AND COMMENTS]

050

Mr. Lee as Director of the Public Works Department made a statement that was recorded in the Record of Proceedings revised 3/19/01 for the meeting held 3/15/01 that the Lako Street Extension "will not move forward without the support of the community." Is this the position currently of the DPW/County/HE and if not, please describe and explain?

051

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: Councilwoman's Pissichio proposal to "fast track" the project by using only County funds? If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

052

Has the funding of \$3 million remained in place for the project and are additional funds going to be sought or not? If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

053 Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: What are the reasons for not proposing an environmental _____ statement? If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

054 Does the DPW/County/HE believe or has it determined that there are no significant issues that merit preparation of an EIS? If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

055 In the opinion of the DPW/County/HE, what are the significant considerations or issues that will determine whether an EIS is advisable or required for proper and legal evaluation of the environmental impacts of the Lako Street Extension project? If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

056 Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: The speed limit and speed limit signs along the Lako Street Extension? Speed bumps or other traffic controls for both the upper and lower part of Lako Street? Has stop signs been considered and where if considered should they be located? Are the traffic controls and stop signs dependent upon availability of funds? If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

057 In the traffic control study that was revised for this DEA, various recommendations are made in the study itself. Will the County/DPW/HE commit to these recommendations or will it decide not to undertake those recommendations and will such commitments or decisions be made before the environmental impact statement or the environmental assessment is put in final form?

058 How can an appropriate environmental assessment of traffic conditions be made without evaluation or decision on recommendations that affect and impact the traffic patterns and the traffic controls and the access in ingress and egress to the Lako Street Extension?

059 What are the current recommendations and status of the design studies for site evaluation, and evaluation of the access by ingress and egress to adjoining properties including both the church and the properties of the adjacent landowners?

060 In respect to the Alii Parkway, what is the status of the possibility of providing for the underground utilities, future sewer lines and water lines?

061 What is the status of the route of alternate A and Alternate C as to the precise location of the roadway for each part of the roadway? Are there any engineering drawings available? Where are the Exhibits of "typical intersection" and are these Exhibits adopted as the detail for intersections at the Parkway and also at Alii Drive for the Lako Street Extension?" Where are the photographs referenced in the Record of Proceedings for the information meeting on March 27, 2002? The statement in the Record of Proceedings made in response to the question was that "cost of one alternative over another is not determined ---. It will take into consideration all impact." What are the precise "impacts" that construe all those impacts that are to be taken into consideration?

062 Please identify the right of entry that had been granted as described in the Record of Proceedings on March 27, 2002 and describe what rights of entry have been granted.

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following:

- 063** That the study recommends improvements that would mitigate the traffic impacts identified in the study, but there is no statement that the recommendations will be implemented by the County.
- 064** Has there been any analysis or consideration of the affect of not implementating any such recommended improvements?
- 065** Has there been any consideration, evaluation or analysis of the environmental impacts if the improvements are to be implemented as recommended?
- 066** Is the commitment available from the County and DPW to implement such recommended improvements or not implement any such recommended improvements?
- 067** With respect to each recommended improvement, please describe and explain with particularity why such improvement as recommended is or is not going to be implemented and the extent to which such implementation or non-implementation will have an affect on traffic and in particular the LOS, ratings the VPH and the V/C ratios for the Lako Street Extension and the Alii Parkway?
- 068** If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.
- 069** Please describe and explain the traffic impact analyses combines in its various sections I.B 2 and 3 and III.A among others, the analyses of both the Lako Street Extension and the Alii Parkway. Is it the contention and conclusion of DPW/County/HE that the two separate roadways are entirely independent and may be analyzed entirely independently for environmental assessment and environmental impact purposes in light of the traffic study combining and speaking of the interrelationship of the two roadways? Please identify all relevant writings.
- 070** Please describe and explain the reference in the traffic impact study to the study of April 1999 by Julian NG Study been evaluated and included in the traffic impact study and is it the position/contention/conclusion of DPW/County/HE that the statements and analysis of the projected estimates for completion and impact and the roadway are properly analyzed and accounted in the Traffic Impact Study? Please identify all relevant writings.

071

Please describe and explain why there are a number of areas that apparently were beyond the scope of the Impact Study and involve assumed implementation of various improvements and the question to be answered is whether the DPW/County/HE contend and conclude that the Traffic Impact Study is complete in light of these omissions and completely accounts for all environmental impacts and assessments and whether the failure to commit to implementation of any one or all of the recommended improvements affects in any way the environmental assessment or impact of the Lako Street Extension. Please identify all relevant writings.

072

Please describe and explain at page 6 of the Traffic Impact Study, it is stated that the impact from the "Installation of the speed bumps on Royal Poinciana Drive" is beyond the scope of the Study and its evaluation of traffic impacts and thus the question arises what evaluation and analysis of environmental impacts was made with respect to the fact of the speed bumps? Does this mean that there is no impact whatsoever and is that the contention and conclusion of DPW/County/HE? Is it further the contention and the conclusion that the failure to account for any traffic impact of the speed bumps has no affect or impact on VPH or V/C ratios or LOS designations presently or in the future at 2009 and 2020? Please identify all relevant writings.

073

Please describe and explain if the DPW/County/HE or any of its traffic engineer consultants ever studied the traffic flow on Royal Poinciana Drive? Were there any such studies before and/or after the speed bumps were put in place? Please identify all relevant writings.

074

Please describe and explain with respect to the Royal Poinciana Drive if there is no Traffic Impact Study of the affect of the speed bumps and no vehicle count at any time, then what is the basis factually and legally for asserting that traffic will be eased on Royal Poinciana Drive and that there will be any improvement in the LOS rating of Lako Street because such purported improvement? Please identify all relevant writings.

075

The LOS references on page 7 of D or E or F defined for this Impact Study the perspective LOS ratings and the questions to be answered is what improvements are expected and assessed for purposes of the DEA or any Environmental Impact Statement where there is no information regarding the impact of the speed bumps on Royal Poinciana Drive and furthermore, there is no commitment that any one of the recommended improvements made in the various sections of the Traffic Impact Study will in fact either be made or not made and the question again is what impact on the assessment and traffic impact analysis is there and will there be if there is or is not a commitment to make these improvements.

076

Please describe and explain and state with particularity as to each such recommended improvement contained in the Traffic Impact Study whether they are "assumed to be implemented" or are recommendations to be considered and the impact on the LOS ratings at each identified roadway point having an LOS rating in the Traffic Impact

Study, the effect on the B/C ratio, and the affect on the VPH figures. Please identify all relevant writings.

077

Please describe and explain why the Traffic Impact Study indicates various VPH and projected and contemplated LOS figures at pages 8 through 11. This assumes that there will be no additional modifications or implementation of the recommendations. How can the LOS be improved with or without such improvements and is it the contention that the DPW/County/HE that there will or will not be an improvement in the LOS ratings at each of the points described in the Traffic Impact Study. Please identify all relevant writings.

078

Please describe and explain the various recommendations at page 35, Section VI as recommended improvements are not stated to be committed by the DPW/County to be implemented if Alternate C is chosen? Why are they not going to be implemented? Please identify all relevant writings.

079

Please describe and explain what alternative and what impacts will there by if all Alternate A is selected. Is the same analysis applicable? Please identify all relevant writings.

080

Please describe and explain at page 25, Section V.B, the notation is made that all such traffic improvements "were assumed to be implemented for the purposes of this traffic analysis." The question to be answered is how valid is that assumption and in particular, is the DPW/County/HE committed to implementation of these particular traffic improvements and if not, why not. If not, what would be the modification of the environmental assessment and Traffic Impact Study as currently written if the assumption is not executed and effected. Please identify all relevant writings.

081

Please describe and explain with respect to Phase I of the Alii Parkway, the Traffic Impact Study indicates that all improvements listed in Subsections V.B, 1, 2 and 3 and V.D and other sections in the Traffic Impact Study are to be "implemented" at the time or as part of the Lako Street Extension or Alii Parkway and the question to be answered is whether these particular items, and each of them, are committed and in place to be "implemented" at the designated time? Please identify all relevant writings.

082

Please describe and explain if such V-Phase 1 improvements listed are not to be implemented, please answer the question of what affects, impacts and changes there are on the Traffic Impact Study and on the LOS projections and ratings. Please identify all relevant writings.

083

Please describe and explain that in light of the Phase to account for any impact of the speed bumps in Poinciana, the assumption of implementation of various improvements, the lack of commitment and indication that recommendations will or will not be implemented by the County at the time recommended by the Traffic Impact Study, please state the bases for contention and conclusion.

084 DPW/County/HE that the Traffic Impact Study evaluates all relevant environmental assessments and environmental impacts for traffic purposes and for any findings in the future. Please identify all relevant writings.

085 Please describe and explain the same questions preceding apply to the question of implementation of recommendations and commitments to construct and implement all improvements listed as recommended and to be, presumably, implemented in Sections VI.B.1, 2, and 3 and Section VI.C.2 and please identify all relevant writings.

086 With respect to each of the recommendations that were assumed to be implemented or recommended to be implemented, what is the impact of implementation or non-implementation and acceptance and implementation of the recommendations or rejections of the recommendations on VPH, LOS, V/C with respect to each of the areas so designated in the Traffic Impact Study Report.

087 With respect to all sections mentioned and also including Section III.A.4, please explain and describe why a traffic analysis could not or could be done as in other instances and why there is no inclusion of any such analysis at any point in the traffic impact analysis.

[LAND ACQUISITION AND BUDGET SECTION]

088 Please describe, explain and identify all relevant documents that explain the factual bases for the allocation and budgeting of the appropriated funds for the Lako Street Extension project? Please identify all relevant writings.

089 Please describe and explain and please include by category and contractor the dollars spent to date and the dollars allocated for expenditures against the appropriated funds and identify the accounting standards used for such allocations. Please identify all relevant writings.

090 Please describe and explain whether there are any funds appropriated originally or reappropriated that have been used for any purpose other than the Lako Street Extension project. Please identify all relevant writings.

091 Please describe and explain the interest cost imputable for the delay of this project by the Mayor of the County/DPW/HE to meet the originally designated time targets. Please identify all relevant writings.

092 Please describe, explain and identify the bases of the cost estimates for each of the categories of expense for the roadway known as the Lako Street Extension project. Please identify all relevant writings.

093 What amounts are allocated to further studies and please identify those studies and what amounts are allocated to land acquisition costs and to construction of the roadway itself? Please identify all relevant writings.

094 1. Mitigation features by effective engineering design of the traffic roundabout?

095 2. Mitigation features by effective engineering design of a traffic signal verses a traffic roundabout?

096 3. The mitigation features and effective engineering design of the entire question of traffic signal verses lanes turning and the entire intersection design of the intersection of Alii Parkway and the Lako Street Extension. In this regard, has there been a final engineering design put into published form for consideration and comment. If not, how can the environmental impact of such an intersection on the traffic patterns and the ambient conditions be evaluated for purposes of an environmental impact statement or environmental assessments?

097 4. How can any environmental impact be complete without a description of the design and size and a final determination of the roundabout and the relative merits of a traffic signal verses roundabout at the intersection of Lako Street and Alii Parkway?

098 5. Why is it that the DPW/County/HE did not require an SMA Permit?

099 6. What is the position in legal and factual basis for the DPW/County/HE in determining that they are not required to obtain an SMA Permit?

100 7. Were the signatures of the adjacent landowners obtained at anytime for consent to waive any permit requirements?

101 8. Obtaining an SMA Permit for the Lako Street Extension project? Why is it that the DPW/County/HE did not require an SMA Permit?

102 If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

With respect to Alternate A compared _____ with Alternate C, please respond to the following questions:

103 A. Please describe and explain which will cost less to construct, Alternate A or Alternate C? Please identify all relevant writings.

104 B. Will there be any leftover funds for the cost of construction of Alternate A or Alternate C?

105 C. What are your estimates for land acquisition costs for Alternate A verses Alternate C with respect to each specific property?

106 D. With respect to the availability to serve the neighboring population, what consideration or studies have been done with respect to the adjoining densities of population that currently exist or plan to exist for the Kahului-Keauhou sector in relation to both Lako Street Extension and the Alii Parkway?

107 E. Which neighborhoods does the DPW/County/HE consider as being served by the Alii Parkway and thus the Lako Street Extension coming from Mauko, Maki, South and Alii Parkway?

F. Have any density or population studies been done with respect to this consideration?

108 G. What specific analysis have been applied to indicate that Alternate C will have or would have less of an impact on an archeological site as compared to Alternate C?

109 H. Which of the Heiaus will be affected and what distances by the roadways?

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following:

110 1. The notification and holding of any additional public meetings before the final EIS is published and at what dates and where?

111 2. The forms of notice that were sent to interested or affected landowners or parties for all prior public meetings?

112 3. The extent to which what interested and affected landowners and parties will be given an opportunity to comment on any further draft environmental assessments?

113 4. The production of another "draft" environmental assessments before the final environmental assessment and whether it will be circulated for public comment.

114 5. If there is not to be any further draft environmental assessment, the date when there will be a final publication of the final draft environmental assessment?

115 6. Will any or all interested or affected landowners or parties be provided with a copy of any further draft Environmental Assessment or final Environmental Assessment?

116 7. In the circumstance where there is a finding of "no significant impact" made, to what extent will the DPW/County/HE explain the factual and legal bases of such finding?

117 8. In the circumstance that there is a finding of "no significant impact" to what extent will that finding be supported by written explanations of the reasons, the writings, and the factual, legal, regulatory and public comment and input for such a finding, including all archeological, cultural and rationales for consideration and justification for any such findings?

118 9. To what extent in the circumstance where there is a finding of "no significant impact," will the director of the DPW, the principle engineers of HE, the Mayor, and the appropriate County officials refuse or accept any invitations to hold public hearings and meetings to obtain all public comments relating to the draft or final Environmental Assessments?

- 119 10. To what extent will any such individuals provide written support for the proposition that an Environmental Assessment is as finally drafted sufficient to support the conclusion that an Environmental Impact Statement is not appropriate or necessary?

120 If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

[TRAFFIC CONSIDERATIONS REGARDING [ROYAL POINCIANA]

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following:

- 121 1. The affect of the substantial speed bumps that were placed on Royal Poinciana Drive, in particular, whether such speed bumps have negated the utility and value of Royal Poinciana Drive for use as a civil defense escape route?
- 122 2. The extent to which the traffic would be able to utilize the Royal Poinciana Drive with its speed bumps as an escape route, and specifically, whether the County has studied or at any time evaluated the number of cars that can progress up Royal Poinciana Drive at any given time period given the apparent fact that the automobiles will need to stop at each speed bump on the way up to Lako Street?
- 123 3. To what extent has this issue been studied and to what extent was there any consideration given to the civil defense needs and safety needs of the public in putting those speed bumps in place?
- 124 4. To what extent were alternatives studied such as stop signs or stop lights to slow the traffic on Royal Poinciana Drive and to make the Drive open and available in case of emergency as an escape route?
- 125 5. To what extent has there been any study or evaluation of the current vehicle traffic on the basis of EPH since the installation of the speed bumps and to what extent is there any study regarding the change in vehicles per hour that would be supported if Poinciana Drive did not have speed bumps but instead had other traffic calming devices?

- 126 6. To what extent has there been study or planning for alternate devices for calming traffic of the speed bumps are eliminated?
- 127 7. To what extent has there been any consideration at any time of right and left turn lanes into Poinciana Drive headed northbound on Alii Parkway and an exit turn going northbound as a traffic lane from Poinciana and a separate left-turn lane into Poinciana so that the unacceptable congestion that exists presently along with the obvious safety hazards of negligent design of the intersection are mitigated or remedied?
- 128 8. To what extent does DPW/County/HE believe that the speed bumps do not constitute negligent design for an escape route in the circumstances of an emergency caused by a Tsumami or highway flooding along Alii Parkway?
- 129 9. If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

[FAUNA SURVEY]

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following:

- 130 1. The factual basis or lack thereof in the statement that either or both the Hawaiian Hawk or (Lo) and the Hawaiian Bat may "enter" or "fly over" the project site?
- 131 2. Is it the position assuming consideration and review, of the DPW/County/HE that there is or is not a nesting or other habitation site for either Hawaiian Hawk or Hawaiian Bat based upon the Fauna Survey?
- 132 3. Has there been any proof of any established, in fact, confirmed observations or known sightings of either the Hawaiian Hawk or the Hawaiian Bat?

133 4. Has there been any such sighting or proof on the part of any individual associated with the DPW/County/HE?

134 5. Do the DPW/County/HE confirm the legal and factual official position that there are no endangered species (specifically including the Hawaiian Hawk and Bat) who have any connection with or associated habitat with the project site or any of the surrounding adjacent properties?

135 6. To what extent was the Fauna Survey done for the property surrounding the project site and was it also done for the property Mauka of the Alii Parkway?

136 7. Is the Fauna Survey only applicable only to the specific 120-foot survey corridors of Alternate Corridors A, B and C?

137 8. Are there any mitigation or other environmental impact considerations that relate to the Fauna Survey that are not yet identified in this particular Fauna Survey?

[APPENDIX A-E]

A-A

138 Do DPW/County/HE separately and individually accept unequivocally and unconditionally as complete and final and fully in compliance with all legal and regulatory requirements the written report and survey information for environmental impact analyses that is contained in Appendix "A" entitled "Fauna Survey?" Furthermore, please state by describing and explaining all qualifying, or modifying, conditions or modifications or revisions for any of the topical areas or statements or issues contained in the Appendices that may or will need additional study or comment or factual or legal determinations.

B-A

139 Do DPW/County/HE separately and individually accept unequivocally and unconditionally as complete and final and fully in compliance with all legal and regulatory requirements the written report and survey information for environmental impact analyses that is contained in Appendix "B" entitled "Botanical Survey?" Furthermore, please state by describing and explaining all qualifying, or modifying, conditions or modifications or revisions for any of the topical areas or statements or

issues contained in the Appendices that may or will need additional study or comment or factual or legal determinations.

C-A

140

Do DPW/County/HE separately and individually accept unequivocally and unconditionally as complete and final and fully in compliance with all legal and regulatory requirements the written report and survey information for environmental impact analyses that is contained in Appendix "C" entitled "Traffic Study?" Furthermore, please state by describing and explaining all qualifying, or modifying, conditions or modifications or revisions for any of the topical areas or statements or issues contained in the Appendices that may or will need additional study or comment or factual or legal determinations.

D-A

141

Do DPW/County/HE separately and individually accept unequivocally and unconditionally as complete and final and fully in compliance with all legal and regulatory requirements the written report and survey information for environmental impact analyses that is contained in Appendix "D" entitled "Archeological Assessment and Inventory Survey?" Furthermore, please state by describing and explaining all qualifying, or modifying, conditions or modifications or revisions for any of the topical areas or statements or issues contained in the Appendices that may or will need additional study or comment or factual or legal determinations.

Do DPW/County/HE accept, without qualification, objection, contradiction, condition, or modification the following parts of the Archeological Report submitted by Haun and Associates:

142

1. The assessment;
2. The inventory and survey;
3. The field methods and methodology;
4. The findings;
5. The conclusions;
6. The significant assessments;
7. The recommended areas;
8. The figures 1- 34; and
9. The tables 1-7?

143

E-A
Do DPW/County/HE separately and individually accept unequivocally and unconditionally as complete and final and fully in compliance with all legal and

regulatory requirements the written report and survey information for environmental impact analyses that is contained in Appendix "E" entitled "Cultural Survey and Assessment?" If so, or if not, please describe and explain and please identify all relevant writings. Furthermore, please state by describing and explaining all qualifying, or modifying, conditions or modifications or revisions for any of the topical areas or statements or issues contained in the Appendices that may or will need additional study or comment or factual or legal determinations.

F-A

144

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: To what extent was there evaluation and review of the "massive historical data" described at page 5 of the DEA? If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

G-A

145

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: To what extent was there any evaluation of any of such "massive historical data" in connection with the cultural assessment and the environmental assessment or environmental impact? If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

H-A

146

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following: To what extent, if any, was the 1995 final EIS study evaluated for any information regarding the State Park and the impact of any information contained therein on the Lako Street Extension and environmental impacts and assessments for this DEA? If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

[SPECIFIC QUESTIONS]

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following:

- 147 1. What date of recovery is needed for each of the numbered archeological sites?
- 148 2. What impact on the budget will the data recovery have?
- 149 3. Has the data recovery projects been designated and if, which archeological sites are designated for data recovery?
- 150 4. If the data recovery for Lako Street is in any way related to the data recovery for the Alii Parkway, please identify such relationship or explain why there is no such relationship?
- 151 5. With respect to each of the designated sites that are described as needing data recovery, does the DPW/County/HE contend that there is an error in the analysis and designation of such sites as needing data recovery?
- 152 6. As to the particular sites designation where "preservation" as may be indicated, does the DPW/County/HE take the position that such sites are to be preserved upon designation by the appropriate state authorities or are not to be preserved according to the designation of the appropriate state authorities?
- 153 7. Does the DPW/County/HE have an official position that such sites as are recommended for any preservation consideration must be preserved?
- 154 8. Does the DPW/County/HE have the expertise other than by their retained consultants, Haun and Associates, to make such a determination?
- 155 9. To what extent are the features in the following sites subject to any modification by DPW/County/HE that is modification or an objection to the report of Haun and Associates contained in Appendix D?
- 156 10. The following sites are the subject of this questions:

If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following:

- 157 1. The specific archeological and cultural "buffer zones" contemplated or planned and please identify as to each such site or feature whether there will be a buffer zone associated with each such site or feature for Alternates A and C.
- 158 2. The factual and legal bases according to the DPW/County/HE for requiring any "Buffer Zones."
- 159 3. Precisely who will determine what buffer zones are needed and where?
- 160 4. The specific factual and legal bases for any buffer zone that is larger than ten feet on each side of what is ultimately determined to be a "preservation feature" and the legal and factual bases for any extended buffer zone beyond such features?
- 161 5. Who will perform and when will the data recovery be performed for each site or feature listed as being affected by the Alternates A and C and/or the Alii Parkway?
- 162 6. Any amendment or revision that might be required for the archeological Assessment and Inventory in light of any changes in the Environmental Impact Evaluations.

163 If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following:

- 164 1. To what extent is there future uses of adjacent property that are or are not accounted for environmental impact and related assessment?
- 165 2. To what extent is the valuation for land inquisition costs, design and location of roadways and maximization of taxpayer dollar benefit by planning and designing and construction of all infrastructure specifically including sewer, water, drainage, and any other utilities or infrastructure systems during the period of initial construction and installation of the Lako Street Extension instead of postponing such construction and infrastructure improvements to some undetermined time in the future. The same question is raised as to planning and implementation installation and construction at the time of the initial Lako Street Extension construction for access, egress, ingress, and all connected streets.
- 166 3. Why is it not and why will it not be more cost efficient for the benefit to the taxpayers of the County of Hawaii to construct and install the infrastructure as designated and described as needed in light of the foreseeable master plan and recent foreseeable growth and development of already permitted and future to be permitted residential and commercial projects described in the traffic impact study and other publications and based upon permits granted and permits applied for and master planning considerations?
- 167 4. Are facilities for the Lako Street Extension to be constructed only based on needs defined as of September 2003?
- 168 5. Is any consideration to be given to future growth and development?
- 169 6. What plans and studies have been undertaken, conducted or completed with respect to the future needs of water, sewer, drainage, utilities, lights, roadway access and to what extent have they been considered and integrated in this DEA and please identify where in the DEA they are incorporated?
- 170 7. To what extent has any plan or design incorporated the use of existing facilities such as the drainage facility that the County imposed at a cost of more than \$20,000 upon the Lutheran Church and has the availability of any such already constructed facilities been evaluated as part of the environment assessment?
- 171 8. To what extent has there been consideration or review of the observations, recommendations and analyses of urban planners such as Lewis Munford and the AIA and the American Institute/Association of Cities/Urban Planners and other governmental agencies who have recommended maximizing taxpayer governmental expenditures and resources by construction infrastructure at the

time of the initial project in order to account for and plan for future demands on infrastructure?

- 172 9. To what extent has there been any consideration or analysis of the advantages to the taxpayer in cost and benefit and avoidance of future unnecessary or avoidable costs to concentrate infrastructure in the more densely populated areas and developments in order to obtain "more bang for the buck and to construct such infrastructure in place at today's costs rather than tomorrow's greater costs and expenditures.?"
- 173 10. Has there been any recognition or consideration of the future growth regarding the impact on infrastructure needs associated with the Lako Street Extension and the Alii Parkway?
- 174 11. Have Council person Tyler and Council person Pisicchio been consulted and what have they said regarding this effort to maximize taxpayer dollars and efficiency of resources; it is our understanding that both have spoken to these topics in the past in favor of maximizing taxpayer dollars by installation of infrastructure that accounts for future needs.
- 175 12. What consultation, if any, with other departments of the County were conducted to determine what projected future growth in the Kahului-Keauhou sector would or might have environmental impacts upon the infrastructure development associated with the Lako Street Extension and the Alii Parkway, including the adequacy of currently proposed or recommended or future improvements for mitigation of expense and traffic and whether such evaluations and analyses have been applied to traffic lights at intersections and roundabouts and all of the recommendations contained in the Traffic Impact Study?
- 176 13. Is it the position/contention/conclusion of DPW/County/HE that there will be: (1) no future growth or development affecting or impacting the Lako Street Extension or the Alii Parkway, its traffic devices and its infrastructure facilities installations (2) that the County Master Plan and its proposed areas of development need not in any way be considered or evaluated for purposes of this DEA or any EIS (3) then as "separate roadways" the Lako Street Extension and Alii Parkway can be analyzed for environmental impact purposes including archeological, cultural, traffic and public interest, entirely independently and separately of each other for any of these purposes.
- 177 If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

[INFRASTRUCTURE]

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following:

- 178 1. To what extent is there future uses of adjacent property that are or are not accounted for environmental impact and related assessment?
- 179 2. To what extent is the valuation for land acquisition costs, design and location of roadways and maximization of taxpayer dollar benefit by planning and designing and construction of all infrastructure specifically including sewer, water, drainage, and any other utilities or infrastructure systems during the period of initial construction and installation of the Lako Street Extension instead of postponing such construction and infrastructure improvements to some undetermined time in the future. The same question is raised as to planning and implementation installation and construction at the time of the initial Lako Street Extension construction for access, egress, ingress, and all connected streets.
- 180 3. Why is it not and why will it not be more cost efficient for the benefit to the taxpayers of the County of Hawaii to construct and install the infrastructure as designated and described as needed in light of the foreseeable master plan and recent foreseeable growth and development of already permitted and future to be permitted residential and commercial projects described in the traffic impact study and other publications and based upon permits granted and permits applied for and master planning considerations?
- 181 4. Are facilities for the Lako Street Extension to be constructed only based on needs defined as of September 2003?

- 182 5. Is any consideration to be given to future growth and development?
- 183 6. What plans and studies have been undertaken, conducted or completed with respect to the future needs of water, sewer, drainage, utilities, lights, roadway access and to what extent have they been considered and integrated in this DEA and please identify where in the DEA they are incorporated?
- 184 7. To what extent has any plan or design incorporated the use of existing facilities such as the drainage facility that the County imposed at a cost of more than \$20,000 upon the Lutheran Church and has the availability of any such already constructed facilities been evaluated as part of the environment assessment?
- 185 8. To what extent has there been consideration or review of the observations, recommendations and analyses of urban planners such as Lewis Munford and the AIA and the American Institute/Association of Cities/Urban Planners and other governmental agencies who have recommended maximizing taxpayer governmental expenditures and resources by construction infrastructure at the time of the initial project in order to account for and plan for future demands on infrastructure?
- 186 9. To what extent has there been any consideration or analysis of the advantages to the taxpayer in cost and benefit and avoidance of future unnecessary or avoidable costs to concentrate infrastructure in the more densely populated areas and developments in order to obtain "more bang for the buck and to construct such infrastructure in place at today's costs rather than tomorrow's greater costs and expenditures.?
- 187 10. Has there been any recognition or consideration of the future growth regarding the impact on infrastructure needs associated with the Lako Street Extension and the Alii Parkway?
- 188 11. Have Council person Tyler and Council person Pisicchio been consulted and what have they said regarding this effort to maximize taxpayer dollars and efficiency of resources; it is our understanding that both have spoken to these topics in the past in favor of maximizing taxpayer dollars by installation of infrastructure that accounts for future needs.
- 189 12. What consultation, if any, with other departments of the County were conducted to determine what projected future growth in the Kahului-Keauhou sector would or might have environmental impacts upon the infrastructure development associated with the Lako Street Extension and the Alii Parkway, including the adequacy of currently proposed or recommended or future improvements for mitigation of expense and traffic and whether such evaluations and analyses have been applied to traffic lights at intersections and roundabouts and all of the recommendations contained in the Traffic Impact Study?

190 14. It is noted that the Komohana-Kai subdivision is not currently hooked into any county sewer line and please explain and describe whether the future residents of the affected landowner areas will be allowed to utilize cesspools such as are being utilized in that subdivision or whether the future residences in the affected landowner areas will be required to look into the County sewer system and whether the Komohana-Kai subdivision residents will also be required to hook into the county sewer system.

191 15. If there is going to be a complete exemption for all future residences of the affected landowner areas and the Komohana-Kai subdivision, then please so state and declare and indicate whether such a commitment and declaration will negate any need for planning for a larger than currently stated sewer and water system infrastructure.

192 16. If not, then please indicate the reasons for failing to plan for such future demand and use on the water and sewer systems.

193 If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

[RECORD OF PROCEEDINGS OF MARCH 27, 2002]

194 What landowners have been contacted and what rights of entry have been granted.

195 Please describe and explain the official statement that stated "there are studies underway for additional routes further south of Lako Street (in connection with private development) that could help with future traffic" and the question to be answered is, what are the studies, where in completion progress are they at this time, which additional routes further south of Lako Street have been studied and which are designated for implementation? Please identify all relevant writings.

196 Please explain and identify: Lako Street as currently built does not have any driveway access from any existing lot along its route and thus was designed as a thru street from its inception, the question to be answered is will there be any driveway access from any future existing lot along Lako Street and, if not, where will be the access and egress to the adjacent landowner properties along Lako Street that are regular street and roadways? Please identify all relevant writings.

197 Please describe and explain in these proceedings, the official response is given that "the County will consider all options if traffic becomes a problem." There are many other ways to "calm" traffic-curves, traffic circles, etc." and the questions to be answered are why does the County not consider traffic problem at this time? What standards will be applied to determine whether "traffic becomes a problem?" Is this measured by VPH, LOS, V/C ratio or any combination thereof? Has there been any determination or finding that the traffic on Lako Street and affiliated roadways is not a problem? And please specify the "many other ways" that traffic along Lako Street and its associated roadways will be made more "calm?" Please identify all relevant writings.

198 Please describe and explain with respect to the official response that as follows: "the engineers do have a proposal for improving the intersection and planning studies to four lanes Kuakini in that area is underway. Additional studies are being done in conjunction with Kamehameha III and Laaloa. Lako Street Mauka is also being studied to create traffic calming solutions up there. It is hoped that development of the Parkway will divert traffic away from Lako Street and Mauka areas" and the question is to be answered in light of this official response as follows: what proposals have been advanced and what written proposals, analyses and engineering drawings have been set forth regarding a four-lane Kuakini?" What is the status of completion with respect to the plans, designs, traffic impact analyses and studies? What is the status of all additional studies and have engineer drawings been completed for such studies and if the studies have not been completed, when are they to be completed? Also, the proposals for any of these studies been included in the traffic impact analysis or the environmental assessments for Lako Street Extension or the Alii Parkway? What is the basis of the "hope" that development of the Parkway will divert traffic away from Lako Street and other Mauka areas? Please identify all relevant writings.

199 In the same record of proceedings, the statement is made as an official response "Lako Street will not be delayed since funding for Lako Street is totally available through County funds." The question to be answered is what has accounted for the delay of the past three years since the appropriation and is there a definite to be relied upon completion date for the Lako Street Extension. Please describe and explain etc.

200 The additional questions are on the comparison of Alternate Routes A and C, are there any considerations other than the alleged fewer contacts with archeological features and sights that guide the selection of C over A? If so, please identify each such additional consideration and identify whether each has been identified and evaluated in the environmental assessment.

201 Please describe and explain what permits has the DPW obtained and why is there not an SMA permit. Please identify all relevant writings.

202 On the SMA permit, were the affected landowners and interested parties' consents to the application obtained before the application was filed? If not, why not? Is it the position of the DPW/County/HE that the SMA permit did not require any such consents or signatures.

203 What are the permits that are required and what consents are required for initiation and completion of this project?

204 As noted in the memorandum dated April 8, 2002, the "traffic study needs to be redone to include the affects of VPH, on Royal Poinciana Drive now that it has been retrofitted with speed bumps," and the question to be answered in light of the specific denial and traffic study of any consideration of this factor, for what reasons and on what factual legal basis has the Traffic Impact Study not been redone and how can the environmental assessments and environmental impacts of traffic be properly and completely evaluated without such study.

CONTINUED FROM NOVEMBER 4 (RECORD OF PROCEEDINGS)

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following:

- 205 1. Mitigation features by effective engineering design of the traffic roundabout?
- 206 2. Mitigation features by effective engineering design of a traffic signal verses a traffic roundabout?
- 3.
4. The mitigation features and effective engineering design of the entire question of traffic signal verses lanes turning and the entire intersection design of the intersection of Alii Parkway and the Lako Street Extension. In this regard, has there been a final engineering design put into published form for consideration and comment. If not, how can the environmental impact of such an intersection on the traffic patterns and the ambient conditions be evaluated for purposes of an environmental impact statement or environmental assessments?
- 207
- 208 5. How can any environmental impact be complete without a description of the design and size and a final determination of the roundabout and the relative merits of a traffic signal verses roundabout at the intersection of Lako Street and Alii Parkway?
- 209 6. Why is it that the DPW/County/HE did not require an SMA Permit?
- 210 7. What is the position in legal and factual basis for the DPW/County/HE in determining that they are not required to obtain an SMA Permit?
- 211 8. Were the signatures of the adjacent landowners obtained at anytime for consent to waive any permit requirements?
- 212 9. Obtaining an SMA Permit for the Lako Street Extension project? Why is it that the DPW/County/HE did not require an SMA Permit?
- 213 If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

With respect to Alternate A compared _____ with Alternate C, please respond to the following questions:

214 A. Please describe and explain which will cost less to construct, Alternate A or Alternate C? Please identify all relevant writings.

215 B. Will there be any leftover funds for the cost of construction of Alternate A or Alternate C?

216 C. What are your estimates for land acquisition costs for Alternate A versus Alternate C with respect to each specific property?

217 D. With respect to the availability to serve the neighboring population, what consideration or studies have been done with respect to the adjoining densities of population that currently exist or plan to exist for the Kahului-Keauhou sector in relation to both Lako Street Extension and the Alii Parkway?

218 E. Which neighborhoods does the DPW/County/HE consider as being served by the Alii Parkway and thus the Lako Street Extension coming from Mauko, Maki, South and Alii Parkway?

219 F. Have any density or population studies been done with respect to this consideration?

220 G. What specific analysis have been applied to indicate that Alternate C will have or would have less of an impact on an archeological site as compared to Alternate C?

221 H. Which of the Heiaus will be affected and what distances by the roadways?

Did you consider at any time or review at any time (or if not, are any one of these entities planning to consider or review) the findings, study, analysis and evaluation related to the following:

222 1. The notification and holding of any additional public meetings before the final EIS is published and at what dates and where?

223 2. The forms of notice that were sent to interested or affected landowners or parties for all prior public meetings?

224 3. The extent to which what interested and affected landowners and parties will be given an opportunity to comment on any further draft environmental assessments?

225 4. The production of another "draft" environmental assessments before the final environmental assessment and whether it will be circulated for public comment.

226 5. If there is not to be any further draft environmental assessment, the date when there will be a final publication of the final draft environmental assessment?

227 6. Will any or all interested or affected landowners or parties be provided with a copy of any further draft Environmental Assessment or final Environmental Assessment?

228 7. In the circumstance where there is a finding of "no significant impact" made, to what extent will the DPW/County/HE explain the factual and legal bases of such finding?

229 8. In the circumstance that there is a finding of "no significant impact" to what extent will that finding be supported by written explanations of the reasons, the writings, and the factual, legal, regulatory and public comment and input for such a finding, including all archeological, cultural and rationales for consideration and justification for any such findings?

230 9. To what extent in the circumstance where there is a finding of "no significant impact," will the director of the DPW, the principle engineers of HE, the Mayor, and the appropriate County officials refuse or accept any invitations to hold public hearings and meetings to obtain all public comments relating to the draft or final Environmental Assessments?

231 10. To what extent will any such individuals provide written support for the proposition that an Environmental Assessment is as finally drafted sufficient to support the conclusion that an Environmental Impact Statement is not appropriate or necessary?

232 If so, or if not, in either case, please describe and explain and please identify relevant writings. Was any conclusion or final factual determination or finding made or reached? Was such information published? If so published, where and when and by what means? If so or not, please describe and explain all of the factual and legal bases for any such findings or conclusions or determinations, whether published or not.

233 Please describe and explain what evaluation has been made regarding light source pollution attributable to the street lights planned, what number of street lights are planned and needed at the intersections and beyond the intersections, what is the light effect on the existing residents, future residents and all those within sight line of such street lamps and at what height will the street lamps be constructed and for what lumen power? Please identify any relevant writings.

MISCELLANEOUS

1. At public meetings, statements were made that Lako Street was originally intended to interconnect with Alii Highway (the Parkway), but was not intended to continue westerly (makai) to Alii Drive.

- 234 a. Is this true?
- 235 b. What factors underlie this original intention (archaeological sites, cultural sites, costs, etc.)?
- 236 c. What factors now motivate the County to extend Lako Street to Alii Drive?

2. During condemnation proceedings for Alii Highway (the Parkway), Judge Ibarra was informed that the Lako Street Extension and Alii Highway (the Parkway) were separate projects and, further, that updated environmental assessment of impacts of traffic to and from Alii Highway (the Parkway) through Lako Street (if Lako Street were extended to interconnect with Alii Highway (the Parkway)) were not made for that reason.

- 237 a. Since the County now intends to interconnect Lako Street with Alii Highway (the Parkway), does the County intend to update the environmental assessment for Alii Highway (the Parkway)?
- 238 b. If yes, when?
- 239 c. If no, why?
- 240 d. If such an updated environmental assessment is not made, what impacts would arise on the Alii Highway (the Parkway) land acquisition and construction?

3. Have residents of the Komohana Subdivision being consulted on the impacts of the Lako Street Extension into the subdivision?

- 241 a. When did consultation take place?
- 242 b. Who was consulted?
- 243 c. What comments did residents have?

244 4. Did the County consult with landowners affected by the Lako Street Extension or landowners owning land within one-half mile of the proposed alternative routes to determine the landowners' land use plans for their lands?

5. Did the County consider the plans of landowners described in Question 5, in addition to those projects described in the assessment as being planned projects?

245 a. If no, why not?

b. If yes, what landowners were consulted and what are their plans?

246 6. The list of permits and approvals are in summary form. What are the specific permits and approvals required for the Lako Street Extension and the dates when the County intends to submit applications for such permits and approvals and the expected dates of approval?

247 7. What are the specific steps that the County intends to take to acquire any land necessary to construct any of the alternative routes for the Lako Street Extension, including time frames as to dates for specific action?

248 8. The assessment states that Alii Highway (the Parkway) is to be built in two phases, the first phase ending at the westerly (makai) and existing terminus of Lako Street and, further, that the second phase will not begin until 2009.

a. What assurance is there that the County will build the second phase and by 2009?

b. If the County does not build the second phase or if the construction of the second phase is delayed beyond 2009, what plans does the County have as an alternative?

249 9. What commitments are the County making as to the construction of future mauka-makai traffic corridors between Kailua Village and Keauhou Shopping Center after Lako Street Extension is constructed and what is the time frame for constructing such future corridors?

250 10. Does the County believe that the Lako Street Extension presents "no significant environmental impacts" and does not require a full environmental impact statement? Why?

251 11. The assessment describes the value of the Kekealaniwahine Complex but does not discuss what the State of Hawaii and County of Hawaii's for that Complex in terms of park development, historical site development. In the absence of such discussion, particularly in light of the comments from State agencies, how can the County

fully understand the impact of the Lako Street Extension on the Complex and future plans that the State and County have?

12. The cultural assessment appendix reflects a historical narrative of the area. However, the cultural assessment does not evaluate and discuss the manner in which modern development can be designed and constructed in a manner in which to mitigate any adverse impacts on valuable historical and cultural sites.

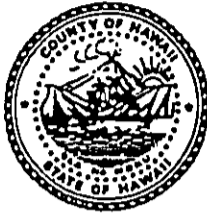
252

a. What factors do the County consider in determining how modern development, such as construction of a road like Lako Street Extension, can be designed and constructed in a manner to mitigate any adverse impacts on the Kekealaniwahine Complex?

b. Does the County intend to follow developments in other parts of the country or world as a "model?"

c. If so, described such other developments or "models?"

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawai'i
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 · Hilo, Hawaii 96720-4224
(808) 961-8321 · Fax (808) 961-8630

January 9, 2004

Michael J Matsukawa Esq
Attorney at Law
Territorial Center Room 201
75-5751 Kuakini Highway
Kailua-Kona HI 96740

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii, TMK: 7-7-004

This is to acknowledge receipt of your correspondence dated November 7, 2003. The unusual length of your comments/questions is unlike other comments we have received on projects such as the Lako Street Extension. In this respect, our responses are numbered to match the numbers we have assigned to your questions/comments.

We have answered your comments/questions as forthright as possible. Due to the length of your inquiry, we have tried to keep it simple and direct. As you will note from our response, much of the information you are seeking is contained in the EA of September 2003.

Some of the questions you raised relate to the Planning Department. Therefore, these were referred to and answered by the Planning Department as noted in our responses.

In closing, we regret that your lengthy discourse has come at such a late date. Had you or Mr. John Kobayashi sent in questions or offered comments on the draft dated February 2002, these could have been addressed in our September 2003 draft EA. May we remind you that Mr. Kobayashi's representative was invited to all our informal and public

Michael J. Matsukawa Esq.
January 9, 2004
Page 2

meetings relating to the Lako Street project. You were asked for comments at the public informational meeting on March 2003. We cite these to show that we are aware of the landowner's interest and have sought to receive his concerns at an early date.

Thank you for your review of the September 2003 draft EA.



Bruce C. McClure, P.E.
Director

Enclosures

cc: Hilo Engineering, Inc.
John M. Kobayashi
Sidney Fuke

RESPONSE TO QUESTIONS/COMMENTS
of
Michael J. Matsukawa
December 30, 2003

No. 1:
There are no conflicts. This is an "agency action" within the meaning of HRS Chapter 343 and the EIS Rules. Under the EIS Rules HAR §11-200-9, the proposing agency makes the determination of significance. Your reference to the terms "applicant" and "approving agency" apply to private actions.

No. 2:
Those involved in the project or who performed work on the project are:

Rodney Kawamura, P.E.
Hilo Engineering, Inc.
484 Kalanikoa Street
Hilo, HI 96720 - Ph. 961-3706

W.Y. Thompson, P.E.
98-1051 Kahapili Street
Aiea, HI 96701 - Ph. 488-0388

Dr. Alan E. Haun & Associates
(Refer to Appendix D)

Randall S. Okaneku, P.E.
(Refer to Appendix E)

Paul Breese, Wildlife Biologist
P.O. Box 1049
Kapaau, HI 96755 - Ph. 889-6736

Bunichi Usagawa, Forester/landscaper
891 Waiianuenue Avenue
Hilo, HI 96720 - Ph. 935-1035

No. 3:
The contract for services issued by the Department of Public Works may be viewed at said office upon prior notice. The address is: 1101 Pauahi Street, Suite 7, Hilo, Hawaii. The phone number is: 961-8321.

The contract for services issued by Hilo Engineering, Inc. May be viewed at said office upon prior notice. The address is: 484 Kalanikoa Street, Hilo, Hawaii. The phone number is: 961-3706.

No. 4:
The consultants for the consulted parties who commented are shown in the COMMENTS AND RESPONSES section of the EA. Which individuals of the consulting parties did the evaluation can only be answered by the agencies whose addresses are shown on their submittals.

No. 5:
Mr. Kobayashi and/or his representative were apprised of all meetings and copies of both draft EA of February 2002 and September 2003 were made available inviting comments.

No. 6:
Consultations were held with the Lutheran Church officials on several occasions; the most recent being on May 8, 2003. We have on file their written right-of-entry permit for conducting the field survey should you wish to view this.

No. 7:
All documents of the consulting parties are shown in the COMMENTS AND RESPONSES section of the EA. Other individuals who offered comments are noted in the minutes of the public informational meetings.

No. 8:
We are not aware of any affected landowners or affected parties who have not been contacted or consulted.

No. 10:
While Alternative C is the preferred choice, and since three alignments were considered, the cost of data recovery will be budgeted and included in the preliminary engineering report which will be made after the final selection of an alignment. This work will be performed during the design and/or construction phase of the project.

No. 11:
The buffer zone proposed by the State officials will be given high priority. Final dimensions of the buffer zone(s) will be established in the mitigation plan which has been approved by the State Historic Preservation Officer.

No. 12:
This will be determined during the design phase of the project after the final alignment of the Extension has been established and will be part of the mitigation plan approved by the State Historic Preservation Officer.

No. 13:
Same response as Item 12.

No. 14:
The general dimensions of the proposed buffer zone are shown on DRAWING NO. 3. As to its purpose, we refer you the comments of the State Historic Preservation Division and the State Parks Division. Please refer to the COMMENTS AND RESPONSES in the EA.

No. 15:
Planning Dept: The Facilities Map for the previous General Plan (1971), current General Plan (1989), and proposed General Plan Revision (December 2002) identify a conceptual mauka-makai

corridor connecting Alii Highway, the proposed Ke Ala Keauhou, and Kuakini Highway in the general vicinity of Holualoa bay connecting near the intersection of Kuakini and Queen Kaahumanu. A recent report prepared for the Planning Department entitled Keahole to Honaunau Regional Circulation Plan (Townscape, Inc, February 2003) specifically identifies this mauka-makai connector as Lako Street (Figure 10, p. 93).

No. 16:

Planning Dept: In the Kailua-Keauhou sector, the Regional Circulation Plan referenced in the previous response identifies the following major roadway projects: Ke Ala keauhou (new north/south collector), kuakini widening (State project to increase north/south capacity), Kamehameha III widening (increase mauka-makai capacity), lako Street extension (new road to increase mauka/makai capacity), lako Street mauka (private construction of dedicable roadway to connect existing lako Street to Hualalai road). The proposed extension of Hienaloli to Palani is also critical to relieve the bottleneck intersection at Palani and Queen Kaahumanu. Three priority projects on the STIP and County CIP are Ke Ala Keauhou, Kuakini widening, and Lako Street extension. For Laaloa, Lako mauka, and Hienaloli extension, the County hopes to work together with private developers.

No. 17:

Planning Dept: There are no standards to determine the optimum "spacing" of major collectors. The County refers to current literature for guidance (e.g. Handy, S., "Street Connectivity: You Can Get There from Here", PAS Memo, November 2002, more recently expanded into Handy, S., et.al., Planning for Street Connectivity, APA PAS Rpt No. 515, May 2003). The idea is to provide a network of connectivity to be able to distribute the traffic flow. Other important principles (rather than "standards") include access management to control how lots access the major roadways in order to preserve the through functions, and transportation demand/system management to seek short-term solutions to the congestion problems by optimizing the use of existing facilities.

No. 18:

The selection of Alternate C over Alternate A is described in SECTION 9 of the EA. This is also reflected in several comments received from others after the distribution of the EA.

No. 19:

The number of archaeological sites impacted is not the only reason for the choice of Alternate C over Alternate A.

No. 20:

Please refer to the archaeological features tables of SECTION 5 of the EA.

No. 21:

Please refer to DRAWING NO. 8 which shows and describes the archaeological sites within the road alignments studied.

No. 22:

Data recovery is a plan made by the archaeologist for gathering data from the affected site(s) which will be impacted. Information of the site will be retrieved and filed. Such recovery plan must be approved by the State Historic Preservation Division.

No. 23:

The cost is estimated at over \$2 million as the exact scope of the project was still to be decided.

No. 24:

The data recovery cost was not considered as the final selection of the road alignment was still under consideration. The cost of data recovery from the impacted sites is expected to be nominal and is included in the project cost. No detailed budgeted costs were published as the project is still in the design/decision stages.

No. 25:

Cost estimates furnished in this document are for comparison purposes only. Revised cost estimates based on the recommendations of this document will be furnished to the Department of Public Works as part of the consultant's Preliminary Engineering Report. These estimates will be used by the County to refine the project's budget and to make necessary adjustments if needed.

No. 26:

Same response as Item 25.

No. 27:

Same response as Item 25.

No. 28:

Same response as Item 25.

No. 29:

County administrative costs are not included as these services are budgeted under the Department's operating budget.

No. 30:

Same response as Item 25.

No. 31:

To date, of the \$3 million, \$410,000 has been budgeted for planning, design and survey. The remaining \$2,590,000 is planned to be used for construction. However, this budget may be adjusted based on the findings of this document and preliminary engineering report.

No. 32:

No funds from the \$3 million bond funds have been expended on projects other than the Lako Street Extension project. No specific amount has been set aside for land acquisition at this time.

No. 33:

No appraisers have been retained. An appraiser will be retained to determine land valuation after mapping of the final right-of-way has been completed. The County may also retain a land agent to manage and perform land acquisition work.

No. 34:

Same response as Item 32 and 33.

No. 35:

Same response as Item 32.

No. 36:

The Hawaii County Council had appropriated funds for the construction of the Lako Street Extension only, as originally described by County Ordinance 99-21 and Ordinance 01-56. Neither ordinance included funding for sewer and/or water extensions. New appropriation ordinance(s) from the Hawaii County Council and/or the Department of Water Supply is required for this work.

No. 37:

Please refer to the responses cited above.

No. 38:

The Kahului-Keauhou Parkway (formerly identified as the Alii Highway) is a separate project not allied with the Lako Street Extension project. The Parkway terminus will be at Lako Street. Each project has its own environmental, engineering, archaeological/cultural, etc., assessment. The relationship, if any on archaeological/cultural aspects, will be most likely determined by government agencies. We considered each project on its own merits as being part of the over-all County planning effort for the Kau-Kailua-Keauhou sector. Please refer to the "Planning and Environment Report" of the County Planning Department dated August 1994.

No. 39:

The County DPW does not deny there is relationship between these and other projects in North Kona. It is all part of the County planning process of which the DPW is a part of. Zoning and development plans determine our actions. HEI has no role in County planning decisions.

No. 40:

Same response as Item 39.

No. 41:

Planning Dept: The County desires to direct future growth to "infill" urban areas, i.e., Keahole to Kailua and Kailua to Keauhou, in order to reduce sprawl development in outlying areas that add to traffic congestion. The County would like to see higher density mixed use within these areas that are pedestrian-oriented and supported by multi-modal options such as bikeways and more frequent buses. The Lako Street Extension and Alii Parkway

support this vision.

No. 42:

Same response as Item 41.

No. 43:

Specific planning issues related to future growth in this area include the adoption of access management regulations, scenic highway measures, affordable housing measures. The County is currently working on these issues in various forms.

No. 44:

Planning Dept: There is a Master Plan for Kailua-Kona, but admittedly it is not very helpful. A more regional perspective would be ideal in the form of an updated North Kona Community Development Plan. The timing of this plan would be after the adoption of the Revised General Plan. The best that can be done with current information is the analysis in the Keahole to Honaunau Regional Circulation Plan - leveraging GIS data on various constraints variables (e.g., archaeological sites, flood zones, endangered species habitats) and demand variables (e.g., population distribution, zoning/subdivision approvals).

No. 45:

Planning Dept: Cannot comprehend the question, specifically what "maximizing the infrastructure for future planning" means. If the question means maximizing the capacity for future planning, that was the impetus behind the Keahole to Honaunau Regional Circulation Plan, i.e., to gather the data and identify alternative solutions to the regional transportation problems. If the question means maximizing the utilization of existing facilities, the Regional Circulation Plan examined TDM/TSM principles with that objective of trying to do more with the facilities we have.

No. 46:

No. Same response as Item 36.

No. 47:

No. Same response as Item 36.

No. 48:

Except for the power requirements of the street lighting system, no other work is being considered. As a franchised utility, the power company has the right to use the Lako Street Extension, at no cost to them to expand their distribution system. However, they must do so at their own cost. The County has no responsibility to develop or furnish power for consumers.

No. 49:

Utilities have their own funding schedules and priorities. The best the County can do is to consult and make them aware of the opportunity to install improvements concurrently with the roadway construction.

No. 50:

The statement that the project "will not move forward without the support of the community" is essentially correct. DPW still seeks community support for the Lako Street Extension.

No. 51:

The choice of seeking Federal assistance or the use of County funds for the project was discussed and decided by the County Council. DPW is carrying out the mandate from the County Council.

No. 52:

The \$3 million funds appropriated for this project is still on the books with expenditures made for payments relating to the present planning process. Additional appropriations may be sought based on estimates furnished in the Preliminary Engineering Report.

No. 53:

The DPW decided that an EA was sufficient for a project of this scope. DPW has proceeded with the planning process which includes an EA for review by the public, interested organizations, and government agencies. The preliminary EA was published and circulated in February 2002 for comments. The draft EA, September 2003, was published, filed with the OEQC and circulated.

No. 54:

The County DPW believes an EA is adequate and sufficiently addresses concerns. The EA and its acceptance after processing by the OEQC will be the determining factor.

No. 55:

All relevant issues are discussed in the EA as circulated. We have found no valid reason not to believe an EA is adequate as meeting the intent of Chapter 343, HRS.

No. 56:

The traffic study in APPENDIX C sufficiently describes those items you have cited. As to roadway signs, etc., these will be included in the costs of road construction.

No. 57:

The Department intends to pursue all mitigating measures to address traffic impacts caused by this project. The DEA will be revised to reflect this position. However, should the cost of these measures exceed appropriations, the decision to increase appropriations will rest with the hawaii County Council.

No. 58:

See response to Item 57.

No. 59:

The design of the road will be determined by the consultant retained to prepare the job plans and specifications. Adjoining property owners will be consulted before final plans are made. This is a follow-up of our earlier contacts. Access limitations

may also be a consideration of land acquisition depending upon the final alignment of the extension.

No. 60:

This is a federal aid project. Sewer and waterline improvements are ineligible costs for this project as they are not necessary for proper operation of the Parkway. The cost must be funded in total by the respective utilities.

No. 61:

The precise location of the selected road alignment will be determined when the road design consultant has been selected and prepares the plans and specifications. In this respect, no precise engineering plans are available at this time. The exhibits and photographs shown at the 3/27/02 meeting are located at the HEI office in Hilo. You or your representative are invited to inspect them. As to impacts, these are noted in the September 2003 EA.

No. 62:

The rights-of-entry that have been granted are available for view at the office of HEI.

No. 63:

See response to Item 57.

No. 64:

No, the DPW intends to pursue all mitigating measures to address traffic impacts caused by this project.

No. 65:

We are uncertain as to which impacts you refer to. The Traffic Study is a comprehensive analysis which we find adequate for this project.

No. 66:

See response to Item 57.

No. 67:

See response to Item 57.

No. 68:

See response to Item 57.

No. 69:

Consultant for the Kahului-Keauhou Parkway and the consultant for the Lako Street Extension were aware of the other's work. Both were aware of the connection of Kahului-Keauhou Parkway and the Lako Street Extension. The exact details of the connection still has to be decided. The EA for the Lako Street Extension and the completed EIS, plans and specifications of the Kahului-Keauhou Parkway provide the essential details.

No. 70:

As explained in No. 69, consultants for both projects were aware

of the other's work. Therefore, the study by Julian Ng has been incorporated in the Traffic Study, APPENDIX C, where applicable.

No. 71:

We are uncertain as to what "omissions" you refer to.

No. 72:

The statement was made in reference to doing another field investigation and the traffic engineer's contention that speed humps would not impact traffic volumes, either presently or in the future.

No. 73:

No studies were conducted or deemed to be necessary as speed humps are considered to be a safety device, like guard rails, crash barriers, warning signs, etc., that may be installed whenever they are deemed necessary to improve traffic safety.

No. 74:

Please refer to No. 72. This is a County DPW responsibility; the speed humps were to slow traffic in the Kahakai School vicinity. DPW is working with the residents in assessing the effectiveness of the speed humps. With or without the speed humps, the residents want the Lako Street Extension as two mauka-makai roadways will alleviate the traffic which now exists on one mauka-makai roadway within this general area.

No. 75:

See response to Item 57, 73 and 74.

No. 76:

See response to Item 57.

No. 77:

We are uncertain as to your inquiry. The figures you refer to are existing counts, AM and PM. You will have to examine the other drawings showing the traffic counts for year 2009 and year 2020 to note the improvement in LOS ratings.

No. 78:

See response to Item 57.

No. 79:

The traffic impacts are described in the EA. We are not certain as to the "same analysis" you mention.

No. 80:

See response to Item 57.

No. 81:

See response to Item 57. Note that recommendations of Section V.D. are based on the completion of Phase 2 of the Kahului-Keauhou Parkway. Phase 2 will be completed sometime after the completion of the Lako Street Extension. As a result, these recommendations

will not be considered at this time.

No. 82:
See response to Item 57.

No. 83:
See response to Item 57, 72 and 73.

No. 84:
We are uncertain as to your request.

No. 85:
See response to Item 57. Note that recommendations of Section VI.C. are based on the completion of Phase 2 of the Kahului-Keauhou Parkway. Phase 2 will be completed some time after the completion of the Lako Street Extension. As a result, these recommendations will not be considered at this time.

No. 86:
See response to Item 57.

No. 87:
As stated, Queen Kaahumanu Highway is under the jurisdiction of the State Department of Transportation (DOT). DOT is doing its own studies/analyses. DPW is and will continue to work with DOT on traffic matters in Kona.

No. 88:
The Hawaii County Council had appropriated budgeted funds for the construction of the Lako Street Extension as described by County Ordinance 99-21 and re-appropriation Ordinance 01-56.

No. 89:
No contractor has been employed to date. We have hired a consultant, Hilo Engineering, Inc., to develop this environmental assessment and preliminary engineering report for a total fee of \$280,000. There are no fixed allocations for different work items. Work items are being paid and accounted for according to national governmental guidelines and regulations.

No. 90:
Please refer to Item 32.

No. 91:
There are no interest costs associated with the delay. Unused funds are deposited into an interest bearing account until they are encumbered. Interest costs associated with a bond floats are paid over a stipulated time period regardless of when the funds are actually expended.

No. 92:
We are uncertain what you mean by category of expense as the project budget is not divided into categories with fixed allocations. The Hawaii County Council established the original \$3

million appropriation as established by County Ordinance 99-21 and re-appropriation by Ordinance 01-56.

No. 93:
See response to Item 89 and 92.

No. 94:
Uncertain what the inquiry is as the sentence seems to be incomplete.

No. 95:
Uncertain what the inquiry is as the sentence seems to be incomplete.

No. 96:
Uncertain what the inquiry is as the sentence seems to be incomplete.

No. 97:
The construction of the roundabout will be part of the Kahului-Keauhou Parkway under Phase 2. Therefore, other than for traffic analysis purposes, it is not discussed in the DEA.

No. 98:
Planning Dept: On Page 9, the Draft EA states that the project is located within the special management Area and that Kuakini Highway is the mauka SMA boundary. The page following Page 44 lists the Permits/Approvals that will be required for this project. One of those listed is Special Management Area Permit (SMAP) which is referred as the SMA Use Permit that will require Planning Commission approval. An SMA Use Permit application is usually filed with the Planning Department after compliance with Chapter 343 relating to Environmental Impact Statement.

No. 99:
Planning Dept: See response to Item 98.

No. 100:
Planning Dept: In County of Hawaii v. Pokobo, LLC, et.al., Civ. No. 02-1-0129K, the 3rd Court (Judge Ibara) ruled that "The County of Hawaii is not required to obtain all affected landowners' consents for the SMA permit application for the roadway parcels." The rationale for the decision was that if authorization was required then a landowner could stall the planning and condemnation process forever by refusing to sign.

No. 101:
See response to Item 98.

No. 102:
See response to Item 98.

No. 103:

At the present time, since Alternate A and C are located in the same general area and of a comparable size, the preliminary estimates are adequate as shown in the EA.

No. 104:

This will not be known until a construction contract is awarded.

No. 105:

See response to Item 103. The location of both Alternates are nearly adjacent to each other and, hence, estimated acquisition costs are comparable.

No. 106:

Planning Dept: Question relates to regional planning in the area addressed in responses to questions No. 41 to 44.

No. 107:

Planning Dept: The Alii Parkway and Lako Street are considered collectors that benefit regional traffic - I.e., the neighborhoods "served" could extend to HOVE. Access management will be imposed on the neighborhoods that abut Alii Parkway and Lako Street to preserve the regional through functions. For population studies, refer to responses to questions No. 41 to 44.

No. 108:

This question is puzzling as read.

No. 109:

See response to Item 12.

No. 110:

There are no additional public meetings being contemplated at this time for the production of the DEA. A meeting will be considered if commentary to this document dictates a need to address the concerns of the general public.

No. 111:

None, usual and customary means.

No. 112:

Landowners, interested parties and the general public will be able to comment on any EA that is filed with the OEQC.

No. 113:

The present draft EA will be reviewed and comments addressed in another draft or a final EA. This will be published and the public will be notified in accordance with OEQC regulations.

No. 114:

See response to No. 113. No firm decision has been made on the EA of September 2003 at this time.

No. 115:
Distribution of any additional EA will be in accordance with regulations of the OEQC.

No. 116:
In a finding of "no significant impact", the reasons will be provided in compliance with HAR 11-200-12.

No. 117:
Please refer to No. 116.

No. 118:
Comments from the public were solicited through public hearings and the EA process. The EIS Rules do not require additional public hearings to make the determination of no significant impact. We can see no reason to convene additional public hearings or meetings to solicit additional comments. From a practical standpoint it is impossible to obtain all public comments as this will be an indefinite process.

No. 119:
Inquiry is unclear, however, it is the "proposing agency" rather than the "accepting authority" determines significance; see response to Item 1.

No. 120:
This question is premature; the EA of September 2003 is still being evaluated.

No. 121:
The speed humps were administratively installed, in response to the neighborhood desires, to improve safety by reducing speeding. This decision was made at the administrative level, independent of this project. As a result, this document has made no findings, study, analysis or evaluation regarding the installation, propriety or impacts of the speed hump as they are no different from any of the other existing traffic control devices found on Royal Poinciana Drive.

No. 122:
See response to Item 121.

No. 123:
See response to Item 121.

No. 124:
See response to Item 121.

No. 125:
See response to Item 72.

No. 126:
None, as the speed humps were administratively installed, in response to the neighborhood desires.

No. 127:

This will be addressed in Phase 2 of the Kahului-Keauhou Parkway.

No. 128.

We disagree that the speed hump is a negligent design. See response to Item 121.

No. 129:

There are no relevant writings as this was an administrative decision that is not subject to any legal requirements.

No. 130:

We find nothing wrong with this statement regarding the Io or the Hawaiian Bat.

No. 131:

No habitation site has been found.

No. 132:

As these species are wide ranging, we see no reason to doubt the statement in the Fauna Survey. Please check with the U.S. Fish & Wildlife Service should wish additional information.

No. 133:

As stated in the EA, these species "may enter or fly over the project site". No specific individual on this project has sighted these species during the course of the field surveys. Again, we refer you Item 132.

No. 134:

Your question is overly broad- how do you define adjacent properties? Again, we refer you to Item 132.

No. 135:

The fauna survey was conducted on site of the Holualoa 3rd and 4th tracts of the project site. As to the your question on the property mauka of the Alii Parkway, we cannot answer this question as it is nebulous in scope.

No. 136:

Please refer to No. 135.

No. 137:

The fauna survey is sufficient for the purposes of the EA of September 2003.

No. 138:

Please refer to Item 137.

No. 139:

The EA of September 2003 has been prepared in compliance with Chapter 343, HRS. Additional material will be added to the draft in the final EA which is to be prepared after comments to the September 2003 has been evaluated.

No. 140:
Please refer to Item 139.

No. 141:
Please refer to Item 139.

No. 142:
Please refer to Item 139.

No. 143:
Please refer to Item 139:

No. 144:
The "massive historical data" were prepared by the State Parks Division and provided guidance in the preparation of the EA. These data were associated with the Kamo Point hearings and can be found in the references cited.

No. 145:
Please refer to Item 144.

No. 146:
The State reports were cited as reference data. There is no existing development plan for the *Keakealaniwahine Complex*. In this respect, the one of the goals of this Lako Street Extension was to work with the State to ensure there is little or no disturbance to the Complex.

No. 147:
This will become known when a plan for data recovery is prepared for approval by the State Historic Preservation Division (SHPD) before work is started.

No. 148:
Impacts to the budget are unknown as costs will be dependent upon the alternative selected and the requirements of the data recovery plan after it has been approved.

No. 149:
This matter will be decided when a final decision on the roadway alternate has been made.

No. 150:
Each project is a separate contract. However, work will be coordinated as necessary.

No. 151:
DPW finds no error in the recommended data recovery plan.

No. 152:
This matter is covered in the EA. Please refer to SECTION 5 of the EA and the archaeologist recommended treatments.

No. 153:
See response to Item 152.

No. 154:
See response to Item 152.

No. 155:
We are not certain as to what "following sites" you are referring to.

No. 156:
Again, we are not certain as to what "following sites" you are referring to.

No. 157:
Please refer to the DRAWING NO. 3 in the EA, and Figure 5, APPENDIX D.

No. 158:
These are recommendations at the present time. The buffer zone(s) are private property.

No. 159:
Please refer to comments of the State Parks Division and the SHPD which are included in the EA.

No. 160:
See response to Item 158.

No. 161:
After a decision on the road alignment has been made, data recovery planning will commence by the archaeologist for this project.

No. 162:
None is foreseen at this time.

No. 163:
See response to Item 162.

No. 164:
The uses of the adjacent properties will be determined by the land owner after processing with the County Planning Department and other agencies that may be involved. No future uses are considered beyond that allowed by law.

No. 165:
The valuations/cost savings realized by the inclusion of utilities, such as sewer and water, in the road plans are negligible relative to the total cost of the utility work. Consequently, your rationale is valid if and only if the sufficient funds are available by the respective utilities for their construction. The DPW is unable to justify the additional costs for the utilities, which may well double the cost of the project, as they are not necessary for the construction and operation of the Lako Street Extension. Further, neither utility has furnished any strong justifications for their inclusion. The Department of Water

Supply had made on comments to date, and the Department of Environmental Management only recommended improvements. On past projects, such as our Mohouli Street Extension, we have installed utilities concurrently; however, the utilities had paid for all costs incurred for their work. Finally, it makes no sense whatsoever to delay a project that the public desires while funds are being raised for utility projects that are neither desired by the public or are immediately needed.

No. 166:

DPW concurs that there will be cost benefit to handle the infrastructure needs concurrently with the road construction. However, as stated previously, these are the responsibilities of the affected agencies. See response to Item 165.

No. 167:

Yes, we are assuming you are referring to only those facilities that are necessary for the construction and operation of the Lako Street Extension.

No. 168:

Yes, as referenced in and relative to our traffic study.

No. 169:

No studies have been or will be conducted for future utilities and access/traffic circulation needs of the area. This project seeks to implement an element of an existing traffic circulation study. Studies/plans for future needs relative to regional traffic circulation and utilities is the responsibility of the County Planning Department and respective utilities and are far beyond the scope of this document.

No. 170:

The County has no intention of incorporating or using any privately owned and maintained facility unless they are part of the lands to be acquired for the extension. If so, appropriate compensation (monetary, replacement or otherwise) will be offered during the land acquisition phase of this project. Whether or not this occurs will be dependent upon the alternative selected and the final alignment established during the design of the Extension.

No. 171:

This is a matter mainly managed by the County Planning Department. The DPW is a cooperating County agency. As stated elsewhere, the infrastructure depends on the availability of funds.

No. 172:

Your statement is overly broad. Again, if you are referring to long range planning goals, we suggest you contact the County Planning Department.

No. 173:

The EA covers this matter. As stated, this Lako Street Extension

is not associated with any particular land development. This project fulfills a long range County goal to ease traffic congestion.

No. 174:
Neither Council person was consulted regarding this issue. Unlike most projects, Council Person Pisicchio initiated the appropriation for this project. She authored the bill, which had passed unanimously on both first and second readings. Her bill appropriated funds for only the extension and did not account for any other infrastructure.

No. 175:
See response to Item 169.

No. 176:
See response to Item 173.

No. 177:
See response to Item 169.

No. 178:
See response to Item 164; this seems to be a repeat of this item.

No. 179:
See response to Item 165; this seems to be a repeat of this item.

No. 180:
See response to Item 166; this seems to be a repeat of this item.

No. 181:
See response to Item 167; this seems to be a repeat of this item.

No. 182:
See response to Item 168; this seems to be a repeat of this item.

No. 183:
See response to Item 169; this seems to be a repeat of this item.

No. 184:
See response to Item 170; this seems to be a repeat of this item.

No. 185:
See response to Item 171; this seems to be a repeat of this item.

No. 186:
See response to Item 172; this seems to be a repeat of this item.

No. 187:
See response to Item 173; this seems to be a repeat of this item.

No. 188:
See response to Item 174; this seems to be a repeat of this item.

No. 189:

See response to Item 175; this seems to be a repeat of this item.

No. 190:

This inquiry is referring to current and future policies and actions of the State Department of Health and the County Department of Environmental Management. These issues have no relevance to this project and are far beyond the scope and authority of this document. We recommend that you direct your inquiry to these agencies.

No. 191:

This inquiry is referring to current and future policies and actions of the County Department of Water Supply and the County Department of Environmental Management. These issues have no relevance to this project and are far beyond the scope and authority of this document. We recommend that you direct your inquiry to these agencies.

No. 192:

See response to Item 191.

No. 193:

See responses to Item 190 and 191.

No. 194:

All landowners whose property were surveyed for the roadway alignments granted rights of entry to HEI. These documents are on file with HEI and may be viewed at said office. DRAWING NO. 3 shows the Tax Map Key owners of said lots.

No. 195:

Please refer to DRAWING NO. 5 in the September 2003 EA. Planning at the County level is an on-going process.

No. 196:

We are unable to respond as the question is too general and hypothetical. A proper response would require, as a minimum, submission of development plans for the adjacent properties. Further, and again depending upon the development plans, the matter may be beyond our authority to respond. For example, if the adjacent property owner were to seek a change of zone, the Hawaii County Planning Commission and/or the Hawaii County Council may decide ingress and egress requirements.

No. 197:

Speeding was the primary problem that was to be addressed by traffic calming. We do not know whether this will in fact be a problem until the extension is completed, so no determination can be made at this time. Speeding problems, however, seem to be more dependent upon neighborhood perception rather than any fixed standard as many times there is no accident history or other indicators to show that a problem actually exists. Various methods are shown at: www.fhwa.dot.gov/environment/tcalm/part2.html.

No. 198:

The official response made by the (former) DPW director to the questions asked at the public informational meeting is a general statement. The traffic division of the DPW maintains traffic statistics and monitors roadway problems. Hence, solution(s) are advanced at appropriate times. Proposed improvements to Kuakini Highway are covered in the Traffic Study report as well the effect of the Kahului-Keauhou Parkway on the future traffic.

No. 199:

The delay in proceeding with the Lako Street Extension was due to the selection of Alternate C. Additional archaeological data relating to Alternate C had to be surveyed. A new traffic study was conducted in view of the Kahului-Keauhou Parkway construction in two phases rather than one. These are noted in our letter transmitting the September 2003 EA.

No. 200:

This matter is covered in SECTION 9 of the EA.

No. 201:

To date, no permits including an SMA have been acquired. Work has been confined to investigative efforts and surveying for the production of this document. To the best of our knowledge, no permits are required for this type of work. See responses to Questions #98 to 102.

No. 202:

An SMA Permit is not required for planning purposes so an application has not been filed. See responses to Questions #98 to 102.

No. 203:

See response to Item 98.

No. 204:

This was an opinion made by Ms. Josephine Keliipio, a resident. As noted on Page 5 of the Traffic Impact Analysis Report, our Traffic consultant does not believe that the humps would affect traffic volumes to which we concur.

No. 205:

See response to Item 94; this seems to be a repeat of this item.

No. 206:

See response to Item 95; this seems to be a repeat of this item.

No. 207:

See response to Item 96; this seems to be a repeat of this item.

No. 208:

See response to Item 97; this seems to be a repeat of this item.

No. 209:
See response to Item 98; this seems to be a repeat of this item.

No. 210:
See response to Item 99; this seems to be a repeat of this item.

No. 211:
See response to Item 100; this seems to be a repeat of this item.

No. 212:
See response to Item 101; this seems to be a repeat of this item.

No. 213:
See response to Item 102; this seems to be a repeat of this item.

No. 214:
See response to Item 103; this seems to be a repeat of this item.

No. 215:
See response to Item 104; this seems to be a repeat of this item.

No. 216:
See response to Item 105; this seems to be a repeat of this item.

No. 217:
See response to Item 106; this seems to be a repeat of this item.

No. 218:
See response to Item 107; this seems to be a repeat of this item.

No. 219:
See response to Item 107; this seems to be a repeat of this item.

No. 220:
See response to Item 108; this seems to be a repeat of this item.

No. 221:
See response to Item 109; this seems to be a repeat of this item.

No. 222:
See response to Item 110; this seems to be a repeat of this item.

No. 223:
See response to Item 111; this seems to be a repeat of this item.

No. 224:
See response to Item 112; this seems to be a repeat of this item.

No. 225:
See response to Item 113; this seems to be a repeat of this item.

No. 226:
See response to Item 114; this seems to be a repeat of this item.

No. 227:
See response to Item 115; this seems to be a repeat of this item.

No. 228:
See response to Item 116; this seems to be a repeat of this item.

NO. 229:
See response to Item 117; this seems to be a repeat of this item.

No. 230:
See response to Item 118; this seems to be a repeat of this item.

No. 231:
See response to Item 119; this seems to be a repeat of this item.

No. 232:
See response to Item 120; this seems to be a repeat of this item.

No. 233:
Installation of street lights will conform to County standards.
The road design consultant will provide such details as you
mention after the plans and specifications have been prepared.

No. 234:
We do not find the basis for such a statement.

No. 235:
See response to Item 234.

No. 236:
See response to Item 234.

No. 237:
See response to Item 234.

No. 238:
See response to Item 234.

No. 239:
See response to Item 234.

No. 240:
See response to Item 234.

No. 241:
The distribution of the EA were made to interested parties
including the Komohana Subdivision community organization.

No. 242:
See response to Item 241.

No. 243:
The comments made by residents are noted in the minutes of the
public informational meetings.

No. 244:

None of the landowners, affected by the Lako Street Extension, have submitted to DPW nor was any solicited for development plans by DPW. As stated earlier, this was a road project not associated with any land development.

No. 245:

What question 5 are you referring to?

No. 246:

This project is still in the preliminary stages and permits will be applied when plans and specifications have been completed.

No. 247:

This matter is still premature. Land acquisition will adhere to established County practices.

No. 248:

The State Department of Transportation has provided federal funds for the Phase 1 and has not indicated that they will withdraw their support. We currently have no reason to believe otherwise as they have tentatively budgeted funds for Phase 2 in 2006.

No. 249:

Please refer to DRAWING NO. 5. DPW cannot answer your question; the County Planning Department may be able to provide you with an answer.

No. 250:

The reasons are provided in the EA of September 2003 and added material for another draft or final EA will be made after comments to the September 2003 EA are evaluated.

No. 251:

The Keakealaniwahine Complex is State owned; a gift from the former landowner. No studies or plans such as for the Keolonahihi State Historical Park are available at this time. The State comments on the EA reflect the State's concern on the Lako Street Extension.

No. 252:

The State comments shown in the EA are providing guidance to the DPW as related to the Keakealaniwahine Complex. We are appreciative of their input in the Lako Street Extension EA as related to the State-owned Keakealaniwahine Complex. Recommendations and applicable decisions on the Complex are with the State.

**COMMENTS &
RESPONSES**
February 2002 Draft



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

REPLY TO
ATTENTION OF

March 21, 2002

Regulatory Branch

Mr. Dennis K.W. Lee, P.E., Director
Department of Public Works
County of Hawaii
25 Aupuni Street, Room 202
Hilo, Hawaii 96720-4252

Dear Mr. Lee:

This letter responds to your request for comments on the preliminary draft Environmental Assessment (PDEA) for the Lako Street Extension, dated February, 2002. Based on the information provided in the PDEA I have determined that a Department of the Army (DA) permit will not be required for this project.

If you have any questions concerning this determination, please contact William Lennan of my staff at 438-6986 or FAX 438-4060, and reference File No. 200200244.

Sincerely,

A handwritten signature in cursive script, appearing to read "George P. Young".

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



Harry Kim
Mayor



Dennis K. W. Lee
Director

Ronald Ueoka
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

April 24, 2002

GEORGE P YOUNG P E
CHIEF REGULATORY BRANCH
U S ARMY ENGINEER DISTRICT HONOLULU
FORT SHAFTER HI 96858-5440

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
LAKO STREET EXTENSION
HOLUALOA, NORTH KONA, HAWAII

We appreciate your review of the draft environmental assessment for the Lako Street Extension project. We are pleased to learn that a Department of Army (DA) permit is not required for this project.

Should we have any questions, we will contact your staff as noted in your letter.

Dennis K. W. Lee

DENNIS K. W. LEE, P. E.
Director

DKWL/RMK:sst

cc: Hilo Engineering, Inc.



United States
Department of
Agriculture

P.O. Box 50004
Honolulu, HI 96850
Phone: 808-541-2600
FAX: 808-541-1335

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

March 27, 2002

Mr. Dennis K. W. Lee, P.E.
Director, Department of Public Works
County of Hawaii
25 Aupuni Street, Room 202
Hilo, Hawaii 96720-4252

Dear Mr. Lee:

Subject: Environmental Assessment (EA) Preliminary Draft – Lako Street Extension,
Holualoa, North Kona, Hawaii; TMK: 7-07-04


We have reviewed the above mentioned document and offer the following comments:

The significance of the Keakealaniwahine Complex and its place and value in the history and culture of Kailua-Kona, the island, and State of Hawaii appear to be of the highest order. This area should be protected from any disturbance during the construction of the Lako Street extension. Alternative "A" seems to present the best choice for protecting the site based upon the EA.

Additionally, any project site work should be accompanied by an erosion and sediment control plan to address containment of runoff events that might otherwise deposit sediment in and along shoreline and significant cultural resource areas.

Thank you for the opportunity to review this document.

Sincerely,

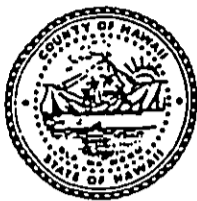

KENNETH M. KANESHIRO
State Conservationist



The Natural Resources Conservation Service works hand-in-hand with
the American people to conserve natural resources on private lands.

AN EQUAL OPPORTUNITY EMPLOYER

Harry Kim
Mayor



Dennis K. W. Lee
Director

Ronald Ueoka
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

April 24, 2002

KENNETH M KANESHIRO
STATE CONSERVATIONIST
NATURAL RESOURCES CONSERVATION SERVICE
P O BOX 50004
HONOLULU HI 96850

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
LAKO STREET EXTENSION
HOLUALOA, NORTH KONA, HAWAII

We appreciate your review on the draft environmental assessment for the Lako Street Extension project. As noted by you, the significance of the Keakealaniwahine Complex was a primary concern in the design of this project. We appreciate your concurrence of the consultant's recommendation of Alternate A for the proposed road extension.

Your reminder on erosion and sediment control is a matter that will be fully addressed in the project specifications.

Thank you for your review and comments.

Dennis K. W. Lee

DENNIS K. W. LEE, P. E.
Director

DKWL/BMK:sst

cc: Hilo Engineering, Inc.

BENJAMIN J. CAYETANO
GOVERNOR



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

APR 9 2002

BRIAN K. MINAAI
DIRECTOR
DEPUTY DIRECTORS
JEAN L. OSHITA
JADINE Y. URASAKI

IN REPLY REFER TO:

HWY-PS
2.6082

Mr. Dennis K.W. Lee
Director
Department of Public Works
County of Hawaii
25 Aupuni Street, Room 202
Hilo, Hawaii 96720-4252

Dear Mr. ^{Davis} Lee:

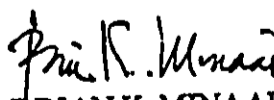
Subject: Draft Environmental Assessment, Lako Street Extension, Holualoa, North Kona, Hawaii, TMK: 7-07-04

Thank you for transmitting the subject document requesting our review and comments regarding the proposed Lako Street Extension. We have the following comments:

1. We have no objections to the proposed project. This project should improve traffic circulation in the area.
2. Construction plans for all work done within our highway rights of way must be prepared and submitted to us for our review and approval.
3. This project must be coordinated with on-going and proposed projects in the area.
4. The required roadway improvements to improve the traffic operation (as stated in the Traffic Analysis Report conclusions) at the Lako Street/ Kuakini Highway intersection shall be implemented by the application at his cost.

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,


BRIAN K. MINAAI
Director of Transportation





Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

March 27, 2003

Mr. Rodney K. Haraga, Director
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813-5097

Dear Mr. Haraga:

**SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii**

Our apology for not responding to the Department of Transportation comments earlier. New roadway alternatives proposed at a public meeting were studied and after a long time, a final decision on a roadway alignment has been made.

We appreciate the State DOT review of the draft environmental assessment for the Lako Street Extension project and are pleased to note that the State DOT has no objections to the Lako Street Extension.

The remarks pertaining to Kuakini Highway by our traffic consultant refers to future considerations and possible remedial measures. The Lako Street project will be only that portion below the present Komohana Kai Subdivision with egress at Alii Drive. We have no plans for any work involving Kuakini Highway.

Thank you.

Sincerely,

A handwritten signature in cursive script that reads "Bruce C. McClure".

Bruce C. McClure
Director

c: Hilo Engineering, Inc.
Randall Okaneku, P.E.
Hawaii District Office, State Highway Division

BENJAMIN J. CAYETANO
GOVERNOR



BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EMD / CWB
03046PKP.02

March 18, 2002

Mr. Dennis K. W. Lee, P.E.
Director
Department of Public Works
County of Hawaii
25 Aupuni Street, Room 202
Hilo, Hawaii 96720-4252

Dear Mr. Lee:

**Subject: Draft Environmental Assessment
Lako Street Extension
Holualoa, North Kona, Hawaii
TMK: 7-07-04**



The Department of Health, Clean Water Branch (CWB) has reviewed the subject document, dated February 2002, and has the following comments:

1. The Army Corps of Engineers should be contacted to identify whether a Federal permit (including a Department of Army permit) is required for any of the future projects. If it is determined that a Federal permit is required for the subject project, then a Section 401 Water Quality Certification would also be required from our office.
2. If the construction project involves any of the following discharges into Class A or Class 2 State waters, a National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for each discharge:
 - a. Storm water runoff associated with construction activities, including clearing, grading, and excavation that result in the disturbance of equal to or greater than five (5) acres 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.

Note: After March 10, 2003, an NPDES permit will be required for discharges of storm water associated with construction activities, including clearing, grading, and excavation that result in the disturbance of one (1) acre or more.

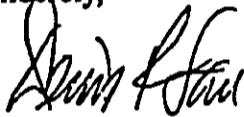
Mr. Dennis K. W. Lee
March 18, 2002
Page 2

- b. Hydrotesting water; and
 - c. Construction dewatering effluent.
3. If the discharges mentioned in Item 2 above enter Class 1 State waters, then an NPDES individual permit would be required. One individual permit could cover all types of discharges.

The CWB requires that Notices of Intent (NOI) for NPDES general permits be submitted 30 days before the discharge is to occur. NPDES individual permit applications should be submitted 180 days before the discharge is to occur. NOI and NPDES individual permit applications can be picked up at our office or downloaded from our website at <http://www.state.hi.us/doh/eh/cwb/forms/index.html>.

Should you have any questions, please contact Ms. Kris Poentis of the Engineering Section, CWB, at 586-4309.

Sincerely,



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

KP:cu

c: Mr. Rodney M. Kawamura, Hilo Engineering, Inc.

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

March 28, 2003

Mr. Denis R. Lau, P.E.
Chief, Clean Water Branch
Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

Dear Mr. Lau:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii

We regret not responding to your earlier comments. Due to community suggestions, the proposed roadway alignment was given further study. A final decision has been reached; this involves making adjustment to our previous recommended route.

Thank you for your comments on the draft EA. As advised, we contacted the U.S. Army Corps of Engineers who have stated a Department of Army permit will not be required. Your statement regarding a NPDES permit associated with construction activities will be included in our construction specifications.

For your information, a revised draft EA will be submitted to the OEQC for public review and comments in the near future.

Sincerely,

Bruce C. McClure
Director

c: Hilo Engineering, Inc.



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

April 3, 2002

L-1283/1536/1400
LD-NAV
Ref.: LAKOSTEXTENSION.RCM

Honorable Dennis K.W. Lee, P.E.
Director
County of Hawaii
Department of Public Works
25 Aupuni Street, Room 202
Hilo, Hawaii 96720-4252

Dear Mr. Lee:

SUBJECT: Preliminary Draft for the Lako Street, Holualoa, North Kona,
Island of Hawaii, Hawaii - TMK: 3rd/ 7-07-004

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

A copy of the document covering the proposed project was transmitted to the following Department of Land and Natural Resources' Divisions for their review and comment:

- Division of Forestry and Wildlife
- Historic Preservation
- Commission on Water Resource Management
- Land Division Engineering Branch
- Land Division Planning and Technical Services
- Land Division Hawaii District Land Office

Attached herewith is a copy of the Land Division Engineering Branch comment.

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

Should you have any questions, please contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 1-808-587-0438.

Very truly yours,

DIERDRE S. MAMIYA
Administrator



LNR-LAND DIVISION
ENGINEERING BRANCH

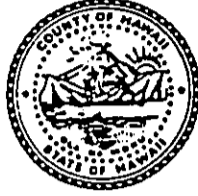
COMMENTS

LD/NAV
LOG1283
Ref.: LAKOEXTENSION.COM

For your information, the project site according to FEMA Community Panel Number 155166 0926 E (Dated June 2, 1995) is in Zone X (Not shaded). This is an area determined to be outside of the 500-year flood plain.



Harry Kim
Mayor



Dennis K. W. Lee
Director

Ronald Ueoka
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

April 24, 2002

DIERDRE S MAMIYA ADMINISTRATOR
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P O BOX 621
HONOLULU HI 96809

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
LAKO STREET EXTENSION
HOLUALOA, NORTH KONA, HAWAII

Thank you for your review of the draft environmental assessment for the Lako Street Extension. We also appreciate your submittal of the study by the Engineering Branch, Land Division, indicating that the project site is outside of the 500-year flood plain.

Due to the historic/cultural features of this area, we are awaiting the responses from the State Historic Preservation Officer and the Division of State Parks before making our final determination.

Dennis K. W. Lee
DENNIS K. W. LEE, P. E.
Director

DKWL/RMK:ssst

cc: Hilo Engineering, Inc.
Andre Monden, P.E., Eng Br., Land Division

RECEIVED AS FOLLOWS

BENJAMIN J. CAYEYANO
GOVERNOR OF HAWAII



ALBERT S. CULBERTSON, CHAIRMAN
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCES MANAGEMENT

RECEIVED
LAND DIVISION

STATE OF HAWAII

DEPUTIES
ERIC T. HIRANO
LUNNEL NISHIOKA

2002 APR 19 DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKULIHEWA BUILDING, ROOM 565
801 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707


April 9, 2002

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE
MANAGEMENT
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

LOG NO: 29574 ✓
DOC NO: 0204hm03

MEMORANDUM

To: Dierdre Mamiya, Administrator
Land Division

From: Don Hibbard, Administrator
Historic Preservation 

Subject: Lako Street Extension Draft Environmental Assessment
Historic Preservation Review (Chapter 343 and Chapter 6E-8)
Holualoa 4, North Kona, Hawaii Island
TMK: 7-07-04: various parcels

At this time, this Draft EA does not acceptably assess the impacts of this project on significant historic sites.

We have separately reviewed the archaeological inventory survey report for this project (e.g., Hibbard to Haun Jan. 28, 2002 – Log: 29,073; Doc: 0201RC40). The survey report has not yet been accepted. It is being revised to clarify site interpretations. At that point, we can evaluate significance and site-specific mitigation proposals.

However, more important than the individual sites within these two corridors is the potential impact on the Keakealaniwahine Complex. The rulers, Keakealaniwahine and her mother Keakamahana, both used Holualoa as a royal center in the late 1600s and early 1700s. Their residence, some heiau, and some high chiefs' residences are reputedly located within the Keakealaniwahine Complex. This is a very important historic complex, apparently an extremely rare case where the ruler's and some high chiefs' residences survive. Very importantly, the borders of the complex are somewhat arbitrary. Other important historic sites associated with the ruling center and this complex may be located in nearby parcels. In other words, the complex's true borders are far from defined. Site 6374 (a possible high ranking person's house) is impacted by Alternative A and the road comes very close to site 3829 (Hikapapa heiau) (see Drawing 8 on page 23 of the Draft EA, which we assume is more accurate than Drawing 3 which shows the road farther away from these two sites). These sites may be part of the complex. Additionally, both Lako Street Alternatives are quite close to the main complex and are potentially visual, audio, and physical adverse effects. Thus, our greatest concern with the archaeological survey report was that the mitigation section of the survey report failed to address the closeness of these corridors to the Keakealaniwahine complex.

We further noted that we would be unable to conclude our review of the impacts of this project until the results of consultation with native Hawaiian groups and individuals from Kona on the impacts of this project on the royal center complex are submitted to our office. Consultation should identify the complex and nearby sites, describe the road location, and ask for comments on the impacts.

RECEIVED AS FOLLOWS

Dierdre Mamiya, Administrator
Page Two

This Draft EA provides no new archaeological information.

The Cultural Assessment (Appendix E) includes a summary and discussion of background information on the traditions and significance of two, probably related complexes known to have been the residence of multiple chiefs and chiefesses of Hawaii Island. Also included is the transcript of an interview with Mikihala Roy on the significance of these complexes as well as a letter on this general subject written by her father, David K. Roy. This further emphasizes the importance of the complex.

However, consultation with the native Hawaiian community has either not yet occurred, or is not documented in this Draft EA. It is needed to fully assess the potential adverse effects of the alternate road corridors on these significant complexes and other features in the area. The cultural assessment submitted does not address the potential adverse effects of the alternate alignments from the perspective of the native Hawaiian community or what steps might be taken to mitigate these adverse effects. In this case, the visual and audio impacts of the road corridor are particularly important. It is also important to consult with more than one member of the native Hawaiian community of Kona. In particular, other individuals with specific and long-standing ties to this area should be sought and consulted. Information gathered during public hearings for this project may also be useful for this purpose.

Again, as we stated in our January 28, 2002, review of the archaeological inventory survey report, we will not be able to conclude our review of the project until adequate consultation with the native Hawaiian community is completed, and the closeness of the roads is better evaluated in the mitigation analysis. Since this road is a County undertaking, this means that we would not give Chapter 6E-8 approval until these issues are resolved – until we are satisfied that this significant historic site is acceptably protected.

Last, in looking at the EA's larger maps of the area in which the project lies (e.g., Drawing 3), we wonder if Road Alternative A might be able to be moved farther north, particularly below the proposed Kahului-Keauhou Parkway (New Ali'i Highway). This might resolve many of the concerns.

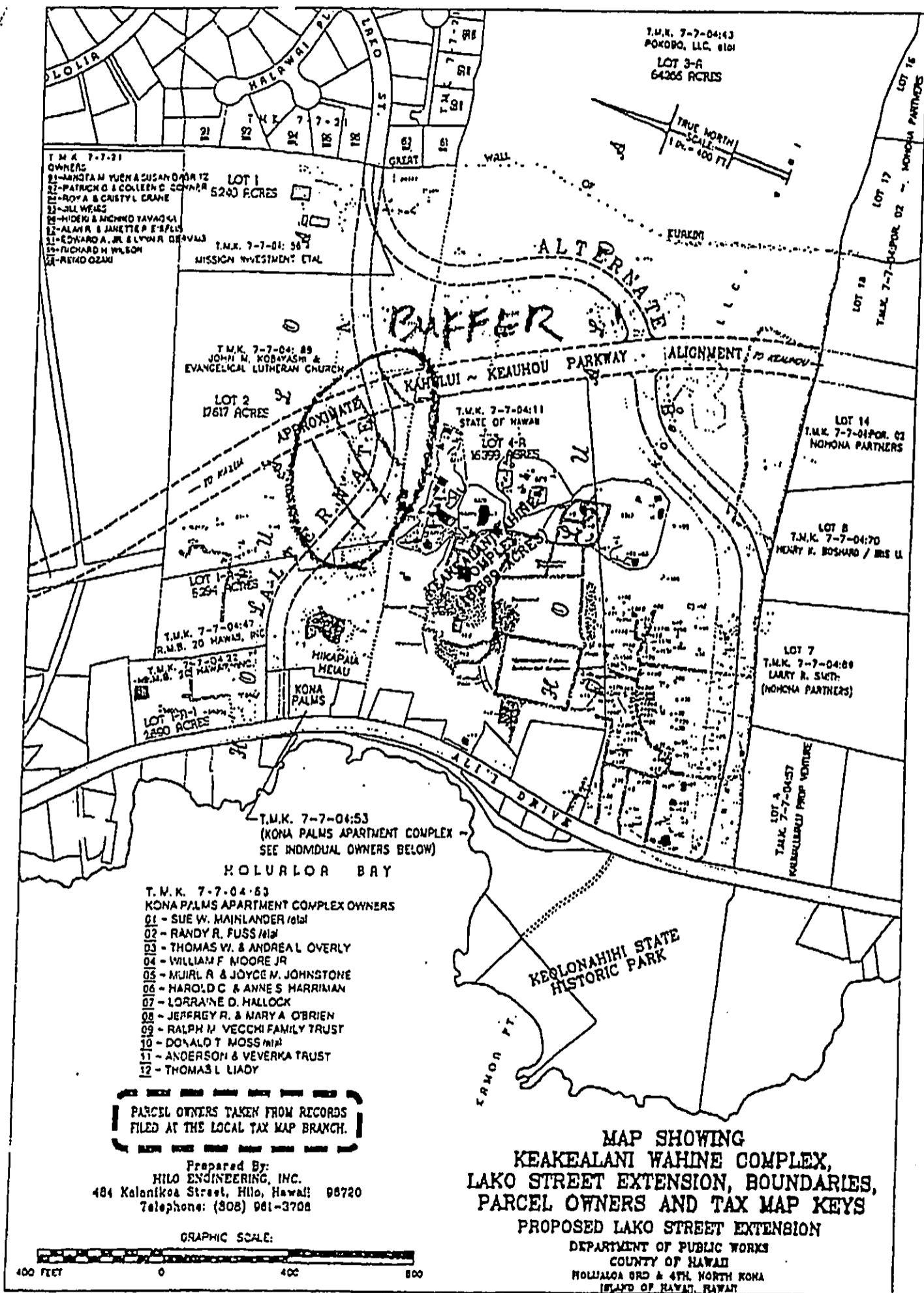
Any questions regarding this review can be directed to Dr. Patrick McCoy (our Hawaii Island Archaeologist, 692-8029), Dr. Holly McEldowney (our Historian, 692-8028), or Dr. Ross Cordy (our Branch Chief for Archaeology, 692-8025).

HM:jk

c: Planning Dept., County of Hawaii
Public Works Dept., County of Hawaii
Office of Hawaiian Affairs
Martha Yent, State Parks



RECEIVED AS FOLLOWS



- T.M.K. 7-7-04:53
KONA PALMS APARTMENT COMPLEX OWNERS
- 01 - SUE W. MAINLANDER (relat)
 - 02 - RANDY R. FUSS (relat)
 - 03 - THOMAS W. & ANDREA L. OVERLY
 - 04 - WILLIAM F. MOORE JR
 - 05 - MUIRL R. & JOYCE M. JOHNSTONE
 - 06 - HAROLD C. & ANNE S. HARRIMAN
 - 07 - LORRAINE D. HALLOCK
 - 08 - JEFFREY R. & MARY A. O'BRIEN
 - 09 - RALPH M. VECCHI FAMILY TRUST
 - 10 - DONALD T. MOSS (relat)
 - 11 - ANDERSON & VEVERKA TRUST
 - 12 - THOMAS L. LIADY

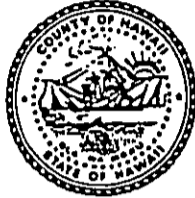
PARCEL OWNERS TAKEN FROM RECORDS
FILED AT THE LOCAL TAX MAP BRANCH.

Prepared By:
HILO ENGINEERING, INC.
484 Kalanikoa Street, Hilo, Hawaii 98720
Telephone: (808) 961-3708



MAP SHOWING
KEAKEALANI WAHINE COMPLEX,
LAKE STREET EXTENSION, BOUNDARIES,
PARCEL OWNERS AND TAX MAP KEYS
PROPOSED LAKE STREET EXTENSION
DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII
HOLIWAHA DRD & 4TH NORTH KONA
ISLAND OF HAWAII, HAWAII

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

April 14, 2003

Ms. Dierdre Mamiya, Administrator
Land Division
Department of Land & Natural Resources
P. O. Box 621
Honolulu, HI 96809

Attn: State Historic Preservation Division

SUBJECT: Draft Environmental Assessment
Lako Street Extension
Holualoa 3rd & 4th, North Kona, Hawaii
TMK: 3rd Div. 7-7-04

Thank you for forwarding the comments by the State Historic Preservation Office. We wish to respond to the helpful comments made which we have taken under consideration to improve our revised Draft Environmental Assessment.

The drawings in the draft EA, No. 3 and No. 8, which show the proposed road alignments, are complementary. The drawing No. 3 shows the 60-foot road right-of-way for Alternate A and Alternate B. The drawing No. 8 shows the 120-foot wide survey corridor of Alternate A and Alternate B; this was to ensure adequate information in locating the 60-foot road extension. While drawing No. 8 shows the survey boundary touching the *Hikapāia Heiau*, the actual road extension boundary will be as shown in drawing No. 3 and be 60 feet, or so, from the *heiau*.

As to consultation with the Hawaiian community, we are continuing to seek their advice and recommendations. At the public informational meetings, opinions from the community were expressed concerning the cultural significance of the area.

We appreciate the meetings we had with the State Parks officials and the representative from the Historic Preservation Division. The advice we received has resulted in a third alternate, Alternate C, which will be included in our revised draft EA for public consideration. Alternate C provides a buffer of 200 feet or more from the *Keakealaniwahine* Complex; this is in response to those who have stated that the Lako Street Extension should lie north of the *Keakealaniwahine* Complex with a suitable buffer zone. A copy of our letter to the State Parks Division is enclosed for your information. This was before Alternate C was selected. A copy of the revised drawing No. 3 showing Alternate C is enclosed.

Our revised draft environmental assessment will be ready for filing with the Office of Environmental Quality Control for public review and comment by the end of this month. Copies will be made available to the Department of Land & Natural Resources.

Thank you much for your review and comments.

Sincerely,

Bruce C. McClure

Bruce C. McClure
Director

Enc. Ltr
Map

c: State Historic Preservation Division
State Parks Division
Hilo Engineering, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS
P.O. BOX 621
HONOLULU, HAWAII 96809

April 15, 2002

GILBERT S. COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

ERIC MIRANO
DEPUTY DIRECTOR

LINNEL T. NISHIOKA
DEPUTY DIRECTOR FOR
THE COMMISSION ON WATER
RESOURCE MANAGEMENT

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

Mr. Dennis Lee, Director
Department of Public Works
County of Hawai'i
25 Aupuni Street, Room 202
Hilo, Hawai'i 96720

Dear Mr. Lee:

**SUBJECT: Draft Environmental Assessment for Lako Street Extension
Holualoa 3 and 4, North Kona, Island of Hawai'i TMK: 7-7-04**

Thank you for the opportunity to review this project and the impacts that the alternative road corridors may have on Keolonahihi State Historical Park (SHP) and the Keakealaniwahine Complex. Together, Keolonahihi and Keakealaniwahine comprise the Holualoa royal center, one of seven royal centers in Kona that date to the 1600s. The construction of Ali'i Drive through the Holualoa royal center has created two separate complexes that would have been one at the time of use and occupation by Kona *ali'i*. Therefore, the donation of Keakealaniwahine to the State provides an opportunity to include this complex within Keolonahihi SHP and re-establish the Holualoa royal center for preservation and interpretation. The Keolonahihi Complex (State Site No. 2059) was listed on the National and State Registers of Historic Places in 1983. The Keakealaniwahine Complex was not nominated for listing on the Registers because it was privately owned at the time.

The proposed extension of Lako Drive from the Komohana Kai subdivision to Ali'i Drive will be immediately adjacent to the Keakealaniwahine Complex and Lako Drive will intersect Ali'i Drive in close proximity to Keolonahihi SHP. The Draft EA states that the extension of Lako Drive will provide road access to Keakealaniwahine as part of Keolonahihi SHP (page 25). While the linkage of Keolonahihi and Keakealaniwahine is important, vehicular access to Keakealaniwahine has not been considered a requirement for incorporation into the park or for visitation. In fact, State Parks is very concerned that Keakealaniwahine may be surrounded on three sides by major roadways (Ali'i Drive, Kahului-Keauhou Parkway, and Lako Drive).

Alternative A

This alignment is in very close proximity to the northern property line of Keakealaniwahine (TMK: 7-7-04: 11). It appears that there is only a 50-foot buffer between the *ahupua'a* wall (ie. State's northern property line) and the roadway which is not adequate to protect this cultural site from the impacts of modern development. Would it be possible to straighten out the alignment and move the road corridor further north and away from the *ahupua'a* wall, especially that section *makai* of the Kahului-Keauhou Parkway alignment?

When assessing this alternative, there needs to be more consideration given to the mitigation of the impacts of the roadway on the Keakealaniwahine complex and other archaeological sites.

- How do you propose to avoid uncontrolled/unauthorized access to Keakealaniwahine from the roadway?

Mr. Dennis Lee
April 15, 2002
Page 2

- How do you propose to minimize the visual impacts of this modern development? With the proposed level of traffic on this roadway, how do you propose to mitigate the impacts of traffic noise on the cultural complex?
- Site No. 6340 represents the *ahupua'a* wall that separates Holualoa 3 from Holualoa 4 and corresponds to the State's northern property line. We recommend that this wall be protected and preserved, but preservation is not indicated in the table on page 20.
- While Hikapaia Heiau (Site No. 3829) is not within the Keakealaniwahine Complex as defined by our modern property line, it was probably a significant feature of the Holualoa royal center. The *heiau* is immediately adjacent to the road corridor and therefore, consideration needs to be given to the protection of this site and mitigation of the impacts of modern development on this cultural site.
- For clarification, in the Cultural Assessment section (page 23), Hualani is the name of the *heiau* and Pahika is the name of Keakealaniwahine's residential enclosure.

Alternative B

This road corridor along the west and south sides of the Keakealaniwahine complex provides a greater buffer for the complex, although it is only about 150 feet away from the southeastern corner of the complex. This alternative intersects Ali'i Drive across from Keolonahihi SHP and may present some concerns for traffic congestion in terms of park ingress and egress when park improvements are constructed. Many of the same concerns regarding mitigative measures for buffering the modern development and protecting the cultural complex will apply for this alternative as well.

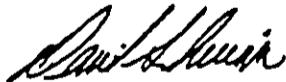
Summary

State Parks is not able to support either of these alternatives as presented because the Draft EA does not adequately address the long-term protection and preservation of the Keakealaniwahine Complex. There are no mitigative measures, such as buffers, landscaping, and access controls, to insure that the cultural, historical, and archaeological complex will not be negatively impacted by the construction of this roadway.

We recommend that the County determine if Alternative A can be moved further north of the existing alignment which would provide a greater buffer along the northern side of Keakealaniwahine. The discussion of alternatives on page 26 does not provide adequate information to determine if other routes were seriously studied and considered before deciding on the Lako Drive extension.

The donation of the Keakealaniwahine complex to the State in 1998 was largely a community initiative in recognition of the cultural and historical significance of this complex. The need to protect these sites and maintain a sense of the cultural and historical setting within an urban setting, makes it imperative that the impacts of this proposed road corridor be thoroughly assessed and mitigated.

Very truly yours,



DANIEL S. QUINN
State Parks Administrator

cc: Historic Preservation Division
Land Division
Office of Hawaiian Affairs
State Parks - Hawaii District Office
Pulama Ia Kona (Joe Castelli)

Harry Kim
Mayor



Dennis K. W. Lee
Director

Ronald Ueoka
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

April 24, 2002

DANIEL S QUINN ADMINISTRATOR
STATE PARKS DIVISION
P O BOX 621
HONOLULU HI 96809

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
LAKO STREET EXTENSION
HOLUALOA, NORTH KONA, HAWAII

Thank you for your review of the draft environmental assessment for the proposed Lako Street Extension. The comments offered by your office are deeply appreciated. We would like to address some of the concerns and questions that have been raised on the Alternate A roadway extension.

1) Location of road extension in close proximity to Holualoa 4 and the Keakealaniwahine Complex:

The following considerations guided our roadway design- good engineering practice, locating the roadway extension out of the designated flood plain, and to minimize impact on the historic features on Holualoa 3, more or less, dictated the alignment of Alternate A.

2) The need for a buffer zone between the Keakealaniwahine Complex and the road extension:

We will explore this possibility to re-align Alternate A. While we sought to be at a reasonable distance from the Keakealaniwahine Complex, we did not wish to create a large lot by a subdivision for the road right-of-way. This could bring the possibility of development next to the Complex. In some aspects, Alternate A alignment does afford a buffer.

3) The access to the Keakealaniwahine Complex from the road extension:

We stated in the EA, page 25 that the road could provide an opportunity for possible future access. Since we have not seen plans for the Complex, we could only suggest that an access can be provided in the roadway design if desired. If access from the road extension is to be prohibited, a fence along the south side can be included in final road design. Further, the area between the road and the Holualoa 4 north boundary wall can be left in its natural state to deter entry into the Complex from the proposed roadway and to attenuate traffic noise.

Daniel S. Quinn, Administrator
Page 2
April 24, 2002

4) As to the noise impacts by traffic:

The Lako Street Extension is not a major highway such as Kuakini Highway or the proposed Kahului Parkway, nor does it approach the volume of traffic on Alii Drive. This area is already urbanized to a large degree as you can see and as such traffic noise is unavoidable.

5) Protection of Site 6340, stone wall between Holualoa 3 and Holualoa 4:

The stone wall, designated as Site 6340 in the archaeological survey report, will not be disturbed by Alternate A. If Alternate B is selected, the wall would have to be breached. The width of the roadway extension is 60 feet; however, a width of 120 feet was designated as the archaeological survey corridor. This survey corridor boundary for Alternate A does include Site 6340 but it was only for study purposes.

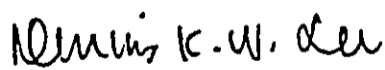
6) Protection of Hikapaia Heiau site:

There will be a buffer of 60 feet or more from the roadway boundary line of Alternate A to the Hikapaia Heiau. This was necessitated by the access to Alii Drive over an existing road right-of-way. Relocating the Lako Street egress on Alii Drive by moving further north would place it in the flood plain zone and entail additional problems.

We are not supporting Alternate B after hearing from the Hawaiian community. We feel Alternate A meets the objectives we set for this roadway project: 1) alleviate traffic on Royal Poinciana Drive; 2) provide an escape route in case of *tsunami* or high wave warning; and 3) access to Alii Drive for residents of Komohana Kai Subdivision. In addition, we set two guidelines for the consultant: first, use good engineering practice to bring it within available funds; and second, to minimize impacts on the historical features in this area. We believe we have come close to this goal. The residents can now look forward to the Lako Street Extension to Alii Drive as originally planned.

We look forward to discussions with your staff to achieve an acceptable plan, which serves a community need while taking into consideration the impacts on historical and cultural features.

May I express my appreciation for the information that was provided to the consultants earlier.
Thank you.


DENNIS K. W. LEE, P. E.
Director

DKWL/BMK:ssst

cc: Hilo Engineering, Inc.
State Historic Preservation Division
Joseph Castelli
Mikihala Roy



WASTEWATER DIVISION

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
108 RAILROAD AVENUE - HILO, HAWAII 96720
(808) 961-8338 - FAX (808) 961-8644

March 22, 2002

Mr. Rodney Kawamura, P.E.
Hilo Engineering, Inc.
484 Kalanikoa Street
Hilo, Hawaii 96720

SUBJECT: LAKO STREET EXTENSION - PRELIMINARY DRAFT

We have reviewed the preliminary draft environmental assessment for the subject project and have the following comments.

Section 6:

Impact of opening area to development and subsequent wastewater generation not addressed. This area is identified in the Kailua-Kona Facility Plan, Southern Zone dated November 1981 as part of the area to be served by the public sewer. In addition, it is my understanding that existing subdivision(s) mauka of proposed roadway are experiencing problems with their on-site wastewater systems.

Section 7E:

Recommend that sewer be extended from Alii Drive along alignment of proposed roadway with adequate capacity to service the adjacent properties and subdivisions makai of Kuakini Highway.

Should you have any questions, please contact the undersigned at 961-8338.

A handwritten signature in black ink, appearing to read 'Peter Boucher'.

Peter Boucher, P.E.
Division Chief

cc: Dennis Lee, DPW
Galen Kuba, DEM



Harry Kim
Mayor



Dennis K. W. Lee
Director

Ronald Ueoka
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

April 24, 2002

GALEN KUBA P E ACTING DIRECTOR
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
25 AUPUNI STREET ROOM 208
HILO HI 96720

ATTN: PETER BOUCHER, P.E.

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
LAKO STREET EXTENSION
HOLUALOA, NORTH KONA, HAWAII

We appreciate your review on the draft environmental assessment for the Lako Street Extension project. In response to your comments, we offer the following clarification:

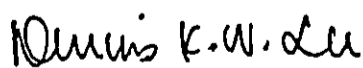
SECTION 6: Impact of opening area to development and subsequent wastewater generation not addressed:

The Lako Street Extension has three objectives: ease traffic on Royal Poinciana Drive; provide another escape route for coastal residents in the event of high seas or *tsunami* warning; and access for Komohana Kai Subdivision to Alii Drive. This project is not associated with any development.

SECTION 7E: In the EA, this section refers to Water Quality Mitigation:

Your statement recommending the extension of sewer from Alii Drive to serve subdivisions below Kuakini Highway is covered in SECTION 4A: GENERAL DESCRIPTION: TECHNICAL, page 11. It is our understanding that the Division of Wastewater will install sewer mains concurrently with the construction of the Lako Street road extension to achieve cost savings. This is part of the Division of Wastewater plans for the Kailua-Keauhou sector. As stated above, the Lako Street road extension is not part of any development project.

We hope we have addressed your concerns.


DENNIS K. W. LEE, P. E.

DKWL/BMK:ssst

cc: Hilo Engineering, Inc.

PLAN TO PROTECT KONA



74-5602-A Alapa Street
Suite 725
Kailua-Kona, HI 96740

April 23, 2002

Mr. Dennis Lee, P.E.
Department of Public Works
County of Hawaii
25 Aupuni Street, Room 202
Hilo, HI 96720

Re: Draft Environmental Assessment (EA) of Lako St. Extension

Dear Mr. Lee:

Thank you for the excellent work in developing the Draft Environmental Assessment (EA). The input from Uncle David Roy and Mikahala Roy in Appendix E, in addition to the work published previously on Kamao Point, provides an excellent understanding of the importance of the Keakealaniwahini complex to the history of Hawaii.

This has helped us realize that the mitigation measures described in Section 7 of the Draft EA are inadequate for the Keakealaniwahini complex. This is because the authors did not consider what will happen to the agricultural land (zoned A-5A) adjacent to the complex when the road is in place.

A MAJOR PROBLEM WITH THE EA:

The Historical/Cultural Mitigation proposed in Section 7 of the Draft EA is devoted to picking a route that would have the minimal disturbance of burials and archaeological features. But is this really sufficient mitigation? What about the impact of the new road, as it opens agricultural land to development in the immediate vicinity of the Complex?

Some owners will want to "up-zone" their land from "A-5A" to a higher density to sell it or develop it. This would have a major negative impact on the Complex by precluding development of support facilities for the proper enjoyment of the Complex. This is not treated in the Draft EA.

In 1998, the State DLNR identified the Complex as a "Sustainable Hot-spot." One of the three major issues/problems was the development of adjacent lands by private land owners and public works projects. The Draft EA needs to address this.

WHAT WOULD BE A SUITABLE MITIGATION?

In addition to creating a visual buffer proposed by the County Planning Director as part of the General Plan revision, the County needs to acquire significant acreage that would prevent any use of the land until some future date when the community could come together with a plan for how the land would be used in a culturally sensitive way.

The attached figure from the Draft EA shows the complex in relationship to the mauka parcels (TMKs). We respectfully request three options be evaluated:

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

RECEIVED AS FOLLOWS

HILO ENGINEERING, INC. TEL No.1-808-961-3707

Apr 29,02 8:32 No.001 P.01

PLAN TO PROTECT KONA



74-5602-A Alapa Street
Suite 725
Kailua-Kona, HI 96740

April 23, 2002

Mr. Dennis Lee, P.E.
Department of Public Works
County of Hawaii
25 Aupuni Street, Room 202
Hilo, HI 96720

Re: Draft Environmental Assessment (EA) of Lako St. Extension

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In addition to creating a visual buffer proposed by the County Planning Director as part of the General Plan revision, the County needs to acquire significant acreage that would prevent any use of the land until some future date when the community could come together with a plan for how the land would be used in a culturally sensitive way.

The attached figure from the Draft EA shows the complex in relationship to the mauka parcels (TMKs). We respectfully request three options be evaluated:

RECEIVED AS FOLLOWS

HILO ENGINEERING, INC. TEL No.1-808-961-3707

Apr 29,02 8:32 No.001 P.02

Option 1: Acquire and put into conservation, all agricultural land adjacent to the Keakealaniwahine Complex. (92.4 acres)

- All of 7-7-04:43 (64.2 acres)
- All of 7-7-04:47 (5.3 acres)
- All of 7-7-04:89 (17.7 acres)
- All of 7-7-04:56 (5.2 acres)

Option 2: Acquire and put into conservation, agricultural land adjacent to the Keakealaniwahine Complex and makai of the Great Wall of Kuakini. (approx 60 acres)

- Portion of 7-7-04:43 (approx 32 out of 64.2 acres)
- All of 7-7-04:47 (5.3 acres)
- All of 7-7-04:89 (17.7 acres)
- All of 7-7-04:56 (5.2 acres)

Option 3: Acquire and put into conservation, agricultural land adjacent to the Keakealaniwahine Complex and makai of the proposed Kahului-Keahou Parkway. (approx 37 acres)

- Portion of 7-7-04:43 (approx 26 out of 64.2 acres)
- All of 7-7-04:47 (5.3 acres)
- Portion of 7-7-04:89 (approx 6 out of 17.7 acres)

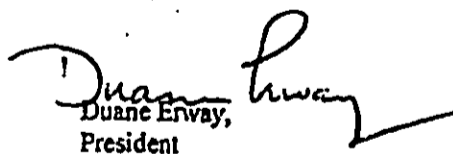
Option 3 allows for minimal construction because much of the land near the complex has many archeological features and possible burials. Option 2 would allow for some parking and buildings. Option 1 allows for an interpretive center, parking, restrooms and administrative facilities.

WHAT DOES THE COUNTY NEED TO DO?

- 1) Redo the Draft EA to analyze the impact on the Complex of opening up the 100 acres+ of agricultural land to development.
- 2) Propose suitable mitigation, including using any excess money from the \$3,000,000 bond for land acquisition. Investigate other means of acquiring the land.
- 3) Publish the final EA and hold additional public meeting(s).

Your consideration is greatly appreciated.

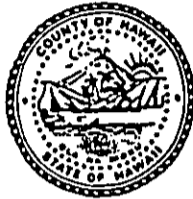
Yours,


Duane Ervay,
President

c:
Mayor Harry Kim
Councilwoman Nancy Pisicchio
Councilman Curtis Tyler
Deputy Mayor Peter Young



Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 - Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

March 27, 2003

Plan to Protect Kona
74-5602-A Alapa Street, Suite 725
Kaiula-Kona, HI 96740

Attn: Mr. Duane Erway, President

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii

Please accept our apology for not responding to your earlier letter. Due to suggested alternatives at the public meeting, the Lako Street Extension was re-examined. We now have decided upon a new alternate alignment which we feel best serves the community. This will be Alternate C (map enclosed for your information) and included in the revised EA.

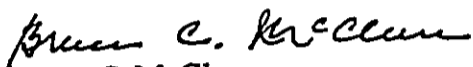
In reply to your contention that the extension of Lako Street may result in land owners seeking "up-zoning" of their properties, this is an uncertain issue at this time. Whether or not this will occur, is beyond the scope of our study. The matter of "up-zoning" lies with the Department of Planning, not with the Department of Public Works. Any changes in zoning will invariably include the public and community voices can be heard at such time.

Your recommendation that the County acquire and place into Conservation land now designated Agriculture by the State Land Use Commission requires funding which is not included in the roadway project. While many may agree that the lands surrounding the *Keakealaniwahine* Complex should be acquired to protect the historical features in this area, such action could take place in the future after the Lako Street Extension has been completed. We do not believe that the roadway extension project should be delayed.

As to mitigation measures, the County intends to seek the advice of the State Historic Preservation Office for guidance. We believe that the Lako Street Extension as proposed by the County will meet the traffic needs of the community while protecting those significant historical/cultural features of this area.

Thank you for your extensive and thoughtful recommendations.

Sincerely,

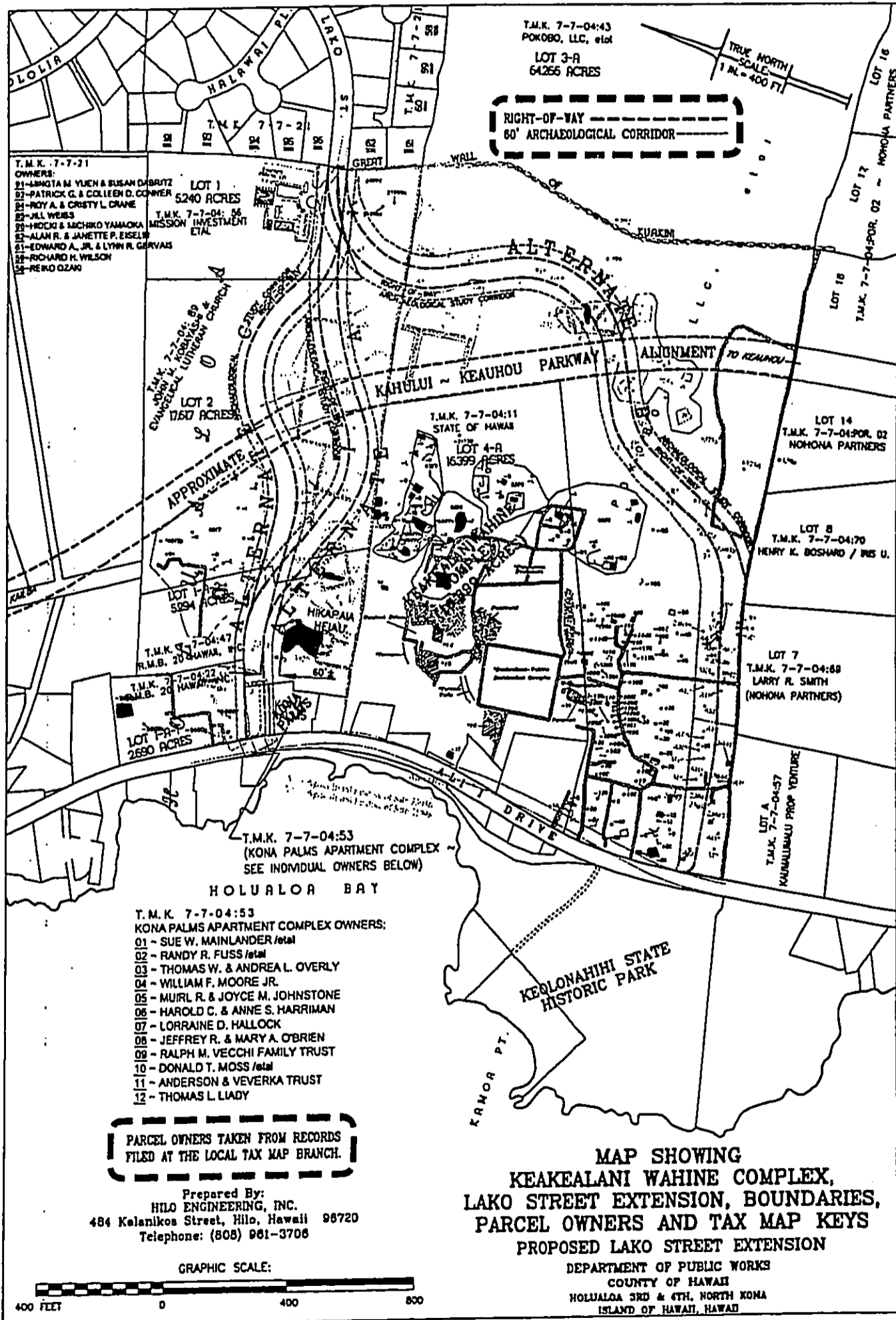


Bruce C. McClure
Director

Enc. Map

c: Hilo Engineering
Department of Planning

RECEIVED AS FOLLOWS



DRAWING NO. 3

PAT R. BOYER
77-6325 ALII DRIVE
KAILUA-KONA, HI 96740
(808) 329-8680 / FAX (808) 329-1874

April 8, 2002

Mr. Dennis Lee
County of Hawaii - Dept of Public Works
25 Aupuni Street
Hilo, HI 96720

Dear Mr Lee:

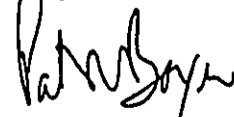
Having attended the last two public meetings at Kahakai Elementary School regarding the "Lako Street Extension Project", I have some concerns regarding the proposed location of the intersection "A" on Alii Drive.

The following is a summary of my concerns:

- 1) The proposed "A" intersection is located in a tidal zone. This section of Alii Drive was closed during our last storm on January 7, 2002. With another high tide and high waves, this intersection would be unusable.
- 2) The proposed "A" intersection is within a ¼ mile of the existing Royal Poinciana Drive intersection. This proposed area of Alii Drive is too congested with traffic to warrant the construction of a new intersection to be placed so close to another existing intersection.
- 3) The proposed "B" intersection is located in an area where there is no tidal zone problem. This location could stay open during high water road closures on Alii Drive.
- 4) The proposed "B" intersection could better serve the residents of the new subdivisions that have been created in the White Sands area of Alii Drive. Hundreds of house sites are opening up and these new residents have no way to access Kuakini Highway. This location would obviously be a lot closer for these people to use in case of high waves or the threat of a tsunami emergency.
- 5) The proposed "B" intersection would be placed in an area where a three-way stop sign could be constructed without impacting existing houses or condominiums. Right now people use this long open corridor to increase their vehicle speed. There are no existing houses at this location so the inconvenience of having an intersection next to people's residences does not exist. With the addition of stop signs, it would be a safer intersection and also, just as important, slow these speeding vehicles down!

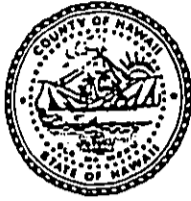
Thank you for considering my concerns and again my vote is for intersection "B".

Very Truly Yours,


Pat R. Boyer



Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

March 27, 2003

Mr. Pat R. Boyer
77-6325 Alii Drive
Kailua-Kona, HI 96740

Dear Mr. Boyer:

SUBJECT: Draft Environmental Assessment
Lako Street Extension
Holualoa, North Kona, Hawaii

We sincerely regret this delay in responding to your earlier letter. Since receiving your letter, other alternatives suggested at the public meeting were taken under consideration. We have now decided upon a new Alternate C. A map is enclosed for your information.

With regards to your letter, we thank you for your detailed evaluation of the selection of the Lako Street Extension alternates. Either Alternate A or Alternate B would fulfill the three goals or purposes of the project; that is to provide an escape route from Alii Drive to the mauka area, relieve traffic on Royal Poinciana Drive and provide direct access to Alii Drive from Komohana Kai subdivision.


The consultant on this project had two guidelines. First, to prepare a road plan using good engineering practice that would be within appropriated funds. Second, to minimize impacts upon the historical and cultural features in this area. The alternate routes, A and B, were selected using good engineering practices and sought to minimize adverse impacts upon the archaeological remains and cultural sites in this area. However, the recommendations of those possessing knowledge of Hawaiian cultural practices have been a deciding factor in our final decision to choose an alternate that would cause less impact on the historical/cultural resources in this area.

Based on the importance of the historical/cultural features, recommendations for a roadway north of the *Keakealaniwahine* Complex will be the choice for the Lako Street Extension. In this, we feel Alternate C will best serve the community.

A revised draft environmental assessment, incorporating comments received on the first draft, is now in preparation and will be submitted to the Office of Environmental Quality Control for public review and comment. A copy will be mailed to you.

Thank you very much for expressing your views, which I'm sure are shared by others.

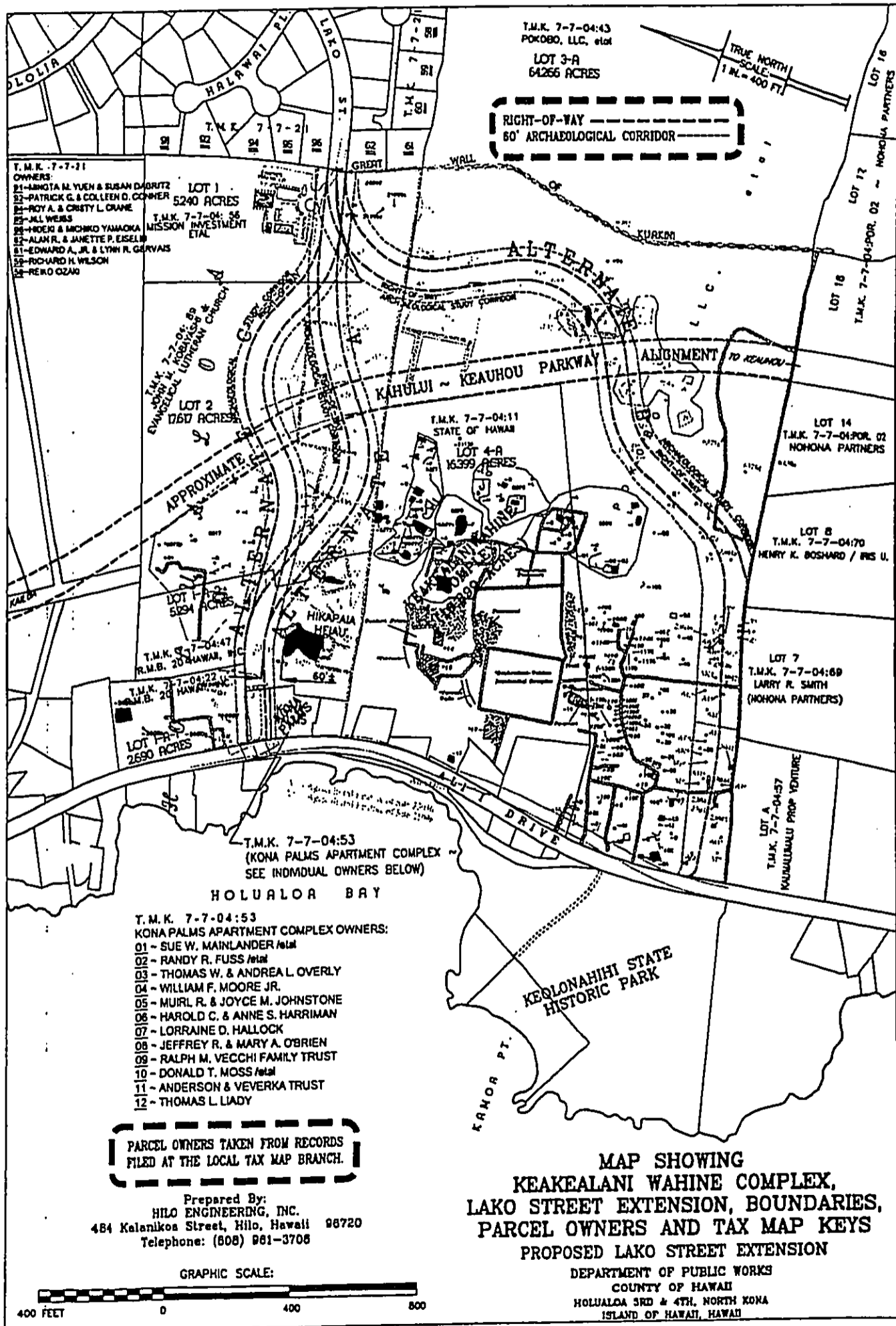
Sincerely,


Bruce C. McClure
Director

Enc. Map

c: Hilo Engineering, Inc.

RECEIVED AS FOLLOWS



DRAWING NO 3

Ric Elhard
Chairman of Hawaii Grotto of the NSS
P.O.Box 6313
Ocean View, Hawaii 96737
808-929-7539

Department of Public Works,

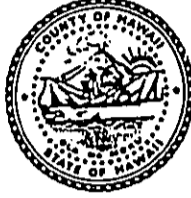
Dear sirs,

It has been brought to my attention that an environmental assessment has been done regarding the proposed extension of Lako Street in Kona. This area of Hualalai is known to have lava tubes and related caves. Due to the heavy habitation in ancient time, of this area, the probability of prehistoric cave archeology is likely. The cave adapted wolf spider (Hualalai Hunting Spider, Lycosa), rare and endangered, has also been recorded in the areas of Hualalai lava tubes.

As a group of persons concerned about cave environments we are interested if assessments have been made regarding these issues. We have with in our organization professional persons to perform cave inventory and documentation. If we can be of service to you in this regard please contact me for further discussion.

Sincerely, Ric Elhard

Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

March 27, 2003

Mr. Ric Elhard
P.O.Box 6313
Ocean View, HI 96737

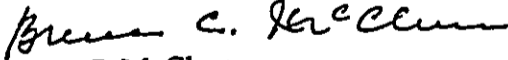
Dear Mr. Elhard:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii

We appreciate your concern on the need for a speleological survey to assess the presence of rare and endangered spiders or other such creatures in caves in the Lako Street Extension project area. A copy of our letter to Mr. William R. Halliday is enclosed for your information. We realize the importance of the services offered by local speleologists. However, as we noted in our letter, there are no cave(s) in the new Alternate C road alignment that has been selected.

Thank you for your offer of assistance, We will keep this matter under consideration.

Sincerely,


Bruce C. McClure
Director

Enc. Ltr with map

c: Hilo Engineering, Inc.
Alan Haun, Ph.D.
William R. Halliday

101 Aupuni St. #911
Hilo, HI 96720

13 March 2002

Hawaii County Department of Public Works
Hawaii County Building
25 Aupuni St.
Hilo, HI 96720

Dear Department Staff: re: EA, proposed Lako St. Extension
Holualoa 3-4

I have reviewed this Environmental Assessment Draft and discussed it with Ric Elhard and Olé Fulks, respectively the chairmen of the Hawaii Chapter of the National Speleological Society and the Hawaii Speleological Survey of that organization. All of us are very concerned about the lack of consideration of cave resources and values other than cultural resources. This is an area with an unusual concentration of significant caves, and with some exceptional cave biology including the Hualalai blind hunting spider, an animal so rare that only two or three examples have been found.

In passing, the EA refers to caves on pages 14, 15, 16, 17, 18, 20, 25, 26, 28, 40 and 41 but does not give enough information about any of them to determine whether a full-scale EIS is necessary. "Feature B" of site 21372 is a cave 21.6 m long, which certainly is large enough to be a potential habitat for the Hualalai blind spider. And there is no indication of what caves are present within the alternatives which are not cultural sites.

To determine whether an EIS is needed for this proposal, the alternative routes should be checked by an experienced speleologist, and any potentially significant caves then should be investigated by a biospeleologist such as Dr. Jeff Burgett of the US Fish and Wildlife's Kona office, or Dr. Fred Stone at UH -Hilo. To minimize costs, the speleological survey should be performed by a West Hawaii speleologist such as Ric Elhard at Kula Kai Caverns in Ocean View, or Rob Pacheco of Hawaii Forest and Trail. Either is highly competent for such a survey and probably would be willing to do the work at little or no expense to your Department.

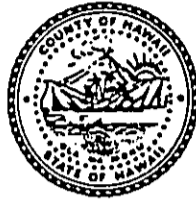
Sincerely yours,

W.R. Halliday

William R. Halliday
Secretary
Hawaii Speleological Survey
cc: Elhard, Fulks, Burgett



Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

March 27, 2003

Mr. William R. Halliday
Secretary
Hawaii Speleological Survey

Dear Mr. Halliday:

**SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii**

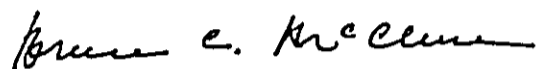
We sincerely regret not responding to your earlier letter. Several alternatives proposed at the public meeting were taken under advisement. A new alternate roadway extension has been decided upon. This will be Alternate C. Please refer to enclosed map.

Your review of the draft environmental assessment for the Lako Street Extension is appreciated. The archaeological consultant, Alan Haun, has assured us that in his field survey, he did not find a cave in the 120-foot Alternate A road alignment study corridor.

There is a cave reported by Haun that was discovered in an earlier survey which adjoins the Alternate B road alignment. However, the cave is not within the 120-foot wide survey corridor (for the 60-foot wide roadway) that was covered by the archaeological study. However, Alternate B, as well as Alternate A, are no longer under consideration for the road extension. In view of the historic and cultural features of this area, Alternate C has been selected as it will have less impact on the historic and cultural features of this general area. No cave has been found in this new roadway alignment. The recommendations of State officials and those with knowledge of the cultural significance of this area have been a factor in our decision to select Alternate C.

Thank you for calling our attention to the need of a speleological survey where caves are involved. We will keep your helpful information on file.

Sincerely,

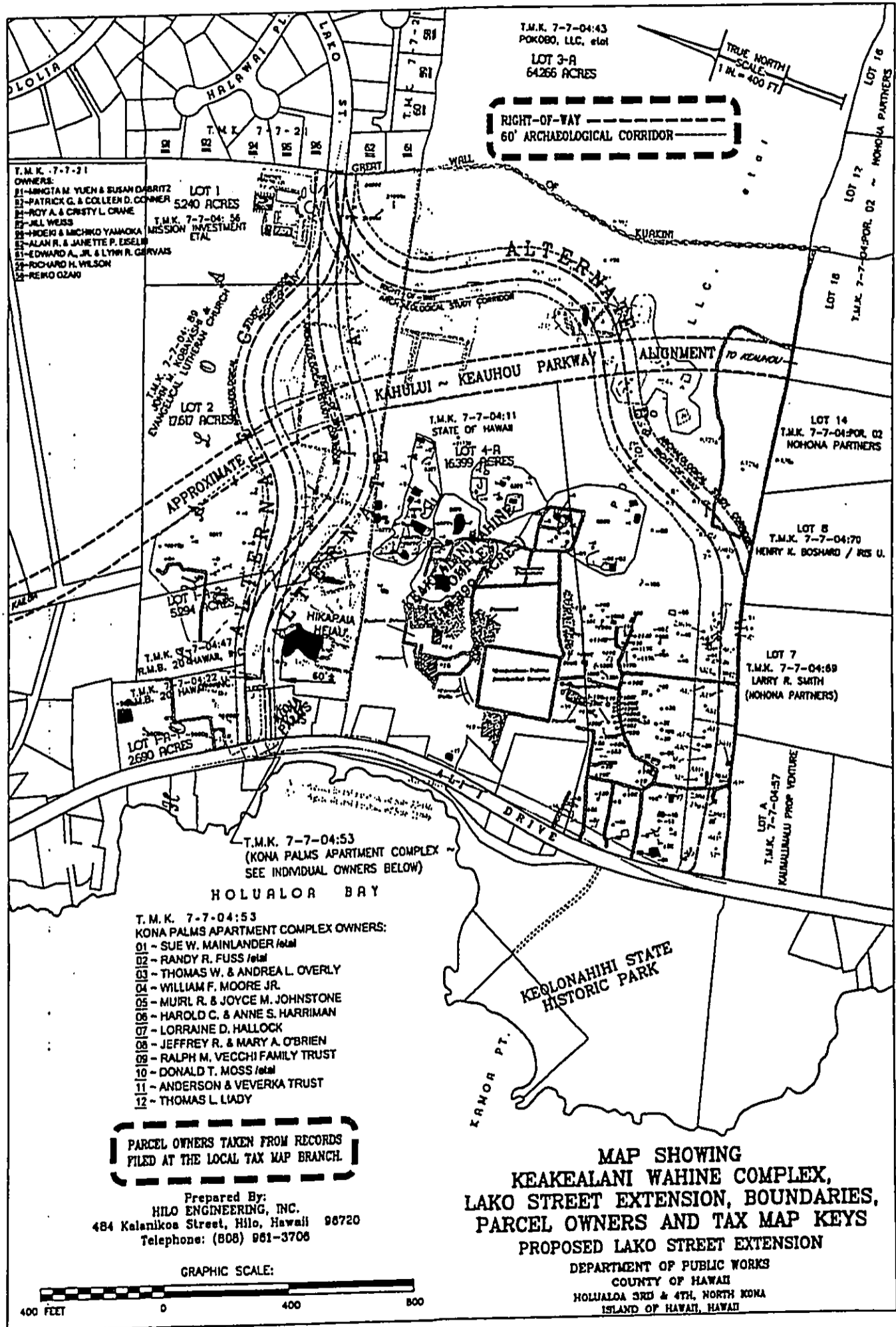


Bruce C. McClure
Director

Enc. Map

c: Hilo Engineering, Inc.
Alan Haun, Ph.D.
Ric Elhard

RECEIVED AS FOLLOWS



DRAWING NO. 3

78-6800 Alii Dr. #27 ♦ Address Line 2 ♦ Kailua-Kona HI 96740 ♦ Country
Phone (808) 322-7962 ♦ Fax same

March 21, 2002

County of Hawaii
Dept of Public Works
25 Aupuni St. Room 202
Hilo Hawaii
96720-4252

Dear Sirs,

Thank you for the copy of the Draft Environmental Assessment for the Lako Street Extension that was sent to Pulama Ia Kona in care of myself. I am a director of Pulama Ia Kona. Pulama Ia Kona has advised me that they do not have the time or manpower to officially generate an honest appraisal of the Draft Environmental Assessment but gave me their permission to respond to it as a private citizen if I so chose.

I have read the complete copy of the Draft Environmental Assessment as I became somewhat familiar with the impacted area during my study and research of the Keakealaniwahine complex. During that time I walked the entire Makai half of this route. Of course I agree that we do need an extension of Lako Street to Alii Drive. Also I do believe that that Alternate Route A would be the best route for the extension, the reason being that it is shorter, less costly, and appears to impact less archaeological sites.

Of all of the archaeological sites in or adjacent to this route I am mostly concerned with the Hikapaia Heiau (State Hawaii Catalog 3829). Although this heiau is not within the direct path of this Alternate Route A, from the Environmental assessment site location drawings it appears that the route is touching the northern end of this temple and the possibility of damage to this temple during road construction exists.

Little is known of the history or the purpose of the Hikapaia Heiau but this temple is in a remarkably well preserved condition. I envision the Keakealaniwahine complex one day as a cultural park including Kahuna Ia'au lapa'au dressed the old way and explaining to visitors at the ancient medical college associated with the complex's Hualani heiau, how to heal with plants herbs and trees. The Hikapaia heiau is approximately 250 feet Northwest of this medical temple and should be part of the Keakealaniwahine cultural park.

Therefore I believe that extreme care should be taken during the construction of Alternate route A so as not to damage the Hikapaia Heiau. If possible the route should be moved a few feet to the North so that this heiau will not be impacted. A retaining rock wall could be built roadside of this temple to protect it and room left for a possible future fence to be installed around the entire Keakealaniwahine complex.

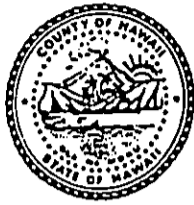
Sincerely,

Joseph N. Castelli

Joseph N. Castelli



Harry Kim
Mayor



Dennis K. W. Lee
Director

Ronald Ueoka
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS

Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

May 24, 2002

Joseph N. Castelli
78-6800 Ali'i Drive
Kailua-Kona, Hawaii 96740

Dear Mr. Castelli:

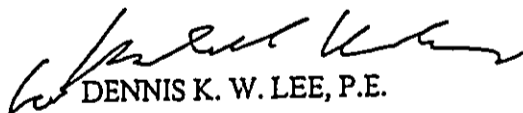
SUBJECT: Proposed Extension of Lako Street
Holualoa 3rd & 4th, North Kona, HI

Thank you for your comments on the proposed Lako Street extension project. We appreciate your thoughtful comments. It was our hope that we could respond to all those who submitted comments at an early date. However, after consulting with the State officials on Parks and Historic Preservation, we decided to add another alternate road plan.

Based on recommendation of the State officials, we are providing a wider buffer between the proposed road extension and the Keakealaniwahine Complex.

At this time, we are looking at a new alignment, which we will call ALTERNATE C, to determine whether or not significant archaeological sites will be impacted. Further, we are checking with the consultants on the Kahului-Keauhou Parkway project on the road intersection since the Lako Street extension will not be perpendicular to the Parkway. We hope to have these two matters cleared up in the near future.

We appreciate your assistance in resolving the final location of the Lako Street Extension. Thank you.


DENNIS K. W. LEE, P.E.
Director

cc: State Parks
State Historic Preservation Division
Frances Schobel
Mayor Harry Kim
Hilo Engineering, Inc.

April 8, 2002

TO: Dennis Lee – Public Works Administrator, County of Hawaii
FR: Josephine Kellipio – Kona Resident
RE: Comments on DRAFT Environmental Assessment for Lako Street Extension

- 1) **SMA (Special Management Area Use Permit)** – I am surprised that the County is not applying for an SMA for this project. If the laws require an SMA, then the county should do one for this project.
- 2) **Speed Humps on Royal Poinciana Drive** – The traffic study needs to be redone to include the effects on VPH on Royal Poinciana Drive now that it has been retrofitted with speed humps.
- 3) **Alternative A is best choice for Lako Street** – Although I spoke in favor of Alternative B at the beginning of the meeting on 3-27-02, I have since changed my mind. I now favor Alternative A for the following reasons:
 - a) **Cost** – It will cost less to build Alternative A and maybe we can use the leftover funds to purchase additional lands to serve as a buffer around the Keakealani Complex.
 - b) **Proximity to more condos** – Alternative A will serve more people especially those in the high density condominium neighborhoods which are located in the area around Alternative A and to the north of it. Alternative B is closer to the White Sands area and since that neighborhood will already be served by the Laaloa Street extension then building Alternative B would be a waste of valuable funds.
 - c) **Historical Sites** – I think Alternative A would have less of an impact on any historical sites. Additionally, I think you should keep Alternative A as far away from the heiau as possible. Perhaps having Alternative A swing further to the north, while keeping it away from the flood plain would have less of an impact to the heiau.
 - d) **Royal Poinciana Drive** – Royal Poinciana Drive has taken a lot of abuse since it was opened to through traffic back in 1986. This road was not made or meant to handle the current level of traffic. Alternative A would give Royal Poinciana Drive the relief it deserves. I was annoyed by the haole "newcomers" at the meeting who had no compassion or sympathy for how traffic has affected the quality of life for the old kama'aina families on Royal Poinciana Drive.



Harry Kim
Mayor



Bruce C. McClure
Director

Ronald K. Takahashi
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 • Hilo, Hawaii 96720-3043
(808) 961-8321 • Fax (808) 961-8630

March 27, 2003

Ms. Josephine Keliipio
P.O. Box 368
Kealahou, HI 96750

Dear Ms. Keliipio:

SUBJECT: Draft Environmental Assessment (EA)
Lako Street Extension
Holualoa, North Kona, Hawaii

We sincerely apologize for not responding to your earlier letter. Several new alternatives for the Lako Street Extension that were suggested at the public meeting were taken under advisement. We have finally decided upon a new alternate, Alternate C, which is quite similar to Alternate A but provides additional buffer to the Keakealaniwahine Complex.

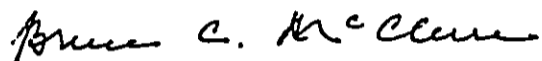
Your earlier comments on the draft Environmental Assessment for the proposed Lako Street Extension are appreciated. We wish to respond to your thoughtful comments on the following:

- 1) SMA (Special Management Area Use Permit)-
You are correct, this Lako Street project will require an SMA Use Permit. As we pointed out in Section 4A, page 9, the project is within the SMA boundary; therefore, a SMA Use Permit will be required.
- 2) Speed Humps on Royal Poinciana Drive-
Speed bumps were installed by the County of Hawaii in March of 2002.

- 3) Alternate A is best choice for Lako Street-
We appreciate your endorsement of Alternate A, which was the choice of our consultants on engineering, traffic and archaeology. Alternate A was also the recommended route of others. However, since the archaeological/cultural features in this area are of primary concern, the recommendations of the officials at State Parks and Historic Preservation divisions and others familiar with Hawaiian culture were a deciding factor in making our selection. We are pleased to send you a copy of the map showing Alternate C, which will be part of the revised EA now being prepared.

Thank you for responding to our request for comments.

Sincerely,

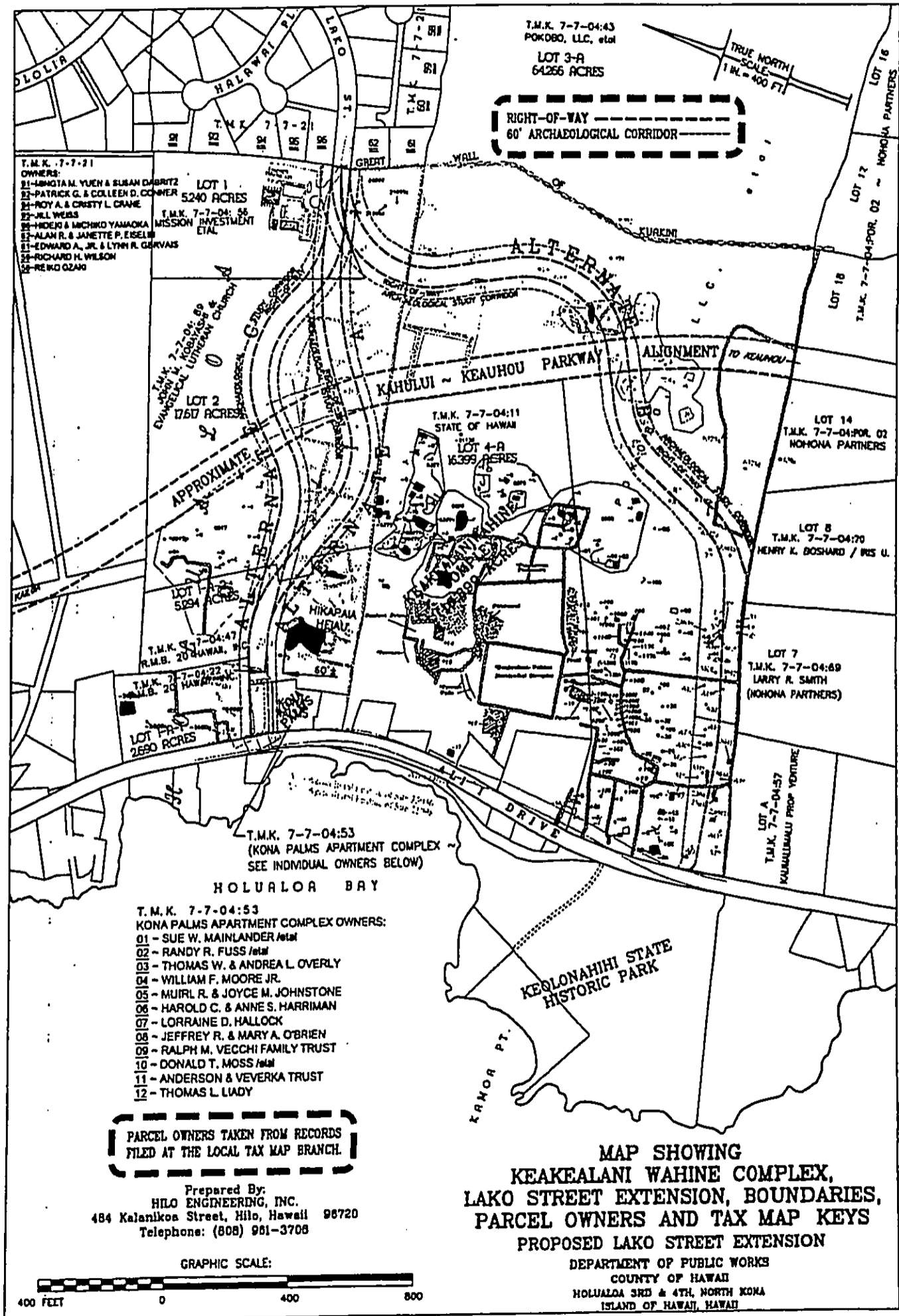


Bruce C. McClure
Director

Enc. Map

c: Hilo Engineering, Inc.

RECEIVED AS FOLLOWS



DRAWING NO 3

OTHER COMMENTS



United States Department of the Interior

U.S. GEOLOGICAL SURVEY

WATER RESOURCES DISCIPLINE

677 Ala Moana Blvd., Suite 415

Honolulu, HI 96813

Phone: (808) 587-2400/Fax: (808) 587-2401

March 19, 2002

Mr. Dennis K.W. Lee, P.E.
Director
County of Hawaii
Department of Public Works
25 Aupuni Street, Room 202
Hilo, Hawaii 96720-4252

Dear Mr. Lee:

Subject: Preliminary Draft, Lako Street Extension, Holualoa, North Kona, Hawaii,
TMK: 7-07-04

Thank you for forwarding the subject preliminary draft for review and comment by the staff of the U.S. Geological Survey, Water Resources Division, Hawaii District office. We regret however, that due to prior commitments and lack of available staff, we are unable to review this document and are returning it for your future use.

We appreciate the opportunity to participate in the review process.

Sincerely,

Gordon Tribble
District Chief

Enclosure



BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII



RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOMELANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

March 14, 2002

The Honorable Dennis Lee, Chief Engineer
Department of Public Works
County of Hawaii
25 Aupuni Street, Room 202
Hilo, HI 96720

Dear Mr. Lee:

Subject: Lako Street Extension, Preliminary Draft, TMK 7-7-4,
Holualoa, North Kona, Hawaii Island, Dated February,
2002

Thank you for the opportunity to review the subject application.
The Department of Hawaiian Home Lands has no comment to offer.

If you have any questions, please call Daniel Ornellas of our
Planning Office at 586-3836.

Aloha,

for


Raynard C. Soon, Chairman
Hawaiian Homes Commission

COUNTY OF HAWAII
DEPARTMENT OF PARKS & RECREATION
25 Aupuni Street, Room 210
Hilo, Hawaii 96720
Phone (808) 961-8311 **** Fax (808) 961-8411

Memorandum

DATE: March 8, 2002

TO: Dennis Lee, DPW Director

FROM: Pat Engelhard, P&R Director 

RE: Lako Street Extension-Draft Environmental Assessment
TMK: 7-7-04

We have reviewed the draft EA and have no adverse comments to offer.

Thank you for the opportunity to review the document.

encl-returning document



Harry Kim
Mayor



James S. Correa
Police Chief

County of Hawaii

POLICE DEPARTMENT

349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-8869

March 8, 2002

Mr. Dennis K.W. Lee, P.E., Director
County of Hawaii
Department of Public Works
25 Aupuni Street, Room 202
Hilo, HI 96720

Dear Mr. Lee:

Subject: PRELIMINARY DRAFT
LAKO STREET EXTENSION
HOLUALOA, NORTH KONA, HAWAII, TMK: 7-07-04

The Kona Department staff has reviewed the preliminary draft for the makai end of the Lako Street extension. We concur with your department's decision that route A is the best alignment alternative.

Should you have any further questions, please contact our Kona District Commander, Captain John Dawrs, at 326-4200.

Sincerely,

A handwritten signature in black ink, appearing to read "Lawrence K. Mahuna", is written over a horizontal line.

LAWRENCE K. MAHUNA
ASSISTANT POLICE CHIEF
ACTING POLICE CHIEF

**APPENDIX A
FAUNA SURVEY**

**FAUNA SURVEY OF LAKO STREET PROPOSED EXTENTSION,
KAILUA-KONA, HAWAII
July 10, 2001**

The observations and known sightings are composed almost entirely of introduced species of birds and mammals. It is also possible that two endemic Hawaiian creatures classified as endangered by the U. S. Fish & Wildlife Service may enter or fly over the project site. These are the Hawaiian Hawk or Io, and the Hawaiian Bat.

The site of the proposed Lako Street extension adjacent to a residential area in Kailua-Kona is primarily covered with lowland vegetation of introduced plants. At the mauka area of the proposed street extension are homesites intermingled with vacant land. The dominant lowland vegetation on and around the site is composed of introduced plants. The dominant tree is the kiawe (Prosopis pallida). The vegetation understory is made up of shrubs including haole koa (Leucaena glauca) and Christmasberry (Schinus terebinthifolius). Along the makai side of the subject property adjacent to Alii Drive are several apartments and vacation rentals with coconut palms and other planted landscaping.

Birds that would be expected to nest in the trees on the proposed site especially the kiawes are the spotted and zebra dove, mynah, house finch, Java sparrow, warbling silverbill, ricebird, red cardinal and yellow-billed cardinal. The Pacific Golden Plover in this area would make use of lawn areas for feeding.

FAUNA LIST

Birds that may be found, though rarely, or that may fly over the proposed project site are:

NATIVE BIRDS		
<u>Common Name</u>	<u>Hawaiian Name</u>	<u>Scientific Name</u>
Hawaiian Hawk	Io	<u>Buteo solitarius</u>
Hawaiian Owl	Pueo	<u>Asio flammeus sandwichensis</u>
Pacific Golden Plover	Kolea	<u>Pluvialis fulva</u>
Ruddy Turnstone	Akekeke	<u>Arenaria interpres</u>

INTRODUCED BIRDS

<u>Common Name</u>	<u>Scientific Name</u>
Barn Owl	<u>Tyto alba</u>
Black Francolin	<u>Francolinus francolinus</u>
Gray Francolin	<u>Francolinus pondicerianus</u>
Ring-Necked Pheasant	<u>Phasianus colchicus</u>
Spotted Dove	<u>Streptopelia chinensis</u>
Zebra Dove	<u>Geopelia striata</u>
Japanese White-Eye	<u>Zosterops japonicus</u>
Common Mynah	<u>Acridotheres tristis</u>
House Sparrow	<u>Passer domesticus</u>
House Finch	<u>Carpodacus mexicanus</u>
Saffron Finch	<u>Sicalis flaveola</u>
Java Sparrow	<u>Padda oryzivora</u>
Warbling Silverbill	<u>Lonchura malabarica</u>
Spotted Munia (Ricebird)	<u>Lonchura punctulata</u>
Yellow-Fronted Canary	<u>Serinus mozambicus</u>
Lavender Waxbill	<u>Estrilda caerulescens</u>
Red Cardinal	<u>Cardinalis cardinalis</u>
Yellow-Billed Cardinal	<u>Paroaria capitata</u>
Cattle Egret	<u>Bubulcus ibis</u>

MAMMALS

The Hawaiian Bat, the State's only native land mammal, is widely distributed on the Island of Hawaii. It could possibly inhabit or fly over the project site from time to time.

Other mammals that could be present are all introduced by humans. It is probable that the following list of mammals could be found at the project site:

NATIVE MAMMAL

<u>Common Name</u>	<u>Scientific Name</u>
Hawaiian Bat	<u>Lasiurus cinereus semotus</u>

INTRODUCED MAMMALS

<u>Common Name</u>	<u>Scientific Name</u>
Mongoose	<u>Herpestes auropunctatus</u>
Roof Rat	<u>Rattus rattus</u>
House Mouse	<u>Mus musculus</u>
Cat	<u>Felix catus</u>
Dog	<u>Canis familiaris</u>
Pig	<u>Sus scrofa</u>
Cattle	<u>Bos taurus</u>

**APPENDIX B
BOTANICAL SURVEY**

BOTANIC SURVEY
 LAKO STREET EXTENSION, KAILUA-KONA, HAWA'I
 July 6, 2001
 Conducted by Bunichi Usagawa

Section A: Lako Street to Alii Drive	<u>Status</u>
Apocynaceae:	
Catharanthus roseus - Periwinkle	X
Cucubitaceae:	
Coccinea cordifolia - Ivy gourd	X
Euphorbiaceae:	
Breynia nivosa - Snowbush	X
Gramineae:	
Paspalum sp. - Paspalum grass	X
Leguminosae:.	
Leucaena glauca - Ekoa	X
Prosopis pallida - Kiawe	X
Malvaceae:	
Sida fallax - Ilima	I
Mimosoideae:	
Pithecellobium dulce - Opiuma	X
Palmae:	
Cocos nucifera - Coconut palm	P
Verbenaceae:	
Lantana camara - Lantana	X
Section B: Lako Street to Alii Drive	
Cucubitaceae:	
Coccinea cordifolia - Ivy gourd	X
Euphorbiaceae:	
Breynia nivosa - Snowbush	X

	<u>Status</u>
Gramineae:	
Paspalum sp. - Paspalum grass	X
Guttiferae:	
Clusia rosea - Scotch attorney	X
Labiatae:	
Leonotis nepetaefolia - Lions ear	X
Leguminosae:	
Leucaena glauca - Ekoa	X
Prosopis pallida - Kiawe	X
Malvaceae:	
Sida fallax - Ilima	I
Mimosoideae:	
Pithecellobium dulce - Opiuma	X
Verbenaceae:	
Lantana camera - Lantana	X

I did not see any rare or endangered species. Dominant species are Ekoa and paspalum grass.

References:

In Gardens of Hawaii by Marie C. Neal
Hortus Secund by L.H. Bailey and Ethel Zoe Bailey
Handbook of Hawaiian Weeds by E.L. Hoselwood and G.G. Mottei

Status/Symbols of Species:

I - Indigenous, native to the Hawaiian Islands and elsewhere
P - Polynesian introduction, not native to the Hawaiian Islands
X - Introduced or alien
E - Endemic, native only to Hawaiian Islands (none found during survey)

Respectfully submitted,

Bunichi Usagawa
Bunichi Usagawa

Botanic Survey – Realignment of Lako St. Extension to Alii Drive
Kailua-Kona, Hawaii

January 10, 2003

Section C

- Apocynaceae:
Catharanthus roseus - Periwinkle
- Cucurbitaceae:
Coccinea cordifolia - Ivy gourd
- Euphorbiaceae:
Breynia nivosa - Snowbush
- Gramineae:
Paspalum sp. - Paspalum grass
- Leguminosae:
Leucaena glauca - Ekoa
Prosopis chilensis - Kiawe
- Malvaceae:
Sida fallax - Ilima
- Mimosoideae:
Pithecellobium dulce - Opiuma
- Palmae:
Cocos nucifera - Coconut palm
- Verbenaceae:
Lantana camara - Lantana

I did not see any rare or endangered species. Dominant species are Ekoa and paspalum grass.

Respectfully submitted,

Bunichi Usagawa

Bunichi Usagawa

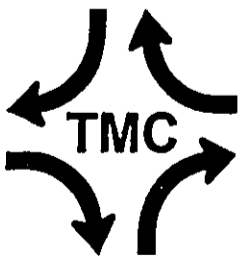
References: *In Gardens of Hawaii* by Marie C. Neal; *Hortus Second* by L.H. Bailey and Ethel Zoe Bailey; and *Handbook of Hawaiian Weeds* by E.L. Haselwood and G.G. Motter

**APPENDIX C
TRAFFIC STUDY**

TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED
LAKO STREET EXTENSION

PREPARED FOR
HILO ENGINEERING, INC.

JULY 24, 2003



PREPARED BY

THE TRAFFIC MANAGEMENT CONSULTANT
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**TRAFFIC IMPACT ANALYSIS REPORT
FOR THE PROPOSED
LAKO STREET EXTENSION**

I. Introduction

A. Purpose of the Study

The purpose of this study is to analyze the traffic impacts resulting from the proposed extension of Lako Street in Holualoa, Hawaii. The study recommends improvements that would mitigate the traffic impacts identified in this analysis. This report presents the findings and recommendations of the study.

B. Scope of the Study

The scope of this study includes:

1. Evaluation of existing roadways and traffic conditions.
2. Estimation of future traffic demands with the construction of the proposed Kahului-Keauhou Parkway and the mauka extension of Lako Street to Hualalai Road.
3. Analysis of future traffic demands without the proposed Lako Street Extension and with other planned roadways including:
 - a. Kahului-Keauhou Parkway – Phase 1
 - b. Kahului-Keauhou Parkway – Phase 2
 - c. Keauhou-Napoopoo Bypass Road
 - d. Mauka extension of Lako Street
4. Evaluation of three (3) alternative alignments for the Lako Street Extension.
5. Identification and analysis of traffic impacts resulting from the construction of the proposed project for three (3) alternative alignments.
6. Recommendations of improvements that would mitigate the traffic impacts, identified in this study.

C. Project Description

Lako Street is located in Holualoa, Hawaii. Lako Street would be extended from its makai terminus to Alii Drive to provide a mauka-makai (east-west) connection between Kuakini Highway and Alii Drive. The Alternative Alignments and the vicinity of the project are depicted on Figure 1. The Lako Street Extension would be constructed within a 60-foot wide right-of-way. The roadway would include a 40-foot wide roadway with concrete curbs, gutters and sidewalks. Figure 2 depicts the typical roadway section.

Three alternative alignments for the Lako Street Extension are analyzed in this traffic impact analysis. Alternatives A and C would extend Lako Street to Alii Drive in the vicinity of Holualoa Bay. Alternatives A and C intersect Alii Drive at the same location. However, Alternatives A and C intersect Kahului-Keauhou Parkway at different locations and therefore result in different alignments. All three alternative alignments for the Lako Street Extension would intersect the future Kahului-Keauhou Parkway at a modern roundabout intersection. Alternative B intersects Alii Drive about 1,400 feet south of the Alternative A or C intersection. Figure 1 also depicts the alternative alignments for the Lako Street Extension.

An interim horizon Year 2009 was analyzed to evaluate the traffic impacts of the proposed project with the construction of Phase 1 of the Kahului-Keauhou Parkway between Keauhou and Lako Street Extension. The Year 2020 was used as the Design Year for this traffic impact analysis.

D. Limits of the Study Area

The intersections within the study area include:

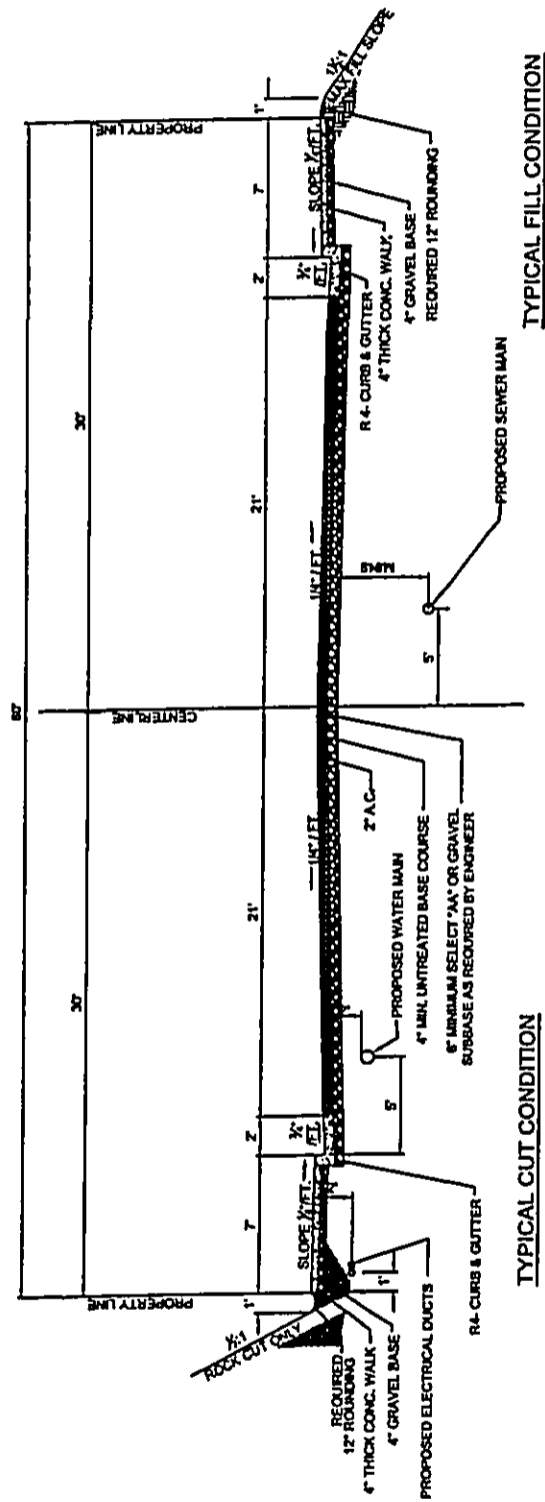
1. Queen Kaahumanu Highway and Kuakini Highway
2. Lako Street and Hualalai Road
3. Lako Street and Kuakini Highway
4. The proposed Lako Street Extension and Kahului-Keauhou Parkway
5. The proposed Lako Street Extension and Alii Drive
6. Royal Poinciana Drive and Kahakai School Access Road/Kahului-Keauhou Parkway
7. Royal Poinciana Drive and Alii Drive

RECEIVED AS FOLLOWS



Figure 1. Alternative Alignments and Vicinity Map

RECEIVED AS FOLLOWS



SIGNED SHARED ROADWAY WITH WIDE CURB LANE

Scale: 1/8"=1'-0"

NOTE: RETAINING WALL ALONG PROPERTY LINE TO BE CONSTRUCTED TO PROTECT ARCHAEOLOGICAL SITE FEATURES WHERE DEEMED NECESSARY.

Figure 2. Typical 60' Right-of-Way Section

II. Existing Conditions

A. Area Roadway System

Lako Street is a two-lane two-way, collector street, which is proposed to be extended in the mauka and makai directions, from Hualalai Road to Alii Drive of Kuakini Highway. The mauka section of Lako Street intersects Hualalai Road at a stop-controlled Tee-intersection, which is located less than half a mile north of Mamalahoa Highway. The mauka section of Lako Street terminates at the makai boundary of the Iolani Subdivision. The Kona Vista Subdivision is expected to connect the mauka section of Lako Street with the middle section of Lako Street. The middle section of Lako Street is signalized at its intersection with Kuakini Highway and extends in the makai direction through the Komohana Kai Subdivision. Makai of Kuakini Highway, Lako Street provides exclusive left-turn lanes at intersections in the Komohana Kai Subdivision. Lako Street provides access to Alii Drive via Kupuna Street and Royal Poinciana Drive, two local subdivision roads. The proposed Lako Street Extension to Alii Drive is expected to divert through traffic from Royal Poinciana Drive and Kupuna Street.

Hualalai Road is a two-way, two-lane roadway between Mamalahoa Highway and Alii Drive. Hualalai Road intersects Queen Kaahumanu Highway at two offset stop-controlled Tee-intersections.

Kuakini Highway is a two-lane, two-way, arterial highway between Kailua-Kona and Honalo. Kuakini Highway is signalized at its intersection with Lako Street. Exclusive left-turn and right-turn deceleration lanes are provided on both approaches of Kuakini Highway at Lako Street. The posted speed limit on Kuakini Highway, in the vicinity of Lako Street, is 35 miles per hour (mph). At its junction with Queen Kaahumanu Highway, Kuakini Highway continues into Kailua-Kona Town.

Queen Kaahumanu Highway is a two-way, two-lane arterial highway between Kailua-Kona and Kawaihae. Queen Kaahumanu Highway is the continuation of Kuakini Highway, mauka of Kailua-Kona Town. Queen Kaahumanu Highway is unsignalized at two offset Tee-intersections with Hualalai Road. North of Kuakini Highway, the posted speed limit on Queen Kaahumanu Highway is 55 mph.

Alii Drive is a two-lane, two-way, arterial roadway between Kailua-Kona and Keauhou. The posted speed limit on Alii Drive is 30 mph. Alii Drive is unsignalized at its intersection with Royal Poinciana Drive.

Royal Poinciana Drive is a two-lane, two-way local roadway, which extends from Alii Drive to Kupuna Street. Royal Poinciana Drive is stop-controlled at its Tee-intersection with Alii Drive. Since the initial field investigation conducted for this study, speed humps have been installed along Royal Poinciana Drive. The speed humps are intended to reduce the speed of traffic on Royal Poinciana Drive. However, the speed humps are not expected to reduce the volume of traffic on Royal Poinciana Drive, unless an alternative route is provided between Kuakini Highway and Alii Drive. It is beyond the

scope of this study to analyze the traffic impacts resulting from the installation of the speed humps on Royal Poinciana Drive.

B. Existing Traffic Volumes and Operating Conditions

1. General

a. Field Investigation

A manual traffic count survey was conducted in the vicinity of the project in April 2001, during the peak periods of traffic – between 6:30 AM and 9:00 AM and between 2:30 PM and 5:30 PM – at the following intersections:

- Kuakini Highway and Lako Street
- Alii Drive and Royal Poinciana Drive
- Royal Poinciana Drive and Kahakai School Access Road
- Alii Drive near Holualoa Bay

A supplemental traffic count survey was conducted in May 2003, during the peak periods of traffic – between 6:00 AM and 9:00 AM, and between 2:30 PM and 5:30 PM – at the following intersections:

- Queen Kaahumanu Highway and Kuakini Highway
- Queen Kaahumanu Highway and Hualalai Road (North Junction)
- Queen Kaahumanu Highway and Hualalai Road (South Junction)
- Kuakini Highway and Lako Street
- Hualalai Road and Lako Street

The traffic count data are contained in the Appendix, which is compiled under a separate cover.

b. Capacity Analysis Methodology

The highway capacity analysis performed for this study is based upon procedures presented in the "Highway Capacity Manual" (HCM), Special Report 209, Transportation Research Board. The capacity analysis worksheets are contained in the Appendix, which is compiled under a separate cover.

Level of Service (LOS) is defined as "a qualitative measure describing operational conditions within a traffic stream". Several factors may be included in determining LOS, such as: speed, delay, vehicle density, freedom to maneuver, traffic interruptions, and driver comfort. LOS "A", "B", and "C" are considered

satisfactory levels of service. LOS "D" is generally considered a "desirable minimum" operating level of service. LOS "E" is an undesirable condition, and LOS "F" is an unacceptable condition. Intersection LOS is primarily based upon delay (d). Table 1 presents the Level of Service criteria for signalized and unsignalized intersections.

Table 1. Intersection Level of Service Criteria (HCM)				
LOS	Signalized Intersections		Unsignalized Intersections	
	Delay d (sec/veh)	Description	Delay d (sec/veh)	Description
A	$d \leq 10$	Few stops, little or no delay	$d \leq 10$	Little or no delays
B	$10 < d \leq 20$	Good progression, short cycle lengths	$10 < d \leq 15$	Short delays
C	$20 < d \leq 35$	Cycle failures begin to occur, i.e., vehicles stop at more than one red phase	$15 < d \leq 25$	Average delays
D	$35 < d \leq 55$	Noticeable number of cycle failures, unfavorable progression	$25 < d \leq 35$	Long delays
E	$55 < d \leq 80$	Frequent cycle failures, poor progression, long delays	$35 < d \leq 50$	Very long delays
F	$d > 80$	Over saturation, many cycle failures, high delays	$d > 50$	Extreme delays

"Volume-to-capacity" (v/c) ratio is another measure indicating the relative traffic demand to the traffic carrying ability of the roadway facility. A v/c ratio of 0.50 indicates that the traffic demand is utilizing 50% of the roadway's capacity.

HCM procedures do not include a Level of Service analysis for modern roundabouts. A roundabout is an unsignalized intersection with a circular island in the center of the intersection. A "modern" roundabout in the United States is defined by right-turn-only and yield traffic controls at all entries to the intersection and deflection of the path of the vehicle entering the intersection. HCM evaluates a modern roundabout operation in terms of the v/c ratio on each approach.

2. Existing AM Peak Hour Traffic Analysis

The AM peak hour of traffic generally occurred between 7:15 AM and 8:15 AM in the vicinity of the project. During the AM peak hour of traffic, Kuakini Highway carried over 1,800 vehicles per hour (vph), total for both directions, south of Lako Street. North of Queen Kaahumanu Highway, Kuakini Highway carried a total of about 400 vph. Queen Kaahumanu Highway carried over 1,800 vph, total for both directions. Mauka of Kuakini Highway, Lako Street carried a total of over 400 vph. Lako Street carried over 600 vph, total for both directions, makai of Kuakini Highway. Royal Poinciana Drive carried a total of about 600 vph. Alii Drive carried about 700 vph, total for both directions, during the AM peak hour of traffic.

The intersection of Kuakini Highway and Lako Street operated at LOS "B" and a v/c ratio of 0.88. However, long queues were observed on northbound Kuakini Highway and mauka bound Lako Street. The left-turn movement from southeast bound Kuakini Highway to northbound Queen Kaahumanu Highway operated at LOS "F", however the left-turn volume was relatively low. The other intersections in the study area operated at satisfactory Levels of Service, i.e., LOS "C" or better. Figure 3 depicts the existing AM peak hour traffic and the results of the capacity analysis.

3. Existing PM Peak Hour Traffic Analysis

The PM peak hour of traffic occurred between 4:00 PM and 5:00 PM, during the field investigation period. South of Lako Street, Kuakini Highway carried a total of over 1,800 vph, during the PM peak hour of traffic. North of Queen Kaahumanu Highway, Kuakini Highway carried about 400 vph, total for both directions. Queen Kaahumanu Highway carried a total of about 2,100 vph. The mauka leg of Lako Street carried over 400 vph, total for both directions. The makai leg of Lako Street carried a total of over 600 vph. Royal Poinciana Drive carried about 500 vph, total for both directions. Alii Drive carried a total of about 900 vph, during the PM peak hour of traffic.

The intersection of Kuakini Highway and Lako Street operated at satisfactory Levels of Service, during the existing PM peak hour of traffic. However, long queues were observed in both directions on Kuakini Highway. The southeast approach of Kuakini Highway operated at LOS "F" at Queen Kaahumanu Highway. The left-turn movement from Royal Poinciana Drive to Alii Drive operated at LOS "D", during the PM peak hour of traffic. The other intersections in the study area operated at satisfactory Levels of Service. The existing PM peak hour traffic and the results of the capacity analysis are depicted on Figure 4.

Figure 5 depicts the AM and PM peak hour turning movement volumes at the south junction of Queen Kaahumanu Highway and Hualalai Road (mauka leg). Figure 5 also depicts the traffic volumes at the north junction of Queen Kaahumanu Highway and Hualalai Road (makai leg) that were bound for/originated from the mauka leg of Hualalai Road.

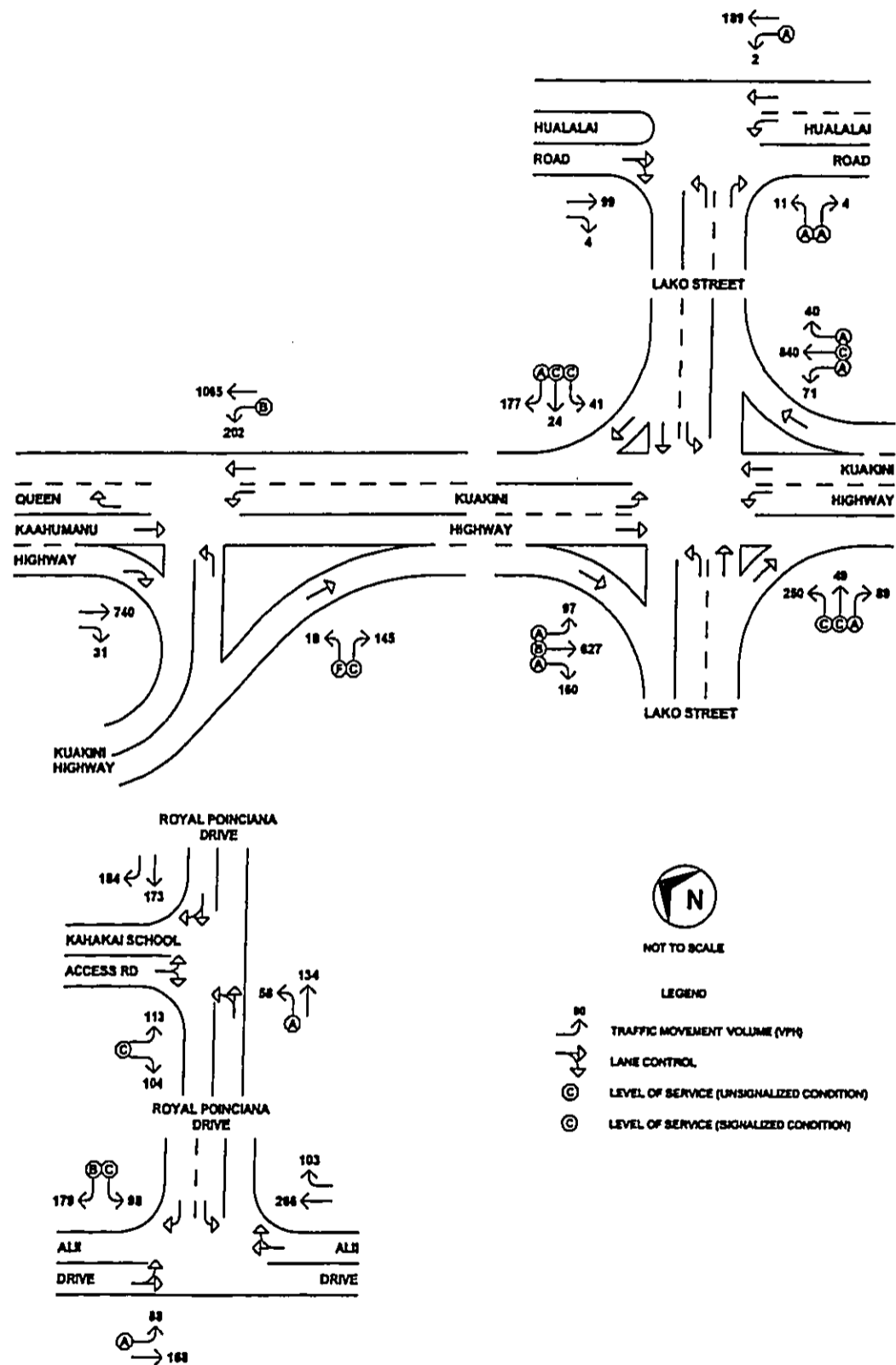


Figure 3. Existing AM Peak Hour Traffic

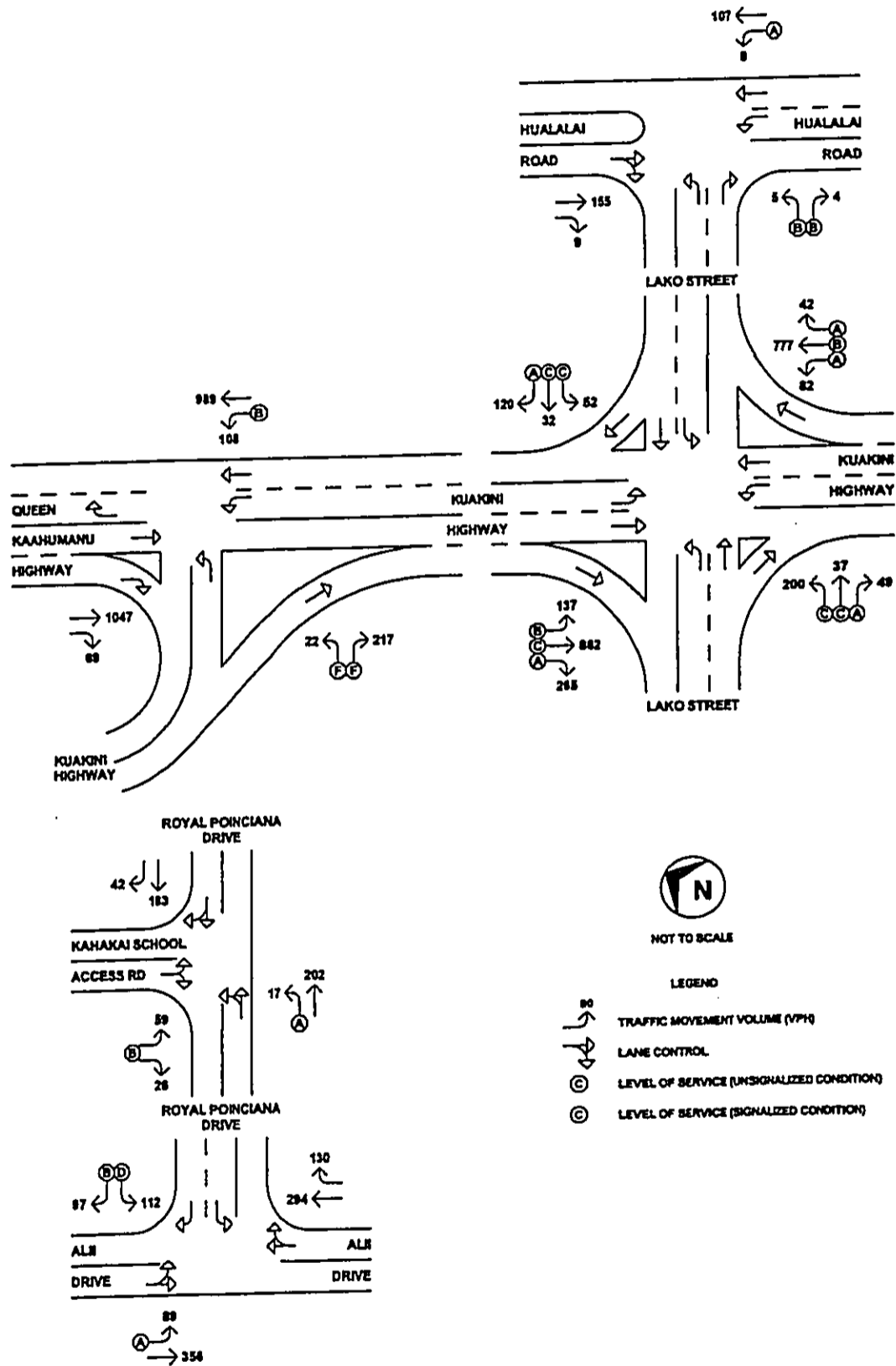
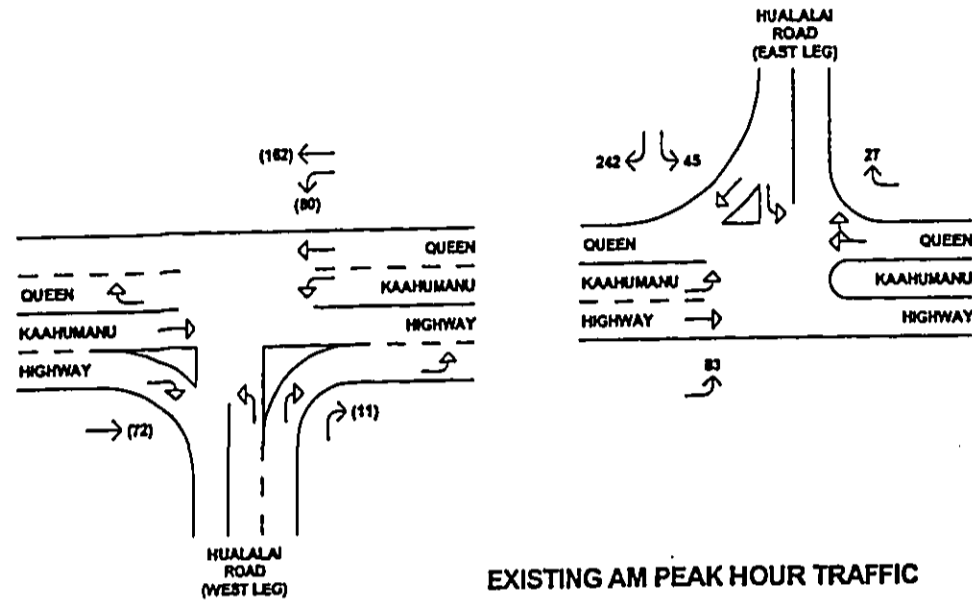


Figure 4. Existing PM Peak Hour Traffic



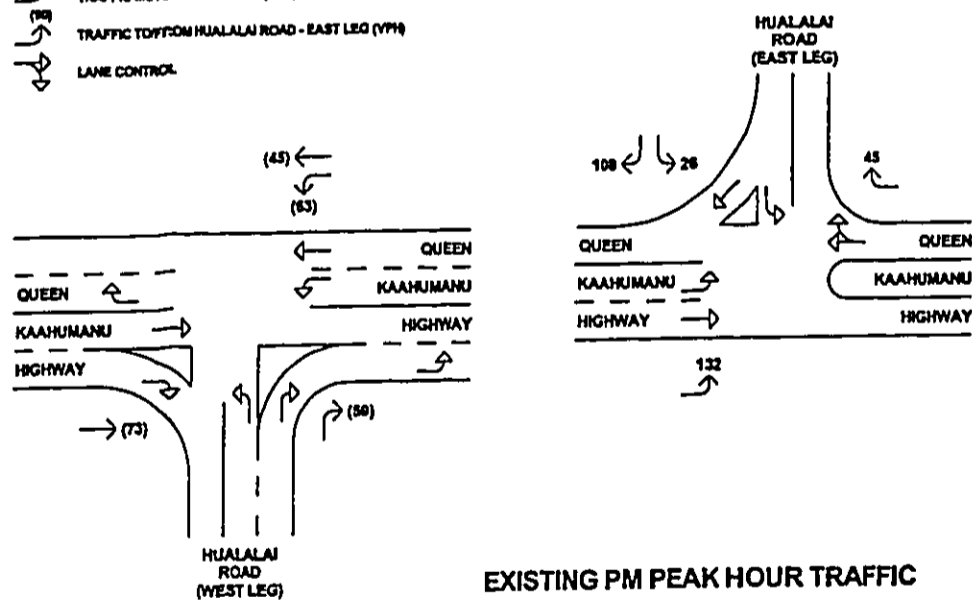
EXISTING AM PEAK HOUR TRAFFIC



NOT TO SCALE

LEGEND

- TRAFFIC MOVEMENT VOLUME (VPH)
- TRAFFIC TO/FROM HUALALAI ROAD - EAST LEG (VPH)
- LANE CONTROL



EXISTING PM PEAK HOUR TRAFFIC

Figure 5. Existing Peak Hour Traffic – Hualalai Road

III. Future Traffic Conditions

A. Future Roadways

1. Kahului-Keauhou Parkway

Kahului-Keauhou Parkway, which is under design at the time of this writing, is expected to be constructed within the time frame of the proposed project, and is included in this traffic impact analysis. The County of Hawaii is planning to construct a new roadway from Alii Drive, north of Kamehameha III Road, to Queen Kaahumanu Highway, south of Hualalai Road. The traffic analysis for the County roadway was presented in the "Traffic Analysis Report for Kahului-Keauhou Parkway", prepared by Julian Ng, Incorporated, dated April 1999.

Kahului-Keauhou Parkway will be aligned in the north-south directions, between Kuakini Highway and Alii Drive. At Royal Poinciana Drive, Kahului-Keauhou Parkway will follow the existing Kahakai School Access Road alignment. Kahului-Keauhou Parkway will intersect the Lako Street Extension and Royal Poinciana Drive at modern roundabout intersections.

Kahului-Keauhou Parkway will be constructed in two phases. Phase 1 of the Kahului-Keauhou Parkway will be constructed between Alii Drive in Keauhou and the Lako Street Extension. An Interim Design Year 2009 was used to analyze the Lako Street Extension with the completion of only Phase 1 of the Kahului-Keauhou Parkway. The Kahului-Keauhou Parkway (Phase 1) traffic would be diverted to Kuakini Highway and Alii Drive via the Lako Street Extension. Phase 2 of the Kahului-Keauhou Parkway will be constructed between the Lako Street Extension and Queen Kaahumanu Highway. It was assumed that the final phase of the Kahului-Keauhou Parkway would be completed by the Year 2010.

2. Keauhou-Napoopoo Bypass Road

The Keauhou-Napoopoo Bypass Road is under construction at the time of this writing, and is included in this traffic impact analysis. A private developer is constructing the Bypass Road, which is expected to divert traffic from Mamalahoa Highway between Honalo and Captain Cook. The Bypass Road would begin at Mamalahoa Highway near Napoopoo Road and connect to the south terminus of Alii Drive in Keauhou.

According to the Ng Study, the Bypass Road is expected to divert an estimated 40 percent of Mamalahoa Highway traffic in the region. At Keauhou, the Ng study reassigned the Bypass Road traffic to Kuakini Highway, via Kamehameha III Road, until Kuakini Highway reached its capacity. The excess demand was assigned to Alii Drive or Kahului-Keauhou Parkway.

3. Mauka Extension of Lako Street

Lako Street will be extended in the east direction to the mauka section of Lako Street as part of the development of the Kona Vista Subdivision. The mauka extension of Lako Street would provide a more direct route between upper Hualalai Road and Kuakini Highway. Together with the makai extension, Lako Street would provide a continuous route between upper Hualalai Road and Alii Drive, intersecting Kuakini Highway and the proposed Kahului-Keauhou Parkway. The mauka extension of Lako Street is expected to be constructed within the time frame of the proposed project, and is included in this traffic impact analysis.

4. Queen Kaahumanu Highway and Kuakini Highway Widening

The State Department of Transportation (DOT) is planning the widening of Queen Kaahumanu Highway from Henry Street to the Kuakini Highway junction, and the continuation of the highway widening on Kuakini Highway up to Kamehameha III Road. The time frame for the implementation of the DOT project has not been established at this writing, and is not included in this traffic impact analysis.

B. Traffic Forecasts

1. Kahului-Keauhou Parkway Traffic Forecasts

Year 2020 traffic forecasts were developed for the Kahului-Keauhou Parkway and presented in the "Traffic Analysis Report for Kahului-Keauhou Parkway", prepared by Julian Ng, Incorporated, dated April 1999. The Ng report analyzed various scenarios involving the Kahului-Keauhou Parkway. The scenario adopted for this analysis included the Kahului-Keauhou Parkway and the proposed Keauhou-Napoopoo Bypass Road. The scenario also assumed that Kuakini Highway would remain a two-lane highway.

The Ng report presented AM and PM traffic assignments for the Year 2020 along mauka-makai screenlines, which were located to the north and to the south of Lako Street. The Ng traffic assignment consisted of peak hour traffic volumes in the northbound (NB) and southbound (SB) directions along major highway corridors in the region. The screenlines crossed Queen Kaahumanu Highway, Kuakini Highway, Kahului-Keauhou Parkway, Alii Drive, and Mamalahoa Highway. Mamalahoa Highway was not included in this traffic assignment analysis, because the Ng study indicated that it was unaffected by alternative regional highway improvements. Tables 2 and 3 summarize Year 2020 peak hour traffic assignments along the mauka-makai screenlines, which were located to the north and to the south of Lako Street, as presented in the Ng report.

Peak Hour	Direction	Queen Kaahumanu Highway	Kuakini Highway	Kahului-Keauhou Parkway	Alii Drive	Totals
AM	NB	1,130	160	480	840	2,610
	SB	795	390	375	320	1,880
	Totals	1,925	550	855	1,160	4,490
PM	NB	680	380	605	660	2,325
	SB	765	390	670	1,155	2,980
	Totals	1,445	770	1,275	1,815	5,305

Peak Hour	Direction	Kuakini Highway	Kahului-Keauhou Parkway	Alii Drive	Totals
AM	NB	1,265	285	655	2,205
	SB	1,295	320	205	1,820
	Totals	2,560	605	860	4,025
PM	NB	1,260	390	410	2,060
	SB	1,130	390	940	2,460
	Totals	2,390	780	1,350	4,520

The Interim Design Year 2009 traffic forecasts were interpolated from the Year 2020 traffic forecasts. Tables 4 and 5 summarize the Interim Year 2009 AM and PM peak hour traffic assignments on the north-south highways north and south of Lako Street.

Peak Hour	Direction	Queen Kaahumanu Highway	Kuakini Highway	Alii Drive	Totals
AM	NB	1,215	215	495	1,925
	SB	795	390	325	1,880
	Totals	2,010	605	820	3,435
PM	NB	1,215	215	495	1,925
	SB	1,340	285	565	2,190
	Totals	2,555	500	1,060	4,115

Peak Hour	Direction	Kuakini Highway	Kahului-Keauhou Parkway	Alii Drive	Totals
AM	NB	885	200	460	1,545
	SB	875	215	140	1,230
	Totals	1,760	415	600	2,775
PM	NB	960	295	310	1,565
	SB	770	265	640	1,675
	Totals	1,730	560	950	3,240

Turning movement volumes at the intersections within the study area were developed from the existing traffic circulation patterns observed during the field investigation.

2. Future Developments

Several projects are in various stages of development in the vicinity of the proposed project, and are included in this traffic impact analysis. The Kona Vista project is comprised of a 200 dwelling unit (DU) single-family subdivision and a 600 DU multi-family development. One hundred ten (110) DU of the single-family

subdivision have been constructed and occupied, with 90 DU remaining to be built. The next phase of the subdivision is expected to include the construction of the mauka extension of Lako Street. In addition to providing access to the Kona Vista project, the mauka extension would provide direct access between upper Hualalai Road and Kuakini Highway. The Kona Vista multi-family development is located on the mauka side of Queen Kaahumanu Highway, between Kuakini Highway and Hualalai Road. Construction of the 600 DU project has not begun, however, it is assumed to be completed within the time frame of this traffic impact analysis. The Kona Vista project also includes a network of local roads, which would connect to adjacent subdivisions located to the north and to the south of the project.

The Iolani Subdivision is located along the mauka section of Lako Street with access on Hualalai Road. The mauka extension of Lako Street is expected to provide direct access to Kuakini Highway. Forty-nine (49) DU of the total 88 DU single-family subdivision has yet to be developed/occupied.

Pualani Estates is a 269 DU single-family subdivision, located on the mauka side of Queen Kaahumanu Highway. The primary access to Pualani Estates, which is under construction at this writing, is located on Queen Kaahumanu Highway, between Kuakini Highway and Hualalai Road. Secondary access is located on Hualalai Road. Local road access would also be provided to adjacent developments, located to the south of the project.

The Kona Hawaiian Village, Kona Sea Villas, and Kahakai Estates projects are located on Kuakini Highway, north of its junction with Queen Kaahumanu Highway. Kona Hawaiian Village is a time-share resort development consisting of 270 units. Kona Sea Villas is a 72 DU multi-family development. Kahakai Estates is a single-family subdivision consisting of 67 lots. All three projects are under construction at this writing, and are assumed to be built out and occupied within the time frame of this traffic impact analysis.

Alii Heights is a 213 DU single-family subdivision on Laaloa Avenue, which is located to the south of the project vicinity. The Kahului-Keauhou Parkway divides the first and second increments of the ongoing project. Table 4 lists the developments that have been included in this traffic impact analysis, and their respective number of units that have not been developed or are not occupied at the time of this analysis.

Table 6. Future Developments			
Project	Land Use	Number of Units	Primary Access
Kona Vista	Single-Family	90	Lako Street
	Multi-Family	600	Queen Kaahumanu Highway
Iolani	Single-Family	49	Lako Street
Pualani Estates	Single-Family	269	Queen Kaahumanu Highway
Kona Hawaiian Village	Time-Share	270	Kuakini Highway
Kona Sea Villas	Multi-Family	72	Kuakini Highway
Kahakai Estates	Single-Family	67	Kuakini Highway
Alii Heights	Single-Family	213	Kahului-Keauhou Parkway

ITE trip generation rates for their respective land uses were used to estimate the increases in peak hour traffic that would result from the development of these ongoing projects. The peak hour trips were added to the regional traffic forecasts, and assigned to the study area roadway network to establish the future traffic conditions without the proposed project.

IV. Peak Hour Traffic Analysis Without Project

A. General

The "No-Build" alternative is the analysis of future traffic operations without the construction of the proposed Lako Street Extension. The "No-Build" alternative includes the construction of Kahului-Keauhou Parkway and the mauka extension of Lako Street. Under the "No-Build" alternative, only Royal Poinciana Street would intersect the Kahului-Keauhou Parkway in the study area. Therefore, the mauka-makai access between the Kahului-Keauhou Parkway, Alii Drive, and Kuakini Highway would continue to be provided by Royal Poinciana Drive/Kupuna Street/Lako Street.

Since the first phase of the Kahului-Keauhou Parkway is expected to terminate at the Lako Street Extension, the Interim Design Year 2009 "No-Build" alternative would delay the opening of the north terminus of the first phase of the Kahului-Keauhou Parkway until the subsequent phase is constructed. Under the Year 2009 "No-Build" alternative, only Kuakini Highway and Alii Drive would carry regional traffic in the north-south directions. Phase 2 would extend Kahului-Keauhou Parkway from the Lako Street Extension to Kuakini Highway and to Queen Kaahumanu Highway.

B. Interim Design Year Peak Hour Traffic Analysis Without Project

1. Year 2009 AM Peak Hour Traffic Analysis Without Project

During the Year 2009 AM peak hour of traffic without the proposed project, Kuakini Highway is expected to carry about 2,300 vph, total for both directions, south of Lako Street. Queen Kaahumanu Highway is expected to carry over 2,700 vph, total for both directions, while Kuakini Highway, north of Queen Kaahumanu Highway, is expected to carry a total of over 700 vph. Mauka of Kuakini Highway, the AM peak hour traffic on Lako Street is expected to increase to over 1,100 vph, total for both directions, as a result of the extension of Lako Street to the mauka section at Hualalai Road. Makai of Kuakini Highway, Lako Street is expected to carry over 900 vph, total for both directions. Alii Drive is expected to carry over 1,000 vph, total for both directions. Royal Poinciana Drive is also expected to carry a total of over 1,000 vph.

The Year 2009 AM peak hour traffic demand without the proposed project is expected to exceed the existing carrying capacity of the intersection of Kuakini Highway and Lako Street, operating at LOS "E". The northbound through movement and the opposing southbound left-turn movement on Kuakini Highway are expected to operate at LOS "F". The left-turn movement on mauka bound Lako Street and the right-turn movement on makai bound Lako Street also are expected to operate at LOS "F".

The southeast bound approach of Kuakini Highway is expected to operate at LOS "F" at Queen Kaahumanu Highway, during the Year 2009 AM peak hour of traffic without the proposed project.

Kahakai School Access Road is expected to operate at LOS "F" at Royal Poinciana Drive, during the Year 2009 AM peak hour of traffic without the proposed project. The left-turn movement from makai bound Royal Poinciana Drive to southbound Alii Drive also is expected to operate at LOS "F". Figure 6 depicts the Year 2009 AM peak hour traffic without the proposed project and the results of the capacity analysis.

2. Interim PM Peak Hour Traffic Analysis Without Project

Kuakini Highway is expected to carry over 2,500 vph, total for both directions, during the Year 2009 PM peak hour of traffic without the proposed project. North of Queen Kaahumanu Highway, Kuakini Highway is expected to carry a total of about 800 vph. Queen Kaahumanu Highway is expected to carry over 3,100 vph, total for both directions. The mauka extension of Lako Street is expected to increase PM peak hour traffic to over 1,100 vph, total for both directions, during the Year 2009 PM peak hour of traffic without the proposed project. Lako Street is also expected to carry a total of over 1,100 vph, makai of Kuakini Highway. Royal Poinciana Drive is expected to carry a total of over 900 vph, while Alii Drive is expected to carry a total of about 1,400 vph, during the Year 2009 PM peak hour of traffic without the proposed project.

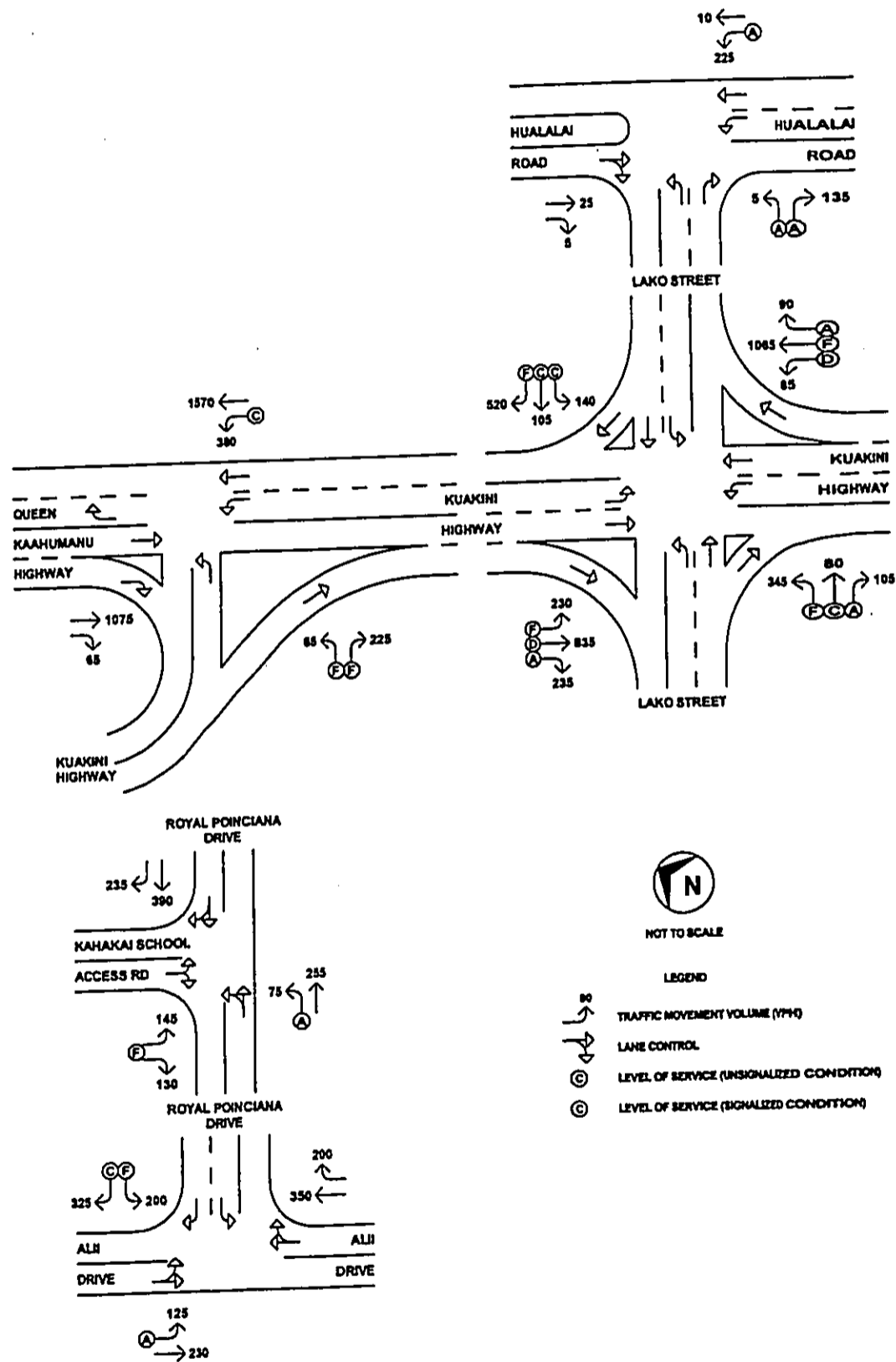


Figure 6. 2009 AM Peak Hour Traffic Without Project (No-Build)

During the Year 2009 PM peak hour of traffic without the proposed project, the traffic demand at the intersection of Kuakini Highway and Lako Street is expected to exceed the carrying capacity of the intersection, while operating at LOS "E". The through movements on both approaches on Kuakini Highway are expected to operate at LOS "F". The left-turn movements on southbound Kuakini Highway and on mauka bound Lako Street are also expected to operate at LOS "F". The southeast bound approach of Kuakini Highway is expected to operate at LOS "F" at Queen Kaahumanu Highway, during the Year 2009 PM peak hour of traffic without the proposed project.

The makai bound left-turn movement from Royal Poinciana Drive to southbound Alii Drive is also expected to operate at LOS "F". The Year 2009 PM peak hour traffic without the proposed project, and the results of the capacity analysis are depicted on Figure 7.

C. Year 2020 Peak Hour Traffic Analysis Without Project

1. AM Peak Hour Traffic Analysis Without Project

During the Year 2020 AM peak hour of traffic without the proposed project, the completed Kahului-Keauhou Parkway is expected to divert traffic from existing roadways in the study area. Kahului-Keauhou Parkway is expected to carry about 1,300 vph, total for both directions. Kuakini Highway is expected to carry a total of about 2,600 vph, south of Lako Street. The traffic demand on Queen Kaahumanu Highway is expected to decrease from the Year 2009 conditions to about 2,400 vph, total for both directions. The Year 2020 AM peak hour traffic without the proposed project on Kuakini Highway, north of Queen Kaahumanu Highway, is expected to return to the Year 2009 conditions at over 700 vph, total for both directions. Alii Drive is expected to carry a total of over 1,100 vph. Royal Poinciana Drive traffic is expected to decrease to about 800 vph, total for both directions.

The traffic demand at the intersection of Kuakini Highway and Lako Street is expected to exceed the carrying capacity of the intersection, while operating at LOS "E", during the Year 2020 AM peak hour of traffic without the proposed project. The critical traffic movements at the intersection are expected to operate at LOS "F". Southeast bound Kuakini Highway is expected to operate at LOS "F" at Queen Kaahumanu Highway.

The maximum v/c ratio of 0.64 is expected on the mauka leg of the roundabout intersection between Kahului-Keauhou Parkway and Royal Poinciana Drive, during the Year 2020 AM peak hour of traffic without the proposed project. The left-turn movement from Royal Poinciana Drive to Alii Drive is expected to operate at LOS "F". Figure 8 depicts the Year 2020 AM peak hour traffic without the proposed project and the results of the capacity analysis.

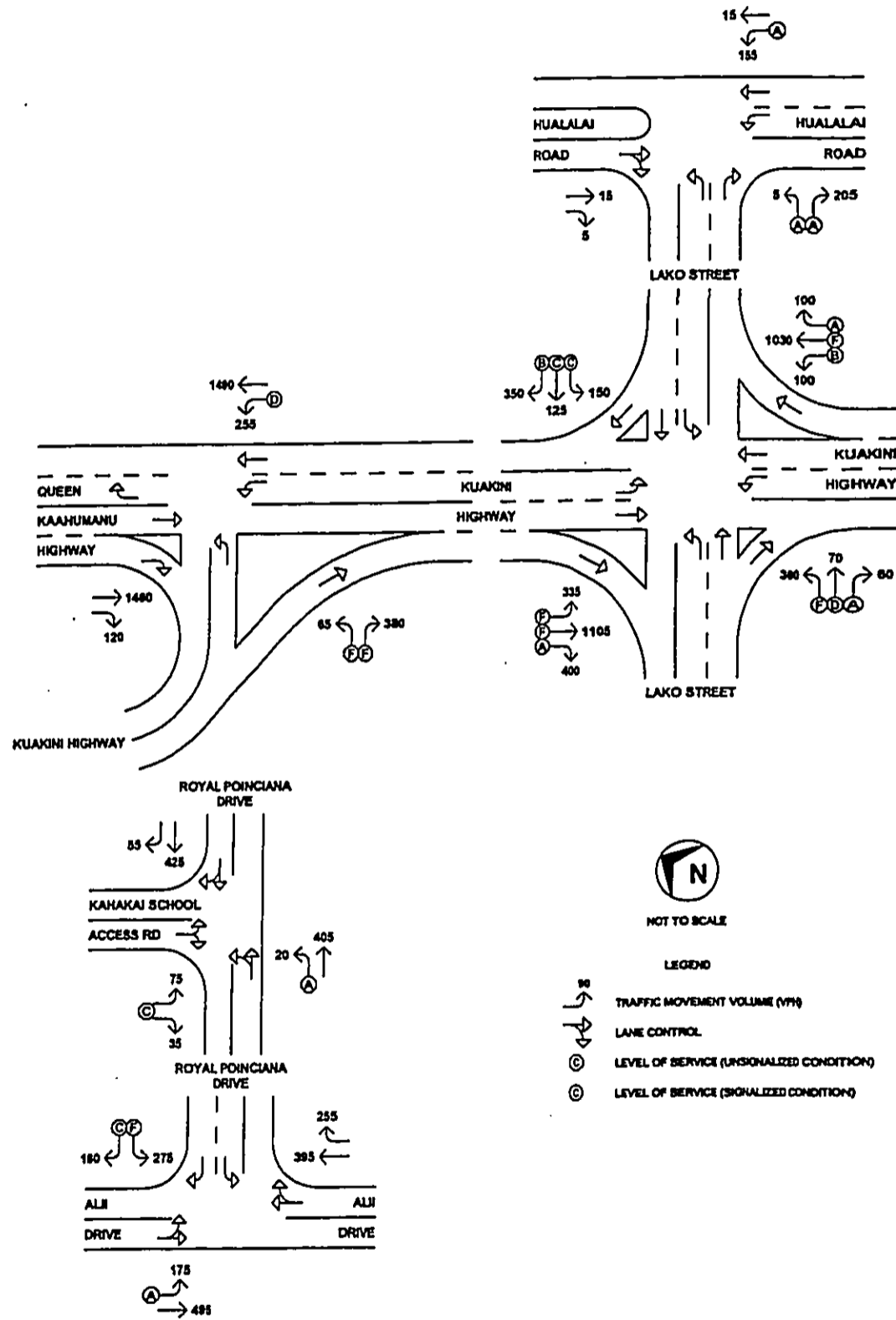


Figure 7. 2009 PM Peak Hour Traffic Without Project (No-Build)

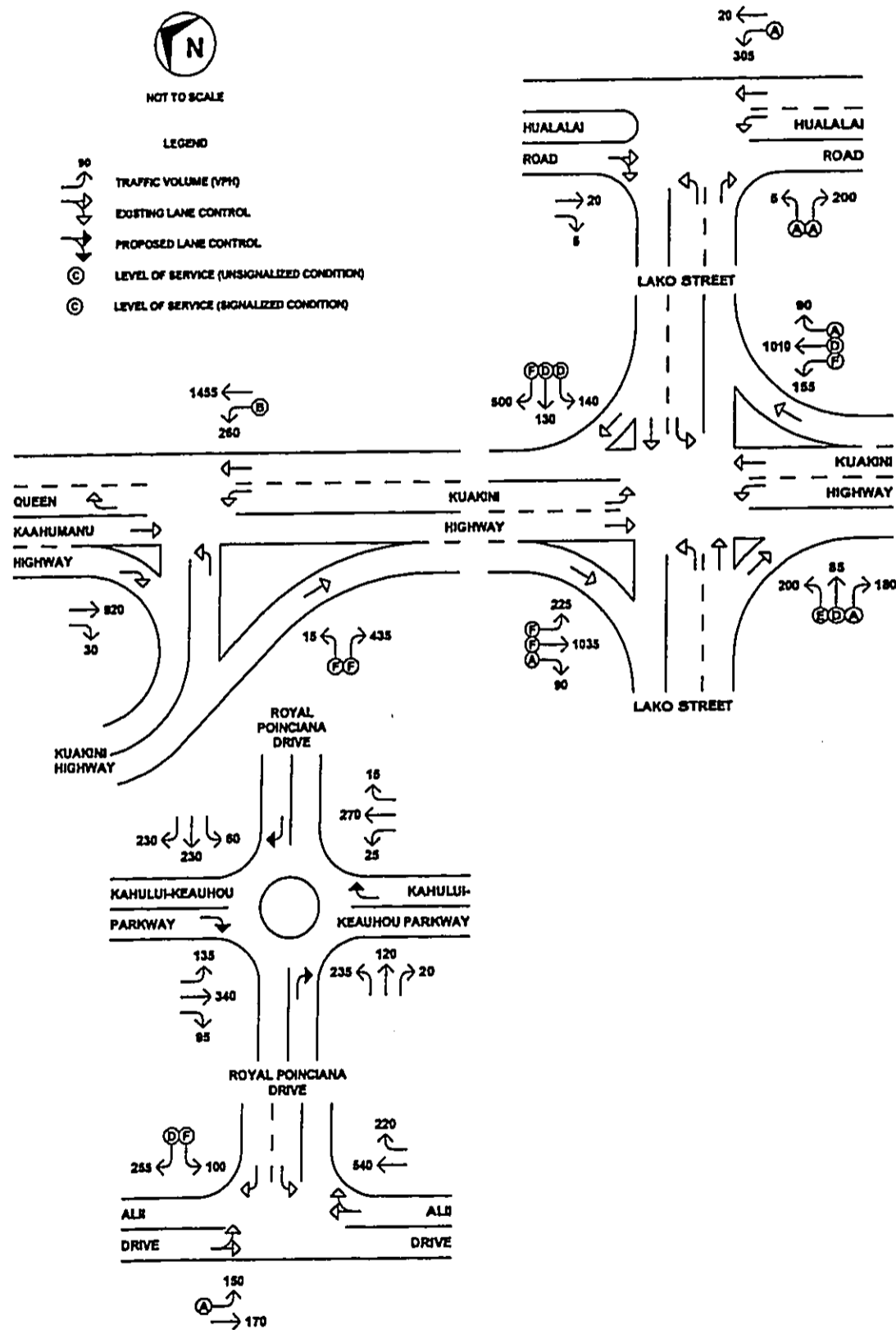


Figure 8. 2020 AM Peak Hour Traffic Without Project (No-Build)

2. PM Peak Hour Traffic Analysis Without Project

The completed Kahului-Keauhou Parkway is also expected to relieve traffic conditions on the existing roadways in the study area, during the Year 2020 PM peak hour of traffic without the proposed project. Kahului-Keauhou Parkway is expected to carry over 1,500 vph, total for both directions. South of Lako Street, Kuakini Highway is expected to carry a total of about 2,600 vph. The PM peak hour traffic demand on Queen Kaahumanu Highway is expected to decrease from the Year 2009 conditions to about 2,000 vph, total for both directions. Kuakini Highway, north of Queen Kaahumanu Highway, is expected to carry a total of about 960 vph. Alii Drive is expected to carry about 1,500 vph, while Royal Poinciana Drive is expected to carry over 800 vph, total for both directions, during the Year 2020 PM peak hour of traffic without the proposed project.

During the Year 2020 PM peak hour of traffic without the proposed project, the intersection of Kuakini Highway and Lako Street is expected to operate at an overall LOS "D", however the traffic demand is expected to exceed the carrying capacity of the intersection. Southeast bound Kuakini Highway is expected to continue to operate at LOS "F" at Queen Kaahumanu Highway.

The left-turn movement from Royal Poinciana Drive to Alii Drive is expected to continue to operate at LOS "F". The maximum v/c ratio of 0.79 is expected on the north leg of the roundabout intersection between Kahului-Keauhou Parkway and Royal Poinciana Drive, during the PM peak hour of traffic without the proposed project. The Year 2020 PM peak hour traffic without the proposed project, and the results of the capacity analysis are depicted on Figure 9.

V. Alternatives Analysis

A. General

Three alternative alignments for the proposed Lako Street Extension were analyzed in this study. Alternatives A and C provide more direct, mauka-makai routes between the north-south roadways, when compared to Alternative B in terms of distances and travel times. Therefore, Alternatives A and C are expected carry higher volumes of peak hour traffic between Kuakini Highway and Kahului-Keauhou Parkway or Alii Drive than Alternative B. The traffic impact analysis for Alternatives A and C were combined since their alignments vary only slightly.

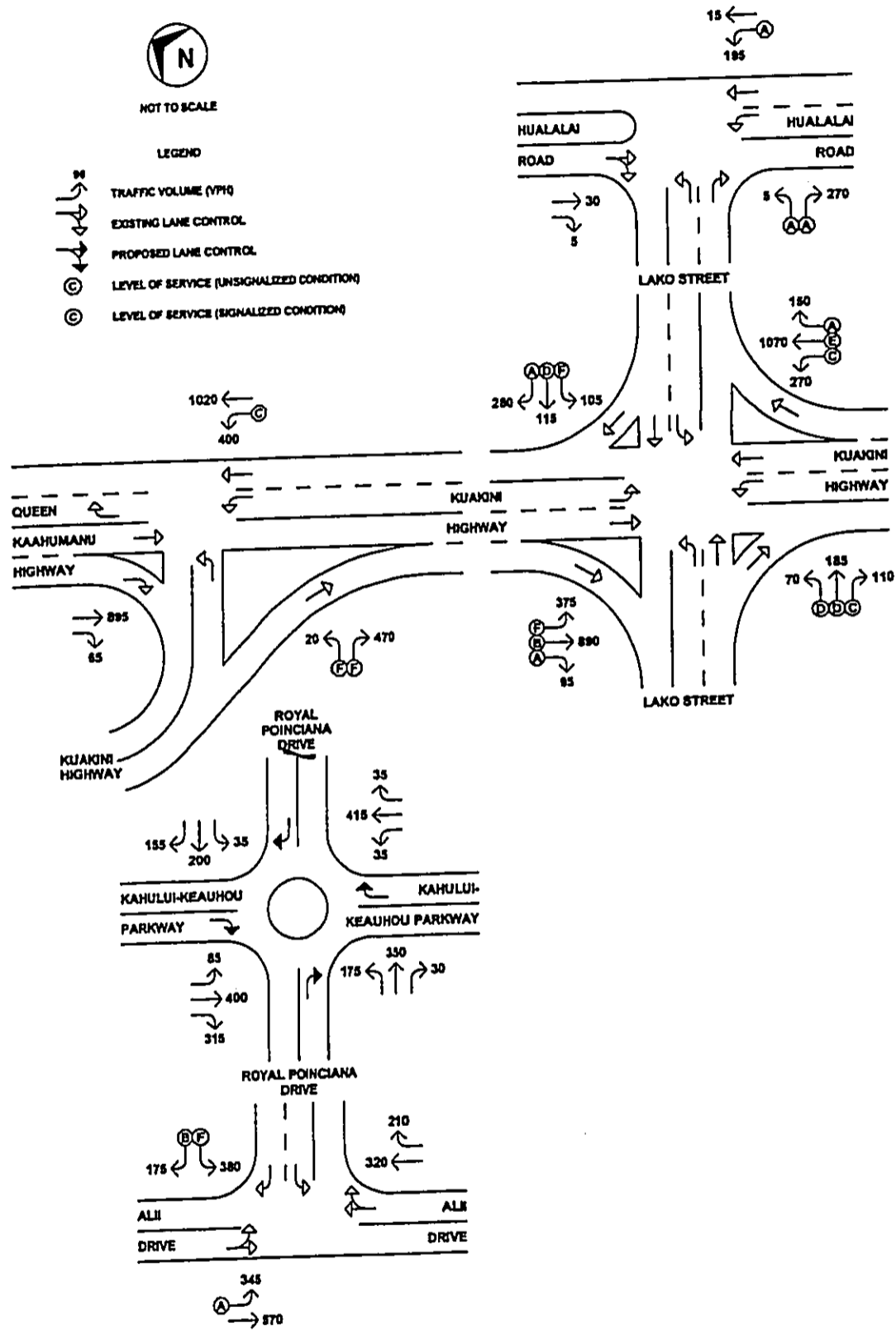


Figure 9. 2020 PM Peak Hour Traffic Without Project (No-Build)

Alternative B of the proposed Lako Street Extension is the southern alignment, which would result in longer travel distances and increased travel times. Alternative B would divert southbound traffic on Kuakini Highway to Alii Drive or Kahului-Keauhou Parkway. However, northbound traffic on Kuakini Highway, bound for Kahului-Keauhou Parkway or Alii Drive, is expected to continue to use Royal Poinciana Drive/Kupuna Street because of the shorter overall travel distance. Similarly, northbound traffic on Alii Drive or Kahului-Keauhou Parkway would use the proposed Lako Street Extension to Kuakini Highway, while the southbound traffic on Alii Drive or Kahului-Keauhou Parkway would use Royal Poinciana Drive/Kupuna Street to Kuakini Highway.

B. Proposed Traffic Improvements for the Interim Design Year 2009

The construction of Phase 1 of the Kahului-Keauhou Parkway from Keauhou to the Lako Street Extension and the following traffic improvements were assumed to be implemented for the purpose of this traffic impact analysis:

1. Kuakini Highway and Lako Street

- a. Restripe the northbound and southbound right-turn lanes on Kuakini Highway to provide shared through/right-turn lanes.
- b. Widen northbound Kuakini Highway to provide an additional through lane between Lako Street and Queen Kaahumanu Highway.
- c. Widen the south leg of Kuakini Highway at Lako Street to provide an auxiliary merging lane in the southbound direction.
- d. Widen the makai bound approach of Lako Street to provide an exclusive right-turn lane.
- e. Maintain the shared through/right-turn lane on makai bound Lako Street to provide double right-turn lanes to northbound Kuakini Highway.
- f. Restripe the through lane on mauka bound Lako Street to provide a shared left-turn/through lane in addition to the existing left-turn lane to provide double left-turn lanes to northbound Kuakini Highway.
- g. Modify the traffic signal phasing to provide separate (split) phases for the mauka bound and makai bound approaches of Lako Street.

2. Queen Kaahumanu Highway and Kuakini Highway

- a. Signalize the intersection of Queen Kaahumanu Highway and Kuakini Highway. Coordinate signals with the traffic signals at the Kuakini Highway/Lako Street intersection.
- b. Restripe the exclusive right-turn lane on southbound Queen Kaahumanu Highway to provide a shared through/right-turn lane.

- c. Widen the channelizing island to provide an additional through lane, for a total of two through lanes on southbound Kuakini Highway.
- d. Widen the north leg of Queen Kaahumanu Highway to provide an auxiliary merging lane in the northbound direction.

3. Lako Street Extension and Alii Drive

- a. Install stop controls on the makai bound approach of the Lako Street Extension at Alii Drive.
- b. Widen southbound Alii Drive at the proposed Lako Street Extension to provide an exclusive left-turn storage lane.
- c. Widen southbound Alii Drive to provide a median shelter lane to facilitate the left-turn movement from the proposed Lako Street Extension to Alii Drive.
- d. Provide separate left-turn and right-turn lanes on the proposed Lako Street Extension at Alii Drive.

C. Interim Design Year Traffic Impact Analysis

1. Year 2009 AM Peak Hour Traffic Impact Analysis

The improved intersection of Kuakini Highway and Lako Street is expected to operate at LOS "D" and a v/c ratio of 0.97, during the Year 2009 AM peak hour of traffic with the proposed project. The left-turn movement on mauka bound Lako Street and the through movements on both approaches of Lako Street are expected to operate at LOS "E".

The Lako Street Extension Alternative A or C is expected to carry a total of over 900 vph, during the Year 2009 AM peak hour of traffic. Under Alternative B, traffic on the Lako Street Extension is expected to decrease to 700+ vph. Royal Poinciana Drive is expected to carry a total of about 400 vph under Alternative A or C and 600 vph under Alternative B.

The Alii Drive intersections at Royal Poinciana Drive and at the proposed Lako Street Extension (Alternatives A or C) are expected to operate at satisfactory Levels of Service, during the Year 2009 AM peak hour of traffic. Under Alternative B, the left-turn movement from makai bound Royal Poinciana Drive is expected to operate at LOS "D".

The maximum v/c ratio at the proposed Lako Street Extension roundabout intersection with Kahului-Keauhou Parkway is expected to be 0.42 under Alternative A or C. The maximum v/c ratio at the roundabout intersection with Kahului-Keauhou Parkway is expected to be 0.35 under Alternative B. Figures 10 and 11 depict the AM peak hour traffic and the results of the capacity analysis with Alternative A or C and Alternative B of the proposed Lako Street Extension, respectively.

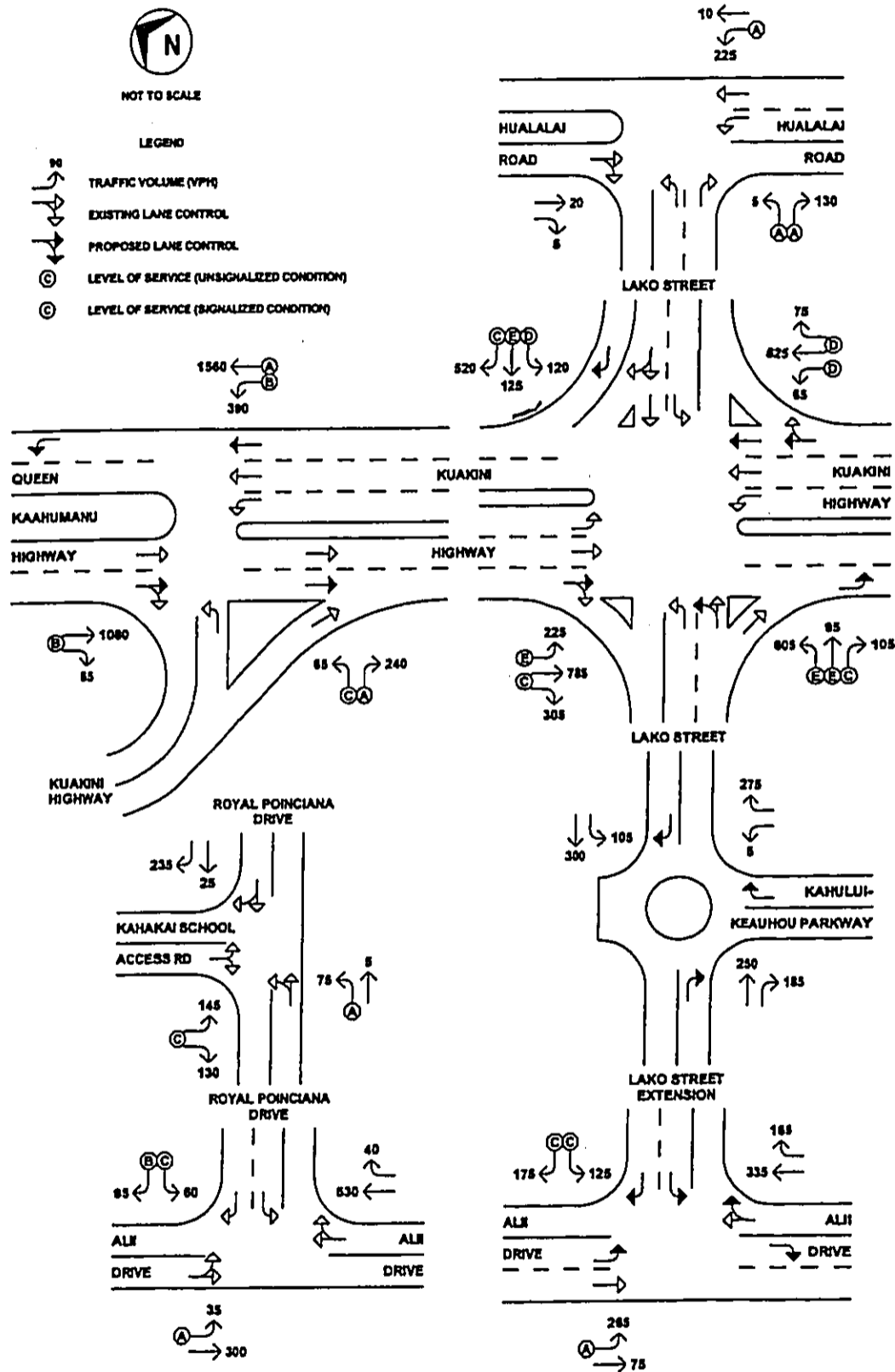


Figure 10. Year 2009 AM Peak Hour Traffic (Alternative A or C)

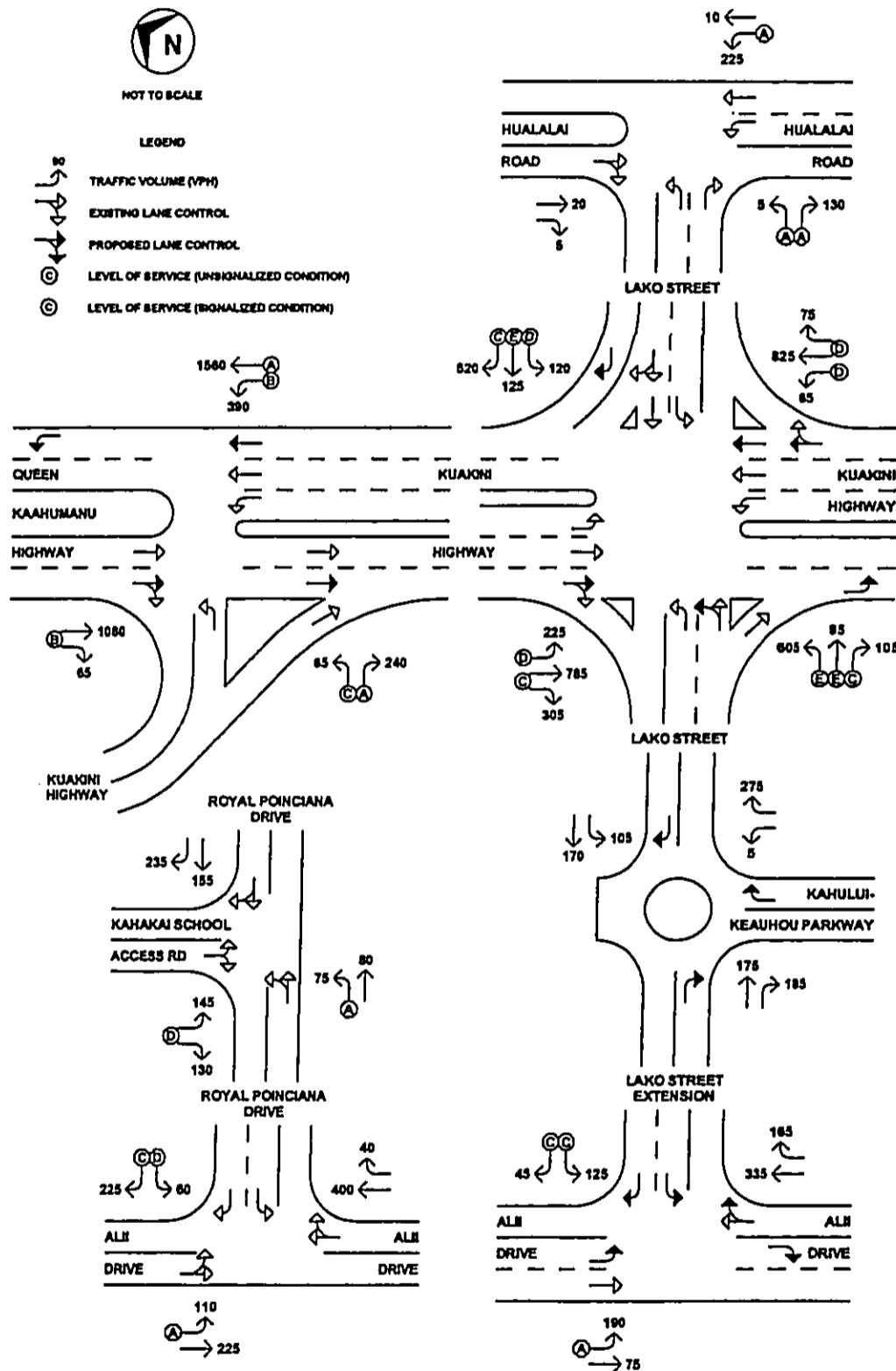


Figure 11. Year 2009 AM Peak Hour Traffic (Alternative B)

2. Year 2009 PM Peak Hour Traffic Impact Analysis

During the Year 2009 PM peak hour of traffic, the intersection of Kuakini Highway and Lako Street is expected to operate LOS "D", with a v/c ratio of 0.97. The left-turn and through movements on mauka bound Lako Street are expected to operate at LOS "E".

The intersection of Queen Kaahumanu Highway and Kuakini Highway is expected to operate at LOS "C", with a v/c ratio of 0.95, during the Year 2009 PM peak hour of traffic. The left-turn movement from mauka bound Kuakini Highway to northbound Queen Kaahumanu Highway is expected to operate at LOS "D".

During the Year 2009 PM peak hour of traffic, the proposed Lako Street Extension Alternative A or C is expected to carry a total of over 1,100 vph, while Royal Poinciana Drive is expected to carry over 200 vph. Under Alternative B, the traffic demand on Royal Poinciana Drive would increase to about 400 vph.

The maximum v/c ratio at the proposed Lako Street Extension roundabout intersection with Kahului-Keauhou Parkway is expected to be 0.84 under Alternative A or C. The maximum v/c ratio at the roundabout intersection with Kahului-Keauhou Parkway is expected to be 0.74 under Alternative B.

The intersection of the Lako Street Extension and Alii Drive is expected to operate at satisfactory Levels of Service for all Alternatives. The left-turn movement from makai bound Royal Poinciana Drive to southbound Alii Drive is expected to operate at LOS "D" under all Alternatives. The PM peak hour traffic and the results of the capacity analysis with Alternative A or C and Alternative B of the proposed Lako Street Extension are depicted on Figures 12 and 13, respectively.

D. Proposed Traffic Improvements for the Design Year 2020

The construction of Phase 2 of the Kahului-Keauhou Parkway from the Lako Street Extension to Queen Kaahumanu Highway and the following traffic improvements were assumed to be implemented for the purpose of this traffic impact analysis:

1. Kuakini Highway and Lako Street

- a. Restripe the shared left-turn/through lane on mauka bound Lako Street to a through-only lane.
- b. Modify the traffic signal phasing to provide protective-permissive left-turn phases on both approaches of Lako Street.

2. Lako Street Extension and Alii Drive

Signalize the intersection of the Lako Street Extension and Alii Drive

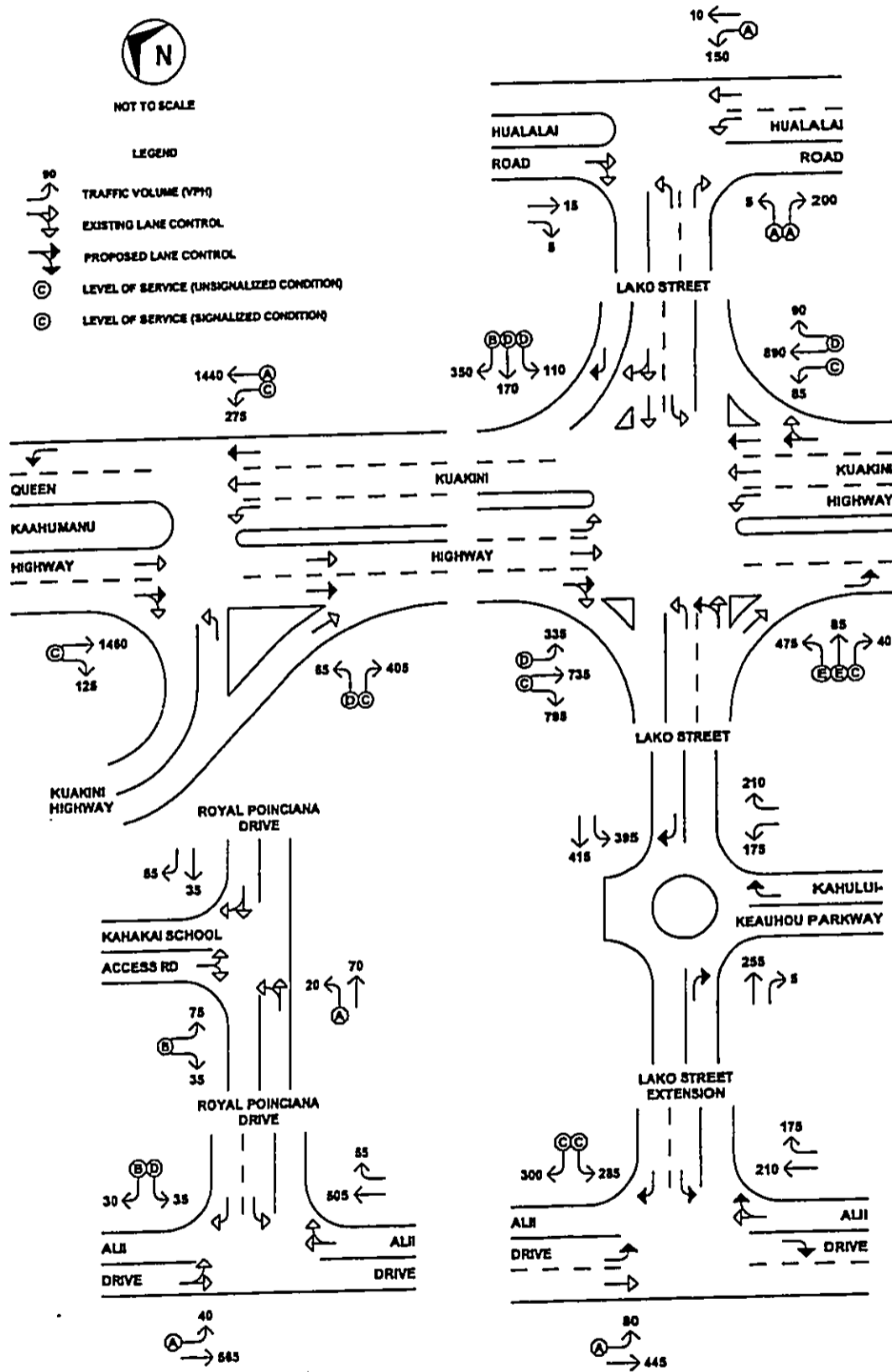


Figure 12. Year 2009 PM Peak Hour Traffic (Alternative A or C)

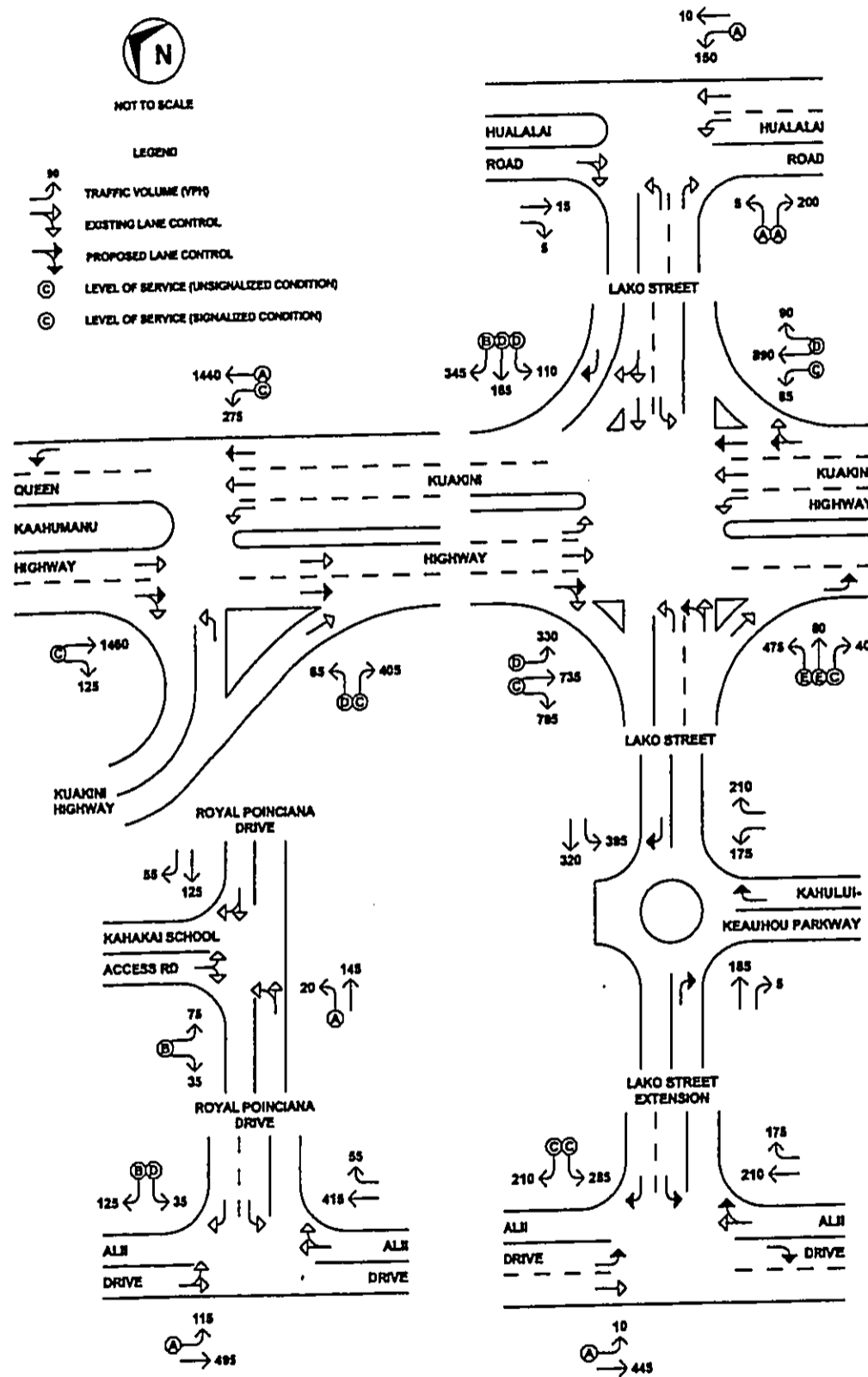


Figure 13. Year 2009 PM Peak Hour Traffic (Alternative B)

3. Royal Poinciana Drive and Alii Drive (Alternative B only)

- a. Widen southbound Alii Drive at the Royal Poinciana Drive to provide an exclusive left-turn storage lane.
- b. Widen southbound Alii Drive at the Royal Poinciana Drive to provide a median shelter lane to facilitate the left-turn movement from the Royal Poinciana Drive to southbound Alii Drive.

E. Design Year Traffic Impact Analysis

1. Year 2020 AM Peak Hour Traffic Impact Analysis

Alternative A or C is more effective in distributing traffic between the Kuakini Highway, Kahului-Keauhou Parkway, and Alii Drive, when compared to Alternative B. Under Alternative B, the Lako Street Extension and Royal Poinciana Drive are expected to carry 100-300 vph and 400-600 vph, respectively. Alternative A or C is expected to increase the usage of the Lako Street Extension to 500-600 vph, while the traffic demand on Royal Poinciana Drive is expected to be less than 200 vph.

During the Year 2020 AM peak hour of traffic with the proposed project, the intersection of Kuakini Highway and Lako Street is expected to operate at LOS "C", with a v/c ratio of 0.92. The intersection of Queen Kaahumanu Highway and Kuakini Highway is expected to operate at LOS "B", with a v/c ratio of 0.90.

The maximum v/c ratio at the proposed Lako Street Extension roundabout intersection with Kahului-Keauhou Parkway is expected to be 0.50 under Alternative A or C, and 0.36 under Alternative B. The maximum v/c ratio at the Royal Poinciana Drive roundabout intersection with Kahului-Keauhou Parkway is expected to be 0.55 under Alternative A or C, and 0.53 under Alternative B.

The intersection of the Lako Street Extension and Alii Drive is expected to operate at satisfactory Levels of Service under all Alternatives, during the Year 2020 AM peak hour of traffic. The left-turn movement from makai bound Royal Poinciana Drive to southbound Alii Drive is expected to operate at LOS "D" under Alternative A or C. Figures 14 and 15 depict the AM peak hour traffic and the results of the capacity analysis with Alternative A or C and Alternative B of the proposed Lako Street Extension, respectively.

2. Year 2020 PM Peak Hour Traffic Impact Analysis

Under Alternative B, the Lako Street Extension and Royal Poinciana Drive are expected to carry 200-600 vph and 500-700 vph, respectively. Alternative A or C is expected to increase the usage of the Lako Street Extension to 700-900 vph, while reducing the traffic demand on Royal Poinciana Drive to less than 200 vph.

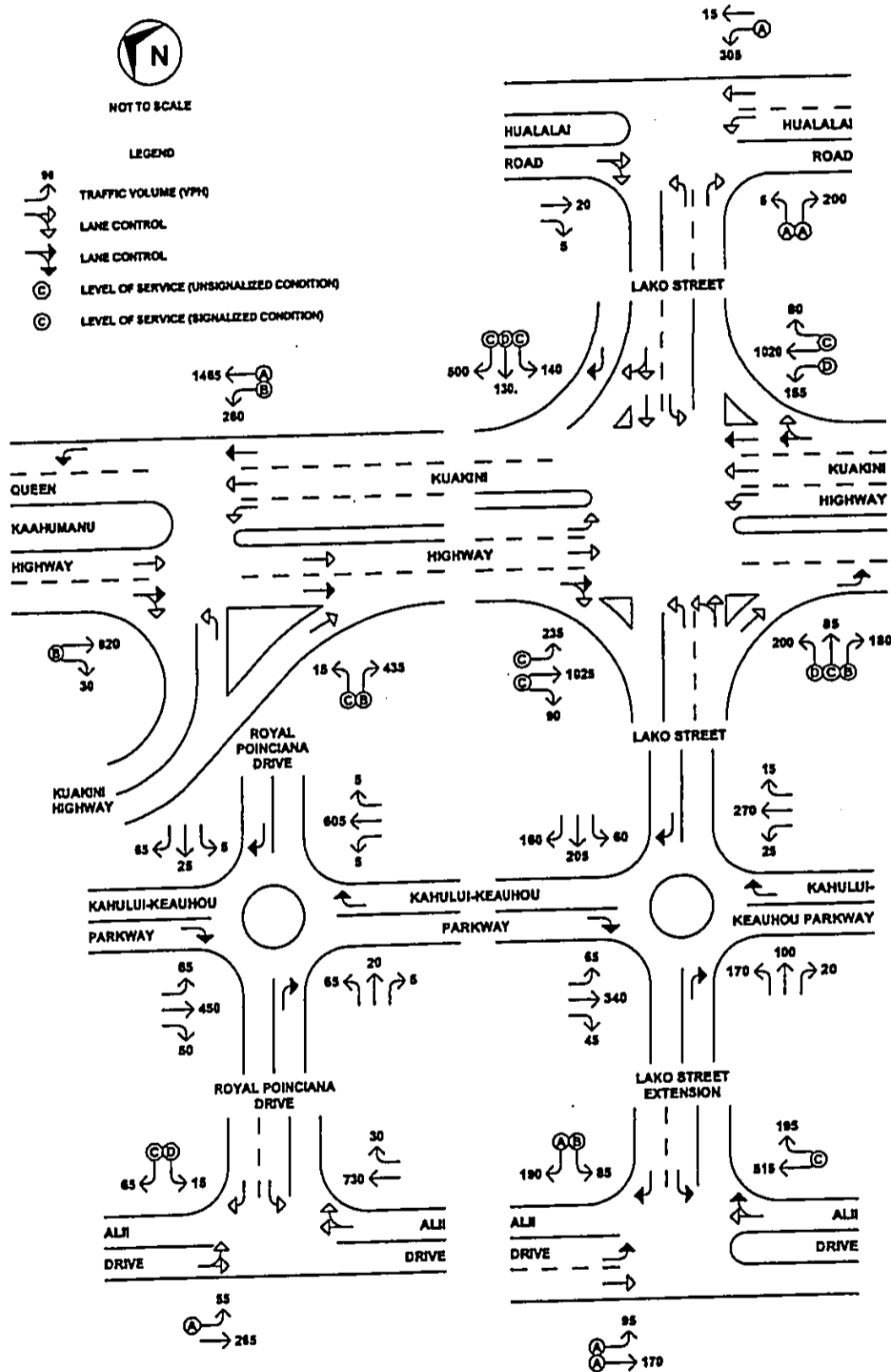


Figure 14. Year 2020 AM Peak Hour Traffic (Alternative A or C)

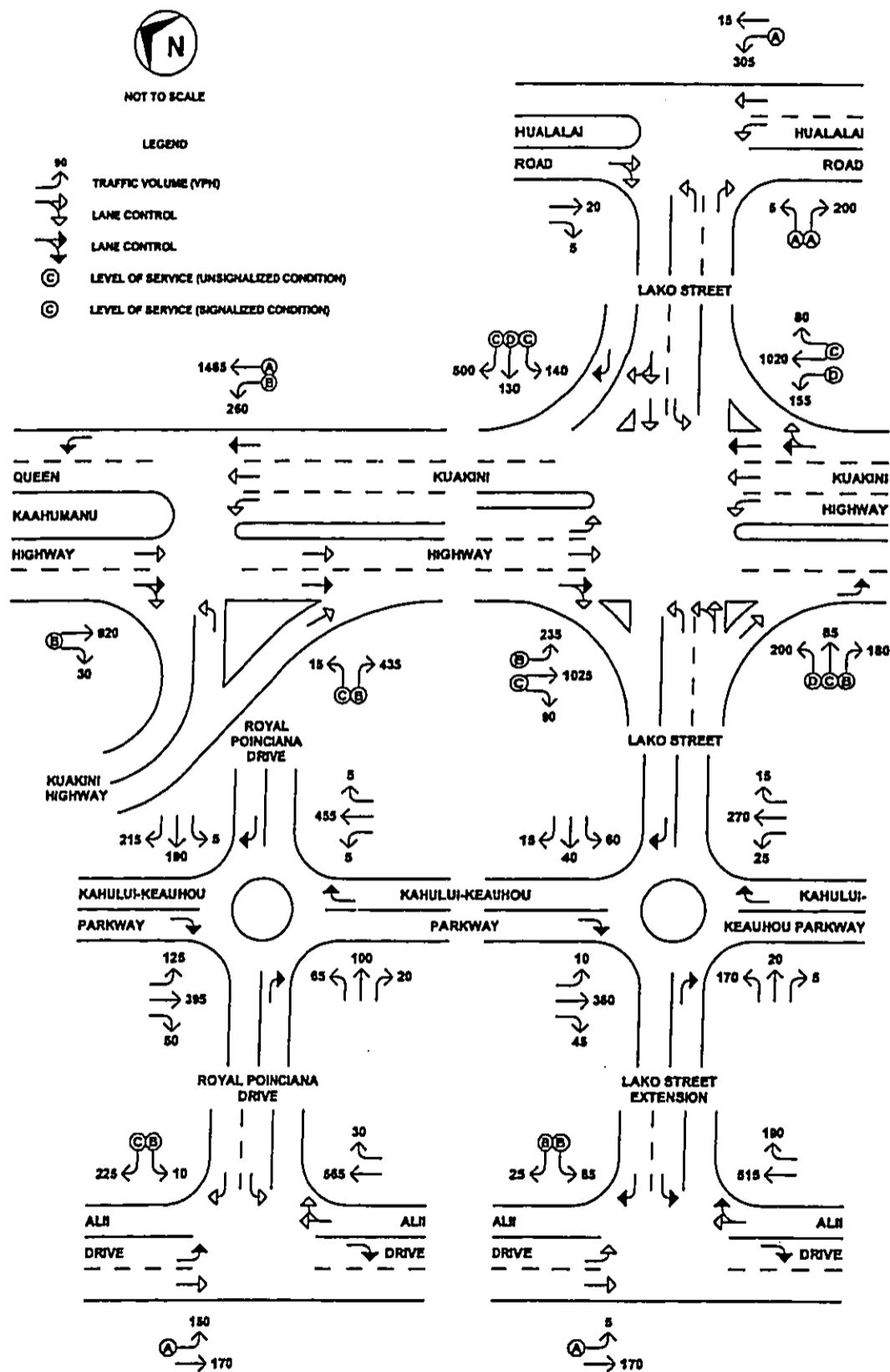


Figure 15. Year 2020 AM Peak Hour Traffic (Alternative B)

The intersection of Kuakini Highway and Lako Street is expected to operate at satisfactory Levels of Service, with a v/c ratio of 0.93, during the Year 2020 PM peak hour of traffic. The intersection of Kuakini Highway and Queen Kaahumanu Highway is expected to operate at satisfactory Levels of Service, with a v/c ratio of 0.89.

The maximum v/c ratio at the proposed Lako Street Extension roundabout intersection with Kahului-Keauhou Parkway is expected to be 0.73 and 0.63 under Alternative A or C and Alternative B, respectively. The maximum v/c ratio of Royal Poinciana Drive at the roundabout intersection with Kahului-Keauhou Parkway is expected to be 0.63 and 0.70 under Alternative A or C and Alternative B, respectively.

During the Year 2020 PM peak hour of traffic with the proposed project, the intersection of the Lako Street Extension and Alii Drive is expected to operate at satisfactory Levels of Service under all Alternatives. The left-turn movement from makai bound Royal Poinciana Drive to southbound Alii Drive is expected to operate at LOS "E" under Alternative A or C. Figures 16 and 17 depict the PM peak hour traffic and the results of the capacity analysis with Alternative A or C and Alternative B of the proposed Lako Street Extension, respectively.

VI. Recommendations

A. Lako Street Extension Improvements

The following recommended improvements are included as part of the Lako Street Extension Project:

1. Alternative C is the recommended alignment for the proposed Lako Street Extension.
2. Provide separate left-turn and right-turn lanes on the proposed Lako Street Extension at Alii Drive.
3. The Lako Street Extension should be stop-controlled at Alii Drive.

B. Improvements By Others – Year 2009

The following improvements are recommended with the opening of Phase 1 of the Kahului-Keauhou Parkway and the mauka extension of Lako Street, and are not included as part of the Lako Street Extension Project:

1. Kuakini Highway and Lako Street

- a. The existing right-turn deceleration lanes on Kuakini Highway should be converted to shared through/right-turn lanes to provide two through lanes across the intersection in both directions at Lako Street.
- b. Northbound Kuakini Highway should be widened from one lane to two lanes between Lako Street and Queen Kaahumanu Highway.

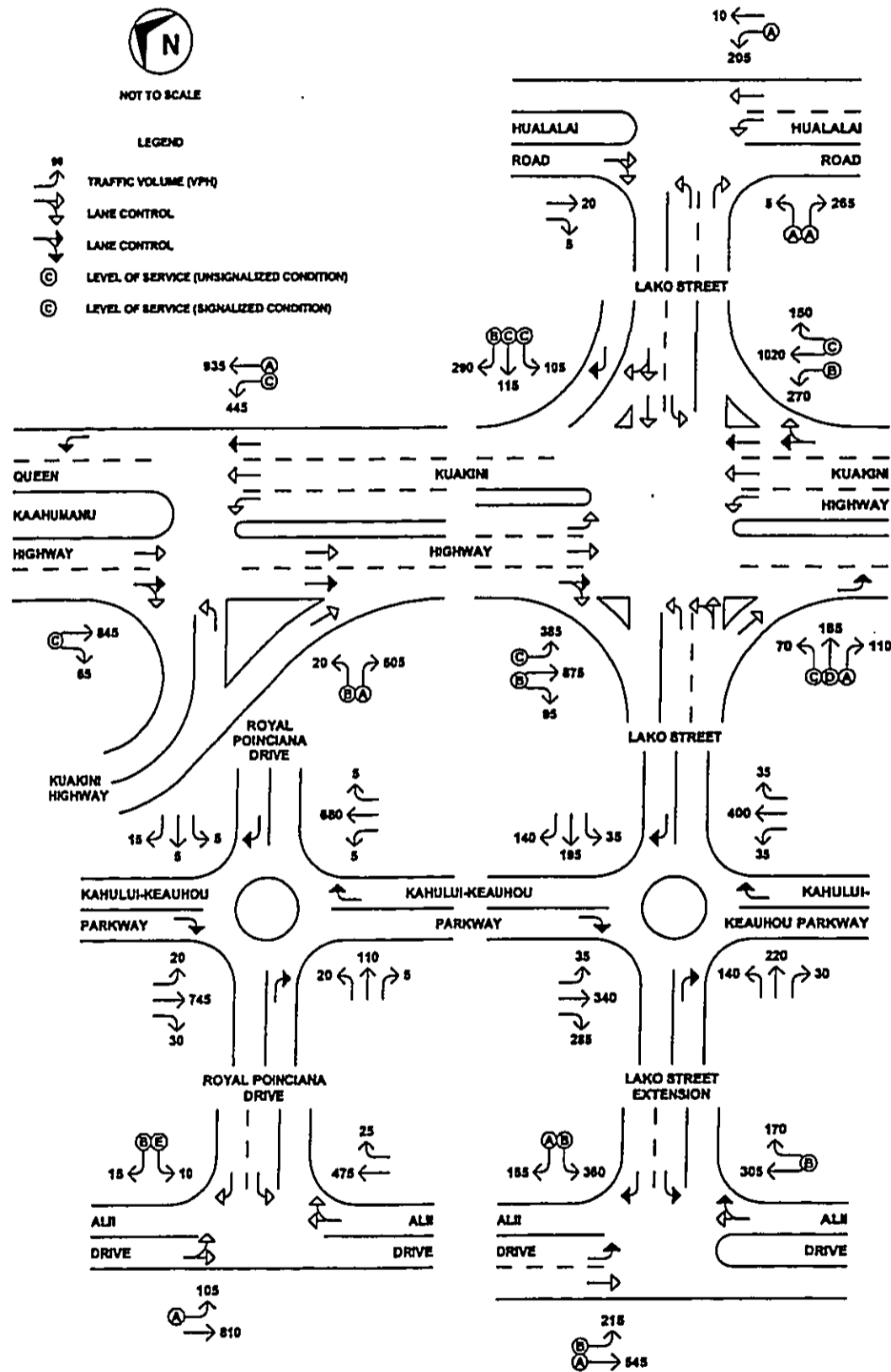


Figure 16. Year 2020 PM Peak Hour Traffic (Alternative A or C)

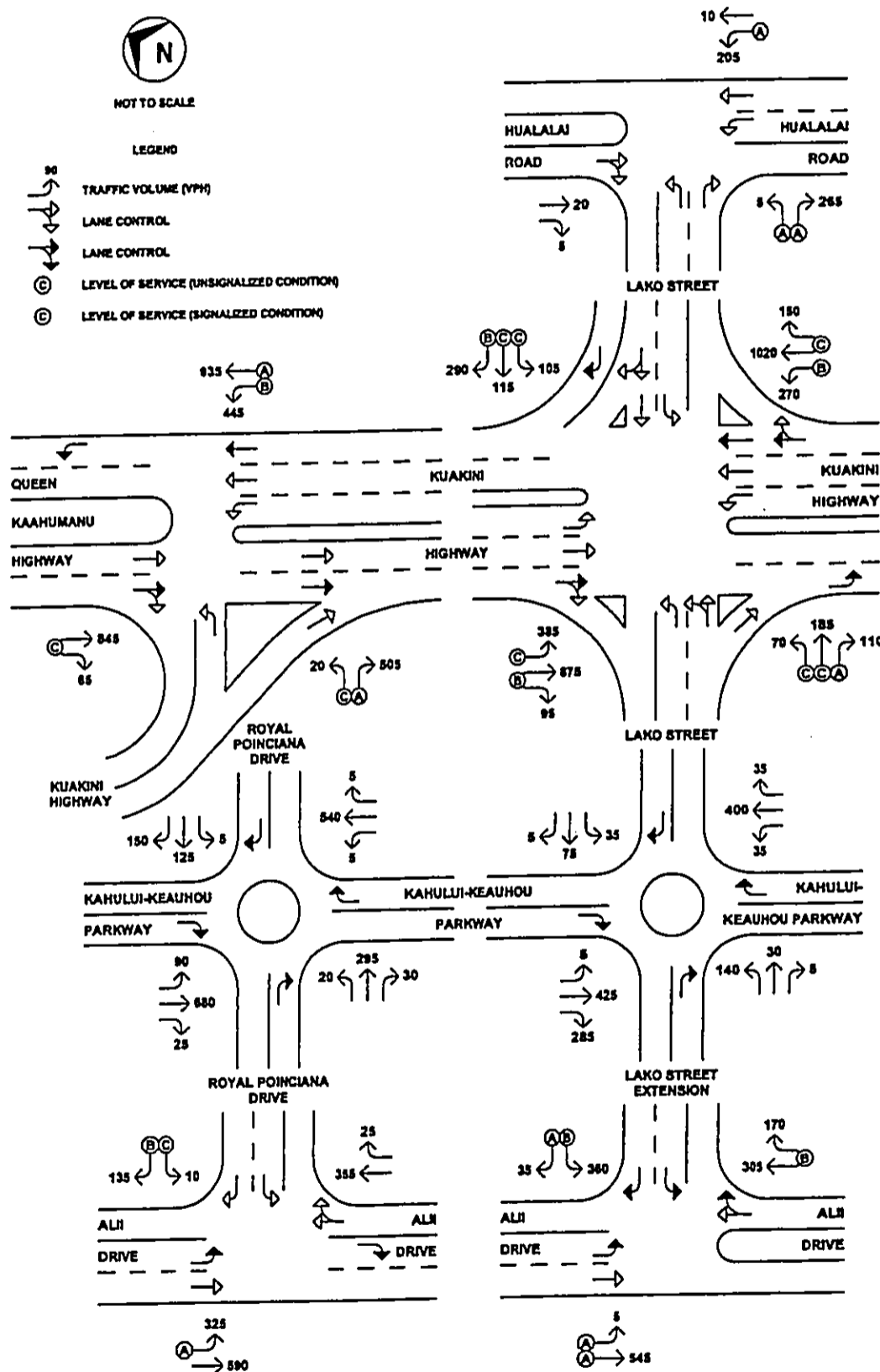


Figure 17. Year 2020 PM Peak Hour Traffic (Alternative B)

- c. The south leg of Kuakini Highway should be widened to provide an auxiliary merging lane in the southbound direction.
- d. Makai bound Lako Street should be widened to provide an exclusive right-turn lane at Kuakini Highway.
- e. The shared through/right-turn lane on makai bound Lako Street should be maintained to provide double right-turn lanes to northbound Kuakini Highway.
- f. The through lane on mauka bound Lako Street should be restriped to a shared through/left-turn lane to provide double left-turn lanes to northbound Kuakini Highway.
- g. The traffic signal phasing should be modified to provide separate (split) phases for the mauka bound and makai bound approaches of Lako Street, with the opening of Phase 1 of the Kahului-Keauhou Parkway.

2. Queen Kaahumanu Highway and Kuakini Highway

- a. The intersection of Queen Kaahumanu Highway and Kuakini Highway should be signalized and coordinated with the signals at the intersection of Kuakini Highway and Lako Street.
- b. The north leg of Queen Kaahumanu Highway should be widened to provide an auxiliary merging lane in the northbound direction to facilitate two through lanes across the intersection.
- c. The existing right-turn deceleration lane on southbound Queen Kaahumanu Highway at Lako Street should be converted to a shared through/right-turn lane to provide two through lanes across the intersection.
- d. The channelizing island on southbound Kuakini Highway should be widened to provide an additional through lane.

3. Lako Street Extension and Alii Drive

- a. Southbound Alii Drive should be widened at the proposed Lako Street Extension to provide an exclusive left-turn storage lane.
- b. Southbound Alii Drive should be widened at the proposed Lako Street Extension to provide a median shelter lane to facilitate the left-turn movement from the proposed Lako Street Extension to southbound Alii Drive.

C. Improvements By Others – Year 2020

The following improvements are recommended with the completion of Phase 2 of the Kahului-Keauhou Parkway, and are not included as part of the Lako Street Extension Project:

1. Kuakini Highway and Lako Street

- a. The shared left-turn/through lane on mauka bound Lako Street should be restriped to a through lane.
- b. The traffic signal phasing should be modified to provide protective-permissive left-turn phases on both approaches of Lako Street with the completion of the Kahului-Keauhou Parkway.

2. Lako Street Extension and Alii Drive

The installation of traffic signals should be considered at the intersection of Lako Street Extension and Alii Drive, when it becomes warranted.

VII. Conclusions

The proposed Lako Street Extension is not expected to significantly affect traffic demands on the north-south arterials. However, the proposed project is expected to impact the mauka-makai traffic circulation between the arterials. Alternatives A or C would operate more efficiently as a collector-distributor street, by providing a more direct mauka-makai route between the north-south roadways of Kuakini Highway, Kahului-Keauhou Parkway, and Alii Drive, than Alternative B. The alignment of Alternative C is a slightly more curvilinear route between the north-south arterial roadways than Alternative A. However, Alternative C would have less of an impact on historical sites, based upon the findings of the archaeological study. The proposed Lako Street Extension Alternative C is expected to divert higher volumes of through traffic from Royal Poinciana Drive and Kupuna Street than Alternative B, during the AM and PM peak hours of traffic.

The proposed Lako Street Extension, under Alternative B, would not be as effective in diverting traffic from Royal Poinciana Drive and Kupuna Street, during the AM and PM peak hours of traffic. The design of Alternative B would include a longer roadway segment with the southern alignment, which would result in longer travel times and greater trip lengths. Royal Poinciana Drive and Kupuna Street would continue to carry significant volumes of peak hour traffic between the north-south roadways under Alternative B.

The future mauka extension of Lako Street is expected to divert traffic from Hualalai Road to the intersection of Kuakini Highway and Lako Street. The Year 2009 AM and PM peak hour traffic demands at the intersection of Kuakini Highway and Lako Street are expected to exceed the existing capacity of the intersection, with or without the proposed Lako Street Extension. The widening of Queen Kaahumanu Highway and Kuakini Highway, from Henry Street to Kamehameha III Road, is in the planning stages by State Department of

Transportation, at this writing. In the interim, the intersection should be improved by providing two through lanes on Queen Kaahumanu Highway/Kuakini Highway in both directions across its intersections with Kuakini Highway and Lako Street.

The construction of the Kahului-Keauhou Parkway, together with the Bypass Road between Keauhou and Napoopoo, are expected to divert significant volumes of traffic from Kuakini Highway, during the AM and PM peak hours of traffic. The proposed Kahului-Keauhou Parkway would provide an alternative route to Kuakini Highway and Alii Drive. Mauka-makai connector roadways, such as the proposed Lako Street Extension, would improve the traffic circulation and distribution between the north-south arterial roadways.

APPENDIX D
ARCHAEOLOGICAL ASSESSMENT
& INVENTORY SURVEY

Report 020-022803

**ARCHAEOLOGICAL ASSESSMENT AND
INVENTORY SURVEY
LAKO STREET EXTENSION
LAND OF HOLUALOA 3 AND 4
NORTH KONA DISTRICT
ISLAND OF HAWAII**

Haun & Associates

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**ARCHAEOLOGICAL ASSESSMENT AND
INVENTORY SURVEY
LAKO STREET EXTENSION
LANDS OF HOLUALOA 3 AND 4,
NORTH KONA DISTRICT,
ISLAND OF HAWAII**

By:

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Prepared for:

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SUMMARY

At the request of Hilo Engineering, Inc., Haun & Associates conducted an archaeological assessment and inventory survey of three potential roadway corridors (Alternates "A", "B" and "C") located within Holualoa 3 and 4, North Kona District, Island of Hawaii. The objective of the survey was to satisfy historic preservation regulatory review inventory requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules.

The survey identified 30 sites with 108 features. The sites consist of portions of 17 previously identified sites and 13 newly documented sites. The 108 features consist of modified outcrops, mounds, walls, enclosures, terraces, platforms, planting depressions, and one each of the following: pavement, *ahu*, modified knoll, cave, and cupboard. Functionally, the features consist of agriculture, permanent habitation, livestock control, temporary habitation, burial, and marker.

The identified site and component features conform to the site and feature types expected in the *kula* zone of the Kona Field System based on previous archaeological work and historic documentary research. Probable prehistoric to early historic agricultural features consist of modified outcrops, mounds, and terraces scattered throughout the area, and a series of three walled fields. Habitation features are scattered throughout the project area. These include both permanent and temporary habitations. One burial is present at Site 23046. All of the habitation features are situated within approximately 500 m of the shoreline with the majority of features being less than 250 m inland. This coastal band was the focus of habitation in the lower *kula* zone of the Kona Field System. Based upon radiocarbon dates from previously investigated sites, traditional Hawaiian use of the area probably began as early as the 1200s with the most intensive use occurring between the 1400s and early 1800s. Site 6302, the Kuakini Wall, was initially constructed in the early 1800s. The numerous ranch walls may have been initially constructed in the 1800s to early 1900s. The walls probably continued in use until the 1980s when the area was still used for pasture.

All 30 sites are assessed as significant under Criterion "d". These sites have yielded information important for understanding late prehistoric to historic land use in the project area. Site 23046 is additionally assessed as significant under Criterion "e" because it contains a probable Hawaiian burial. Site 6302, the Kuakini Wall, has been previously determined by DLNR-SHPD to be also significant under Criteria "a", "b", "c" and "e". Site 6374 has been previously determined by DLNR-SHPD in conjunction with the proposed Kahalui-Keauhou Parkway to be also significant under Criteria "c". Sites 6302 and 23046 are recommended for preservation; however, the existing breach in the Site 6302 wall may have to be slightly enlarged to accommodate the proposed street. The mapping, written descriptions, photography, and test excavations at eleven sites adequately documents the sites and no further work or preservation is recommended. The remaining seventeen sites retain the potential to yield information important for understanding prehistoric and historic agriculture and habitation in the project area. These sites consist of agricultural and habitation features. All of these sites could be mitigated through data recovery; however, the decision as to which sites would require mitigation is dependent upon future decisions regarding road corridor selection and the precise location of the 60 ft wide road within the 120 ft-wide corridors that were surveyed. After these decisions are made, a mitigation plan for the affected sites would be prepared for DLNR-SHPD review and approval. From an archaeological and historic preservation standpoint, selection of Alternate "C" Corridor would require the least amount of data recovery. If Alternate "B" Corridor is selected a Burial Treatment Plan may be required for DLNR-SHPD and the Hawaii Island Burial Council review and approval.

A cultural impact assessment included in the Environment Assessment for the project presents the results of consultations with native Hawaiian groups and individuals that include historic preservation issues related to the Keakealaniwahine Complex. All of the individuals who were asked to comment on the three alternate corridors were unanimous in their preference for the Alternate "C" Corridor because it affected the fewest sites and because there would be a buffer of 200 ft between the corridor and the Keakealaniwahine Complex.

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INTRODUCTION

At the request of Hilo Engineering, Inc., Haun & Associates conducted an archaeological assessment and inventory survey of three potential roadway corridors (Alternates "A", "B" and "C") for the extension of Lako Street situated within Holualoa 3 and 4, North Kona District, Island of Hawaii (*Figure 1*). The objective of the survey was to satisfy historic preservation regulatory review inventory requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules. (DLNR 1998).

The survey fieldwork was conducted May 25-26, June 12-13, 2001, and December 31, 2002 under the direction of Dr. Alan Haun. Described in this final report are the project scope of work, field methods, background information, survey findings, and significance assessments of the sites with recommended further treatments.

Scope of Work

Based on DLNR-SHPD rules for inventory surveys, the following specific tasks were determined to constitute an appropriate scope of work for the project:

1. Conduct background review and research of existing archaeological and historical documentary literature relating to the project area and its immediate vicinity—including examination of Land Commission Awards, *ahupua'a* records, historic maps, archival materials, archaeological reports, and other historical sources;
2. Conduct a high intensity, 100% pedestrian survey coverage of the project area;
3. Conduct detailed recording of all potentially significant sites including scaled plan drawings, written descriptions, and photographs, as appropriate;
4. Conduct limited subsurface testing (manual excavation) at selected sites (a) to determine the presence or absence of potentially significant buried cultural deposits or features, and (b) to obtain suitable samples for radiocarbon age determination analyses;
5. Analyze background research and field data; and
6. Prepare and submit Final Report.

Project Area Description

The project area consists of three proposed 120 ft (40 m) wide road corridors that are situated within the Lands of Holualoa 3 and 4. The combined area of the corridors is approximately 17.0 acres. The Alternate "A" corridor originates near the seaward end of the existing Lako Street, south of the parking lot for the Lutheran Church within Holualoa 3. The corridor extends in a seaward direction for c. 1,000 ft (305 m) where the southern side of the corridor extends slightly into Holualoa 4. It then angles to the northwest for c. 400 ft (122 m) in Holualoa 3 and then angles back to the west, continuing in this direction for c. 450 ft (137 m) to Ali'i Drive.

The Alternate "B" corridor originates in the same location as the Alternate "A" corridor. This corridor extends to the southwest for c. 400 ft (122 m), crossing into Holualoa 4. The corridor then angles slightly to the south-southwest for c. 600 ft (183 m) and then turns to the southwest for c. 1,000 ft (305 m). At this point, the Alternate "B" corridor angles to the west, paralleling the north side of the division between the Lands of Holualoa 4 and Kaunamalumu and continues in this direction to Ali'i Drive.

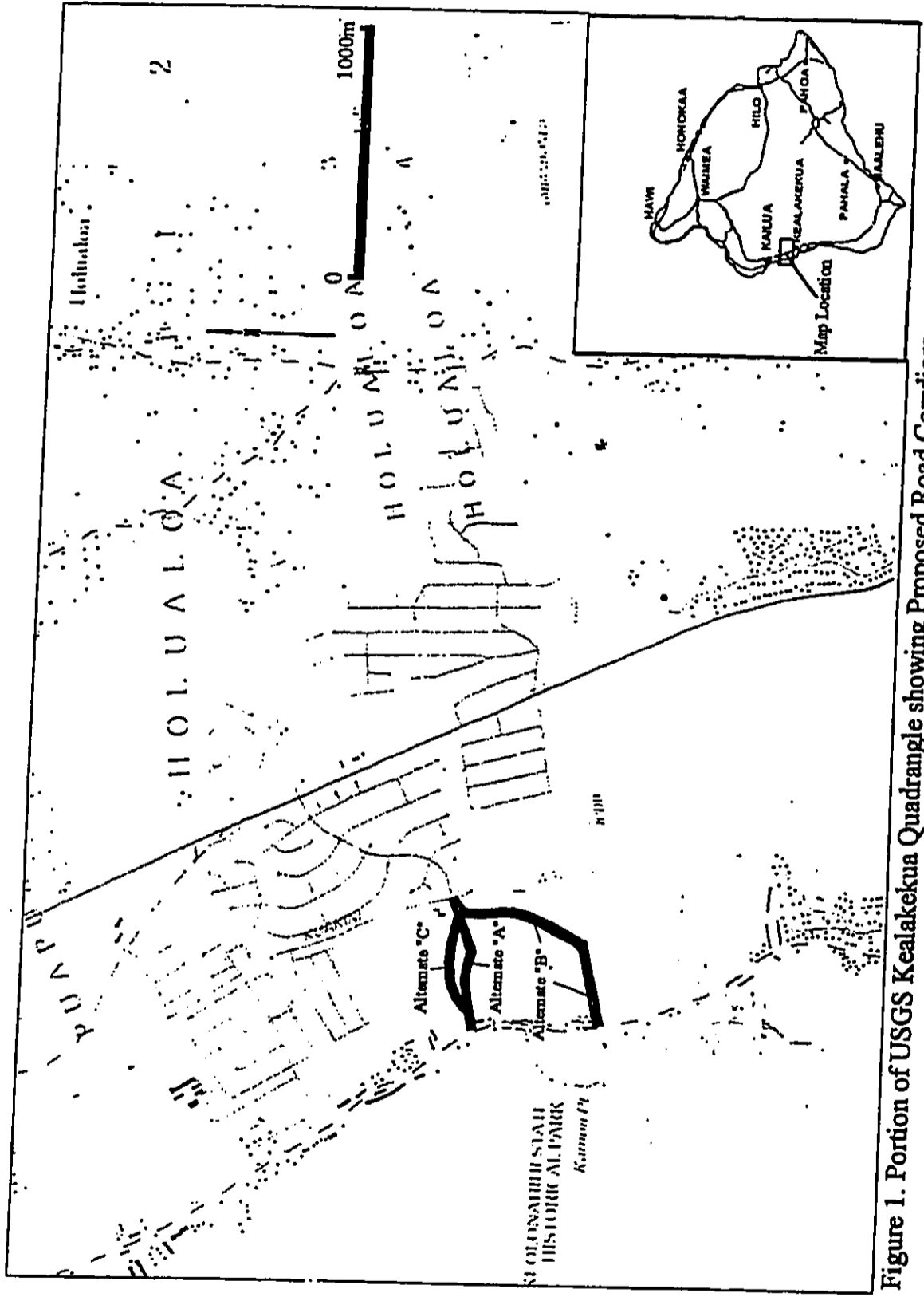


Figure 1. Portion of USGS Kealakekua Quadrangle showing Proposed Road Corridors

The Alternate "C" corridor is situated entirely within Holualoa 3. It originates in the same location as the Alternate "A" and "B" corridors. It extends c. 425 ft (130 m) to the west, then angles to the southwest for c. 730 ft (223 m) to where it intersects the seaward end of the Alternate "B" corridor, c. 525 ft (160 m) inland of Ali'i Drive.

The project area is situated on the southwestern slopes of Hualalai Volcano. The surface mantle in this area is comprised of Pleistocene to recent Hualalai series lava flows. These flows include both pahoe-hoe and a'a, consisting predominately of olivine basalt (MacDonald, Abbott and Peterson 1983:364).

The terrain in the project area slopes gently to moderately towards the ocean. The elevation ranges from approximately 20 ft to 85 ft elevation. The soil in this area consists of Punalu'u extremely rocky peat (6-20% slopes). The Punalu'u extremely rocky peat represents the Punalu'u series of well-drained, thin organic soils (c. 4" thick) over bedrock (Sato et al. 1973:48). Rainfall in this area averages 30 to 40 inches (76 to 102 cm) per year. The mean annual temperature varies from 70 to 75 degrees F (21 to 23 degrees C) (Armstrong 1983). Vegetation in the project area consists of elephant grass (*Pennisetum purpureum* [Schumacher]), *koa haole* (*Leucaena leucocephala* [Lam.] de Witt), and *kiawe* (*Prosopis pallisa* [Humb. & Bonpl. Ex Willd.] HBK).

Field Methods

The proposed corridors were subjected to a 100% surface examination with surveyors spaced at 5-10 m intervals. The transect centerlines were marked in the field by surveyors prior to the study. Sites and features identified during the survey were flagged with pink and blue flagging tape and their locations plotted on a scaled project area map that also depicts the centerline stakes. The identified agricultural features were subjected to minimal recording. This consisted of recording length, width, height and shape. Photographs were taken of representative feature type.

Plan maps of previously recorded sites were carefully examined to determine if the maps accurately reflected the site's current condition. Newly identified non-agricultural sites were subjected to detailed recording consisting of scaled plan maps, standardized site/feature forms, and photographic documentation. A metal site tag was placed at each site and the tag's location was plotted on the plan maps. The location of the centerline stakes were added to the maps of all sites present within the project area.

Subsurface testing during the survey consisted of the excavation of test units at eight sites. The excavation units were dug in arbitrary levels within stratigraphic layers and were terminated on bedrock. Standardized excavation records were prepared after the completion of each stratigraphic layer. The soil removed during the excavations was screened through 1/4" mesh. Portable remains collected were placed in paper bags labeled with the appropriate provenience information. Recovered charcoal samples were carefully removed from either *in situ* locations or collected during the screening process. These samples were deposited in aluminum foil pouches and placed in properly labeled paper bags. Following the excavation of the test units, a section drawing depicting the stratigraphy was prepared, post-excavation photographs were taken and the units were backfilled. Recovered cultural remains were transported to Haun & Associates laboratory for analysis.

A human burial feature was encountered during the excavation of Site 23046, a pavement situated within Holualoa 4. The burial was carefully exposed to determine that the remains were human. Once this was established, the exposed portion of the feature was mapped and recorded, and the remains were carefully reburied and the architectural layer of the pavement was reconstructed.

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Historical Documentary Research

The project area is located within the *ahupua'a* of Holualoa 3 and 4 (Figure 2) in the district of North Kona. Holualoa is literally translated as "long sled course" (Pukui et al. 1976:48). Kamakau's (1961:56) account of a spy sent by a Maui chief to the Kailua area refers to a coconut grove at Holualoa. Following the death of Captain Cook, the ruling chief of Hawaii Island, Ka-lani'opu'u, reportedly lived at Keauhou and surfed at Holualoa Bay (Kamakau 1961:105). Kamakau cites a prophecy made for Kamehameha that references Holualoa:

Ka-pihe the seer prophesied in the presence of Kamehameha and said, "There shall be a long malo reaching from Kuamo'o to Holualoa. The islands shall come together, the tabus shall fall. The high shall be brought low, and the low shall rise to heave." The prophecy was fulfilled when the battle was fought at Kuamo'o for the downfall of the ancient tabus. Holualoa was the long malo uniting the kingdom from Kahiki to Hawaii. (1961: 223).

Early events documented in the Kona regional traditional history are associated with 'Umi-a-Liloa. Hawai'i was first unified under the rule of 'Umi-a-Liloa and Kona was selected as a dwelling place of chiefs (Kamakau 1961). The area lies within the realm of the traditional Hawaiian political authority that was centered in the Kailua-Keauhou area from at least the 15th century to the reign of Kamehameha I.

I'i describes Holualoa as the residence of chiefs:

Kalaniopuu then returned to Kau, but he left Kamehameha with his mother, Kekuiapoiwa II, and his guardians, Keaka and Luluka, at Puu in Holualoa, a place inhabited in Alapai's time and before. It was in the Holualoa lands of Kona that the chiefs dwelt in olden times, from the time of Kamehameha, the great chiefess of Hawaii, and earlier. Where the large stone wall is located above Keolonahini was Keakealaniwahine's dwelling place, for her parents, Keakamahana and Iwikauikaua, resided there. These lands were occupied by the chiefs because the surfing there was good, and the food abundant in ancient times. There Kamehameha learned to surf and to glide with a canoe over the waves, guarded by the *kaikunane* of Keaka, in accordance with her commands. Because he was well trained, Kamehameha excelled in these arts and in sailing canoes. (1959: 6)

The abundance of agricultural crops on the slopes of Hualalai is well attested to in traditional and early historical accounts. The project area lies within the *kula* zone of the Kona Field System, SIHP Site 6601 (Newman 1970, Kelly 1983, Schilt 1984, Cordy 1995). This site extends north to Kau Ahupua'a, south to Honaunau, and from the coastline to the forested slopes of Hualalai. The area was intensively cultivated and served as the resource base for the large number of chiefs and retainers that occupied the Kailua-Keauhou coast. The characteristics and general locations of the elevation zones of the system described by Newman (1970) have been confirmed and elaborated on by subsequent ethnohistorical investigations (Kelly 1983). The system is subdivided into four elevation zones.

The *kula* zone extends from sea level to 500 ft elevation. Cordy (1995) has suggested that the upper limit of this zone may be higher, between 600-700 ft elevation. This lower elevation zone traditionally was used for habitation and cultivation of sweet potatoes, paper mulberry (*wauke*), and gourds. Agricultural

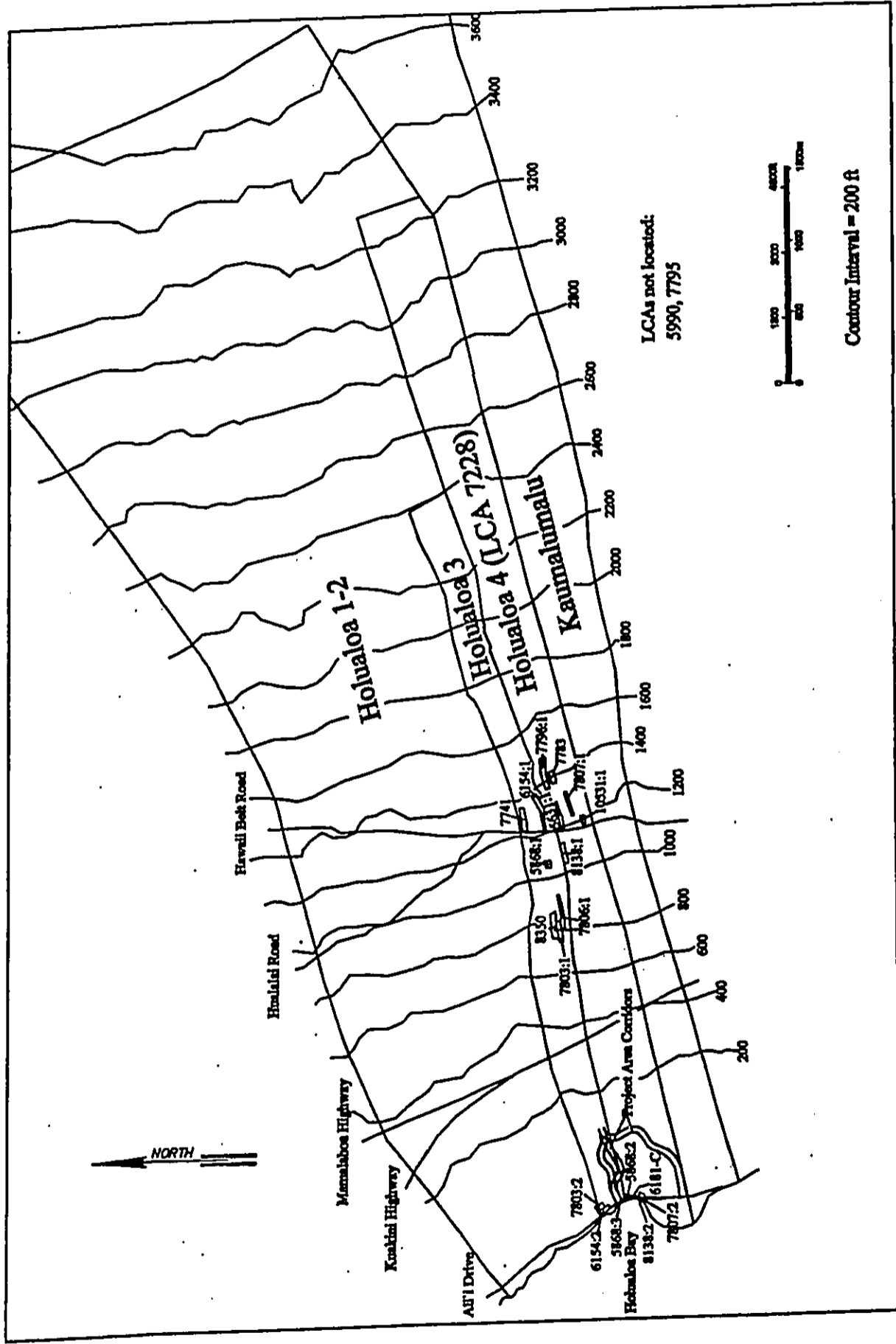


Figure 2. Ahupua'a Boundaries and Holualoa 3 and 4 Land Commission Awards

features, including clearing mounds, planting mounds, planting depressions, modified outcrops, and planting terraces, are common in this zone (Hammatt and Clark 1980; Hammatt and Folk 1980; Schiit 1984). Habitations are scattered throughout the *kula*, but they are concentrated along the shoreline portion of the zone (Cordy 1995). The shoreline portion, extending approximately 200 m inland, was the focus of permanent habitation and activities such as burial, canoe storage, ritual, and marine exploitation. Royal centers and chiefly residences were also situated near the shoreline. These complexes included residences for high status individuals and their supporters and attendants, *heiau*, places of refuge, *holua* slides, and other structures.

The *kalu'ulu* zone extends from 500 to 1000 ft elevation. The zone was used for cultivating sweet potatoes, paper mulberry, and especially breadfruit. Archaeologically, this zone is not distinguishable from the adjacent *'apa'a* zone (Cordy 1995). The *'apa'a* zone is situated between 1000 and 2500 ft elevation. This zone traditionally was used for dryland cultivation of taro, sugar cane, sweet potato, and ti. Permanent habitations were present in the *'apa'a* zone, but were infrequent (Cordy 1995, Burchard 1995). Dwellings were observed by early historic chroniclers, but most were probably for temporary use in conjunction with agriculture, bird hunting, and collecting of plant resources. Burials and ritual sites are rare in the upper elevation zones (Kawachi 1989).

Kua'iwi are prominent agricultural features of the *kalu'ulu* and *'apa'a*, zones (Cordy 1995; Newman 1970). These are broad, linear piles of rocks built from stones cleared from the adjacent slopes that also served as field boundaries. *Kua'iwi* are oriented inland-seaward often interconnected with perpendicular, soil-retaining walls and terraces forming rectangular grid pattern of fields. *Kua'iwi* also served to control rainfall runoff (Kirch 1985). These formal fields contrast with more informal garden areas characterized by scattered agricultural features in very rocky areas, such as young lava flows, and much of the *kula* zone.

The *'ama'u* zone extends from 2500 ft to 4000 ft elevation. The zone was associated with banana and plantain cultivation. The archaeological traits of the zone have not been well defined, but temporary habitations were probably present associated with agriculture and exploitation of forest resources (Allen 1984).

The first western account referencing Holualoa comes from the missionary William Ellis in 1823:

At two P.M. we reached Horuaroa [Holualoa], a large and populous district. Here we found Keoua, the governor's wife, and her attendants, who had come from Kairua for wauti [wauke], with which to make cloth. Shortly after, we reached a village called Karuaokalani [Kalua-o-kalani], (the second heaven,) where was a fine heiau, in good preservation It is called Pakiha; its dimensions were two hundred and seventy feet by two hundred and ten. We could not learn the idol to which it was dedicated, but were informed it was built in the time of Keakealani, who, according to tradition, was queen of Hawaii about eleven generations back. The walls were solid, thick, and nearly entire; and the singular manner in which the stones were piled upon the top, like so many small spires, gave it an unusually interesting appearance. Before we left Karuaokalani the inhabitants pointed out to us a spot called Maukareoreo, the place of a celebrated giant of that name, who was one of the attendants of Umi, king of Hawaii, about twelve generations since...They also told us he was a great warrior, and that, to his prowess principally, Umi was indebted for many of his victories. (Ellis 1963: 117-188)

During the Great Mahele, Holualoa 4 was given to Loe (LCA 7228, 638 acres). Holualoa 3 was retained as government land. This Land Commission Award (LCA) and subsequent *kuleana* claims in Ho-

Holualoa 3 and 4 are listed in *Table 1*. The locations of all, except two, awarded parcels are shown in *Figure 2*.

The Waihona 'Aina (2000) Mahele Database; which is a compilation of data from the Indices of Awards (Indices 1929), Native Register (NR n.d.), Native Testimony (NT n.d.), Foreign Register (FR n.d.) and Foreign Testimony (FT n.d.); lists sixteen awarded claims for 27 parcels within Holualoa 3 and 4. The sixteen claimants, who received awards, claimed a total of 72 parcels. There are no LCAs within the project area except LCA 7228, which includes the entire *ahupua'a* of Holualoa 4. Nine awarded claims were in Holualoa 4, six claims were in Holualoa 3, and one (LCA 5868) included parcels in both *ahupua'a*. The awarded *kuleana* parcels range from 0.28 to 3.06 acres in area with an average of 1.55 acres. Seven awards consisted of single parcels, eight had two parcels, and one claimant received four parcels.

The testimonies refer to twenty-one *ili* land divisions. Only one, Kamuku, is mentioned twice. The awarded parcels are concentrated in three areas. One cluster is situated at the coast, a second small cluster is situated between 750 ft and 900 ft elevation, and a third cluster is situated between 1,000 ft and 1,500 ft elevation. House lots are described in the testimonies for coastal parcels. House lots and cultivation are described for the inland parcels. Most of the claims were for multiple parcels in three to four of the named zones of the Kona Field System.

The majority of claimed land parcels were conveyed to the claimants between 1819 and 1848. A variety of land uses are described in the LCA claim testimony. Thirteen claims included house lots with at least 49 houses. Enclosing walls are described for six house lots. The testimonies mention 78 *kihapai* and 31 *mala* without specific reference to crops. Twenty-nine parcels are simply described as cultivated sections and one is described as irrigated land. Named crop plots include 71 taro *mala* and *kihapa*, 59 sweet potato *mala* and *kihapa*, four breadfruit *mala*, three gourd *mala*, and three coffee *mala*. The testimonies describe 58 *loulou* palms, 38 coconut trees, twelve *hala* trees, twelve *kou* trees, a *kukui* tree, and a thorn tree.

According to Schilt (1984), early-introduced historic cultigens in the *kula* included melons, cabbage, onions, oranges, and tobacco. The gradual shift from subsistence farming to a market economy began with the introduction of coffee, corn, pumpkins, cotton, pineapple, and Irish potatoes in the 1820s to 1840s. The introduction of cattle ranching and commercial coffee production in the mid-1800s caused further change to the traditional agricultural system. The Kuakini Wall, which was built to control the movement of livestock is situated a short distance inland of the project area. The wall's construction began in the early 1800s. Its completion in the mid-1850s is attributed to Governor Kuakini.

Commercial sugar cane cultivation was attempted in the early 1900s, but abandoned by the mid-1920s (Kelly 1983). Cattle ranching and coffee cultivation continued during the 1900s. Informants interviewed in conjunction with Collins and Hammatt's (1993) survey of a parcel in Holualoa 4 at approximately 1000 ft elevation indicate extensive farming of coffee during the 1900s in the better watered inland portion of the *ahupua'a*. Oral historical interviews by Fager and Graves (1993) indicate that the area immediately inland of the Kuakini Highway in Holualoa 3 was used for cattle ranching. Soehren (1980a) indicates that the area between the current project area and Ali'i Drive was used for pasture at the time of his survey.

Previous Archaeological Research

A search of DLNR-SHPD archaeological report database and other sources identified 57 reports for Holualoa 1-4. Many of these are short letter reports of field inspections and reconnaissance surveys. *Figure 3* shows the locations of the larger projects discussed below. The discussion begins with coastal studies and proceeds inland.

Stokes recorded eight *heiau* in Holualoa in 1906 (Stokes and Dye 1991). Pueomanu Ko'a, Halehau Heiau, and Puhiooloo Heiau are reported for Holualoa 1. Pana'ewa Heiau and Hikapaia Heiau are reported for Holualoa 2 and 3, respectively. Stokes identified four *heiau* in Holualoa 4 at Kamoia Point, Keolonahihi, Hale'a'ama, Haleokekupa, and Pakiha, or Ha'ulelani Pu'uhonua.

Table 1. Awarded Land Commission Claims in Holoaloa 3 and 4.

LCA	Claimant	Apene claimed	Apene awarded	Other claims	Section No.	Ahupua'a	■	Land Use	Boundary Mahele	Boundary Kahu	Boundary Mahele	Boundary Kahu	Date Rec'd	Given	Acreage	Royal Patent	Source	Comment	
6031	Kahuaka	6	2	0		Holoaloa 4	Halepe 2, Puhalea	1 meke sweet potato in kahuaka, 2 meke taro in kahuaka					Kam 1 times	MD	1.21	4228	NT 6804, NR 38148	Unclear which 2 awarded	
					1			0 taro ihapele	korohi	Uluhuru land	korohi	Halepe 1 land							
					2			1 cultivated section	korohi	Uluhuru land	korohi	Halepe 1 land							
					3			1 cultivated ihapele	Kaua's land	korohi	korohi	Halepe 1 land							
					4			1 cultivated ihapele	Hau's land	Uluhuru land	korohi	Halepe 1 land							
					5			1 cultivated ihapele, lot	korohi	Kamuku land	korohi	Uluhuru land							
					6			House lot, 3 houses and garden	Kaua's lot	Kaua's lot	Gov't road	Kaua's lot							
6068	John Kaimathun	8	4	0		Holoaloa 3 and 4	Pehala, Wokale, Kook, Kauhaha, Alope 1 & 2	8 taro meke in meke, 3 sweet potato meke in kahu, breadfruit meke, 34 coconut trees, bakul and kop ihapele					Kam 1 times	ancestor	1.817	4278, 6300, 5481	NR 184-1854, FT 6506, NT 577-8894	awarded 3 apene in Holoaloa 3 and 1 in Holoaloa 4	
					1			irrigated land	korohi	Kaua's land	korohi								
					2			3 cultivated ihapele	korohi	Kaua's land	korohi								
					3			3 cultivated ihapele	korohi	Kaua's land	korohi								
					4			House lot, 2 houses	Gov't road	beach	beach								
5980	Mercowah	1	1	0		Holoaloa 3		House lot, 4 houses	korohi	Kaua's land	Gov't road								
					5			House lot, 6 houses	korohi	Haua's lot	korohi								
6154	Nafiona	8	2	0		Holoaloa 3	Puhalea	1 sweet potato ihapele, some taro ihapele					Kam 1 times	ancestor	1.28	7941	NR 4056, NT 6734	Probably coastal house lot, not shown on current tax map	
					1			1 cultivated section	korohi	Houa's land	korohi								
					2			1 cultivated section	korohi	korohi	korohi								
					3			1 cultivated section	korohi	Houa's land	korohi								
					4			1 cultivated section	korohi	Houa's land	korohi								
					5			1 cultivated section	korohi	Houa's land	korohi								
6181C	Kahed	2	1	0		Holoaloa 4	Uluhuru	House lot, 6 ihapele	Koua's lot	korohi	Gov't road	korohi							
					1			3 taro and potato ihapele	korohi	korohi	korohi		1819	Kaua's		4208	NT 6486	awarded coastal ihapele	
					2			House lot	korohi	korohi	korohi		1819	Kaua's					

Table 1. Awarded Land Commission Claims in Hououloa 3 and 4 (cont.)

LCA	Claimant	Acres claimed	Acres awarded	Other claims	Section No.	Atupua #	II	Land Use	Boundary Maunga	Boundary Kua	Boundary Mahai	Boundary Kohala	Date Rec'd	Other	Acres	Royal Patent	Source	Comment	
7228	Loe	1	1	0		Hououloa 4	unfiled shapua's	MD	MD	MD	MD	MD	1948	Kamohemaha III	638	7289	NR 7228, NT 457Y10	awarded	
7741	Kahawai	3	1	0		Hououloa 3	Kahopuaka, Puaohia, Uamoo	3 breadfruit trees, 4 sweet potato mounds on kula and 3 in kula/UAI, 8 taro mounds in 'aia's	MD	MD	MD	MD	MD	MD	MD	1.4	none	NR 448Y4, NT 680Y4	Hououloa 4 awarded 1 spina with 3 breadfruit mounds in Puaohia III
7783	Kaa	8	1	0		Hououloa 4	Lampapapa	house lot, 8 taro mounds in 'aia's to 'aia's, 3 sweet potato mounds in kula and 3 in kula/UAI, 1 coconut tree, 3 kula palms, and 1/2 taro and 1/2 taro	MD	MD	MD	MD	MD	MD	MD	1.0	4225	NR 448Y4, NT 590Y4, NT 591Y4	unclear which spina awarded
					1			1 cultivated section	Konohiki	Makanihaha III	Konohiki	Kamuku III							
					2			3 cultivated kapaia	Konohiki	Makanihaha III	Konohiki	Kamuku III							
					3			1 cultivated section	Konohiki	Makanihaha III	Konohiki	Kamuku III							
					4			3 cultivated kapaia	Konohiki	Makanihaha III	Konohiki	Kamuku III							
					5			1 cultivated section	Konohiki	Makanihaha III	Konohiki	Kamuku III							
					6			1 cultivated section	Konohiki	Makanihaha III	Konohiki	Kamuku III							
					7			1 cultivated section	Konohiki	Makanihaha III	Konohiki	Kamuku III							
					8			1 cultivated section	Konohiki	Makanihaha III	Konohiki	Kamuku III							
7785	Kopanihu	8	1	1		Hououloa 4	Makanihaha	4 mounds in 'aia's to 'aia's, 3 sweet potato mounds in kula and 8 in kula/UAI, 3 kula trees, 9 kula trees, 9 kula trees	MD	MD	MD	MD	MD	MD	MD	0.95	4284	NR 448Y4, NT 684Y4, NT 686Y4	Unclear which spina awarded, not shown on current tax map
					1			1 cultivated section	Konohiki	Haha'a's land	Konohiki	Konohiki							
					2			1 cultivated section	Konohiki	Haha'a's land	Konohiki	Konohiki							
					3			1 cultivated section	Konohiki	Kahaka'a's land	Konohiki	Konohiki							
					4			1 cultivated section	Konohiki	Kahaka'a's land	Konohiki	Konohiki							
					5			1 cultivated section	Konohiki	Kahaka'a's land	Konohiki	Konohiki							
					6			1 cultivated section	Konohiki	Kahaka'a's land	Konohiki	Konohiki							
					7			1 cultivated section	Konohiki	Kahaka'a's land	Konohiki	Konohiki							
					8			1 cultivated section	Konohiki	Kahaka'a's land	Konohiki	Konohiki							
					9			1 cultivated section	Konohiki	Kahaka'a's land	Konohiki	Konohiki							
					10			1 cultivated section	Konohiki	Kahaka'a's land	Konohiki	Konohiki							

Table 1. Awarded Land Commission Claims in Hououloa 3 and 4 (cont.)

LCA	Claimant	Acres claimed	Acres awarded	Other awarded claims	Section No.	Atupua's	M	Land Use	Boundary Status	Secondary Uses	Boundary Notes	Date Rec'd	Other	Acres	Royal Patent	Source	Comment	
7790	Kaialani	0	2	0		Hououloa 4	Kamahu 1	0 sweet potato mats in 'apua, 5 in kaka, and 8 in lala				Kam I lines	enclosure	2.32	4574	NR 449A, NT 589A	Under which 2 apua awarded	
					1			7 cultivated kapa	kanohi	Kamahu 2 land	kanohi							
					2			8 cultivated kapa	kanohi	Kamahu 3 land	kanohi							
					3			6 cultivated kapa	kanohi	Kamahu 4 land	kanohi							
					4			1 cultivated kapa	kanohi	Kamahu 5 land	kanohi							
					5			2 cultivated kapa	kanohi	Uluohu 1	kanohi							
					6			House lot, 7 houses, enclosed with 2 coconut trees, 17 lala palm, 4 lala trees, and 2 lala trees	kanohi	Uluohu 2	Gov't road							
7803	Konea	2	2	2		Hououloa 3		3 lala trees		Idle land	Gov't road	Kam I lines	Konea	1.9	7790	NR 449B, NT 587A	awarded 2 apua in Hououloa 3	
					1			1 cultivated section	kanohi	kanohi	kanohi							
					4			House lot, 4 houses, enclosed	kanohi	Idle land	Hone's lot							
7800	Huel	5	2			Hououloa 3	Wakahu, Kamahu	5 pound mats in lala, 4 mats in 'apua, 1 sweet potato mat in paha and 4 in lala				Kam I lines	Kamahu	1.86	7047	NR 449- 450A, NT 583A	under which 2 apua awarded	
					1			1 cultivated section	kanohi	kanohi	kanohi							
					2			1 cultivated kapa	kanohi	Kupepo's land	kanohi							
					3			2 cultivated kapa	kanohi	Kupepo's land	kanohi							
					4			2 cultivated kapa	kanohi	Makani's land	kanohi							
					5			House lot, enclosed with 7 lala palm, 1 lala tree, and 1 coconut tree	Alpa's place	Idle land	Kamahu's lot							
7807	Kamahu	6	2	0		Hououloa 4	Rukuwae	9 lala mats in 'apua, 4 mats in lala, 6 mats in kaka, 4 lala trees, 4 sweet potato mats in 'apua	kanohi	Kahopo's land	kanohi	Kam I lines	enclosure	2.53	4227	NR 450A, NT 589- 590A	under which 2 apua awarded	
					1			1 cultivated section	kanohi	kanohi	kanohi							

Table 1. Awarded Land Commission Claims in Houloua 3 and 4 (cont.)

LCA	Claimant	Acres claimed	Acres awarded	Other claims	Section No.	Ahupua'a	III	Land Use	Boundary Maaka	Boundary Kai	Boundary Makai	Boundary Kohala	Deeds Rec'd	Other	Acres	Royal Patent	Source	Comment
7807 (cont.)					2			1 cultivated ihupai	kaohaha III land		kaohaha III	Kauhaha III land						
					3			1 cultivated section	kaohaha III land		kaohaha III	Kauhaha III land						
					4			1 cultivated section	kaohaha III land		kaohaha III	Kauhaha III land						
					5			House lot, 4 enclosed with 8 lou palm, 6 lou trees, and 2 hills	Kai land	Kai lot	Gov't road	Houka III land						
8138	Hakau	9	2	0		Houloua 4	Houloua 1	27 taro mata in 'kua' to forest, 1 mole coffee, 7 fields in kua, 3 h pali, 4 in pali, 4 in kua, and 1 in 'kua'.					Kam I Street	ancestors	1.15	4905	NR 457-450V6, NT 500V4	2 acres awarded including 1 coastal house lot
					1			1 cultivated ihupai	kaohaha III land		kaohaha III	Kaua III land						
					2			17 cultivated ihupai	kaohaha III land		kaohaha III	Kaua III land						
					3			4 cultivated ihupai	kaohaha III land		kaohaha III	Kaua III land						
					4			3 cultivated ihupai	kaohaha III land		kaohaha III	Kaua III land						
					6			1 cultivated ihupai	kaohaha III land		kaohaha III	Kaua III land						
					6			10 cultivated ihupai	kaohaha III land		kaohaha III	Kaua III land						
					7			1 cultivated ihupai	kaohaha III land		kaohaha III	Kaua III land						
					8			2 cultivated ihupai	kaohaha III land		kaohaha III	Kaua III land						
					9			House lot, 2 houses, enclosed with 10m tree, 1 lou tree, 4 lou palm, and 2 hills	Kai land	Kaua III land	road	Kaua III land						
8350	Karoona	1	1	0		Houloua 3	Kopu	House lot with 5 lou palm	MD	MD	MD	MD		MD	2.3	7840	NR 461V4, NT 581V4	
10631	Mahuia	5	2			Houloua 4	Lampipapa III	2 mile gazetted positions at Pahoa, 9 taro mata in 'kua' to 'kua', sweet potatoes and coffee 3 h pali, 4 in kua, 1 lou tree, 5 lou palm, and 2 hills						MD	0.49	4274	NR 453V8	unclear which 2 acres awarded

Table 1. Awarded Land Commission Claims in Holoaloa 3 and 4 (cont.)

LCA	Claimant	Apene claimed	Apene awarded	Other claims	Section No.	Alapai's	■	Land Use	Boundary Maaka	Boundary Kai	Boundary Maaka	Boundary Kahaia	Date Rec'd	Over	Average	Royal Patent	Source	Comment
10031 (cont.)					1			1 cultivated section	Ka'e's land	Makani's land	Ka'e's land	Kamau's land						
					2			1 cultivated section	honohi	Makani's land	honohi	Kahoopepe land						
					3			1 cultivated section	honohi	Makani's land	honohi	Kahoopepe land						
					4			1 cultivated section	honohi	Lanihale's land	Kaperau's land	Kubulawa's land						
					5			2 cultivated sections	honohi	Kamau's land	Punahā's land	Kubulawa's land						

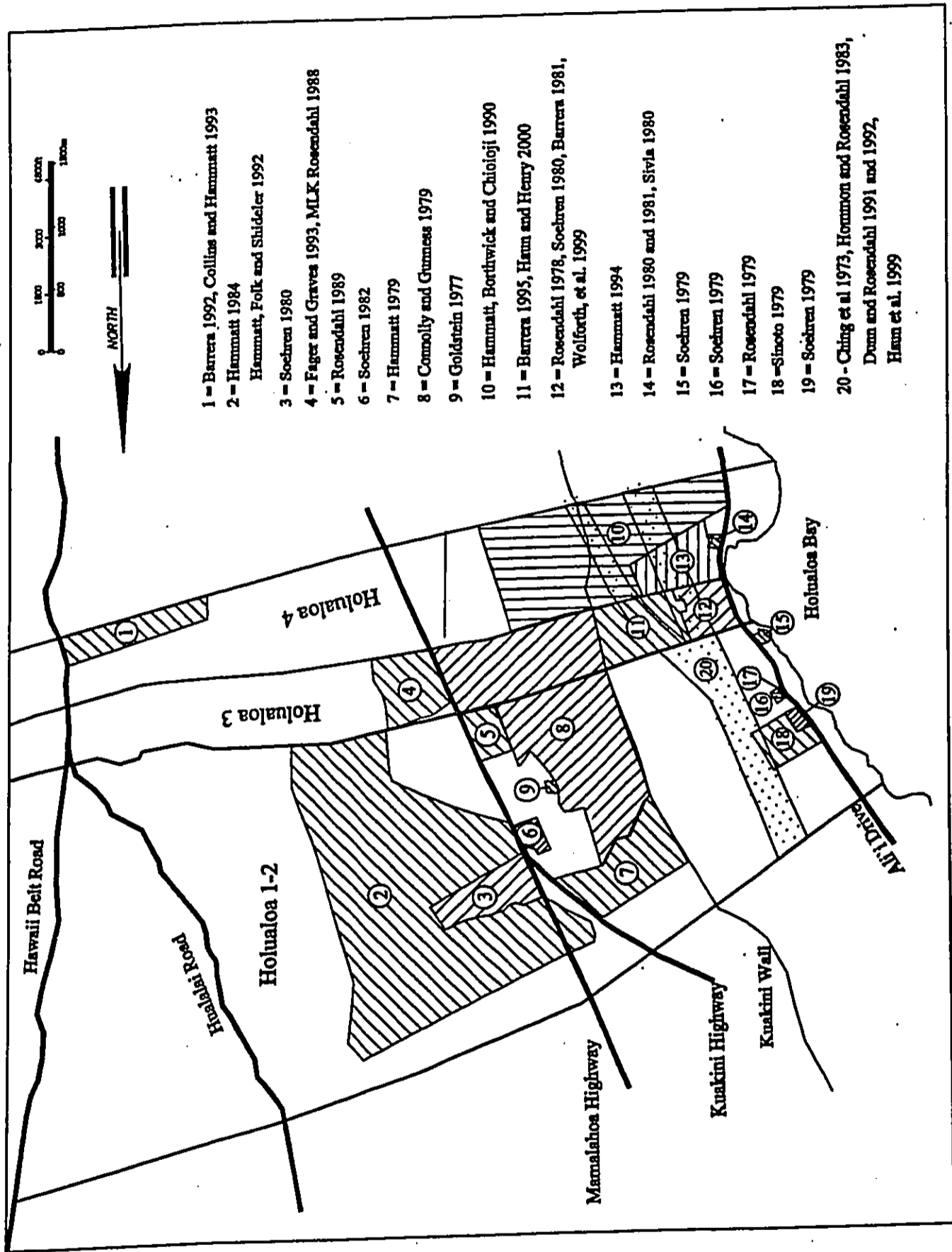


Figure 3 Previous Archaeological Work in Holualoa 1-4

Reinecke (n.d.) surveyed the coastal portion of Holualoa in 1929-30. He described the site complex at Kamoia Point (SIHP 2059). Subsequent studies of the site by Sinoto (1977), Yent (1983), and McEl-downy (1986) have documented this extensive site, which includes residential complexes and *heiau*. The area was used by at least five generations of high-ranking chiefs including Kamehameha I.

Wolforth, Henry, and Rechtman (1999) conducted an inventory survey of a 8-acre parcel on the inland site of Ali'i Drive in Holualoa 2 and 3 including the area seaward of the present project area (TMK: 7-7-4:22, 47). Portions of the area were previously surveyed by Rosendahl (1978), Soehren (1980a) and Barrera (1981). The survey recorded seven previously identified sites consisting of Hikapaia Heiau, three ranch walls, and three habitation sites, two of which were previously recorded and tested by Haun et al. (1998). Radiocarbon age determinations indicate occupation from the late 1200s to historic times.

Hammatt (1994) conducted a reconnaissance survey of a 16-acre parcel on the inland side of Ali'i Drive in Holualoa 4 (TMK: 7-7-4:11). The survey identified an extensive complex of walls and residential structures, two *heiau*, and ranch walls and pens. The traditional Hawaiian features were believed to be an inland extension of the Kamoia Point Complex. No excavations were conducted.

Rosendahl (1980, 1981) conducted reconnaissance and intensive surveys of a 0.3-acre parcel situated on the inland side of Ali'i Drive in Holualoa 4 (TMK: 7-7-04:16). The surveys identified eight features consisting of two platforms, a well, an historic tomb, three enclosures and a stone alignment. Five test excavations were conducted and all encountered deposits containing historic habitation materials post-dating 1900. Traditional Hawaiian artifacts were also present in the deposits indicating the area was occupied pre-historically as well.

Rosendahl (1978b) conducted a reconnaissance survey of 1-acre parcel on the inland side of Ali'i Drive in Holualoa 1 and 2 (TMK: 7-6-16:31). The survey identified an enclosure and wall interpreted to be recent historic structures. Sinoto (1979) conducted a reconnaissance survey of a 6-acre parcel adjacent to the parcel surveyed by Rosendahl (TMK: 7-6-16:7). The survey identified several ranch walls and mounds believed to be the result of mechanical clearing.

Soehren (1979a) conducted a survey of a 0.5-acre parcel on the seaward side of Ali'i Drive in Holualoa 1 and 2 (TMK: 7-6-15: 15). The survey identified a terrace and paved platform, which Soehren did not believe were prehistoric. Soehren (1979b) conducted a survey of 0.03-acre parcel on the inland side of Ali'i Drive in Holualoa 1 and 2 (TMK: 7-6-15: 15). The survey identified an enclosure wall surrounding the lot.

Rosendahl (1979a) conducted a reconnaissance survey of a 0.5-acre seaward portion of Holualoa 1 between 42 ft and 51 ft elevation (TML: 7-6-15:16). The survey area was surrounded by ranch walls and contained seven features identified as part of the Holualoa Complex (SIHP 2038). The features consisted of a modified outcrop, a pit, two platforms, an alignment and two artifact scatters. An intensive survey was subsequently conducted by Connolly (1979).

Hammatt, Borthwick, and Chiogioji (1990) conducted a survey of a 64-acre parcel in Holualoa 4 (TMK: 7-7-04:Per. 11 and 43). The parcel extends from Ali'i Drive to the Kona Sea View Subdivision on Kuakini Highway between 20 ft and 235 ft elevation. It bounds the current project area to the south. The project area is situated immediately south of the Keakealaniwahine Complex. The entire parcel was formerly pasture and minor disturbance was attributed to mechanized pasture improvement. No excavations were conducted and no radiocarbon dates were obtained.

The survey identified 285 sites, which primarily consisted of single features. One hundred habitation sites consisted of platforms (31), enclosures (23), open enclosures (18; C-, L-, U-shapes), terraces (15), modified outcrops (11), caves (5) and pavements (2). No attempt was made to categorize the habitation sites by duration of occupation. Agricultural sites, total of 128, consisted of mounds (47), modified outcrops (22), terraces (19), and other miscellaneous features including *kua'iwi*. Twenty-four burials and possible burials were identified. The remaining sites included ranch walls, cupboards, pavements, and bulldozer piles.

Habitations were concentrated in the seaward portion of the project area and along the south side of the Keakealaniwahine Complex. Burials were situated along the inland edge of the seaward habitations. Agricultural sites were scattered among the habitations and concentrated inland of the Kuakini Wall. There was a distinct decrease in site density between the inland edge of the seaward concentration of sites at 50 ft elevation and the 125 ft to 150 ft elevation inland of the Kuakini Wall.

Haun and Henry (2000) conducted an inventory survey of a seventeen acre parcel in Holualoa 3 between 35 ft and 85 ft elevation. The survey identified 12 sites with 104 component features. The identified sites included three walls, two terraces, one enclosure, one modified outcrop and five complexes of features. The identified features consisted of 67 modified outcrops, ten mounds, eight terraces, seven platforms, seven walls, two enclosures, one cave, one filled crack and one upright. Functionally, the 104 features consisted of the following: agriculture (82), permanent habitation (11), livestock control (4), storage (3), burial (2), temporary habitation (1) and indeterminate (1).

The intensive survey for the proposed Kahului-Keauhou Parkway (formerly known as the Ali'i Highway; Haun et al. 1998) identified 31 sites with 143 features in Holualoa 1-4. Previous studies of the corridor were conducted by Ching et al. (1973), Hommon and Rosendahl (1983), and Dunn and Rosendahl (1991, 1992). The corridor occupies approximately 15 acres between 30 ft and 80 ft elevation. The sites included 72 permanent habitation features at eleven sites (terraces, walls, enclosures, ancillary features), 33 agricultural features (terraces, modified outcrops, mounds), six burial features at three sites, seven temporary habitation features, a possible *heiau* (4 features), 10 ranch walls, and miscellaneous features. Radiocarbon dates from permanent and temporary habitation features all fall into the period from 1400 to the early 1800s.

Barrera (1988) conducted a survey of the 2-acre Lutheran Church site at the end of Lako Street, which bounds the current project area on the inland side (TMK 7-7-04:Por. 56). The survey identified eight sites, all represented by a single feature. The sites consisted of a mound interpreted as a possible burial, the Kuakini Wall, and six sites interpreted to be agricultural features (walls and mounds). No excavations were conducted and the report does not include a map showing the distribution of sites.

Barrera (1995a) conducted a reconnaissance survey of the current project area. The survey identified a possible burial platform over a lava blister, two possible habitation sites, and agricultural mounds and modified outcrops. All of the sites were assumed to be prehistoric in age. The sites were not recorded and site locations were not mapped.

A series of studies were conducted for the 103-acre Komohana Kai subdivision in Holualoa 1-3 (TMK: 3-7-6-13:7,26,31; and 3-7-7-04:20). The project area ranges in elevation from 125 ft to 300 ft elevation, and the southern of the survey area bounds the current project area to the east. Prior to the subdivision surveys, several sites were identified in the area by the Statewide Inventory of Historic Places and a small survey conducted by Dye (1978). Connolly and Gunness (1979a, 1979b) conducted a reconnaissance of the entire project area. Hammatt (1979a) conducted a subsequent survey and testing project. The following summary is based largely on the Connolly and Gunness work because of the problems with the subsequent Hammatt study (Beggerly 1980). Connolly and Gunness did not conduct excavations. Hammatt conducted excavations at eleven sites, but not obtain any radiocarbon dates.

The Connolly and Gunness (1979a, 1979b) survey identified 136 sites and site complexes. The 16 complexes primarily consist of unspecified numbers of agricultural features including, modified outcrops, terraces, and depressions. Seventeen sites, counted as individual agricultural mounds or terraces are represented by more than 73 features based on review of the site descriptions. Thirty sites consist of non-agricultural features. Thus, the total number of agricultural features present is probably at least 200 to 300.

Non-agricultural sites include at least eight historic ranching features, 14 habitation features (caves, platforms, midden deposits), three possible burials, a shrine, three possible small *heiau* and a large *heiau*. The habitation features include temporary habitation caves and substantial surface structures that probably are permanent habitation features.

Rosendahl (1989) conducted a field inspection of a 6-acre parcel on the inland side of Kuakini Highway in Holualoa 1 and 2 (TMK: 7-6-22: 49, 84). The majority of the Komohana Kai Subdivision parcel had been mechanically cleared. A "few" modified outcrops were identified as possible agricultural features. Goldstein (1977) described a possible habitation or heiau on a Komohana Kai Subdivision lot in Holualoa 1 and 2 (TMK: 7-6-20: 62).

Hammatt (1979c) conducted a survey of a 23-acre parcel in Holualoa 1 and 2 situated between the Kuakini Wall and the proposed Kahului-Keauhou Parkway (TMK: 7-6-13:11). The project area ranges from 35 ft to 130 ft elevation. The survey identified 39 sites with 51 features. Interpretation of the sites is minimal. Based on the site descriptions, probable permanent habitations are represented by five platforms, an enclosure, and an enclosure with two platforms. Probable temporary habitations consist of a lava tube, a paved depression, and a U-shaped enclosure. Possible burials consist of three platforms and five mounds. The mounds are more than one meter in height. Three of these mounds have well-faced sides. A small historic cemetery was also identified. Probable agricultural features consist of two terraces, four retaining walls, and 23 mounds. One mound situated on the edge of a bluff was littered with coral cobbles and branch coral and possibly represents a shrine.

Hammatt (1979b) conducted a survey of a 22-acre parcel situated between the Kuakini Highway and the Kuakini Wall (TMK: 7-6-13:5). The Holualoa 1 parcel ranges from 125 ft and 260 ft elevation. The survey identified four sites with 13 features. The sites consisted of two temporary habitations (platform and cave), a ranch wall, and 10 agricultural mounds. No excavations were conducted.

Schilt (1984) conducted a survey and test excavations for the Kuakini Highway Realignment Corridor, here referred to as the Queen Kaahumanu Highway Extension. Within Holualoa 1 and 2, the survey corridor occupies 17 acres between approximately 320 ft and 360 ft elevation. Mechanized disturbance was evident but not extensive; however, Schilt states that most sites were in "poor or impacted condition" (1984:318). Schilt indicates that site recording, especially for modified outcrops, was not as intensive in approximately 75% of the area because of "time constraints" (1984:318).

Schilt identified 36 sites in Holualoa 1 and 2. Schilt does not give a total number of features. A rough count based on her site descriptions is approximately 70 features; however, the value should be considered low given her statement regarding limited recording of modified outcrops. Traditional Hawaiian sites consisted of one cave, an enclosure, a midden scatter, a stone pile, two platforms, three walls, 10 modified outcrops, and 12 garden plots and garden plot complexes. Historic sites consisted of a road and four walls.

The midden scatter, platforms and cave were determined to be habitation sites. All three were excavated. One of the platforms, which had an adjacent enclosure, was interpreted to be a seasonal habitation. A terrace platform with two slab-lined depressions was interpreted to be a habitation site potentially occupied by individuals of higher status because the site commanded a view of the coast. Excavations in the cave produced radiocarbon dating samples (2) and portable remains. Schilt interpreted the habitation evidence as indicative of short term, sporadic occupation beginning between 1500 and 1600 followed by more frequent, or seasonal use from the 1600s to early historic times. Most of the remaining traditional Hawaiian sites were interpreted to be agricultural in function. Schilt defined two activity areas, within an area of garden plots, based on the presence of surface and excavated artifacts and food remains.

Fager and Graves (1993) conducted an archaeological inventory of a 17-acre parcel (TMK: 3-7-7-04:35) in Holualoa 3 situated on the inland side of Kuakini Highway between 311 ft and 462 ft elevation. M.L.K. Rosendahl (1988) conducted an earlier reconnaissance survey of the same parcel. Twenty-seven agricultural features were identified at 17 sites. Agricultural features consisted of a mound, C-shape, cleared area, modified outcrop, platform, four enclosures, five *kua'iwi*, and 13 terraces. A *mauka-makai* trail and a historic ramp for loading cattle were also identified.

Five habitation features, consisting of two platforms, two enclosures, and a terrace, were identified at five sites. An enclosure was assigned a permanent habitation function and a platform and an enclosure

were interpreted as temporary habitations based on cultural deposit thickness and diversity of portable remains. A terrace was interpreted to be a temporary habitation and a platform was assigned a non-specific habitation function without justification. A radiocarbon date from a temporary habitation feature yielded multiple ranges between the mid-1500s and 1955. Five dates were processed for samples from the permanent habitation enclosure. One produced an age range of 1159-1415. The remaining samples yielded multiple ranges primarily spanning the mid-1600s to 1900s.

Soehren (1980b) conducted a survey of a 16-acre parcel on the inland side of Kuakini Highway in Holualoa 1 and 2 (TMK: 7-6-21: 14). The survey identified an enclosure wall surrounding the lot. The parcel appeared to have been mechanically cleared for pasture.

Hammatt, Folk, and Shideler (1992) conducted an archaeological survey, testing, and salvage excavation project within a 174-acre parcel in Holualoa 1 and 2 (TMK: 3-7-6-21: 4, 9-13, 15-17). Portions of the area were previously surveyed by Hammatt (1984). The project area is situated between 350 ft and 700 ft elevation. The area had been affected by extensive historic period disturbance from coffee cultivation and ranching activity.

The survey identified 71 sites. Twelve sites were assigned an agricultural function. All were features initially thought to be possible burials. Other agricultural features were not systematically recorded, but were described as consisting of terraces and mounds. Habitation sites consisted of three sites interpreted to be permanent habitations and 39 temporary habitation features. Three burials were identified and no religious sites (shrines or *heiau*) were encountered.

Historic sites included a railroad bed; ranching walls pens, paddocks, and runs; coffee cultivation terracing; and one historic habitation site. Five radiocarbon dates were processed. Three age ranges spanned the 1400s to 1900s and two produced two modern results. One of the modern dates came from a temporary habitation terrace. The other dates were on charcoal collected from excavations that encountered burials.

Collins and Hammatt (1993) conducted an inventory survey of a 4.3-acre parcel in Holualoa 4 situated between 960 ft and 1120 ft elevation (TMK: 7-7-03:14). A portion of the area was previously surveyed by Barrera (1992). The survey identified 6 sites with 68 features. Identified sites included a historic cart road, a wall complex, a hearth, and an agricultural enclosure and terrace. One large site containing 61 features was identified as part of the Kona Field System. A table of the 61 features lists 221 separate features consisting of 97 depressions, 58 enclosures, 19 mounds, 15 field walls including *kua'hiwi*, 12 retaining walls, 11 terraces, and 9 miscellaneous features. In addition, 22 fields were defined and a series of maps were produced showing the evolution of field system development. A radiocarbon date from the hearth feature produced an age range of 1653-1955.

Allen (1984) conducted a reconnaissance survey of a 600-acre parcel situated between 1,450 ft and 2,625 ft elevation in Puapua'a 1 and 2 and Holualoa 1 and 2 (TMK: 3-7-5-15:2,12 and 3-7-6-2:1.14). Most of the area had been mechanically altered for pasture improvement. Nineteen sites were recorded. A variety of historic period sites were identified including boundary walls, agricultural complexes, and habitations. One site in the lower portion of the project area consisted of rectangular walled fields and an *'auwai* (irrigation ditch). The site was interpreted to be a portion of the Kona Field System.

Summary of Sites Identified in the Immediate Vicinity of the Project Area

Table 2 and Figure 4 lists and depict sites identified by nine studies in the immediate vicinity of the project area. These studies identified 143 sites with 360 features. The majority of the features are permanent habitations (126) and agricultural features (133). Other significant feature types include burials and possible burials (30), ranch walls (14), ceremonial features (11), and temporary habitations (9). Low frequency feature types include markers, storage features, *papamu*, and petroglyphs. The sites include the Keakealaniwahine Complex and at least two named *heiau*. Fourteen radiocarbon dates from nine of the sites, all from habitation features (Sites 5600, 6317, 6327, 6328, 6374, 6375, 9840, 9844, and 21372), range

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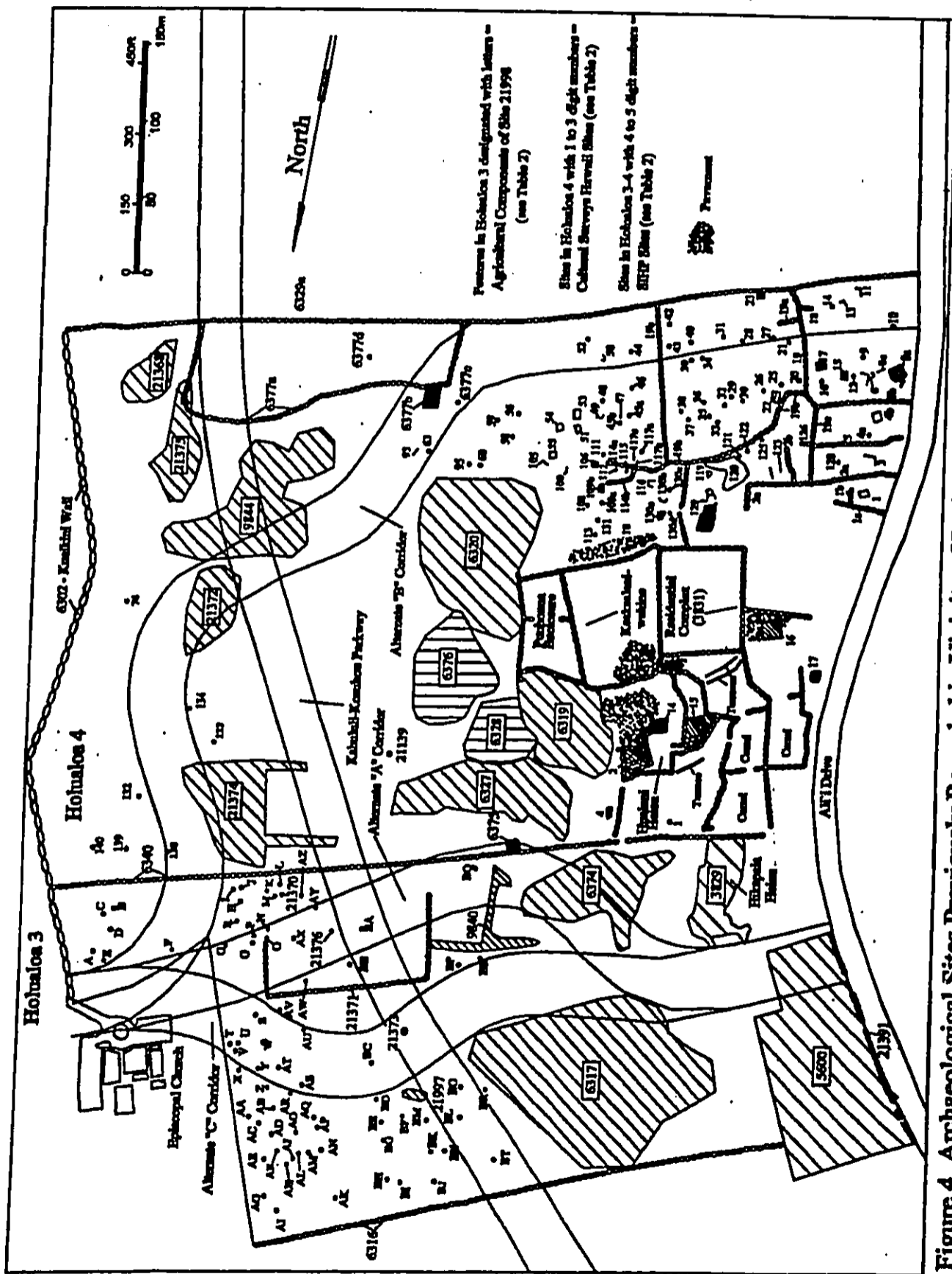


Figure 4. Archaeological Sites Previously Recorded in Vicinity of Project Area

from the 1400s to the 1900s. One early date of AD 1280-1450 came from a permanent habitation platform (Site 5600) excavated by Wolforth et al. (1999).

The Keakealaniwahine Complex is part of the Holualoa royal center, one of several such centers in Kona (Cordy 1995, Haun et al. 1998). Other elements of the center are situated on the seaward side of Ali'i Drive at Kamo Point. The complex is reported to be the residence of the chiefess Keakealaniwahine the great-great-great granddaughter of 'Umi-a-Liloa (Ellis 1963, I'i 1959).

Keakealaniwahine was once the ruler of all Hawaii, and was succeeded by her son Keawe i Kekahialiokamoku. Keakealaniwahine was brought up with the *kapu moe*. As there was no other chiefess her equal, she was kept apart with the chiefs who had the right to the prostrating *kapu* [*kapu moe*], and away from places where people were numerous. Her houses, surrounded by a stone wall, stood on an elevation above Keolonahihi in Holualoa, North Kona. She was thought to be a chiefess who would care for the welfare of the people and for the kingdom, and would understand how to benefit it and bring it prosperity. Later, when she became the ruler, she was in charge of all the heiaus on Hawaii. She offered human sacrifices in the six *luakini* heiaus of the six districts of Hawaii which were Hikiiau in Kona, Punaluu in Kau, Wahaula in Puna, Kanoa in Hilo, Honuaula of Waipio in Hamakua, and Mookini in Kohala. It was said that whenever a ceremony was performed at these heiaus she wore a skirt of *ninikea*, a soft white tapa made by women who were skilled in the art. Though a woman, Keakealaniwahine was permitted to enter the heiaus to give her offerings and sacrifices ... (I'i 1959:159-160).

The earliest recorded indication of the use of Holualoa as a royal center is "from the time of Keakamahana, the great *kapu* chiefess of Hawaii, and earlier" (I'i 1959:6) residing at Keakealaniwahine's dwelling place. Oral history suggests that the center may have been occupied earlier; daughters of 'Umi are said to have played *konane* at the complex (Haun et al. 1998). The complex was used, at least periodically, from the time of Keakamahana (circa 17th century) through the time of Kamehameha, who was there during his youth (I'i 1959:6).

Several observations have been made concerning the function of the various major structures in the Keakealaniwahine Residential Complex (Ellis 1963; Kekahuna and Kelsey 1950; Stokes and Dye 1991; Thrum 1908), often in contradiction of one another. The earliest references focus on the large and thick-walled enclosure (I'i 1959:6). This is variously referred to as a *heiau* with spires along the top of the wall (Ellis 1963), *Pakiha Heiau* (Thrum 1908), the *Pa-kiha* residential area (Kekahuna and Kelsey 1950), or the *Pu'uhonoa* of *Ha'ulelani* (Stokes and Dye 1991). Observations made in the early 1900s note that there was perhaps one internal structure, and that cultivation had been conducted within the enclosure (Stokes and Dye 1991). This thick-walled enclosure is currently referred to as Site 3831 (see *Figure 4*). These sources often draw upon information provided by their predecessors. For instance, the name *Pahika* was drawn solely from Ellis, and the *Pu'uhanoa* of *Haulelani* is from Stokes' informant. Kelsey and Kekahuna derive some of their information from Ellis and Stokes, and they attempt to reconcile this information by applying these names to separate features in addition to adding their own functional interpretations.

Kekahuna and Kelsey (1950) suggest locations for a drum house, herb planting, learning the healing arts, guard-houses, offerings, provide details of the residential foundations within the Site 3831 enclosure, and attribute the name *Hua-lani Heiau* to one of the platforms north of Site 3831. Kekahuna and Kelsey (1950) suggest that the *pu'uhonoa* was located adjacent to Site 3831 to the east. One structure located to the northeast of Site 3831 is referred to as a burial *heiau* (Site 6327). *Hikapaia Heiau* (Site 3829) was situated north of the complex. Kekahuna and Kelsey's details of the mapped complex do not match well with recent observations made of the organization of the multiple structures in the complex (Hammatt 1994, see *Figure 4*). Haun et al. (1998) suggest that Sites 6327, 6320, and 6376 situated on the inland side of the complex, and Site 6317, which is located north of *Hikapaia Heiau*, may be residential compounds of high ranking individuals because the sites consist of six or more structures and are near the Keakealaniwahine complex.

Summary of Archaeological Data

Survey data from seven of the larger, or more detailed surveys in Holualoa are summarized in *Table 3*. These surveys covered approximately 394 acres between Ali'i Drive at about 20 ft elevation and 1,120 ft elevation. The resulting data indicate the consistent presence of agricultural features. Researchers have noted a greater frequency of mounds and modified outcrops in the *kula* zone of the Kona Field System. *Kua'iwi* and formal fields are more common inland in the *kalu'ulu* zone. Habitations, both permanent and temporary, burials, and small *heiau* and shrines are scattered throughout the area. Density data were generated to better characterize site distribution. The data are crude primarily because of varying degrees of disturbance, variation in researchers' definitions of sites, and the extent to which agricultural features were documented. Comparison of feature densities reduces problems caused by variation in site definition.

Overall feature density is high in the three study areas lower than 300 ft elevation, ranging from 6.00 to 13.57 features per acre, and in the study area above 960 ft elevation. The pattern is largely the result of agricultural feature density because these features represent nearly 66% of all features identified. Agricultural feature density appears to increase with elevation. Habitation feature density is not given for temporary and permanent habitations because these features were not consistently segregated in all studies. Except for the Hammatt, Folk, and Shideler (1992) study area, habitation feature density shows a pattern of decreasing density as elevation and distance from the coast increase. Burial density also decreases as elevation and distance from the coast increase. The sample of shrines and small *heiau* is too small to provide meaningful distributional data other than demonstrating that these features are present in very low numbers at low elevations.

Table 3 includes data from several studies in the adjacent *ahupua'a* of Puapua'a 1 and 2. The data show similar overall patterns with respect to elevation and distance from the coast. The ratio of habitation and agricultural features is nearly the same in Holualoa and Puapua'a. Overall feature density is slightly higher in Holualoa, perhaps the result of a larger population. Radiocarbon dating results indicate occupation as early as the 1200s with most dates falling after 1400. Schilt (1984) used information gathered from the Kuakini Highway Realignment Corridor survey research to propose a five-phase chronology of settlement and field system development in the *kula* zone as follows:

Phase I - Pioneer Settlement (c. A.D. 1050-1400) Very limited, sporadic use of lowland slopes and cave shelters just above the Kailua Bay area. Probably contemporaneous with pioneer settlements along the coast. Development of one or more of the *mauka* sub-zones of the Kona Field System may have commenced in the later portion of this phase.

Phase II - Garden Developments (1400-1600/1650) Initial use of the *kula* sub-zone for small gardens and of the caves for temporary shelter. Erosional deposition, resulting from development of the upland sub-zones, began to bury an old ground surface and gradually created deepening soil deposits on *kula* land.

Phase III - Refuge, Habitation, and Intensive/Extensive Gardening (1600/1650-1779) Extensive development of at least the *mauka* portion of the *kula* subzone, for sweet potatoes, *wauke*, and probably also gourds. This development was accompanied rarely by permanent habitation and more often by temporary and seasonal habitations among the *kula* gardens. Animal enclosures, probably for pigs, may date to this phase. The upland zones were under complete development by this time. Suitable caves were modified for refuge during times of warfare or social conflict. Caves located in the midst of garden features were intensively used for temporary shelter and work spaces.

Phase IV - Historic Habitation and Gardening (1779-1850) The cultivation of *kula* lands gradually decreased in extent and intensity, nevertheless remaining important to a decreasing population. Permanent habitations on the *kula* during this phase occurred primarily on the *makai* side of the Great Wall of Kuakini. In 1848, Hawaiians were claiming an undetermined portion of *kula*

Table 3. Summary of Site and Feature Density

Study	Elevation	Acres	Sites	Sites/ Acre	Features	Features/ Acre	Ag Feas	Ag Feas/ Acre	Hab Fea	Hab Feas/ Acre	Burials	Burials / Acre	Shrine/ heiau	Religious Fea/acre	
Holualoa															
Hammatt, Folk, & Chiogioji 1990	20-235	64	285	13.57	285	19.00	128	8.53	100	6.67	24	1.14	0	0.00	
Haun et al. 1998	30-80	15	31	1.48	143	8.41	33	1.94	72	4.24	6	0.29	1	0.05	
Haun and Henry (2000)	35-85	17	12	0.71	102	6.00	82	4.82	12	0.71	0	0.00	0	0.00	
Connolly and Guinness 1979	125-300	103	136	1.32	250	2.43	200	1.94	14	0.14	3	0.14	5	0.24	
Fager and Graves 1993	311-462	17	17	1.00	28	1.65	27	1.59	0	0.00	0	0.00	0	0.00	
Hammatt, Folk, & Shideler 1992	350-700	174	71	0.41	71	0.41	ND	-	42	0.24	3	0.14	0	0.00	
Collins and Hammatt (1993)	960-1120	4.3	6	1.40	226	52.56	223	51.86	1	0.23	0	0.00	0	0.00	
Subtotal/Average		394.3	558	2.84	1105	12.92	693	11.78	241	1.75	36	0.24	6	0.04	
Puapua'a															
Robins et al. 1990/Barrera 1995	22-80	18.5	38	2.05	104	5.62	85	4.59	11	0.59	3	0.16	1	0.05	
Robins et al. 1994	c. 20-80	5	16	3.20	54	10.80	33	6.60	17	3.40	4	0.80		0.00	
Haun et al. 1998	38-90	21	18	0.86	166	7.90	103	4.90	39	1.86	12	0.57	3	0.14	
Landrum et al. 1990	50-255	115	46	0.40	206	1.79	50	0.43	81	0.70	11	0.10	6	0.05	
Carlson and Rosendahl 1990	180-300	65	64	0.98	138	2.12	92	1.42	18	0.28	5	0.08	1	0.02	
Walker and Rosendahl 1988/Graves and Goodfellow 1993	325-750	100	76	0.76	741	7.41	521	5.21	105	1.05	3	0.03	3	0.03	
Subtotal/Average		324.5	258	1.38	1409	5.94	884	3.86	271	1.31	38	0.29	14	0.05	
Overall Total/Average		718.8	816	2.16	2514	9.70	1683	7.82	512	1.55	74	0.27	20	0.04	

lands, but none of these *kula* claims were honored by the Board of Land Commissioners (Kelly 1983). Some *kula* lands were being converted to grazing beginning in the 1840s.

Phase V - Historic Ranching (1850-Modern Times) Land-use shifted completely to grazing, following the awards of *kula* lands to chiefs, missionaries, and others (Kelly 1983). Isolated permanent habitations on upland slopes of the *kula* were oriented to ranching. Today ranching is not as extensive as it once was. Kailua in recent years has been rapidly developing as a tourist and urban hub for leeward Hawaii Island (Schilt 1984:284).

While subsequent work has generally confirmed Schilt's chronology, the data from Haun et al. (1998) and Dye and Komori (1992) indicate a peak in dating results in the 1400-1500s and a decline after the mid-1600s. This may indicate that the increase in habitation and agricultural activity in Schilt's Phase III may have begun as much as two centuries earlier.

PROJECT EXPECTATIONS

The project area is situated in the lower portion of the *kula* zone of the Kona Field System. Prehistoric use of the project area is potentially represented by scattered temporary habitation sites, trails, and agricultural features, such as terraces, modified outcrops and mounds, dating to as early as the 1200s.

Intensive agricultural use is expected from the 1400s until the early 1800s, with a possible slight decline after the mid-1600s. A variety of agricultural features including those mentioned above and *kua'iwi*, garden enclosures, and animal pens may be present. Temporary habitations (caves, overhangs, simple walled shelters) and permanent habitation sites, usually evidenced by complexes of enclosures, terraces, or platforms, are expected, scattered among the agricultural features. Burial and religious sites are potentially present, but are relatively infrequent. Other potential site types include trails and refuge caves.

Sites dating to the mid- to late 1800s would include the agricultural and habitation sites mentioned above, although in reduced numbers owing to population decrease. Differences in agricultural sites from the previous periods may be evident as a result of a shift to a market-based economy, which presumably would favor cultivated fields as opposed to small garden plots. Walls designed to control cattle and trails or roads for horse and wagon traffic also may be present.

By the beginning of the 1900s, traditional agricultural and habitation sites should be rare. Potential sites include transportation infrastructure such as vehicle and railroads. Ranching activity, which continued until at least the mid-1900s would be evidenced by walls, corrals, and clearing piles of stone associated with pasture improvement.

FINDINGS

The archaeological survey identified 30 sites with 108 features. The sites consist of portions of 17 previously identified sites and 13 newly documented sites. The 108 features consist of modified outcrops (n=48), mounds (n=19), walls (n=10), enclosures (n=10), terraces (n=8), platforms (n=6), planting depressions (n=2), and one each of the following: pavement, *ahu*, modified knoll, cave, and cupboard. Functionally, the features consist of agriculture (n=75), permanent habitation (n=16), livestock control (n=9), temporary habitation (n=6), burial (n=1), and marker (n=1). The distribution of the identified sites and features is depicted in *Figure 5*. *Table 4* summarizes the sites present within the project area.

Subsurface testing was undertaken at eight locations during the study. The tested sites/features consists of three enclosures (Sites 23039, 23041 and 23048, Feature A), two platforms (Sites 23037 and 23047), a terrace (Site 21372, Feature F), a modified knoll (Site 23040), and a pavement (Site 23046). The results of these excavations are incorporated into the following site descriptions.

Site 5600

Site 5600 is a complex of 12 features located in Holualoa 3. The site was first observed by Barrera (1981) and was subsequently examined by Rosendahl (1978) and Wolforth et al. (1999). A total of 18 features have been documented at this site. These include five habitation enclosures (Features G, H, I, J, and K), a habitation platform (Feature A), a habitation terrace (Feature Q), a habitation wall (Feature B), three surface habitation midden scatters (Features C, D and R), a two possible burial platforms (Features E and M), a burial cave (Feature O), a burial terrace (Feature F), an isolated bedrock mortar (Feature N), an outcrop with multiple bedrock mortars (Feature L), and a *papamu* (Feature P). Of the 18 features, six (Features E, M, N, P, Q and R) were noted by Wolforth et al. (1999) as destroyed by bulldozing or stone removal. Of the 12 remaining features, only Feature J is situated within the current project area.

Feature J

Feature J (*Figure 6*) is a disturbed enclosure situated within the Alternate "A" corridor. The north and eastern sides of the feature consist of stone walls with the Site 21391 wall (discussed below) forming the western side. The southern portion of the structure has apparently been destroyed by the construction of an apartment complex. The feature is 50.0 m long (east-west) by 22.0 m wide. The walls are built of stacked subangular cobbles and small boulders and average 0.9 m wide by 0.9 m tall. The interior of the walls are core-filled. No cultural remains were observed at the feature. Feature J is altered and in poor to fair condition.

Wolforth et al. (1999) interpreted most of the features of Site 5600 to be the remnants of historic occupation associated with two LCAs, 6154:5 and 7803:2. Feature J was interpreted to be an enclosure remnant that "marks the northern boundary of a separate residential complex to the south of Site 5600" (1999:20). The wall roughly corresponds to the boundary of the northern end of TMK: 7-7-04:53. The parcel is not an LCA, but probably was an historic house lot.

Site 6302

Site 6302 is the Great Wall of Kuakini, located on the eastern edge of the project area. The portion of this wall within the project area measures c. 15 m long to the south of the Lutheran Church driveway. The wall ranges in width from 1.8 to 2.1 m at the base and 1.4 to 1.65 m at the top. The wall varies in height from 1.5 to 1.85 m and is built of stacked pahoehoe cobbles and boulders, with faced sides and a core-filled interior.

The wall's construction began in the early 1800s. Its completion in the mid-1850s is attributed to Governor Kuakini. There are two interpretations of the wall's function (a) to keep cattle and other livestock inland from the coastal habitation and agricultural areas (Kelly 1983; Schilt 1984), or (b) to keep livestock seaward of the *kula* agricultural fields (Baker 1916; Handy and Handy 1972). It is likely that the

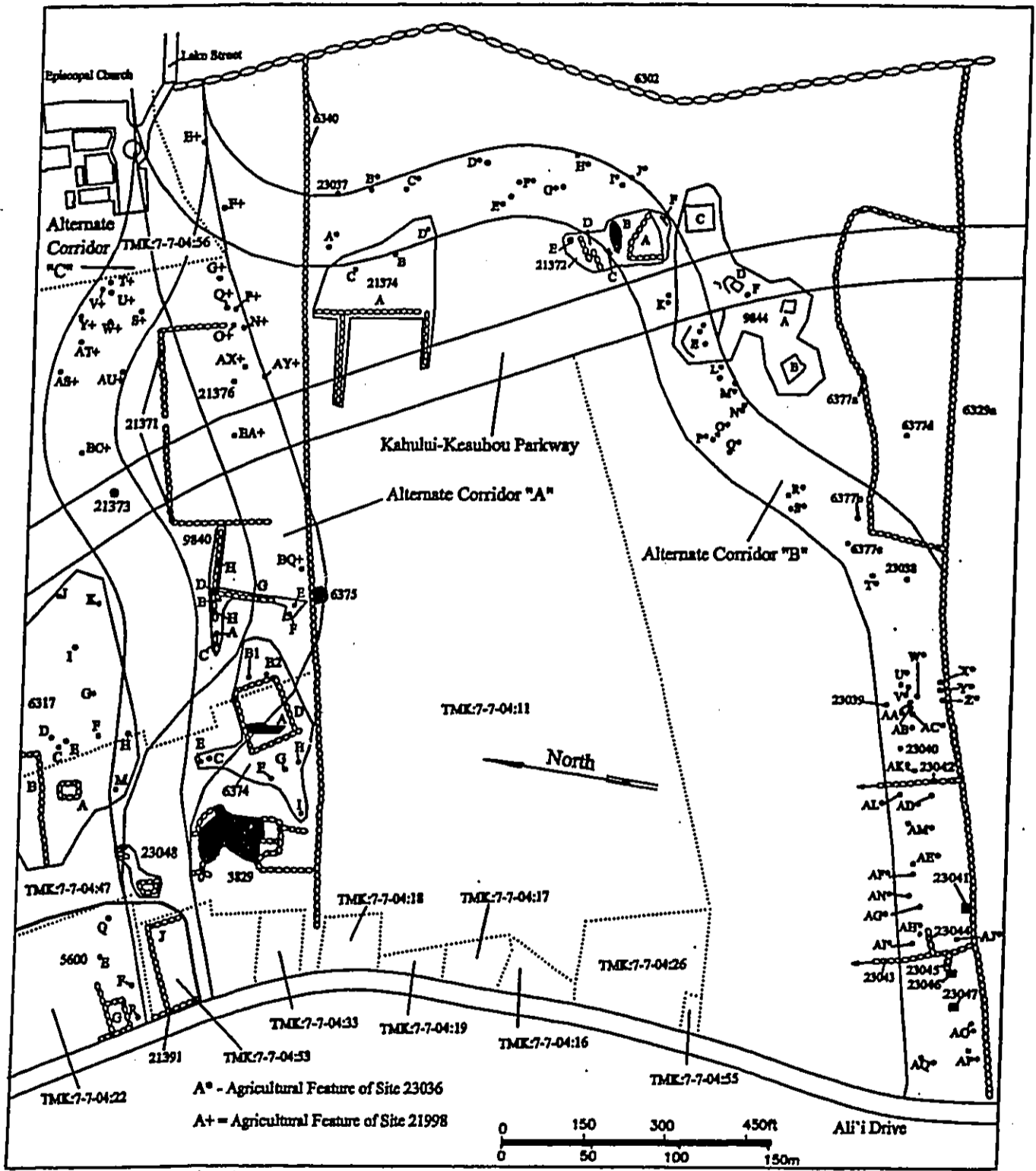


Figure 5. Site Location Map

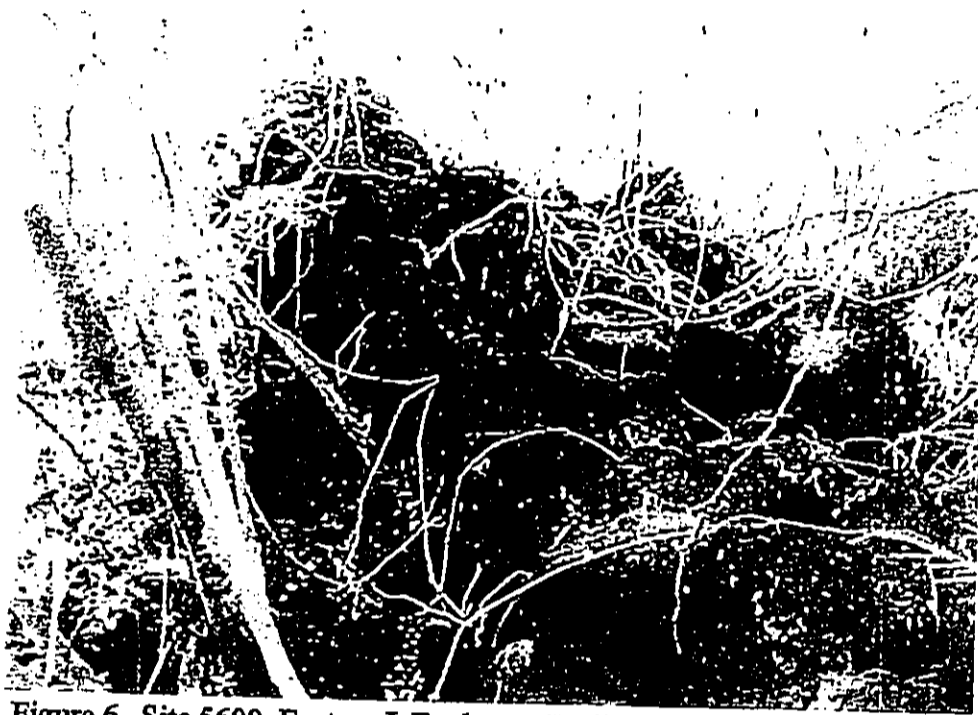


Figure 6. Site 5600, Feature J, Enclosure Wall, view to west



Figure 7. Site 6329a Wall, view to south

function of the wall changed over time as the economic importance of cattle grew, and the kinds and density of land use and settlement changed.

Site 6329

Site 6329 is a stone wall located on the boundary between Holualoa 4 and Kaumalumalu. This wall has been documented by Ching et al. (1973:11), Hommon and Rosendahl (1983:233), Dunn and Rosendahl (1991:11), and Haun et al. (1998:242). Dunn and Rosendahl (1991) identified a pavement that abuts the southern side of the wall, in Kaumalumalu, and designated it as Feature B of Site 6329 with the wall representing Feature A. The Feature A wall extends along the southern boundary of Alternate "B" Corridor. The Feature B pavement is located outside the project area boundaries.

Feature A

Feature A is constructed of stacked subangular basalt cobbles and small boulders. It varies in width at the base from 1.0 to 1.1 m and at the top from 0.7 to 0.85 m. It ranges in height from 1.13 to 1.4 m (Figure 7 and see Figure 25).

The sides of the wall are faced and the interior is core-filled with small cobbles. The location of this wall on the boundary between Holualoa 4 and Kaumalumalu indicates that it functioned as a land division boundary, although its primary function was likely to restrict the movement of cattle based on its height and method of construction. Feature A is altered and in fair condition.

Site 6317

Site 6317 is a complex of 16 features located in the Land of Holualoa 3, initially identified by Ching et al. (1973) and subsequently documented by Hommon and Rosendahl (1983), Dunn and Rosendahl (1991) and Haun et al. (1998). The site is comprised of two enclosures (Features A and C), a wall (Feature B), two mounds (Features D and E), five modified outcrops (Features F, H-J and O), a terrace (Feature G), three platforms (Features K, M and P), a petroglyph (Feature L) and a cave (Feature N; Figure 8). The site was interpreted as a permanent habitation complex with a burial feature present (Feature P) by Haun et al. (1998). Two of the Site 6317 features are located within the Alternate "C" corridor (Features H and M). These features are unaltered and in good condition.

Feature H

Feature H is a modified outcrop built of stacked and piled cobbles and small boulders, with overall dimensions of 5.0 m long by 2.5 m wide. The structure is built against the northern side of a large pahoehoe outcrop creating a terrace-like surface with scattered marine shell and basalt flakes. A large *kiawe* tree is growing out of the center of the outcrop in an area of soil. The feature was interpreted as a permanent habitation, special purpose structure by Haun et al. (1998:132). This was based on its small area (13.0 sq m) and its association with the other permanent habitation features of the site.

Feature M

Feature M is a platform located to the west of Feature H. The feature is partially built on an outcrop, with overall dimensions of 10.0 m long by 5.0 m wide. The sides of the platform are stacked cobbles and small boulders ranging in height from 0.25 to 0.66 m. Portions of the sides are faced. The surface of the feature contains two levels separated by an alignment of cobbles and boulders. The lower level is comprised of larger boulders and exposed outcrop. The upper level is roughly paved. Marine shell was noted on the surface of the structure. The feature was assigned a permanent habitation function by Haun et al. (1998:135) based on its area (50 sq m), substantial construction (faced sides, paved surface), and its association with the other permanent habitation features of the site.

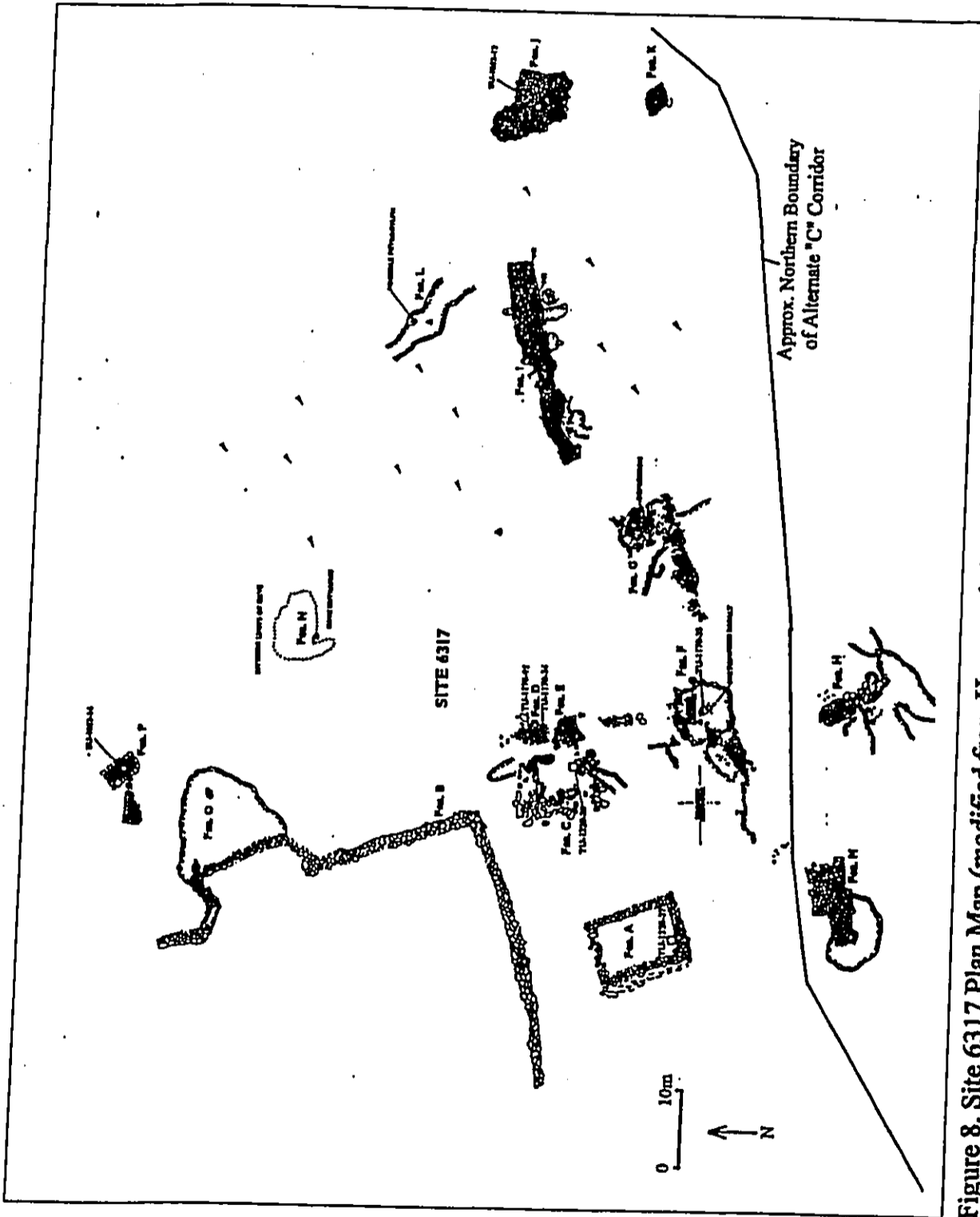


Figure 8. Site 6317 Plan Map (modified from Haun et al. 1998:118)

Site 6340

Site 6340 is a stone wall located on the boundary between Holualoa 3 and 4. It was initially recorded by Ching et al. (1973:110), and has subsequently been documented by Hommon and Rosendahl (183:231), Dunn and Rosendahl (1991:12), Haun et al. (1998:277), Wolforth et al. (1999:26), and Haun and Henry (2000:20). The wall originates on the inland side of Ali'i Drive, and extends in an easterly direction to the Great Wall of Kuakini (Site 6302). The portion of the wall immediately inland of Site 6302 appears to have been destroyed by the construction of houses in the area. The Site 6340 wall is bisected by the Alternate "A" and "B" Corridors.

The wall ranges in width at the base from 0.8 to 0.95 m, and at the top from 0.65 to 0.8 m (see *Figure 21*). It is built of stacked subangular basalt cobbles and small boulders and ranges in height from 1.08 to 1.2 m. The sides of the wall are faced and the interior is core-filled with small cobbles and pebbles. Site 6340's location indicates it was used to delineate the boundary between Holualoa 3 and 4, although it was also likely used to restrict the movement of cattle based on its height and its method of construction. Site 6340 is altered and in fair condition.

Site 6374

Site 6374 is a complex of ten features located within Holualoa 3. The site was first identified by Ching et al. as a house compound with two platforms and a terrace (1973). Hommon and Rosendahl revisited the site and confirmed the presence of these features (1983). Dunn and Rosendahl subsequently examined the site and observed a platform (Feature A), a terrace (Feature B1), three mounds (Features B2, C and E), an enclosure (Feature D), and a cairn (Feature F) (1991:15). Dunn and Rosendahl (1992:10) returned to the site to conduct subsurface testing, and reclassified Feature B2 as a terrace, and Feature E as a platform. Haun et al. (1998) later examined the site and modified the site limits. This modification resulted in reclassifying Features C, E and F as elements of the nearby Site 6327 complex (1998:393). Wolforth et al. (1999:26) subsequently examined the site and identified six new features, the majority of which were located seaward of the proposed Kahului-Keauhou Parkway. These include two modified outcrops (Features C and E), two platforms (Features F and H), a terrace (Feature G), and a mound (Feature I). These features are unaltered and in good condition. Six of the ten features within this site are situated partially within the Alternate "A" corridor. These include Features A, B1, B2, C, D, and E. The distribution of the Site 6374 features is presented in *Figure 9*.

Feature A

Feature A is a large rectangular platform situated within the western portion of the Feature D enclosure. The platform measures 19.0 m long (north-south), 3.25 to 4.8 m wide, and has a maximum height of 1.4 m. The sides of the structure are faced and are built of stacked cobbles and small boulders (Haun et al. 1998). There is a rectangular alignment of stones on top of the platform at the northern end that is 5.1 m long (north-south) by 3.2 m wide. Soil is present inside the alignment. The south and southeastern sides of Feature A are partially collapsed.

A 1.0 by 1.0 m test unit (TU-1320-39) was excavated within the rectangular alignment by Haun et al. (1998). The excavation of this unit evidenced a stone architectural layer (Layer A), above two soil deposits (Layers I and II). Layer A consisted of 0.36 to 0.5 m of cobbles and boulders with no cultural remains present. Layer I was comprised of 0.01 to 0.2 m of a black (10YR 2/1) very gravely, cobbly silt loam. Cultural remains from this deposit consisted of marine shell, a coral abrader, three basalt flakes, a volcanic glass core, six volcanic glass flakes, and charcoal. A sample of the charcoal was submitted for radiometric age determination, yielding three potential calibrated age ranges of AD 1682-1735, 1807-1935, and 1954-1955. The Layer II deposit consisted of 0.2 m of very dark brown (10YR 2/2) silt that was excavated from a narrow fissure above bedrock. No cultural remains were present in Layer II.

A second test unit (TU-1320-40) was excavated at Feature A, adjacent to the eastern wall at the southern end (Haun et al. 1998). The excavation of this revealed three soil layers over bedrock. Layer I

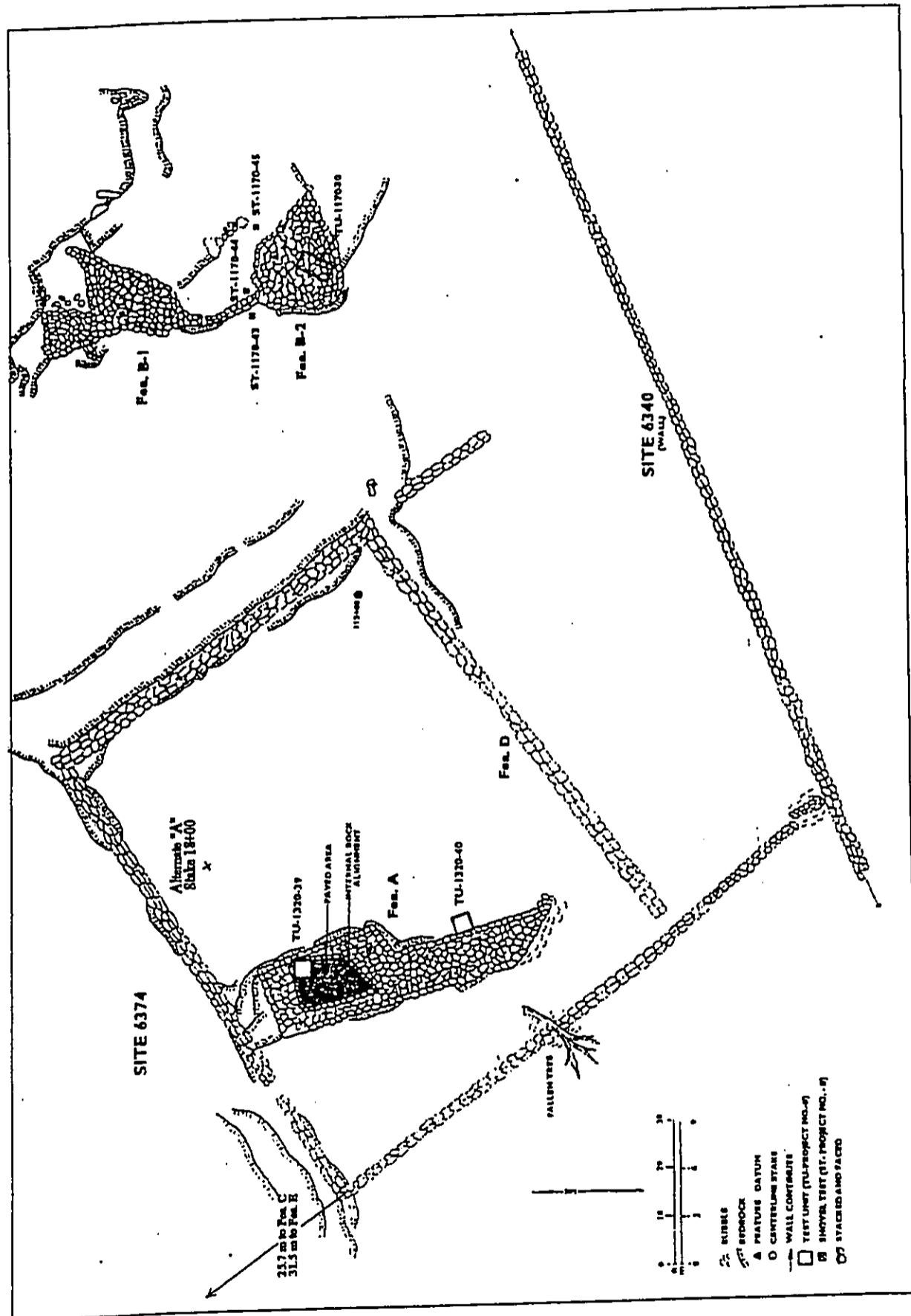


Figure 9. Site 6374 Plan Map (modified from Haun et al. 1998:394)

consisted of 0.2 m of very dark brown (10YR 2/2) gravelly, cobbly silt loam. Cultural remains from this deposit consisted of marine shell, a basalt core, a volcanic glass core and volcanic glass flakes.

Layer II consisted of 0.14 to 0.3 m of a black (10YR 2/1) gravelly, cobbly silt loam with marine shell and volcanic glass flakes. The Layer III deposit was comprised of 0.11 m of a black (7.5YR 2.5/1) silt. No cultural remains were recovered from Layer III.

Haun et al. (1998) interpreted Feature A to be a permanent habitation structure based on its substantial construction (faced walls, sub-divided surface, and paving), area (95m²), and association with other permanent habitation features. They further suggest that the feature may be a high status residence because of its large size and close proximity to the Keakealaniwahine Complex.

Feature B1

Feature B1 is a terrace located at the inland edge of the complex. The terrace is irregularly-shaped and is constructed on an exposed outcrop. It measures 10.0 m in length (north-south), 6.0 m wide and 0.7 m in height. The sides of the feature on the northeastern side are stacked and faced. This faced section extends to the east from the main feature, forming a small enclosure. The surface of the structure is level and paved. No cultural remains were observed. Haun et al. (1998) interpreted this feature as a permanent habitation structure based on its formal type, its area (60.0 sq m), and substantial construction (faced sides, paved surface).

Feature B2

Feature B2 is a terrace located to the south of Feature B1 on the same outcrop. A faced stone wall connects the two structures. Feature B2 is roughly square in shape measuring 6.0 by 6.0 m. The north side of the terrace abuts the outcrop, and the south side has been built up to a height of 1.6 m. The surface is level and is crudely paved. No cultural remains were present on the surface.

A 1.0 by 2.0 m test unit was excavated into the structure by Dunn and Rosendahl (1992). The excavation of this unit evidenced an architectural layer (Layer I) above two soil deposits (Layers II and III), over bedrock. Layer I consisted of 0.75 m of tightly packed basalt boulders, cobbles and pebbles, with marine shell, several pieces of waterworn coral and waterworn basalt cobbles. Layer II was comprised of 0.18 to 0.23 m of a brown silt loam, containing marine shell, fish, bird, and rodent bone; a coral abrader; and volcanic glass flakes. The Layer III deposit consisted of 0.1 m of very dark brown silty clay. Cultural material collected from this layer consisted of marine shell and fish bone.

Dunn and Rosendahl (1992) also excavated three shovel tests in the area surrounding Feature B2. Marine shell was present in each of the shovel tests, and volcanic glass flakes were recovered from one of them. Haun et al. (1998) interpreted Feature B2 as a permanent habitation structure based on its formal type, its area (36.0 sq m), and substantial construction (faced sides, paved surface).

Feature C

Feature C is a modified outcrop located to the north of Feature A. It is built of piled cobbles and small boulders, and is 1.7 m long, 0.5 m wide, and 0.6 m in height, constructed on an exposed outcrop. No cultural remains were present. Feature C was interpreted as an agricultural feature by Wolforth et al. (1999:26) due to its informal construction.

Feature D

Feature D is a rectangular-shaped enclosure that is 35.0 m long (northeast by southwest) by 27.0 m wide. The majority of the enclosure walls are built on exposed outcrops. These walls average 0.9 m in width and range in height from 0.4 to 1.1 m. There is an entrance into the enclosure at the southern end. The Feature A platform is situated within this enclosure. Haun et al. (1998) interpret the enclosure as a permanent habitation ancillary feature used to enclose the Feature A platform. This was based on the presence of the Feature A platform within the interior.

Feature E

Feature E is an irregularly-shaped modified outcrop located to the north of the Feature A platform, and the northwestern corner of the Feature D enclosure. The feature is 1.8 m long, 1.4 m wide and 0.4 m in height, and is constructed of piled subangular basalt cobbles and small boulders. Wolforth et al. interpreted Feature E as an agricultural feature (1999:26) based on its informal construction.

Site 6375

Site 6375 is a platform located in Holualoa 4 adjacent to the Site 6340 wall to the south. The site was first identified by Ching et al. (1973) and has subsequently been examined by Hommon and Rosendahl (1983), Dunn and Rosendahl (1991, 1992), and Haun et al (1998). The site is comprised of a rectangular-shaped platform that is 8.1 m long (north-south) by 6.6 m wide (*Figure 10*). The sides of the platform consist of stacked and faced subangular basalt cobbles and small boulders. The platform sides vary in height from 0.8 to 1.22 m. Portions of the north and east sides of the structure are collapsed. The surface of the platform is paved with small cobbles and there are two depressions present on the surface. The first depression is located at the south end of the platform, and the second is situated in the west-central portion. No surface cultural remains were observed.

A 2.0 by 2.0 m test unit (TU-1170-29) was excavated in the center of the platform by Dunn and Rosendahl (1992). The excavation of this unit revealed a stone architectural layer (Layer I), and a soil deposit (Layer II). Layer I consisted of 0.33 to 0.64 m of cobbles and boulders. Several waterworn basalt cobbles and pieces of waterworn coral were recovered from Layer I. Layer II consisted of 0.64 to 0.75 m of a dark brown silt loam. Charcoal, marine shell, non-human bone, basalt flakes and volcanic glass flakes were collected from this deposit. The excavation of this unit was terminated on bedrock. A sample of the charcoal recovered from TU-1170-29 was submitted for radiometric age determination. This sample yielded a date of AD 1655-1955.

A second unit was excavated at this site by Haun et al. (1998:402). TU-1320-41 was situated in the southern half of the structure. The excavation of this unit evidenced a stone architectural layer (Layer A) and a soil deposit (Layer I), over bedrock. Layer A consisted of 0.75 to 1.0 m of cobbles and small boulders with no cultural remains present. Layer II was comprised of 0.03 to 0.11 m of a dark brown silt loam, with several volcanic glass flakes present.

Several shovel tests were excavated in the areas surrounding Site 6375 by Dunn and Rosendahl (1992). ST-1170-46 was situated c. 2.5 m northeast of the structure, and ST-1170-47 was located 3.0 m to the east. These shovel tests evidenced a single soil deposit over bedrock. No cultural remains were present in ST-1170-47, but marine shell and basalt flakes were recovered from ST-1170-46. Site 6375 was interpreted as a permanent habitation structure by Haun et al. (1998:402). This interpretation was based on the area of the structure (53 sq m), and its substantial construction (faced sides and paved surface).

Site 6377

Site 6377 is a complex of four features located in Holualoa 4. The site was first recorded by Ching et al. (1973:96, 110), and has been subsequently recorded by Hommon and Rosendahl (1983:233), Dunn and Rosendahl (1991:15 and 1992:10), and Haun et al. (1998:415-420). The site is comprised of an enclosure (Feature A), two modified outcrops (Features B and D), and a platform (Feature C). Features B, C, and a portion of Feature A are located in the Alternate "B" corridor. The distribution of the Site 6377 features is presented in *Figure 11*. Site 6377 is altered and in fair to good condition.

Feature A

Feature A is a large enclosure that is 178.0 m long (east northeast by west southwest) by 68.0 m wide. The enclosure is formed by the Site 6329 wall on the south side, and by stacked stone walls on the north and west sides. The eastern side of the enclosure consists of a stone wall assigned SIHP Site number 21375, Feature A by Haun et al. (1998). The walls of this enclosure are faced and measure 0.8 to 0.9 m wide and from 1.0 to 1.3 m in height. The interior of the enclosure consists of an uneven and irregular

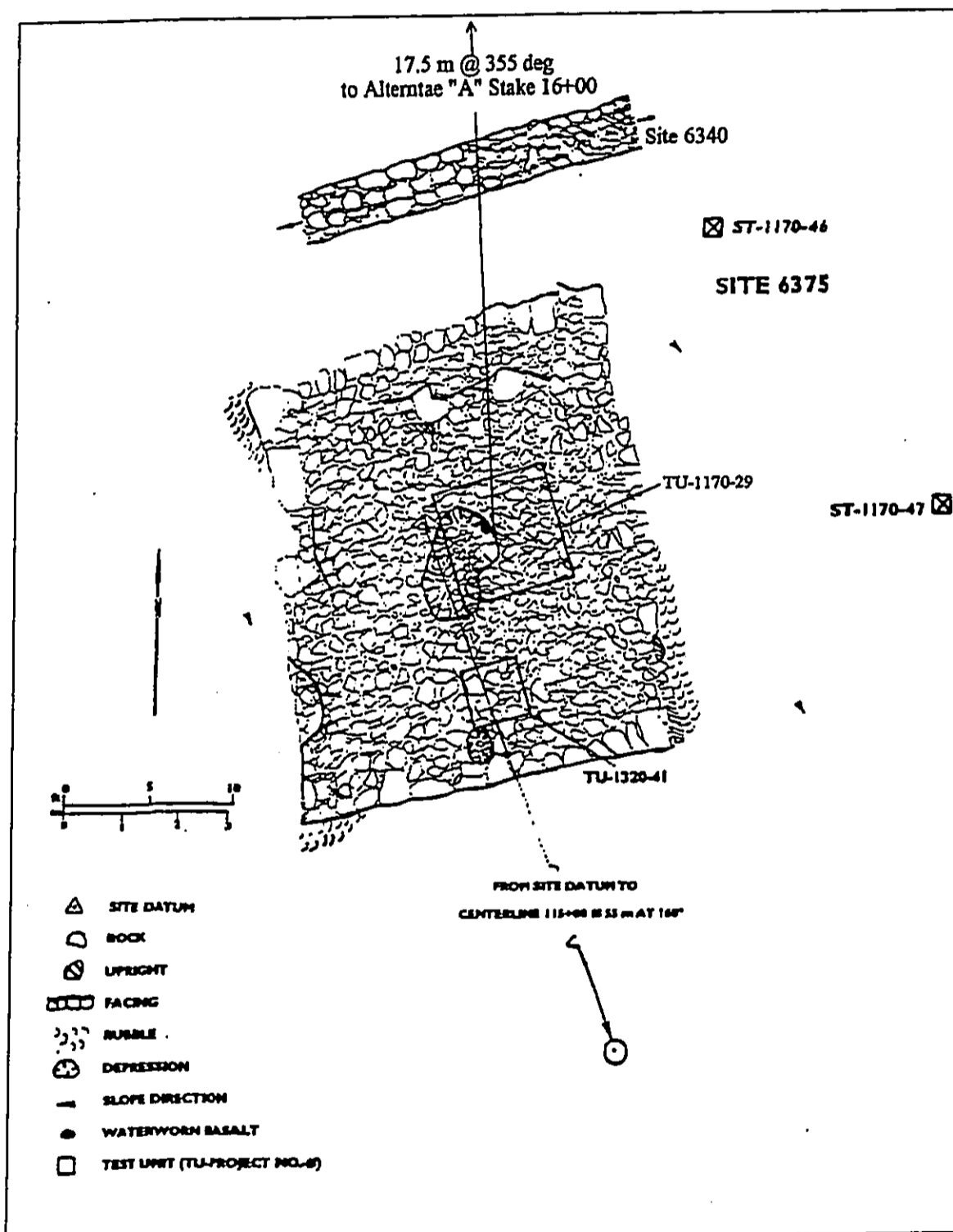


Figure 10. Site 6375 Plan Map (modified from Haun et al. 1998:403)

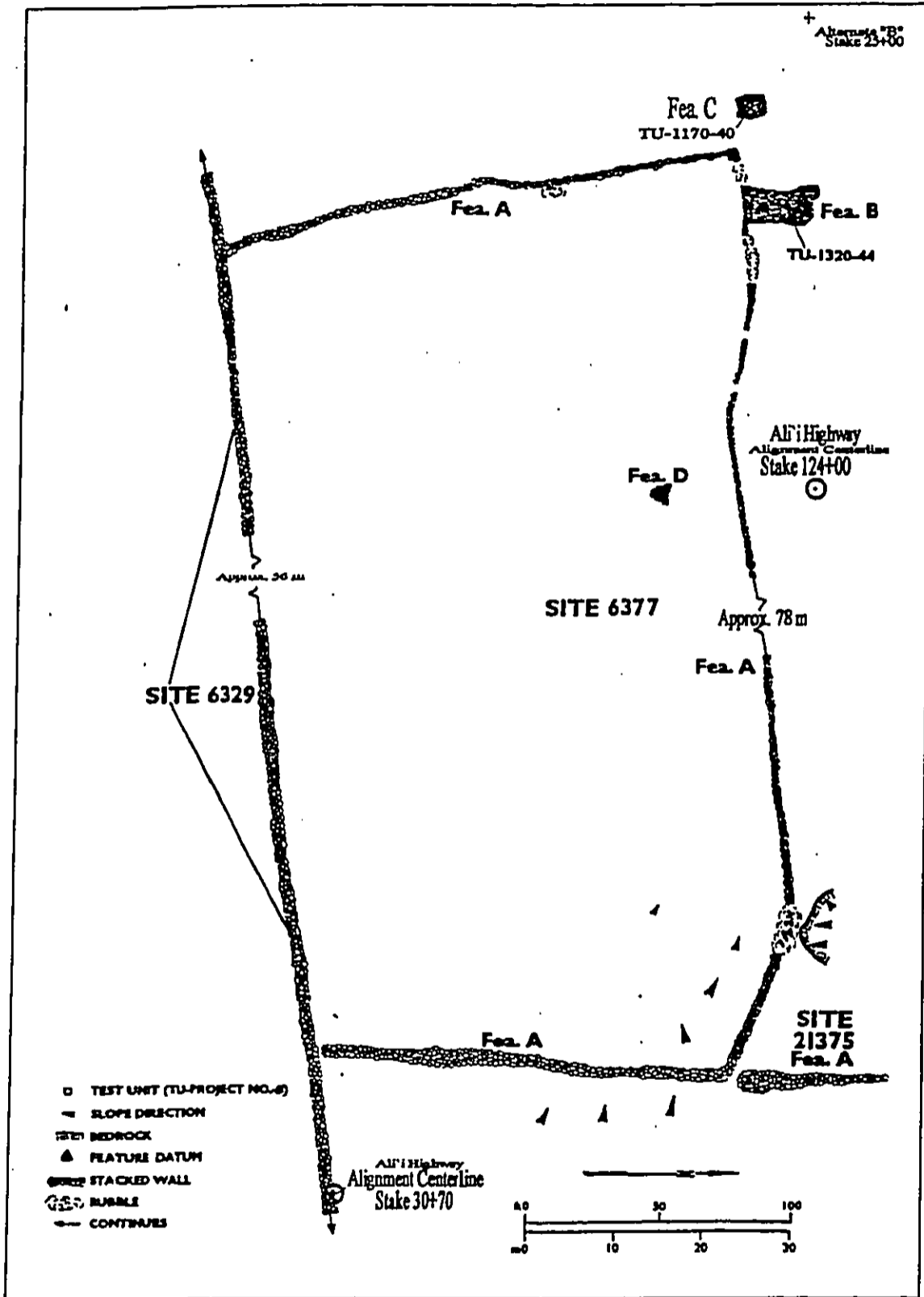


Figure 11. Site 6377 Plan Map (modified from Haun et al. 1996:416)

weathered lava flow that slopes to the west. No cultural remains have been identified within Feature A. This feature was interpreted as a livestock control enclosure by Haun et al. (1998:415) based on the height and method of construction of the walls.

Feature B

Feature B is a roughly rectangular-shaped modified outcrop that has been built against the northern side of Feature A's north wall. The structure is 9.3 m long (north-south), 4.7 m wide and 0.4 m in height. It is informally constructed of piled subangular basalt cobbles and small boulders, with an uneven, irregular surface. A 1.0 by 1.0 m test unit was excavated in the center of the feature by Haun et al (1998:417). The excavation of this unit revealed a stone layer (Layer A), over a soil deposit (Layer I), above bedrock. No cultural remains were recovered. Feature B was interpreted as an agricultural feature by Haun et al. (1998:417) based on its informal construction and absence of cultural remains.

Feature C

Feature C is a platform located west of Feature B and the northwestern corner of Feature A. It is rectangular in shape and is 3.65 m long (north-south), 3.25 m wide, and 1.05 m in height. The sides of the structure are comprised of stacked and faced subangular basalt cobbles and small boulders, and the surface is paved. A 1.0 by 1.0 m test unit was excavated into the structure by Dunn and Rosendahl (1991). This excavation revealed a stone architectural layer situated on bedrock. No cultural remains were present. This feature was interpreted as a possible temporary habitation by Haun et al (1998:417) based its formal type and small area (12.0 sq m).

Site 9840

Site 9840 is a complex of eight features located in Holualoa 3. The site was initially identified by Hommon and Rosendahl (1983) as a complex of five features. Additional work at the site by Dunn and Rosendahl (1991, 1992), and Haun et al. (1998), resulted in the identification of three additional features. The features consist of a temporary habitation platform (Feature A), a burial platform (Feature B), three agricultural walls (Features C, G and H), two agricultural modified outcrops (Features D and F), and an agricultural terrace (Feature E). Of these eight features, three are situated within the Alternate "A" corridor (Features E, F and G). The distribution of the Site 9840 features is illustrated in *Figure 12*.

Feature E

Feature E is a terrace located just north of the Site 6340 wall. This feature was initially identified by Hommon and Rosendahl (1983) as a possible burial platform; however, subsequent examination of the feature by Dunn and Rosendahl (1992) resulted in the re-interpretation of the feature as a terrace. The terrace is roughly triangular in shape with overall dimensions of 7.0 m long (north-south) by 5.0 m wide. The feature is built on the southern side of an outcrop, and has a maximum height of 0.8 m. The terrace surface is relatively level but unpaved.

Dunn and Rosendahl excavated a 1.0 by 1.0 m test unit in the northern portion of the structure. The excavation of this unit revealed a stone layer (Layer I), above three soil deposits (Layers II-IV). No cultural remains were recovered from any of the layers. The excavation of the unit was terminated on bedrock. Feature E was assigned an agricultural function by Haun et al. (1998:888) based on its informal construction and absence of cultural remains.

Feature F

Feature F is a modified outcrop situated to the west of Feature E. The feature is circular in shape (2.4 m in diameter by 0.62 m in height) and consists of subangular basalt cobbles and small boulders that have been piled on an exposed outcrop. No cultural remains were noted on the surface of the modified outcrop. Dunn and Rosendahl (1992) excavated a 1.0 by 1.0 m test unit at the northern end of the feature. This excavation revealed a stone layer (Layer I), over two soil deposits (Layers II-III), above bedrock. No cultural remains were recovered from this excavation. The feature was subsequently assigned an agricultural function by Haun et al. (1998:890) based on its informal construction and absence of cultural remains.

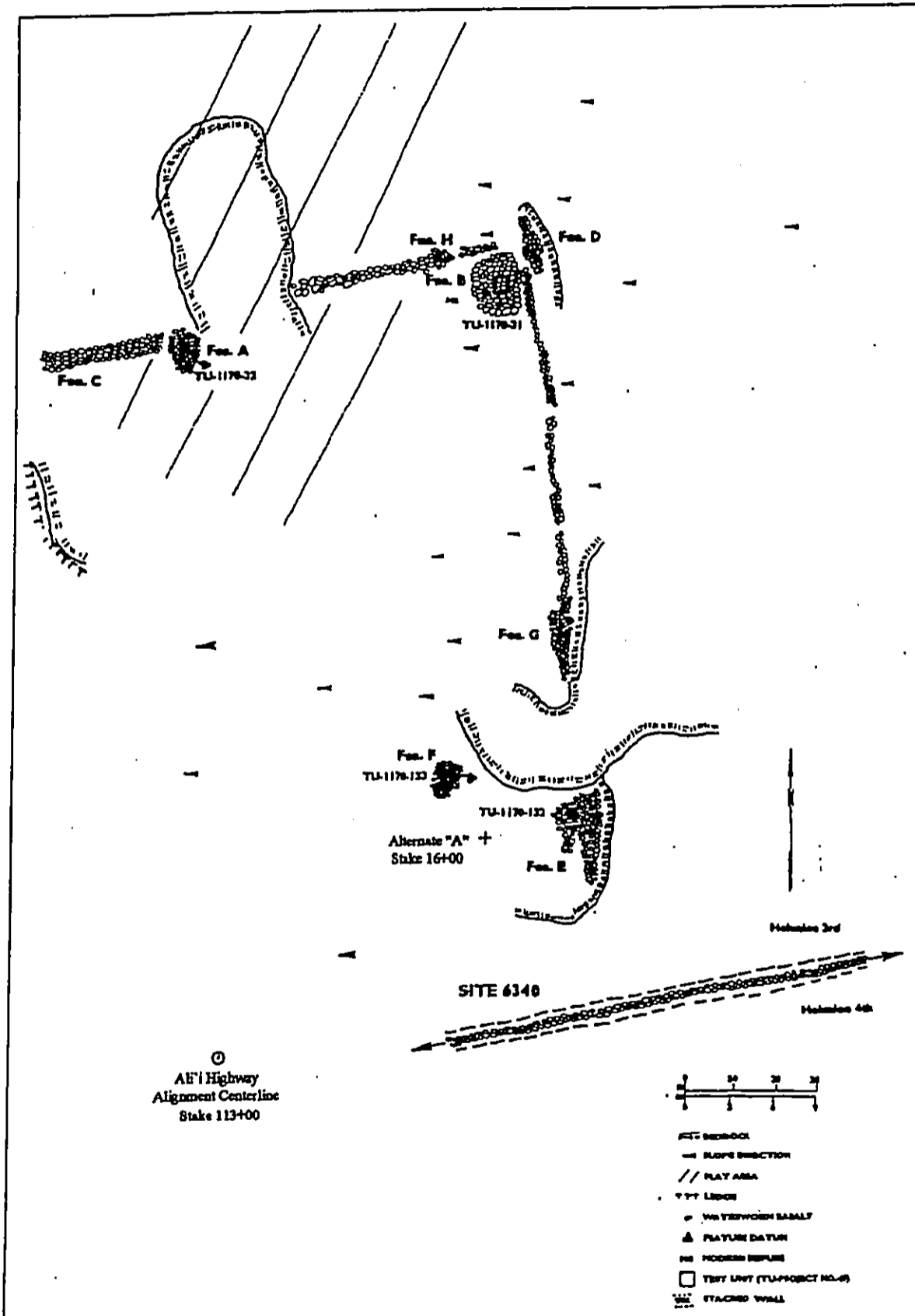


Figure 12. Site 9840 Plan Map (Modified from Haun et al. 1998:884)

Feature G

Feature G is a discontinuous stone wall located to the north of Feature E. The wall is 33.0 m in length (north-south) and originates on the northern side of the same outcrop upon which Feature E is built. The wall extends to the north from the outcrop, and terminates along the east side of the Feature B burial platform. A second wall (Feature H), extends to the west from the platform, creating an enclosed space. The Feature G wall is built of piled *a'a* cobbles and small boulders, ranging in width from 0.8 to 1.6 m, and in height from 0.63 to 1.0 m. No cultural remains were found in association with the wall. The wall was assigned an agricultural function by Haun et al. (1998:890) based on its informal construction and absence of cultural remains.

Site 9844

Site 9844 is a complex six permanent habitation features located in Holualoa 4. The site was initially identified by Hommon and Rosendahl (1983:154), and has subsequently been examined by Hammatt et al. (1990:50-54), and Haun et al. (1998:893). The features within this site consist of five enclosures (Features A-E), and a terrace (Feature F). Of these six features, only one (Feature E) is located within the Alternating "B" corridor. Haun et al. (1998) only documented two features of the site that were situated in their project area (Features D and F). Feature D is a large (501 sq m) rectangular enclosure and Feature F is a 26 sq m, rectangular enclosure. Both features were interpreted by Haun et al. (1998) to be permanent habitations based on feature area and substantial construction. Feature D probably functioned to enclose one or more residential structures.

Feature E

Feature E consists of a roughly rectangular enclosure constructed on and around several low bedrock outcrops. The enclosure is 34.5 m in length (north-northwest by south-southeast) and from 15.1 to 23.2 m wide (Figure 13). The walls are comprised of stacked and piled subangular basalt cobbles and small boulders. The walls vary in width from 0.65 to 1.6 m and in height from 0.3 to 0.72 m. There is a 1.85 m wide opening into the enclosure at the northeastern end. The structure abuts the base of a slope at the southeastern end.

There are two areas of surface cultural remains situated within the enclosure. The first is located at the northern end of the feature, measuring 7.0 m long (east-west) by 5.6 m wide. The second is situated on the eastern side of a low outcrop along the western side of the enclosure. It is 6.2 m long (north northeast by south southwest), and 3.9 m wide. Both of these areas evidence a dark brown silt loam soil with scattered, sun-bleach marine shell, and several waterworn cobbles.

There is an oval-shaped mound built on top of an outcrop in the approximate center of the enclosure. It is 6.4 m long (east-west), 3.4 m wide, and 0.8 m in height, built of piled subangular cobbles and boulders. No cultural remains were noted on the mound.

There are four small lava blister caves located within the enclosure walls (E-1 through E-4). These caves have roughly oval-shaped entrances that vary in depth below surface from 0.3 to 0.6 m. The interiors of the caves are also oval in shape and vary in length from 1.3 to 2.4 m and vary in width from 0.8 to 1.8 m. The ceilings of the caves are domed-shaped and measure from 0.31 to 0.75 m in height. No modifications to any of the caves were observed. A dark brown silt loam deposit with sparse marine shell was noted on the interior surface of each cave.

Feature E is interpreted as a permanent habitation enclosure, based on its formal type and its proximity to other permanent habitation features of Site 9844. The feature potentially functioned to delineate the boundaries of a yard which may have contained a pole and thatched roofed structure. The four small blister caves were potentially used as storage features. Feature E is unaltered and in good condition.

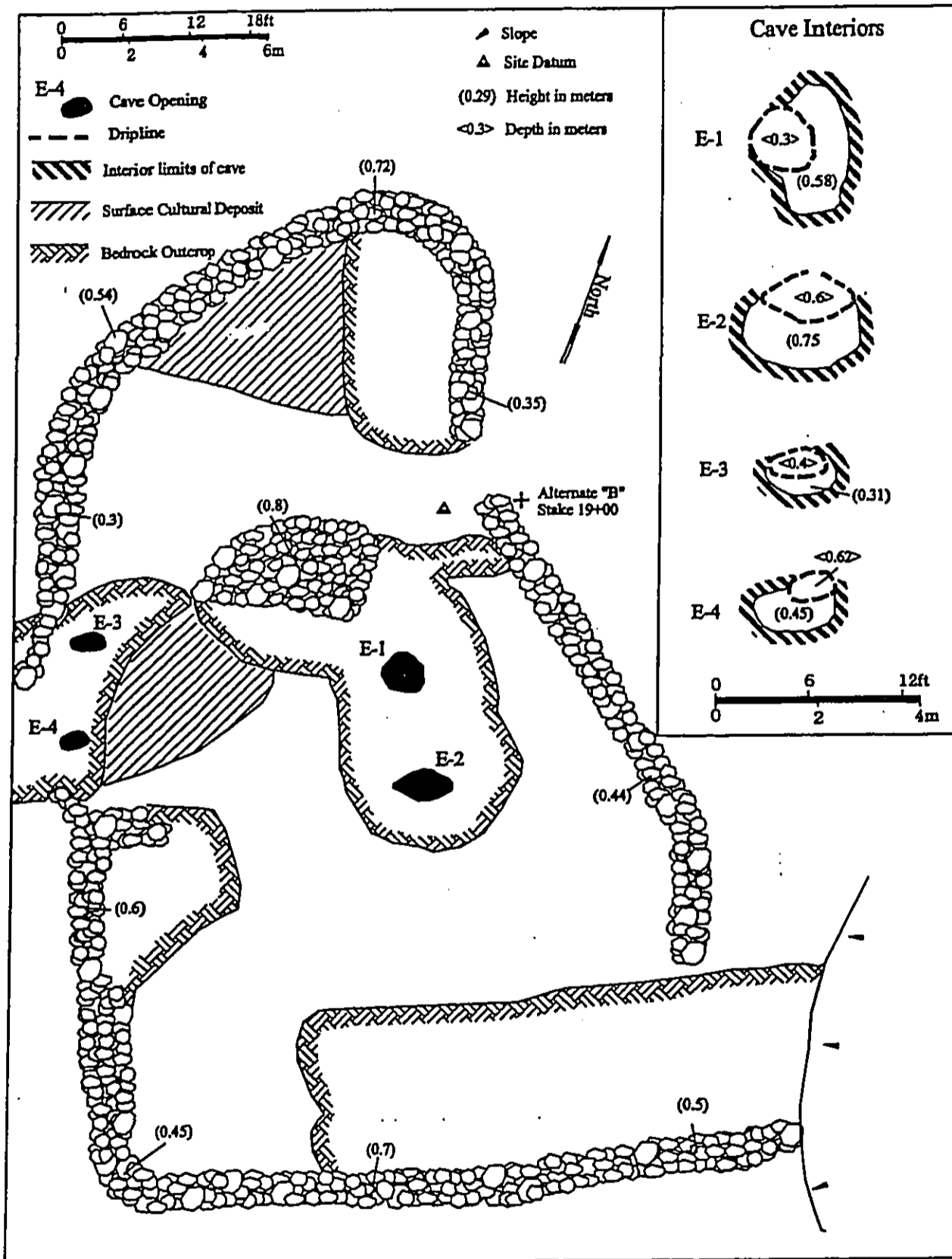


Figure 13. Site 9844, Feature E Plan Map

Site 21371

Site 21371 is situated in Holualoa 3. It was first documented by Haun et al. (1998) as a long, L-shaped livestock control wall (1998:943). A subsequent examination of the site by Haun and Henry (2000:25) indicated that it is actually a large enclosure with walls along the north, east, and west sides. The northern wall is 144.0 m long (east northeast by west southwest), the western wall is 72.0 m long (north northwest by south southeast), and the eastern wall is 47.0 m long (north northwest by south southeast). The enclosure walls are collapsed along most of their length ranging in width from 1.1 to 1.4 m, and in height from 0.45 to 0.6 m. Intact sections of stacked and unfaced cobbles and boulders were identified, indicating that the walls originally averaged 0.9 m in width and 0.85 to 0.9 m in height. Haun and Henry's examination of the structure indicated that, "The collapsed condition of the walls, which partially enclose a soil-covered swale, suggest the walls pre-date ranching activity and probably represent a garden enclosure' (2000:25). The site is altered and in poor condition. Portions of the inland and seaward walls of the enclosure are located within the Alternate "A" corridor.

Site 21372

Site 21372 is a complex of six features located within Holualoa 4. The site was assigned a SIHP site number by Haun et al. (1998:943), but was initially documented by Hammett et al. (1990:54, 55 and 59), as four separate sites (Temporary site numbers 80, 82, 85 and 86). The component features include an enclosure (Feature A), a cave (Feature B), a terrace (Feature C), a wall (Feature D), and a cupboard (Feature E). A sixth feature (Feature F) was noted during the current study. This feature was located outside of Haun et al.'s (1998) study area and was not recorded during that survey. All six features are situated at least partially within the Alternate "B" corridor. The distribution of the Site 21372 features is depicted in *Figure 14*. The site is unaltered and in fair condition.

Feature A

Feature A is a large stone enclosure comprised of walls that form the north, west, and northeastern sides with a stacked stone terrace at the base of a bluff forming the southern and southeastern sides. The walls are constructed of stacked subangular cobbles and small boulders. The walls range in width at the base from 0.7 to 0.9 m and at the top from 0.5 to 0.65 m. The height of the walls vary from 0.4 to 0.75 m. The interior surface of the enclosure is a dark brown silt loam with scattered sun-bleached marine shells and waterworn basalt cobbles.

A low stone terrace is situated within the enclosure abutting the southern side of the northern wall. This terrace is roughly triangular in shape. It is 6.0 m in length (northwest by southeast), 5.5 m wide, and from 0.3 to 0.4 m in height above the floor of the enclosure. A 1.0 by 1.0 m test unit was excavated into the terrace by Haun et al. (1998:946). This excavation revealed two soil deposits over bedrock. Layer I consisted of 0.25 m of a very dark grayish brown silt with cultural materials that consisted of marine shell, basalt flakes, volcanic glass, and charcoal. A sample of the charcoal was submitted for radiometric age determination yielding multiple age ranges of AD 1491-1604, and 1609-1894. Layer II was comprised of 0.15 m of a dark yellowish brown silt, with no cultural remains present. The feature was interpreted as a permanent habitation feature used to enclose the internal terrace by Haun et al. (1998:946). This was based on its substantial construction (faced sides, core-filled walls) and its association with the other permanent habitation features of the site.

Feature B

Feature B is a cave that was interpreted as an ancillary feature associated with the permanent habitation of this site (Haun et al. 1998:948) based on its proximity to the other features of the site. The entrance to the cave is located 5.0 m north of Feature A. It has an opening that is 2.2 m long (northeast by southwest), 1.75 m wide, and 1.85 m deep. A large boulder is located within the entrance, partially blocking it. The interior of the cave is roughly oval in shape, measuring 21.6 m long (northeast by southwest), from 2.0 to 8.6 m wide, with ceiling heights that vary from 0.2 to 1.1 m. The floor of the cave has a soil

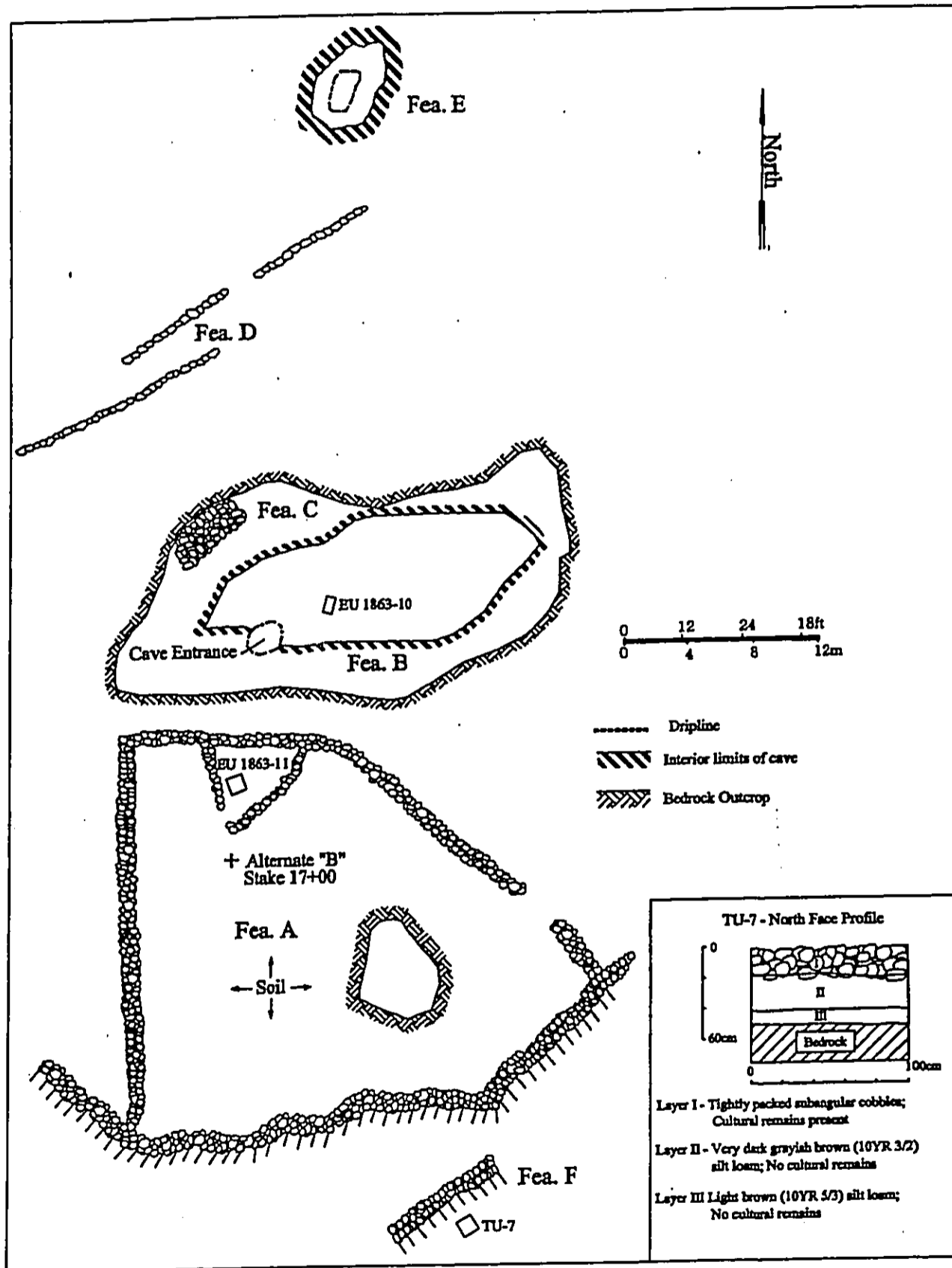


Figure 14. Site 21372 Plan Map (modified from Haun et al. 1998:945)

deposit with a surface scatter of marine shell, *kukui* nut, pig bones, waterworn basalt cobbles and coral, and several stone and coral tools.

A 1.0 by 0.5 m test unit was excavated within the cave by Haun et al (1998:948). The excavation revealed two soil deposits over bedrock. Layer I consisted of 0.11 m of a very dark grayish brown loamy silt, with marine shell, charcoal, and a perforated shell bead. A sample of the charcoal from Layer I was submitted for radiometric age determination yielding a dated age range of 1647-1955. The Layer II deposit consisted of 0.01 m of a yellowish brown silt with no cultural remains.

Feature C

Feature C is a stone terrace that is situated 6.5 m north-northwest of the entrance to Feature B. The feature is roughly rectangular in shape, and is 4.9 m long north-northeast by south-southwest, 2.1 m in width, and from 0.25 to 0.11 in height. The west and northwestern sides of the structure consist of a retaining wall built of piled cobbles and boulders. Waterworn coral and basalt cobbles, and marine shell were noted on the surface of the structure. Haun et al. (1998) interpreted Feature C as the foundation for a special purpose permanent habitation structure based on its small area (10.0 sq m) and its association with the other permanent habitation features of the site.

Feature D

Feature D consists of two parallel alignments of small pahoehoe cobbles and boulders that are positioned on the north and south sides of a low soil berm. The alignments are spaced from 2.0 to 2.6 m apart, and are discontinuous with an overall length of 25.4 m. The soil berm varies in height from 0.36 to 0.42. The feature has been interpreted as a possible *kuaiwi* by Hammatt et al. (1990), and Haun et al. (1998) based on its formal type and absence of cultural remains.

Feature E

Feature E is a collapsed lava blister located at the northern end of the site. There are two small openings into the interior; one at the north end and one at the south end. The interior of the blister is 2.0 m long (north-south) and 1.7 m wide with a ceiling height that ranges from 0.3 to 0.6 m. A single marine shell fragment and a *kukui* nut were observed within the interior. Haun et al. interpreted Feature E as a probable storage feature that was used in association with the permanent habitation of Site 21372 (1998:950), based on its formal type and proximity to the other permanent habitation features of the site.

Feature F

Feature F is a stone terrace located on the side of a bluff to the south of the Feature A enclosure. The terrace is 3.4 m long (northeast by southwest) and is built up on the northwestern side to a height of 0.45 m. The surface of the terrace is relatively level and is crudely paved with small cobbles. No cultural remains were observed on the surface of the terrace.

A 1.0 by 1.0 m test unit (TU-7) was excavated into the surface of the terrace during the current project. The excavation revealed a stone architectural layer (Layer I) over two soil deposits (Layers II and III; see Figure 14). Layer I consisted of 0.2 to 0.23 m of tightly packed subangular basalt cobbles. A basalt flake (5 grams; 3.2 cm long, 2.4 cm wide and 0.6 cm thick), and a fragment of *Cellana* shell (1.6 grams) were recovered from Layer I. The base of Layer I extended into the Layer II soil deposit. No evidence was found to suggest that the architectural layer had been built during more than a single construction episode. No cultural materials were present in Layers II or III. The excavation of TU-7 was terminated on bedrock. Feature F is interpreted as an ancillary feature associated with the permanent habitation of Site 21372, based on the presence of the cultural remains, and its proximity to the other permanent habitation features of the site.

Site 21373

Site 21373 is a terrace initially identified by Haun et al. (1998:950) and subsequently relocated identified by Haun and Henry (2000:25). It is comprised of an L-shaped alignment of pahoehoe boulders

and cobbles, built on the side of a gentle slope that slopes to the southwest, at c. 58 ft elevation within the Alternate "C" corridor. The long axis of the terrace is c. 5.7 m long (NW/SE), and the short axis is 1.6 m long. Pahoehoe outcrops are present on the upslope side of the terrace to the north. The height of the retaining walls vary from 0.3 to 0.5 m. The surface of the terrace consists of a level soil deposit. No cultural remains were present. This site was interpreted as an agricultural planting area by Haun et al. based on its "formal type, informal construction and lack of habitation debris" (1998:950).

Site 21374

Site 21374 is a complex of four features located in Holualoa 4. Portions of this site were first identified by Hammatt et al. (1990: 84-85), and assigned three separate temporary designations (Sites 134, 136 and 137). Haun et al. (1998) subsequently examined this site, assigning it its current SIHP designation. The site is comprised of a livestock enclosure (Feature A), two agricultural modified outcrops (Features B and D), and an agricultural mound (Feature C). However, only one of the features (Feature D) is situated within the Alternate "B" corridor.

Feature D

Feature D consists of an irregularly-shaped pile of subangular basalt cobbles and small boulders, situated on a pahoehoe outcrop. It is 2.8 m in length (east-west), 1.3 m wide, and from 0.2 to 0.65 m in height. No cultural remains were observed. The feature was assigned an agricultural function by Haun et al. (1998:954) based on its formal type, informal construction and absence of cultural remains. It is unaltered and in fair condition.

Site 21376

Site 21376 is a modified outcrop first recorded by Haun et al. (1998:959), and subsequently documented by Haun and Henry (2000:25). The outcrop is situated in Holualoa 3, at 65 ft elevation in the Alternate "A" corridor. The modification consists of an irregularly-shaped pile of subangular basalt cobbles and small boulders measuring 2.9 m long (north-northeast by south-southwest), 2.0 m in width and 0.55 m in height. No cultural remains were present. The site was assigned an agricultural function by Haun et al. (1998) based on its formal type, informal construction and absence of cultural remains. Site 21376 is unaltered and in fair condition.

Site 21391

Site 21391 is a stone wall situated on the inland side of Ali'i Drive. Portions of this wall have been documented during previous projects in the vicinity of the current study area (Henry and Wolforth 1998; Wolforth et al. 1999). The wall is built of stacked subangular cobbles and small boulders, measuring 0.7 to 0.8 m wide and 0.9 m in height. The interior of the wall is core-filled with small cobbles and pebbles. Wolforth et al. (1999) indicate that this wall forms the seaward boundary of LCA 6254:5, and was therefore built in the early 1800s, despite the fact that the wall extends a considerable distance to the south, away from this awarded parcel. The wall likely functioned to restrict the movement of cattle based on its height and method of construction.

A portion of Site 21391 is situated at the seaward end of the Alternate "A" corridor, at the c. 10 ft elevation. The wall has apparently been destroyed in the area surrounding the seaward end of the Alternate "B" corridor.

Site 21998

Site 21998 is a complex of 72 features located within Holualoa 3 that was initially identified by Haun and Henry (2000:27-30) as agricultural elements of the Kona Field System. These features consisted of mounds, modified outcrops and terraces. Of these 72 features, 21 are located within the corridors examined during the current study. These features include 18 modified outcrops and three mounds. The modified outcrops consist of Features F, G, N, Q, S, T, U, V, W, Y, AS, AT, AU, AX, AY, BA, BC and BQ. They range in length from 1.1 to 5.2 m (averaging 2.46 m), in width from 0.4 to 2.5 (averaging 1.24 m), and in

height from 0.3 to 0.85 m (averaging 0.53 m). These features include 17 that are irregularly-shaped and one that is linear (Feature AY).

The three mounds (Features E, O and P) are all oval in shape, ranging in length from 1.3 to 5.2 m (averaging 2.97 m), in width from 1.0 to 2.5 m (averaging 1.57 m), and in height from 0.4 to 0.85 m (averaging 0.57 m). Morphological and metric attributes for all 21 features are presented in Haun and Henry (2000:29-30). Of the 21 features within the current project area, nine are situated within the Alternate "A" corridor (Features G, O, P, N, Q, AX, AY, BA, BQ), one is within the Alternate "B" corridor (Feature F) and ten are within the Alternate "C" corridor (Features S, T, U, V, W, Y, AS, AT, AU, and BC). The remaining feature (Feature E) is situated within the intersection of the three proposed corridors, east of the Episcopal Church.

Site 23036

Site 23036 is a complex of 43 agricultural features located in Holualoa 4, within the Alternate "B" corridor. The features consist of 23 modified outcrops, 16 mounds, two terraces, and two possible planting depressions. Of these 43 features, 12 were first noted by Hammatt et al. (1990). The remaining features were identified during the current study. The mounds and modified outcrops are comprised of piles of stones that were likely cleared from nearby planting areas. The terraces were crudely constructed of piled stones, functioning to retain level soil areas on the side of slopes for planting. The planting depressions are shallow holes in the surface lava from which stones have been removed and placed around the edges. No cultural remains were noted at any of the features. These features are unaltered and in fair to good condition. Table 5 summarizes the type, size and shape of the Site 23036 agricultural features. The distribution of these features is presented in Figure 5.

Modified Outcrops

The survey identified 23 modified outcrops, five of which were previously noted by Hammatt et al. (1990) (Features T, W, AL, AN, and AP). These features range in length from 1.2 to 10.75 m (average of 3.1 m), in width from 0.9 to 6.25 m (average of 1.9 m), and in height from 0.25 to 1.2 m (average of 0.56 m). The shape of the modified outcrops consist of irregular (n=12), oval (n=6), circular (n=3), linear (n=1), and rectangular (n=1). Examples of the Site 23036 modified outcrops are presented in Figures 15 and 16.

Mounds

Mounds were located in 16 locations within Holualoa 4. Hammatt et al. (1990) previously identified three of these 16 mounds (Features AD, AE and AG). The mounds vary in length from 1.4 to 4.3 m (average of 2.75 m), in width from 0.75 to 3.0 m (average of 1.7 m), and in height from 0.3 to 0.68 m (average of 0.48 m). The majority of these features are oval in shape (n=7) with the remaining features being irregular (n=5), linear (n=2), rectangular (n=1), and circular (n=1) in shape. Figures 17 and 18 illustrate examples of the Site 23036 mounds.

Terraces

The survey identified two terraces (Features R and AO), both of which were previously noted by Hammatt et al. (1990). These features range in length from 3.3 to 5.5 m, and in width from 1.5 to 3.0 m. The upslope sides of these terraces are level with the surrounding ground surface and the downslope sides vary in height from 0.65 to 0.75 m. The surface of both of these features are uneven and unpaved. Feature R is depicted in Figure 19.

Planting Depressions

Two planting depressions were noted within Site 23036 (Features AM and AQ). Both of these features had been previously observed by Hammatt et al. (1990). These depressions are both oval-shaped, measuring from 1.5 to 3.2 m long, 0.85 to 1.3 m wide and 0.55 to 0.7 m deep below the surrounding ground surface. Both features evidence crudely piled stones around their perimeters. Feature AQ is depicted in Figure 20.

Table 5. Summary of Site 23036 Agricultural Features

Feature	Formal Type	Length	Width	Height	Shape	Temp. Field No.	Hammatt et al. (1990) Field No.
A	Mound	1.8	1.35	0.43	Irregular	2	
B	Modified outcrop	3	1.3	0.5	Rectangular	30	
C	Modified outcrop	2.4	1.8	0.5	Oval	31	
D	Modified outcrop	2.5	1.5	0.45	Oval	33	
E	Modified outcrop	2.5	2	0.52	Oval	4	
F	Modified outcrop	2.2	1.2	0.35	Irregular	3	
G	Mound	2.1	1.1	0.35	Oval	5	
H	Modified outcrop	2.1	1.1	0.3	Oval	34	
I	Modified outcrop	1.5	1.2	0.6	Irregular	35	
J	Modified outcrop	2.5	2.5	0.7	Circular	36	
K	Modified outcrop	1.2	1	0.43	Irregular	6	
L	Modified outcrop	2	1.5	0.35	Irregular	38	
M	Modified outcrop	1.9	1.9	0.3	Circular	39	
N	Modified outcrop	2.5	0.9	0.6	Irregular	40	
O	Modified outcrop	1.3	1	0.65	Irregular	9	
P	Modified outcrop	1.6	0.95	0.6	Irregular	8	
Q	Mound	3	2	0.35	Oval	9a	
R	Terrace	5.5	1.5	0.0-0.75	Linear	11	CSH-93
S	Modified outcrop	2.75	1.5	0.5	Irregular	10	CSH-63
T	Modified outcrop	8.1	6.25	0.82	Irregular	12	
U	Mound	4	2.5	0.62	Irregular	14	
V	Mound	1.8	0.75	0.35	Irregular	15	
W	Modified outcrop	2.2	1.45	0.45	Irregular	16	CSH-52
X	Mound	1.4	1.4	0.3	Circular	41	
Y	Mound	3.4	1.5	0.35	Rectangular	43	
Z	Modified outcrop	2.5	2.5	0.25	Circular	44	
AA	Mound	4.3	2.5	0.68	Linear	18	
AB	Mound	4	2.25	0.45	Linear	17	
AC	Modified outcrop	3.1	2.2	0.45	Oval	19	
AD	Mound	3.6	3	0.65	Oval	21	CSH-42
AE	Mound	3.5	3	0.45	Oval	46	CSH-31
AF	Mound	2.5	2	0.53	Oval	47	
AG	Mound	1.5	1	0.65	Irregular	23	CSH-27
AH	Mound	1.7	1.3	0.65	Oval	24	
AI	Modified outcrop	3.5	2	1.1	Irregular	49	
AJ	Mound	1.8	1	0.45	Oval	26	
AK	Mound	3.5	0.75	0.45	Irregular	20	
AL	Modified outcrop	1.5	1	0.35	Oval	56	CSH-43
AM	Planting depression	3.2	0.85	-0.7	Oval	57	CSH-40
AN	Modified outcrop	10.75	2.25	1.2	Linear	48	CSH-28
AO	Terrace	3.3	3	0.0-0.65	Rectangular	58	CSH-11
AP	Modified outcrop	3	2.7	0.62	Irregular	59	CSH-13
AQ	Planting depression	1.5	1.3	-0.55	Oval	60	CSH-10



Figure 15. Site 23036, Feature F Modified Outcrop, view to northeast



Figure 16. Site 23036, Feature S Modified Outcrop, view to southwest



Figure 17. Site 23036, Feature G Mound, view to north



Figure 18. Site 23036, Feature V, view to northwest



Figure 19. Site 23036, Feature R Terrace, view to southwest



Figure 20. Site 23036, Feature AQ Planting Depression, view to east

Site 23037

Site 23037 is a platform located in Holualoa 4. This site was first recorded by Hammatt et al. as a modified outcrop interpreted as a possible burial site (1990:85) and designated as CSH 138. The feature is constructed on an exposed outcrop, but because the structure has stacked or piled sides around its perimeter, it was designated a platform rather than a modified outcrop during the current study. The platform is roughly rectangular in shape measuring 6.35 m long (north-northwest by south-southeast) and from 1.52 to 2.58 m wide (Figure 21). The surface of the structure is level and is roughly paved with small cobbles. It varies in height above the outcrop from 0.35 to 0.8 m. Hammatt et al. observed a piece of coral on the surface; however, no cultural remains were noted during the present project.

A 1.0 by 1.0 m test unit (TU-5) was excavated into the center of the platform during the project. The excavation of this unit evidenced a stone architectural layer overlying bedrock (see Figure 21). Layer I consisted of 0.39 to 0.46 m of tightly packed subangular basalt cobbles and small boulders. No evidence was found to suggest that Layer I had been built during more than a single construction episode. Cultural remains recovered from TU-5 consisted of a single piece of marine shell (*Cypraeidae*, n=1, 15.8 grams). Site 23037 is interpreted as a temporary habitation based on its small area (c. 13 m²) and lack of substantial construction. The site is unaltered and in good condition.

Site 23038

Site 23038 is a well-built mound located in Holualoa 4. This site was first noted by Hammatt et al. (1990:44) as CSH Site 57. It is oval in shape and measures 1.2 m in length, 0.72 m in width and 0.65 m tall (Figure 22). Site 23038 is constructed of stacked subangular basalt cobbles, small boulders and slabs. No cultural remains were observed. The shape and size of this site suggests it is an *ahu*, likely functioning as a marker.

Site 23039

Site 23039 is a U-shaped enclosure located in Holualoa 4. The site was first identified by Hammatt et al. (1990:41) as an agricultural or possible habitation site and designated as CSH Site 50. The enclosure is open on the western side, and has overall dimensions of 5.6 m long (east-west) and 4.7 m wide, with walls built of stacked and piled subangular basalt cobbles and small boulders (Figure 23). The walls range in width from 0.93 to 1.6 m, and in height from 0.3 to 0.68 m. The interior of the enclosure is 3.0 m long (east-west) and 1.85 m wide. The interior surface is a dark brown to black silt loam. A waterworn cobble is present on top of the wall at the western end and a blue glass bottle is located adjacent to the structure to the east.

A 0.5 by 0.5 m test unit (TU-4) was excavated into the center of the interior soil area. The excavation of this unit revealed two soil layers over bedrock (see Figure 23). Layer I consisted of 0.18 to 0.22 m of a black (10YR 2/1) silt loam with marine shell (*Cypraeidae*, n=4, 2.5 grams, *Cellana sp.*, n=1, 0.55 grams, *Theodoxus sp.*, n=1, 0.2 grams, *Conidae*, n=1, 1.3 grams, *Planaxis labiosa*, n=6, 1.2 grams, and unidentified marine shell fragments, n=4, 1.95 grams), a volcanic glass flake (0.65 grams), and charcoal (1.2 grams). Layer II consisted of 0.08 to 0.11 m of a dark yellowish brown (10YR 4/4) silt, with no cultural remains. Site 23039 is interpreted as a temporary habitation structure, based on its formal type, its relatively small size, and insubstantial construction.

Site 23040

Site 23040 is a modified knoll located in Holualoa 4. The site was initially identified as a modified outcrop by Hammatt et al. (1990:39) and designated as CSH Site 44. The lava knoll is roughly oval in shape and measures 7.3 m in length (north-south) and 6.4 m wide (Figure 24). Basalt cobbles and small boulders have been piled around the north and western side of the outcrop to a maximum height of 1.1 m above the surrounding ground surface. There is a well constructed terrace that has been built against the eastern side of the outcrop that is roughly oval in shape measuring 3.0 m long (northwest by southeast) and

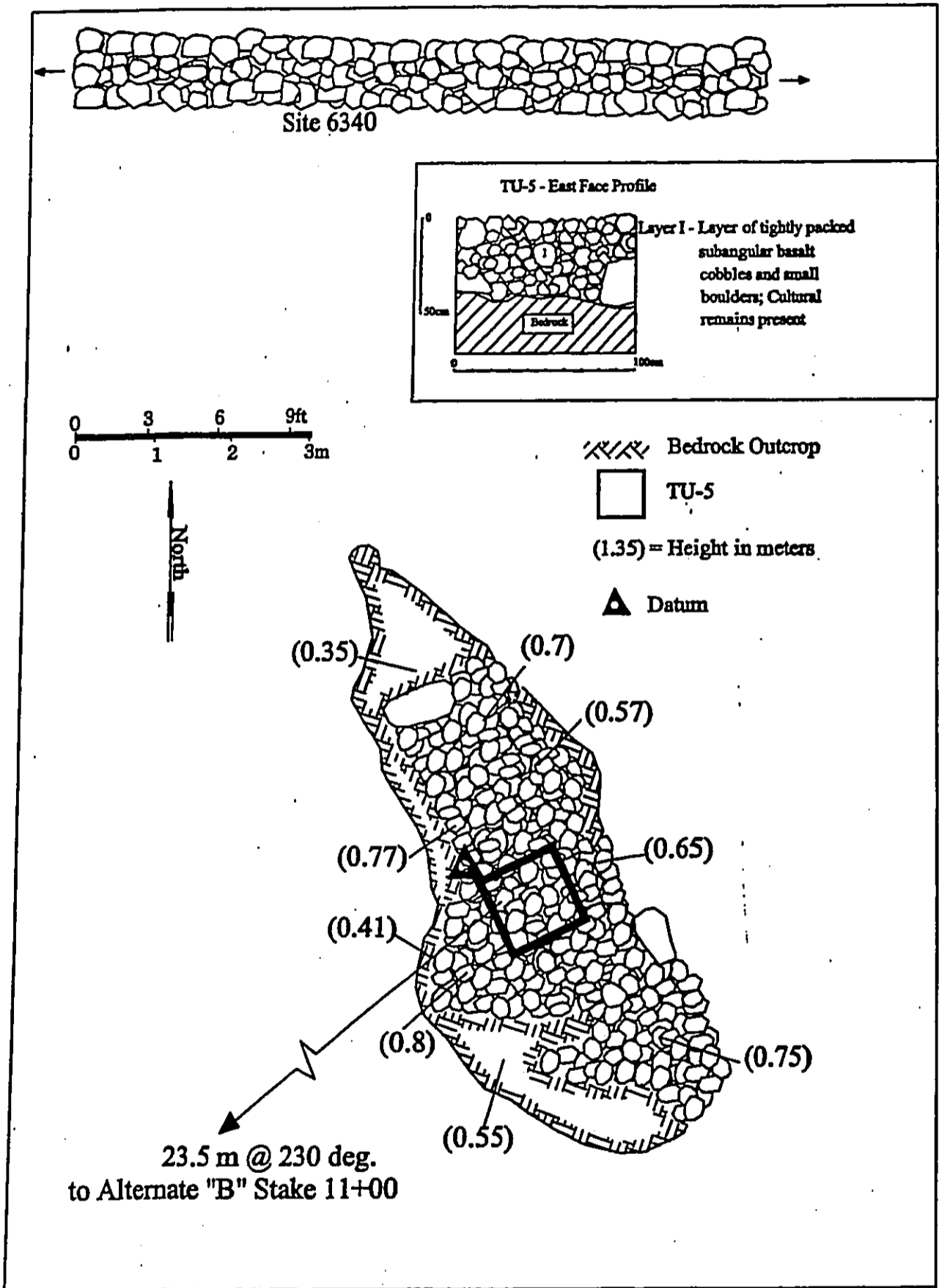


Figure 21. Site 23037 (showing Site 6340), and TU-5 East Face Profile



Figure 22. Site 23038 Ahu, view to southeast

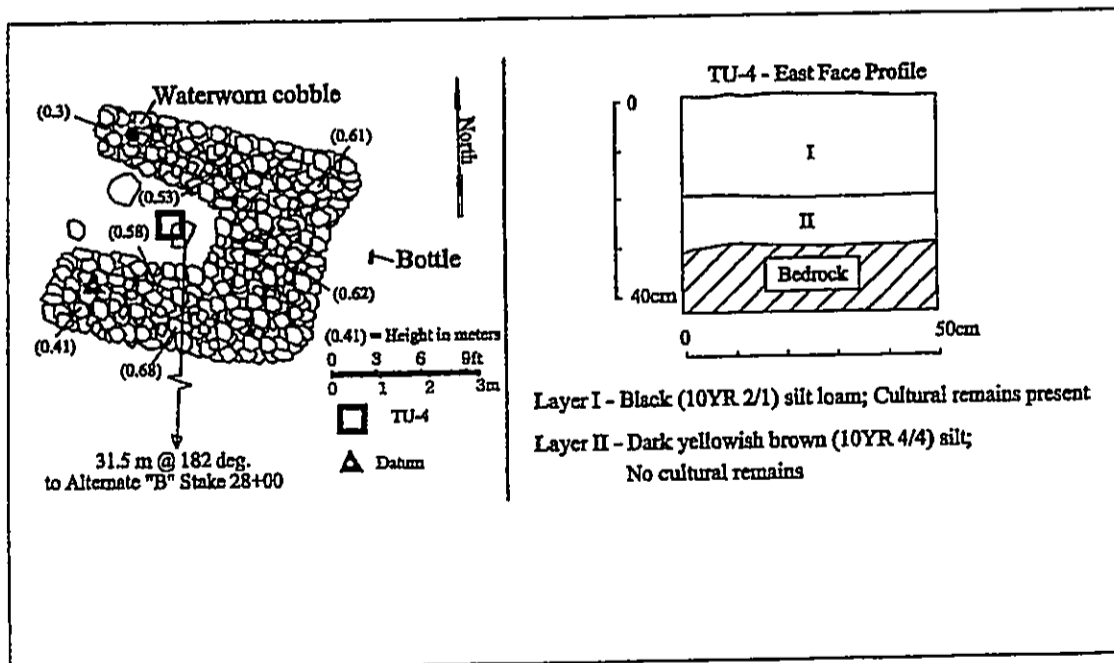


Figure 23. Site 23039 Plan Map and TU-4 East Face Profile

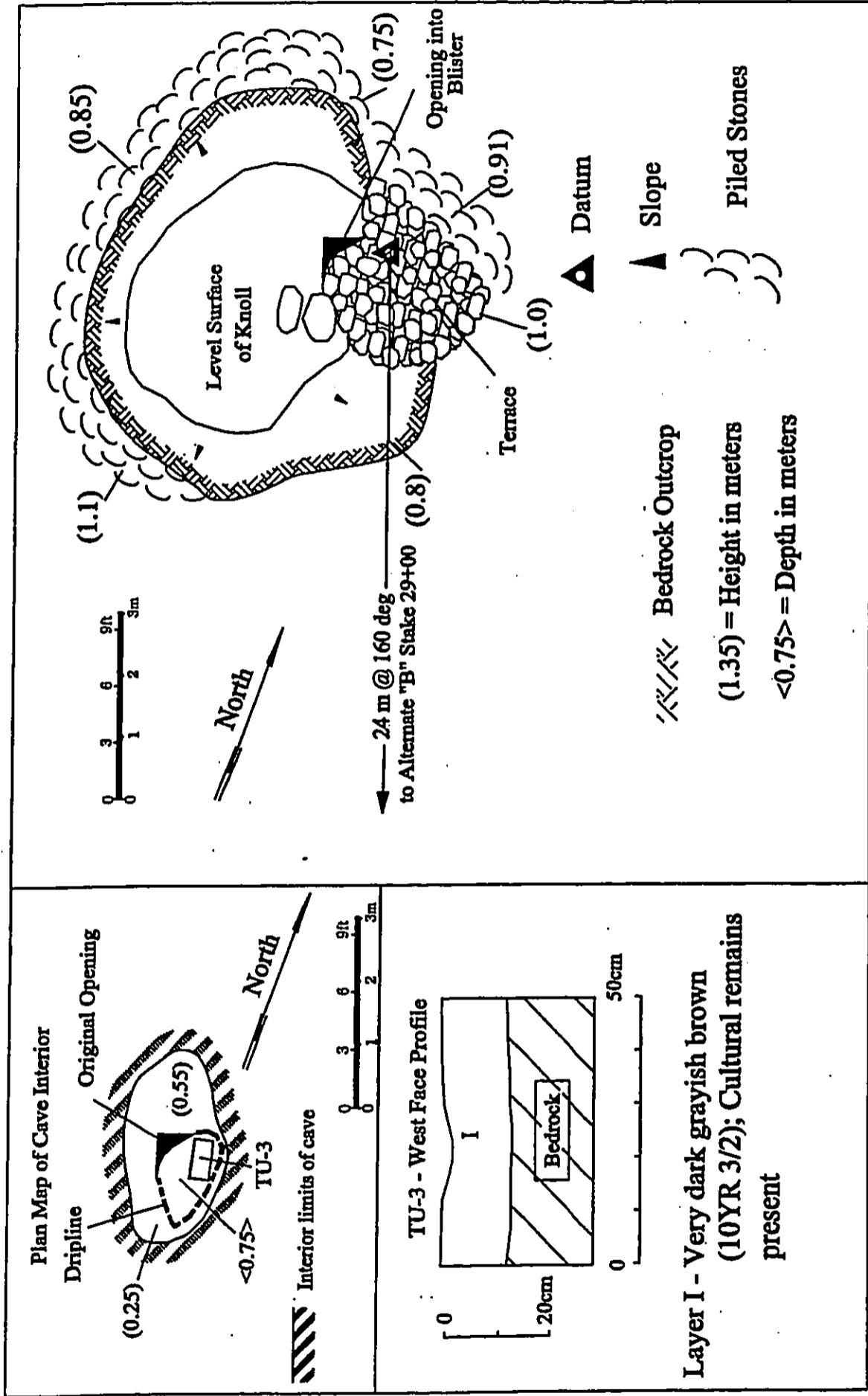


Figure 24. Site 23040 Plan Map and TU-3 West Face Profile

2.25 m wide. The western side of the terrace is level with the top of the knoll, and the eastern side has been built up to a height of 1.0 m. The terrace is constructed of stacked, subangular basalt cobbles and small boulders, with a relatively level, crudely paved surface. An opening to a lava blister is present at the northwestern end of the terrace. The blister has been partially filled with cobbles. No cultural remains were observed on the surface of the terrace, or on the knoll.

The stones that were located within the blister were removed during the current project, revealing an opening that measures 1.6 m long (north-south), 1.05 m wide, and 0.75 m deep below the surface of the knoll (see *Figure 24*). This opening is situated above a small oval-shaped chamber that measures 2.5 m long by 1.7 m wide, with ceiling heights that varied from 0.25 to 0.55 m. The floor of most of the blister was comprised of bare lava, although a small area of soil was present directly below the entrance. A 0.5 m long by 0.25 m wide test unit (TU-3) was excavated into this soil area revealing a single soil deposit over bedrock (see *Figure 24*). Layer I consisted of 0.11 to 0.14 m of a very dark grayish brown (10YR 3/2) silt loam. Cultural remains recovered from this deposit consisted of marine shell (*Drupa*, n=1, 4.2 grams, *Cypraeidae*, n=1, 1.8 grams, and seven unidentified fragments of shell, 1.4 grams), and charcoal (1.2 grams). Site 23040 is interpreted as a temporary habitation based on its lack of substantial construction.

Site 23041

Site 23041 is an enclosure with a paved interior surface located in Holualoa 4. The site was first observed by Hammatt et al. (1990:32) and designated as CSH Site 23. The enclosure is rectangular in shape measuring 8.15 m long (east-west) and 7.3 m wide (*Figure 25*). The southern side of the enclosure abuts the north side of wall Site 6329a, and it is likely that many of the rocks from the enclosure, particularly at the southeast and southwestern ends, were removed and utilized in the construction of this historic cattle wall. The northern wall and the northern end of the eastern wall of the enclosure are intact and are 1.15 to 2.0 m in width. The majority of these walls are collapsed, except for an intact section in the northeastern corner. The collapsed portions range in height from 0.4 to 0.65 m. The intact section suggests that the enclosure walls originally measured 0.78 to 0.98 m in height.

The western side of the enclosure is comprised of a low terrace that averages 0.5 m in height. This portion of the structure appears to be intact, suggesting that the enclosure was originally open along the seaward side. There is a linear alignment of small basalt boulders that extends from the northwestern corner of the enclosure, a distance of 3.2 m. These boulders average 0.4 m in diameter.

The interior of the enclosure is relatively level and is crudely paved with small basalt cobbles. No cultural remains were noted on the surface of the structure. There are three shallow, oval-shaped depressions located on the interior surface of the enclosure. These depressions range in length from 1.15 to 1.35 m, in width from 1.05 to 1.15 m, and in depth from 0.37 to 0.42 m. The interiors of the depressions contain loose cobbles. Hammatt et al. (1990:32) suggests that these depressions served an agricultural purpose. It is also possible that these depressions were created during rock removal associated with the construction of Site 6329a, or that one or more of the depressions are postholes.

A 1.0 by 1.0 m test unit (TU-2) was excavated in the north-central portion of the paved surface during the current study. The excavation of this unit revealed an architectural layer (Layer I), over a soil deposit (Layer II; see *Figure 25*). Layer I consisted of 0.5 to 0.55 m of tightly packed subangular basalt cobbles and small boulders. No cultural remains were present, and there was no evidence found to suggest that Layer I had been built during more than a single construction episode. The base of Layer I extends into the Layer II soil deposit.

Layer II consisted of 0.24 to 0.42 m of a dark brown (10YR 3/3) silt loam with 50% cobble inclusions. Cultural remains present within this deposit consisted of one piece of waterworn coral (3.8 grams), *Echinoidea* shell n=14, (0.6 grams), *Echinoidea* spines (n=1, 0.4 grams), one piece of unidentified marine shell (0.5 grams), two *kukui* nut shells (0.85 grams, 3.9 grams of charcoal, and a weathered bone fishhook in poor condition. The fishhook measures 3.4 cm long, 1.9 cm wide and 3 mm in thickness. It is a rotating hook. The tip of the point and end of the shank are missing. The excavation of TU-2 was terminated at the base of Layer II, on the bedrock substrate.

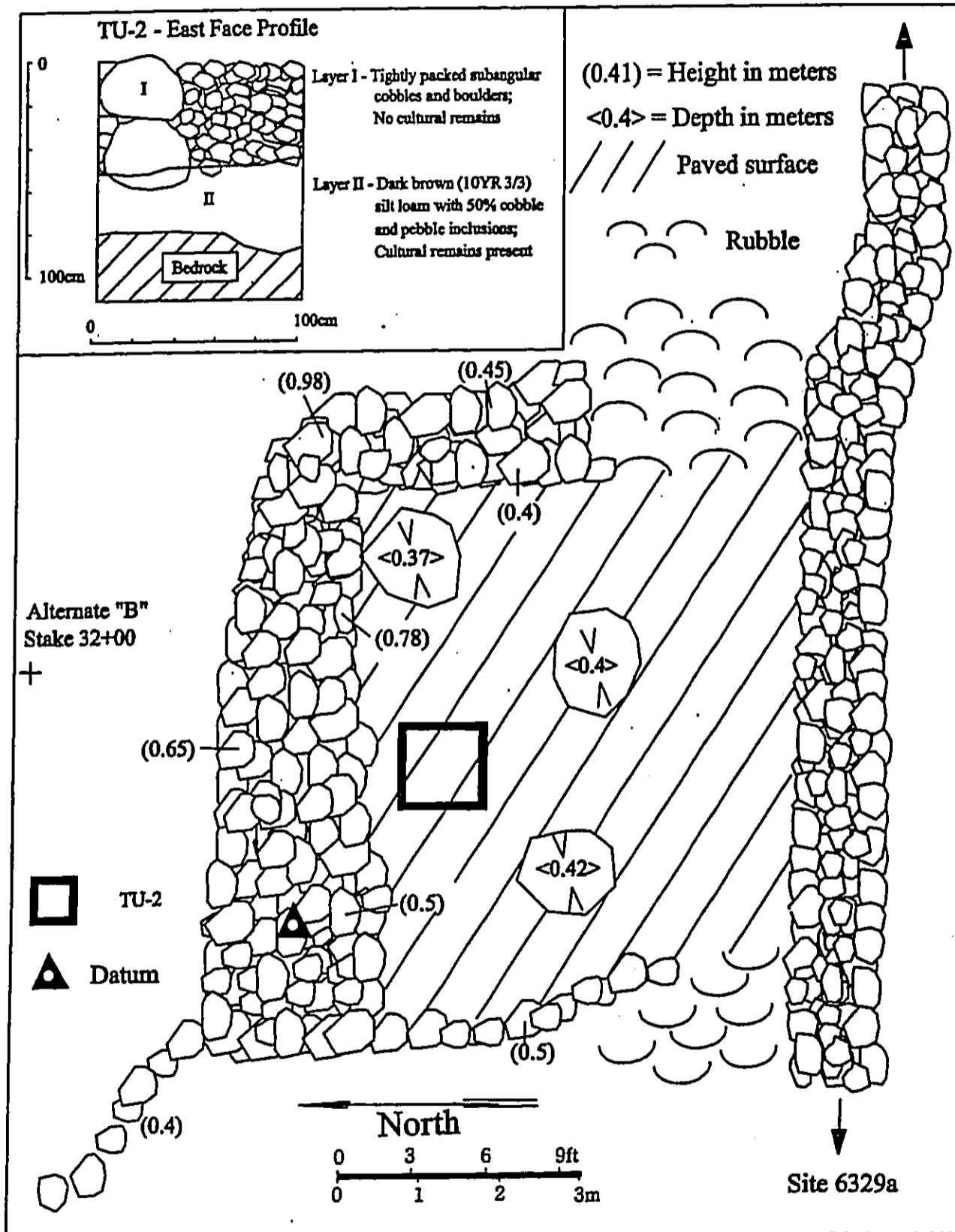


Figure 25. Site 23041 Plan Map (Showing Site 6329a) and TU-2 East Face Profile

Site 23041 is interpreted as a permanent habitation structure. This is based on its formal type, its size (59 sq m), and substantial construction (paved surface).

Site 23042

Site 23042 is a stone wall located in Holualoa 4. The wall was first identified by Hammatt et al. (1990:30) as CSH Site 19B. The wall originates on the northern side of wall Site 6329a, and extends to the north a distance of 108.0 through the Alternate "B" corridor. At the northern end of this section (outside the project area boundaries), the wall turns to the south and continues towards Ali'i Drive. The portion of the wall within the Alternate "B" corridor is constructed of stacked subangular basalt cobbles and small boulders with a core-filled interior. It varies in width at the base from 0.8 to 1.1 m, and at the top from 0.65 to 0.8 m (*Figure 26*). The wall averages 1.15 m in height on the inland side, and 1.5 m tall on the seaward side. Site 23042 is altered and in fair to good condition. This wall is interpreted as a livestock control feature based on its height and method of construction.

Site 23043

Site 23043 is a stone wall located in Holualoa 4. The wall was first recorded by Hammatt et al. (1990:30) as CSH Site 19. The wall originates on the northern side of the Site 6329a wall and extends to the north, through the Alternate "B" corridor, a distance of c. 95.0 m. It then angles to the west and continues towards Ali'i Drive forming a large enclosure. The portion of this wall within the project area is built of stacked subangular basalt cobbles and small boulders, ranging in width at the base from 0.9 to 1.1 m, and at the top from 0.67 to 0.91 m (*Figure 27*). The interior of the wall is core-filled with small cobbles. The wall ranges in height from 1.08 m on the upslope side to 1.15 m on the downslope side. Site 23043 is altered and in fair to good condition. It is interpreted as a livestock control feature based on its height and method of construction.

Site 23044

Site 23044 is a stone wall located in Holualoa 4. This wall was first identified by Hammatt et al. (1990:30), and designated CSH Site 19A. The wall is located entirely within the Alternate "B" corridor, originating on the inland side of wall Site 23043. It measures 15.5 m long (east-southeast by west-southwest), 1.0 to 1.1 m wide at the base, and 0.65 to 0.7 m wide at the top. It is constructed of stacked subangular basalt cobbles and small boulders with a core-filled interior comprised of small cobbles. The wall ranges in height from 1.1 to 1.30 m (*Figure 28*). The inland end of the wall is collapsed and appears to have been destroyed. Site 23044 is altered and in fair to good condition. This wall is interpreted as a livestock control feature, based on its height and method of construction.

Site 23045

Site 23045 is a stone wall located in Holualoa 4. The wall was previously identified as CSH Site 18 by Hammatt et al. (1990:30). The wall is located entirely within the Alternate "B" corridor, originating on the seaward side of wall Site 23043. It extends from Site 23043 a distance of 9.7 m beyond which it apparently has been destroyed. The wall is built of stacked subangular basalt cobbles and small boulders, with a core-filled interior comprised of small cobbles. It varies in width at the base from 1.05 to 1.2 m and at the top from 0.75 to 0.85 m (*Figure 29*). The height of the wall ranges from 1.3 to 1.45 m. The northern side of the Site 23046 pavement (discussed below) abuts the south side of the Site 23045 wall, at its western end. Site 23045 is altered and in poor to fair condition. The height of this wall and its method of construction suggests it functioned as a livestock control feature.

Site 23046

Site 23046 is a low pavement located in Holualoa 4 that was identified during the current study. The pavement is rectangular in shape. It is 4.1 m long (north-northwest by south-southeast) and 3.75 m wide. The structure is bordered by large cobbles and small boulders and has a level, paved surface of small basalt cobbles (*Figure 30*). The northern side of the pavement partially abuts the southern side of wall Site 23045. A roughly circular-shaped piece of ground waterworn coral (64.2 grams) was collected from the

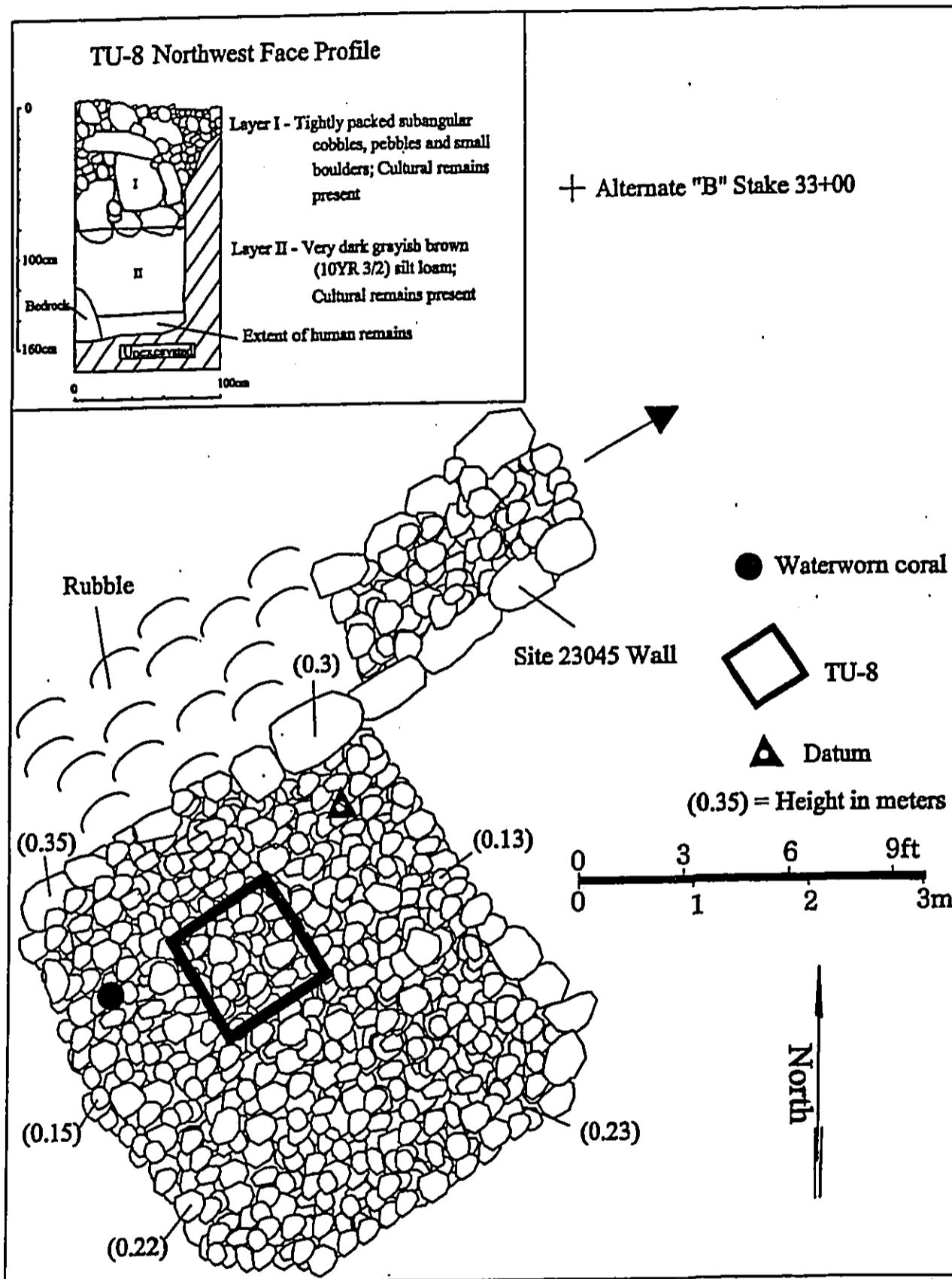


Figure 30. Site 23046 Plan Map and TU-8 Northwest face profile

surface of the structure. It measures 5 cm in diameter and 2.7 cm in thickness and evidences ground edges. No other cultural remains were noted on the surface of the site. The height of the pavement varies from 0.15 to 0.35 m above the surrounding ground surface.

A 1.0 by 1.0 m test unit (TU-8) was excavated into the center of the structure during the current study. The excavation of this unit revealed a stone architectural layer (Layer I) above a soil deposit (Layer II; see *Figure 30*). Layer I consisted of 0.88 to 0.93 m of tightly packed subangular basalt cobbles and small to medium-sized boulders with the smaller stones situated near the surface. These stones appear to have been deposited during a single construction episode. The base of Layer I intrudes into the Layer II soil deposit. A single basalt flake (2.2 cm long, 1.8 cm wide 6 mm thick, 4.9 grams), and a piece of waterworn *Cellana* sp. (1.7 grams) were collected from Layer I.

Layer II consists of a very dark grayish brown (10YR 3/2) silt loam. It originates below Layer I, at a depth of 0.83 m below the surface of the pavement. Bedrock was encountered in the northwestern portion of the unit at 1.17 m below surface, although the deposit continued in the remainder of the unit. Cultural remains from Layer II consisted of one waterworn pebble (10.1 grams), a small piece of waterworn coral (1.6 grams), four small fragments of unidentified marine shell (0.7 grams), and two rodent bones (0.3 grams). At 1.47 m below surface, an articulated human burial was identified in the northern portion of the unit. The identified remains consisted of two tibias situated parallel to each other, and oriented in a north-south direction, an ulna, and an unidentified long bone. The remains were uncovered to determine articulation and the excavation of TU-8 was terminated. The presence of human remains within the pavement indicates the site is a burial feature. It is likely that it was formerly a burial platform and the platform stones were removed to construct the nearby ranch walls.

Site 23047

Site 23047 is a low platform located in Holualoa 4. The site was first identified as CSH Site 14 (Hammatt et al. 1990:27). The platform is roughly rectangular in shape with overall dimensions of 7.55 m long (north-northwest by south-southeast) and 4.3 m wide (*Figure 31*). The structure has two levels. The main portion of the platform is 4.75 m long (north-northwest by south-southeast) and 4.3 m wide. The sides of this portion consist of stacked subangular basalt cobbles and small boulders, and range in height from 0.4 to 0.73 m above the uneven surrounding ground surface. The surface of this portion of the platform is relatively level and is crudely paved with small cobbles. A brown glass bottle was noted on the surface at the southeastern corner, and a one gallon clear glass jug was noted adjacent to the structure to the south.

The second portion of the platform abuts the first on the northern side. This portion measures 2.8 m long (north-northwest by south-southeast), and 2.5 to 3.1 m wide. The surface is uneven and unpaved, and is 0.25 m lower than the main portion of the platform. The sides of this portion consist of piled cobbles and small boulders, and vary in height from 0.05 to 0.25 m above the surrounding ground surface. No cultural remains were observed in this area.

A 1.0 by 1.0 m test unit (TU-1) was excavated into the surface of the main portion of the platform. The excavation of this unit revealed a stone architectural layer (Layer I), above a soil deposit (Layer II) (see *Figure 31*). Layer I consisted of 1.45 to 1.5 m of tightly packed subangular basalt pebble, cobbles and small boulders. Cultural remains collected from Layer I consisted of marine shell (*Cerithium*, n=1, 1.1 grams, and *Cypraeidae*, n=1, 1.7 grams), and a small piece of waterworn coral (0.9 grams). The base of Layer I extended into the Layer II soil deposit. No evidence was found to suggest that Layer I had been built during more than a single construction episode.

Layer II consisted of 0.2 m of dark brown (10YR 3/3) silt loam. No cultural remains were present in this deposit. The excavation of TU-1 was terminated on bedrock. Site 23047 is interpreted as a permanent habitation structure, based on its formal type, its size (29 sq m), and substantial construction (paved surface). The platform is unaltered and in good condition.

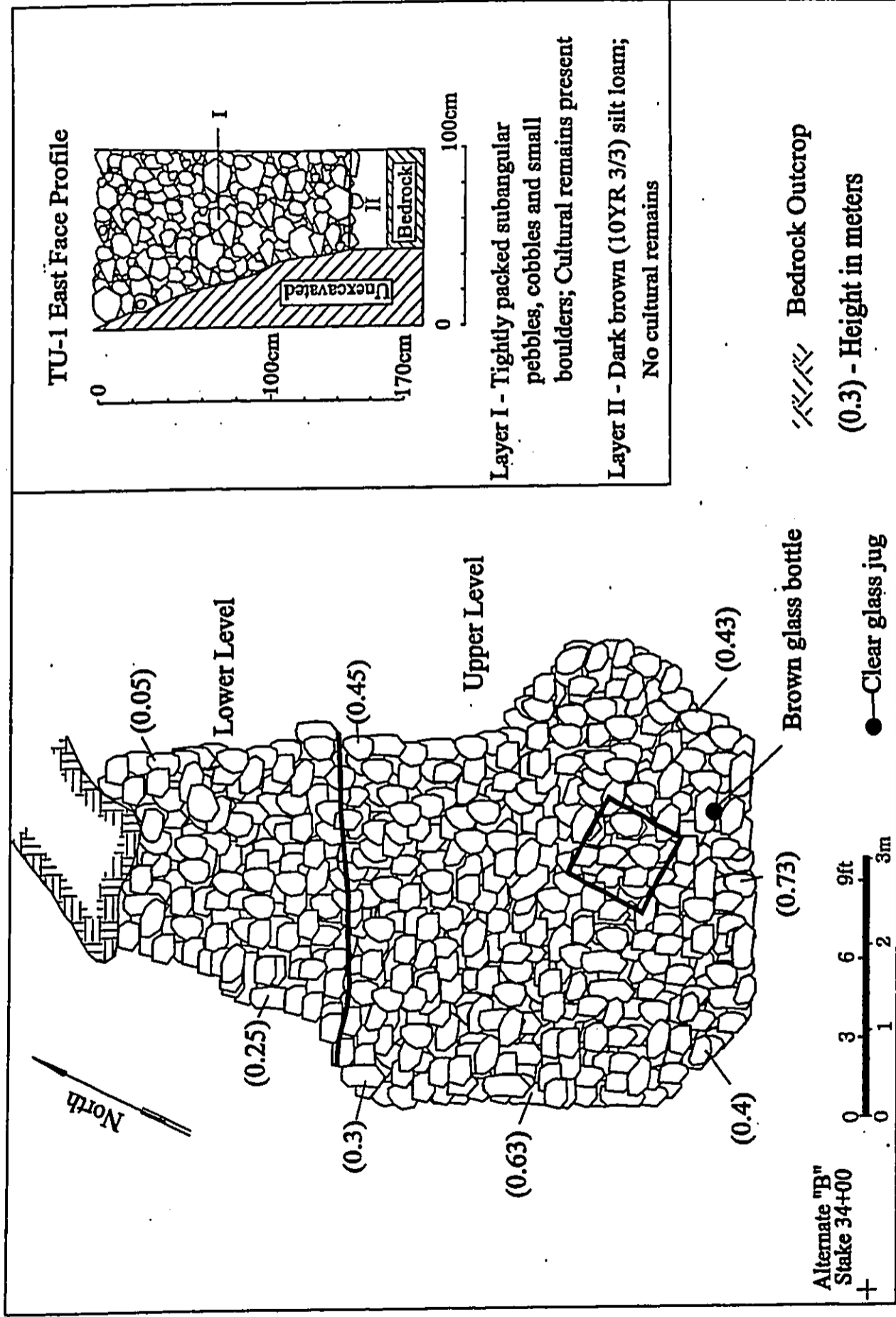


Figure 31. Site 23047 Plan Map and TU-1 East Face Profile

Site 23048

Site 23048 is a complex of two enclosures located in the Land of Holualoa 3, within the seaward intersection of the Alternate "A" and "C" corridors (Figure 32). The site was identified during the current survey.

Feature A

Feature A is a roughly oval-shaped enclosure that is 10.75 m long (northwest by southeast) and 6.4 m wide with walls constructed of stacked and piled subangular basalt cobbles and small boulders. The walls vary in width from 0.65 to 2.1 m and in height from 0.45 to 1.15 m. A hog wire fence extends across the surface of the eastern wall. This wall extends to northwest away from the enclosure, outside the corridor. These sections of the eastern wall are collapsed and consist of scattered rubble. The interior surface of the enclosure has a brown soil deposit. No cultural remains were noted on the surface.

A 0.5 by 0.5 m test unit (TU-6) was excavated in the approximate center of the enclosure. The excavation of this unit revealed a single cultural deposit overlying bedrock. Layer I consisted of 0.13 m of a very dark grayish brown (10YR 3/2) silt loam (see Figure 32). Cultural remains recovered from Layer I consisted of marine shell (*Nerita picea*, n=1, .1 grams; *Rhinoclavis* sp., n=1, 0.15 grams; *Cypraeidae*, n=1, 0.2 grams; *Isognomon*, n=9, 0.6 grams; and four unidentified shell fragments, 0.7 grams), and kukui nut shells (n=4, 0.8 grams).

Feature A is interpreted as a temporary habitation structure. Although the enclosure is larger than Cordy's (1981) size classification for temporary habitations, its lack of formal construction suggests it was likely a temporary habitation structure. It is unaltered and in fair condition.

Feature B

Feature B consists of the disturbed remnant of an enclosure located 13.5 m north of Feature A. The enclosure is open to the south-southeast and is 7.6 m long (north-northwest by south-southeast) and 5.3 m wide. The southern end of the eastern wall is situated below a large fallen *kiawe* tree. The walls are generally collapsed though appear to have originally measured 0.65 to 0.9 m wide. The walls range in height from 0.5 to 0.6 m. The interior of the enclosure is comprised of a level soil area covered in grass. No cultural remains were noted. Feature is also assigned a temporary habitation function based primarily on its association with Feature A. It is altered and in fair condition.

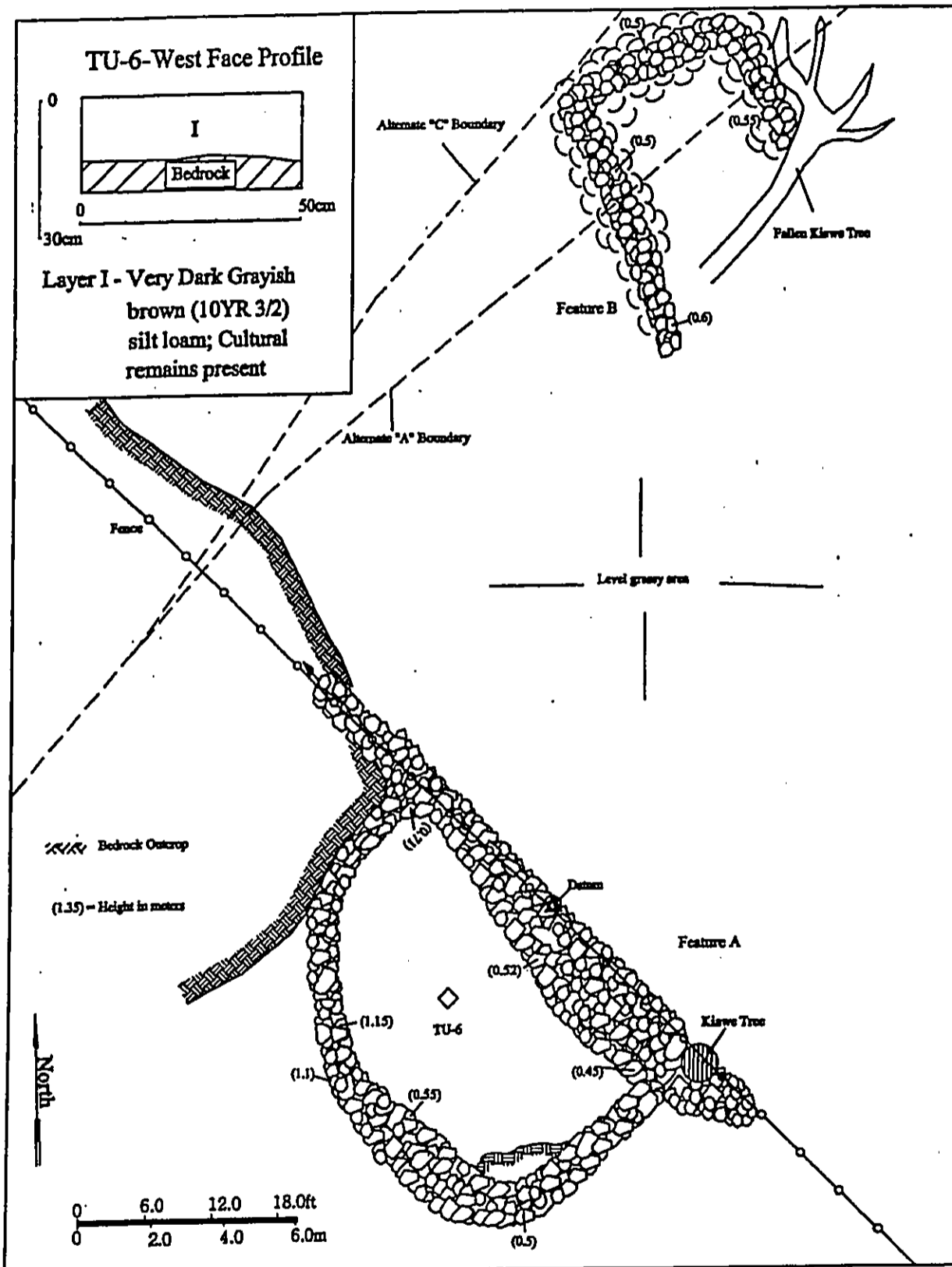


Figure 32. Site 23048 Plan Map, and TU-6 West Face Profile

CONCLUSION

Discussion

The identified sites and features conform to the site and feature types expected in the *kula* zone of the Kona Field System based on previous archaeological work and historic documentary research. Probable prehistoric to early historic agricultural features consist of modified outcrops, mounds, and terraces scattered throughout the area. Features C, G, and H at Site 9840 and Site 21371 are low walls that partially enclose a swale where soil has accumulated. These features appear to form at least two, and potentially three fields (see *Figure 5*). The inland field, bounded by Site 21371, is 144 m long (east-west) and at least 72 m wide. The seaward wall of Site 21371 and the Site 9840 Feature H and G walls bound an area 55 m long (east-west) by at least 33 m in width. A third possible field is formed by Feature G, Feature C, and the seaward extension of Feature H. This field would have had minimum dimensions of 33 m (north-south) by 22 m. All three fields lack a southern boundary wall. This wall may have been dismantled to construct the nearby Site 6340 wall. Together, the fields occupied an area of at least 12,909 square meters, or approximately three acres.

The *kula* zone was traditionally used for cultivating sweet potatoes, paper mulberry, and gourds. Early historic crops may have included the traditional ones and introduced cultigens such as melons, beans, cabbage, coffee, onions, oranges, corn, pumpkins, cotton, tobacco, pineapple, and Irish potatoes. The density of agricultural features is approximately 4.41 features per acre, which is comparable to densities recorded by Haun and Henry (2000) in Holualoa, and to densities encountered by Haun et al. (1998), Robins et al. (1990) and Barrera (1995b) for similar elevations in Puapua'a (see *Table 3*).

Habitation features are scattered throughout the project area. These include 16 permanent habitation features at eight sites (*Figure 34, Table 6*) and six temporary habitations at five sites. One burial is present at Site 23046. All of the habitation features are situated within approximately 500 m of the shoreline with the majority of sites being less than 250 m inland. This coastal band was the focus of habitation in the lower *kula* zone (Cordy 1995). Five sites (5600, 6317, 6374, 9844, and 21372) are complexes including several structural foundations.

Three sites consist of single features (Sites 6375, 23041, and 23047). Site 6374 was interpreted by Haun et al. (1998) to be a possible high status residence. The site is situated immediately north of the Keakealaniwahine Complex, which was part of the royal center in Holualoa that includes the Kamoia Point Complex. The area was used by at least five generations of high-ranking chiefs including Kamehameha I (McEldowney 1986). Based upon radiocarbon dates from previously investigated sites, traditional Hawaiian use of the area probably began as early as the 1200s with the most intensive use occurring between the 1400s and early 1800s. Sites 6317, 9844, and 21372,

Early historic use of the project area is evidenced by the Kuakini Wall and potentially by Site 5600, Feature J, if it formed the boundary for a historic residential yard. The other walls are all relatively high, core-filled walls that probably served to control cattle. Some of these walls, Sites 23042-23046, may be remnants of historic residential yards. Alternatively, they may be ranch walls that followed property boundaries, such as Feature A of Site 6329 and Site 6340, or smaller paddocks (e.g. Site 6377, Feature A). The walls may have been initially constructed in the late 1800s to early 1900s. The walls probably continued in use until the 1980s based on Soehren's (1980a) observation that the project area was used for pasture.

Significance Assessments

Pursuant to DLNR (1998) Chapter 275-6 (d), the initial significance assessments provided herein are not final until concurrence from the DLNR has been obtained. Sites identified and relocated during the survey are assessed for significance based on the criteria outlined in the Rules Governing Procedures for Historic Preservation Review (DLNR 1998, Chapter 275). According to these rules, a site must possess

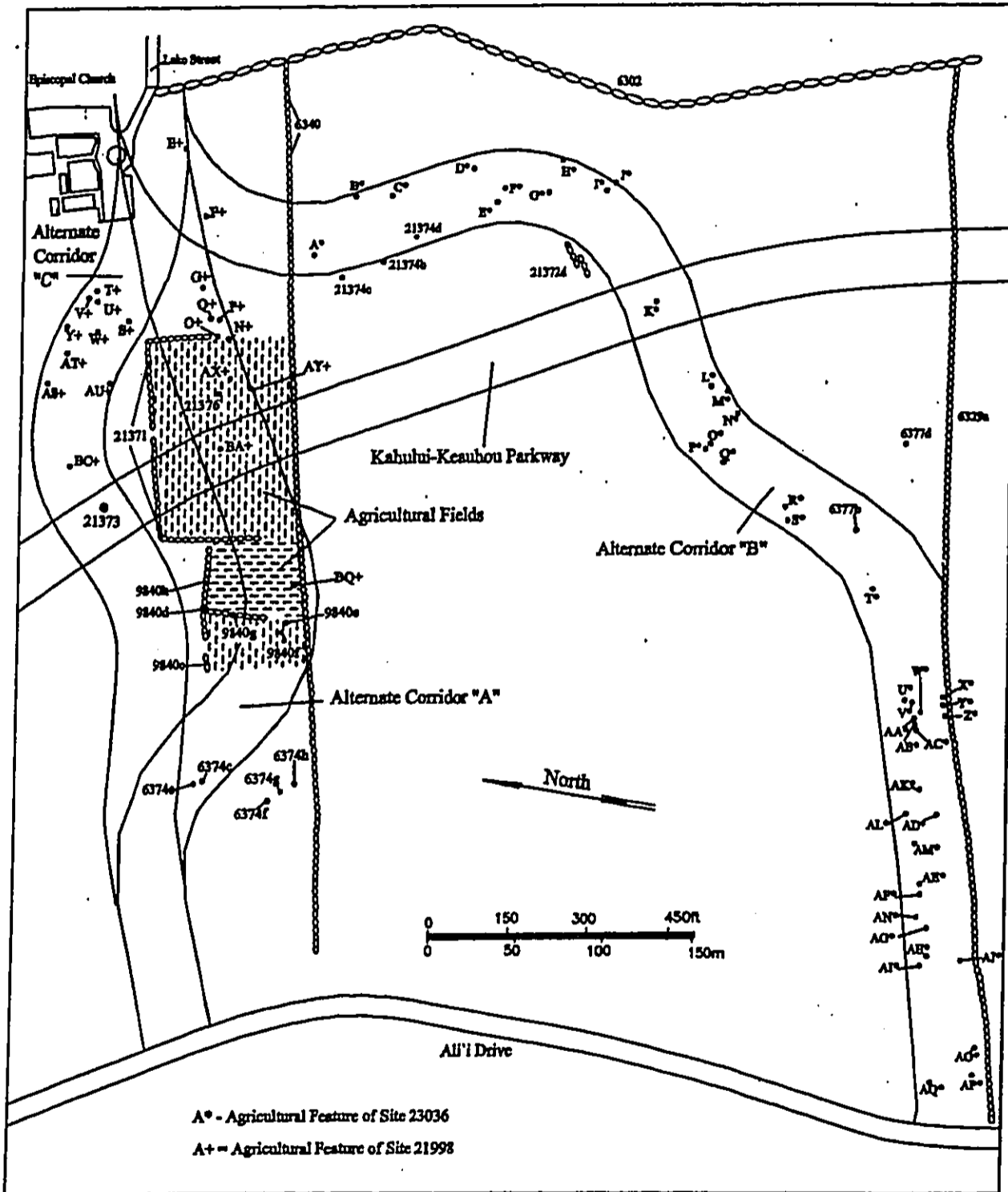


Figure 33. Distribution of Agricultural Fields and Features within Project Area

Table 6. Summary of Permanent Habitation Sites

Site	Feature	Formal Type	Substantial Construction	Area (sq m)	Comments
5600*	J	Enclosure	none	undet.	probable historic residential yard; features outside corridor (FOC) incl. 7 structure foundations, 5 ancillary features, and 4 burial features
6317*	H	Modified outcrop	none	13	special purpose structure; FOC incl. 6 structure foundations, 4 ancillary features, and 1 burial
"	M	Platform	paving, faced walls	50	
6374*	A	Platform	paving, faced walls	95	possible high status residence; FOC incl. 1 structure foundation, 3 ancillary features, and 2 agricultural features
"	B1	Terrace	paving, faced walls	60	
"	B2	Terrace	paving, faced walls	36	
"	D	Enclosure	none	945	residential yard enclosure
6375	-	Platform	paving, faced walls	53	
9844*	E	Enclosure	none	800	residential yard enclosure; FOC incl. 1 structure foundations and 4 yard enclosures
21372	A	Terrace	faced walls	33	within enclosed yard
"	B	Cave	none	N/A	ancillary feature
"	C	Terrace	none	10	special purpose structure
"	E	Lava blister	none	N/A	ancillary feature
"	F	Terrace	none	N/A	ancillary feature
23041	-	Enclosure	paving	59	
23047	-	Platform	paving	29	

*Site includes features outside corridor (FOC) described by Haun et al. (1998) or Wolforth et al. (1999)

integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criteria:

1. Criterion "a". Be associated with events that have made an important contribution to the broad patterns of our history;
2. Criterion "b". Be associated with the lives of persons important in our past;
3. Criterion "c". Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;
4. Criterion "d". Have yielded, or is likely to yield, information important for research on prehistory or history; and
5. Criterion "e". Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural pra-

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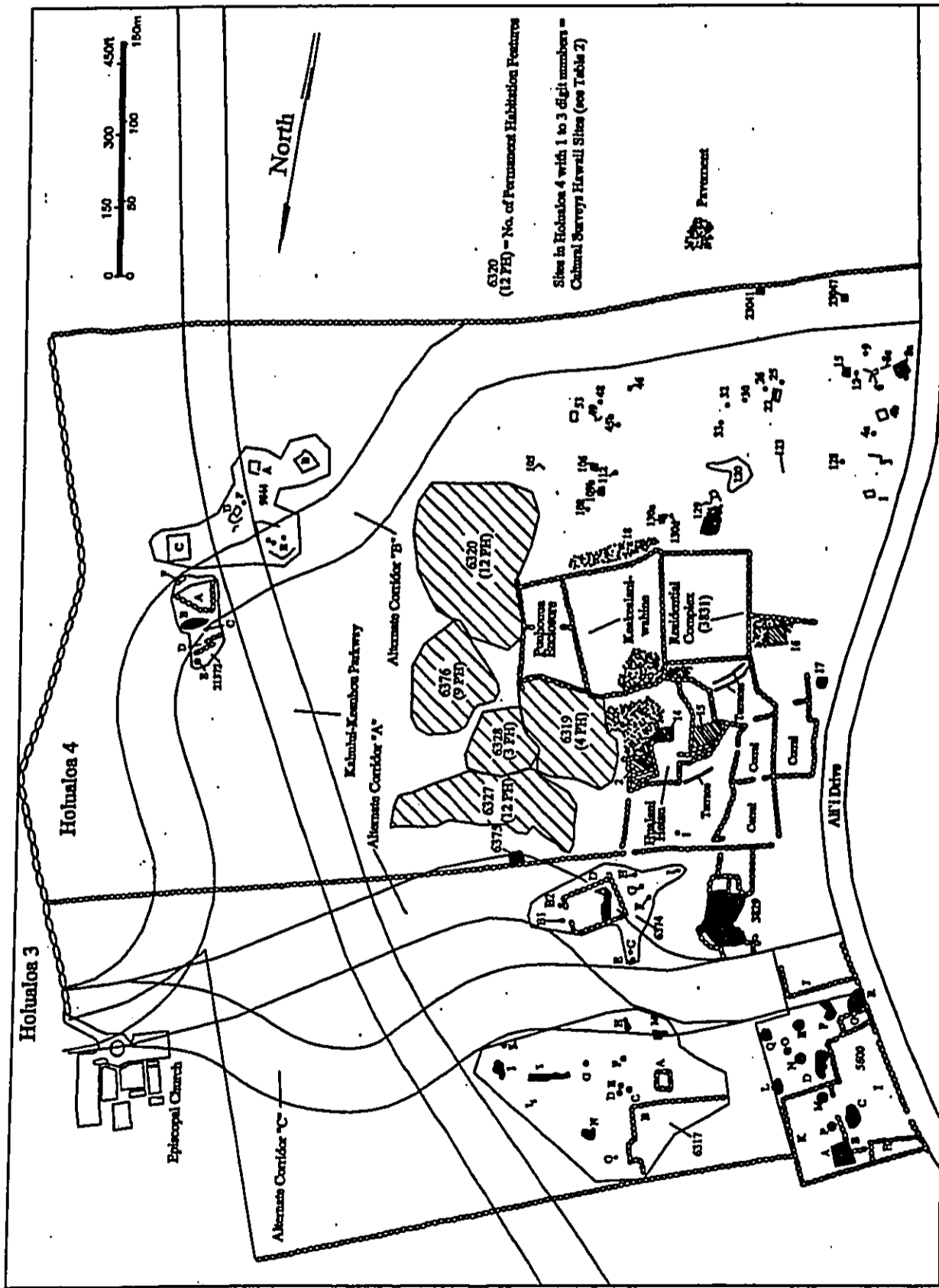


Figure 34. Distribution of Permanent Habitation Sites within and in Vicinity of Project Area

tices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

Based on the above criteria, all 30 sites are assessed as significant under Criterion "d" (*Table 7*). These sites have yielded information important for understanding late prehistoric to historic land use in project area. Site 23046 is additionally assessed as significant under Criterion "e" because it contains a probable Hawaiian burial. Site 6302, Kuakini Wall, has been previously determined by DLNR-SHPD to be also significant under Criteria "a", "b", "c" and "e". Site 6374 has been previously determined by DLNR-SHPD in conjunction with the proposed Kahalui-Keauhou Parkway to be also significant under Criteria "c".

Recommended Treatments

Sites 6302 and 23046 are recommended for preservation; however, the existing breach in the Site 6302 wall may have to be slightly enlarged to accommodate the proposed street. The mapping, written descriptions, photography, and test excavations at twelve sites (see *Table 7*) adequately documents them and no further work or preservation is recommended. The remaining seventeen sites retain the potential to yield information important for understanding prehistoric and historic agriculture and habitation in the project area. These sites consist of agricultural and habitation features.

All of these sites could be mitigated through data recovery as indicated in *Table 6*; however, the decision as to which sites would require mitigation is dependent upon future decisions regarding road corridor selection and the precise location of the 60 ft wide road within the 120 ft-wide corridors that were surveyed. After these decisions are made a mitigation plan for the affected sites would be prepared for DLNR-SHPD review and approval. From an archaeological and historic preservation standpoint, selection of Alternate "C" Corridor would require the least amount of data recovery. If Alternate "B" Corridor is selected a Burial Treatment Plan may be required for DLNR-SHPD and the Hawaii Island Burial Council review and approval.

A cultural impact assessment conducted by Mr. Bill Thompson presents the results of consultations with native Hawaiian groups and individuals that include historic preservation issues related to the Keakealaniwahine Complex. The assessment is included in the Environment Assessment for the project. Eight individuals were interviewed. All of the individuals who were asked to comment on the three alternate corridors were unanimous in their preference for the Alternate "C" Corridor because it affected the fewest sites and because there would be a buffer of 200 ft between the corridor and the Keakealaniwahine Complex.

Table 7. Site Significance and Recommended Treatment

SIHP Site No.	Alignment	Type	Function	Significance Criteria	Recommended Treatment
5600-J	A	Enclosure	Perm. Hab	d	Data Recovery
6302	A, B, C	Wall	Livestock Control	a, b, c, d, e	Preservation
6317	C	Complex	Perm. Hab	d	Data Recovery
6329	B	Wall	Livestock Control	d	NFW*
6340	A, B	Wall	Livestock Control	d	NFW
6374	A	Complex	Perm. Habitation/ Agriculture	c, d	Data Recovery
6375	A	Platform	Perm. Habitation	d	Data Recovery
6377	B	Complex	Temp. Hab/ Agriculture/ Livestock control	d	Data Recovery
9840	A	Complex	Agriculture	d	Data Recovery
9844-E	B	Enclosure	Perm. Habitation	d	Data Recovery
21371	A	Enclosure	Agriculture	d	Data Recovery
21372	B	Complex	Perm. Habitation/ Agriculture	d	Data Recovery
21373	C	Terrace	Agriculture	d	NFW
21374-D	B	Modified outcrop	Agriculture	d	NFW
21376	A	Modified outcrop	Agriculture	d	NFW
21391	A	Wall	Livestock Control	d	NFW
21998	A, C	Complex	Agriculture	d	Data Recovery
23036	B	Complex	Agriculture	d	Data Recovery
23037	B	Platform	Perm. Hab	d	Data Recovery
23038	B	Ahu	Marker	d	NFW
23039	B	Enclosure	Temp. Hab	d	Data Recovery
23040	B	Modified Knoll	Temp. Hab	d	Data Recovery
23041	B	Enclosure	Perm. Hab	d	Data Recovery
23042	B	Wall	Livestock Control	d	NFW
23043	B	Wall	Livestock Control	d	NFW
23044	B	Wall	Livestock Control	d	NFW
23045	B	Wall	Livestock Control	d	NFW
23046	B	Pavement	Burial	d, e	Preservation
23047	B	Platform	Perm. Hab	d	Data Recovery
23048	A, C	Complex	Temp. Hab	d	Data Recovery

*NFW=No further work or preservation

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APPENDIX E
CULTURAL ASSESSMENT

Proposed Lako Street Extension

Holualoa 3rd, North Kona, Hawaii
TMK: 7-7-04: Parcels 56, 89, 47 & 22

INTRODUCTION:

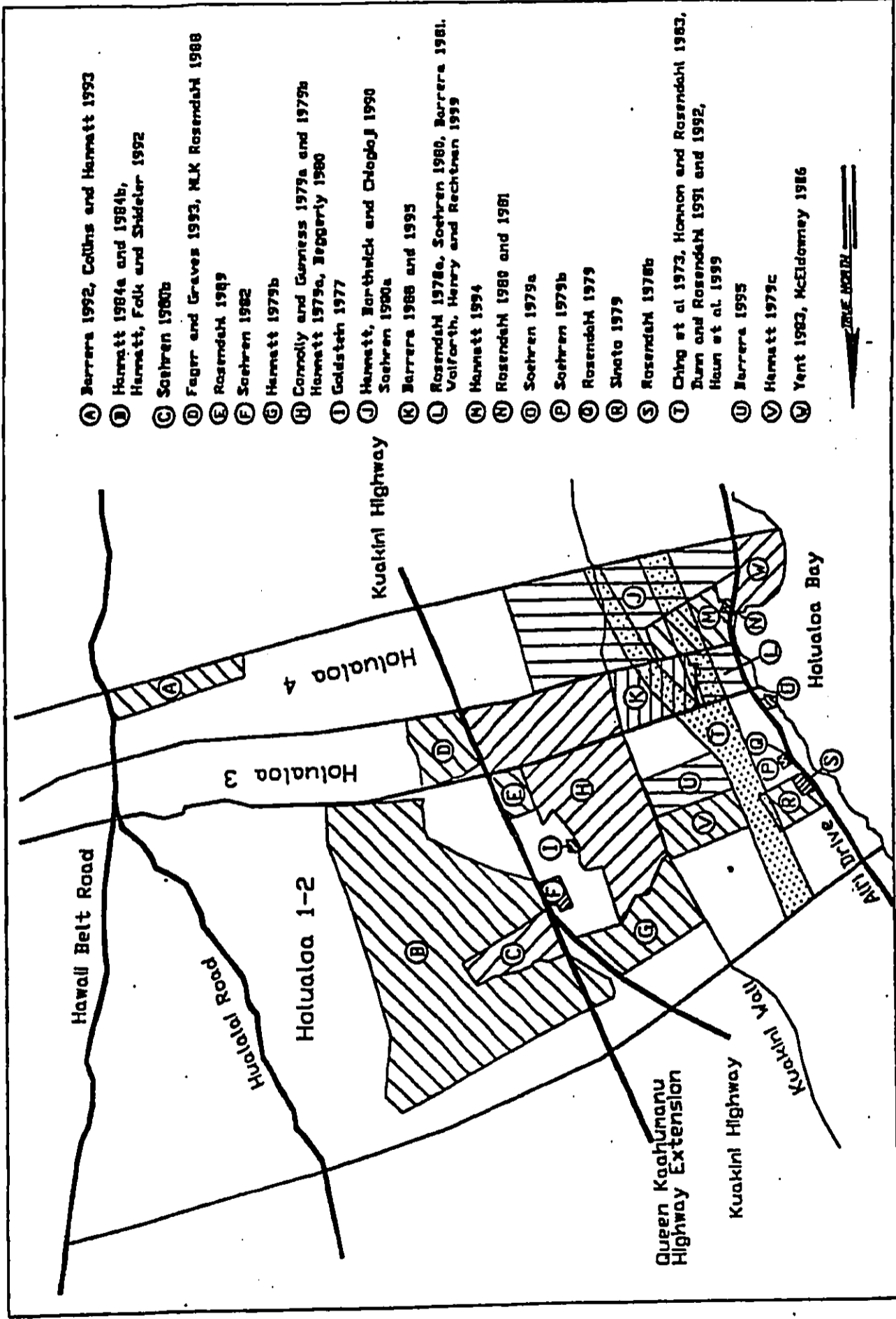
The County of Hawaii Department of Public Works has proposed a road linking Alii Drive to Kuakini Highway. A part of this road connection already exists, this is Lako Street, one of the roadways in the Komohana Kai Subdivision. The project will extend Lako Street, which is connected to Kuakini Highway, down to Alii Drive to complete the linkage.

The project site will be in a general area possessing archaeological features of historical and cultural significance. This is evident as shown in **FIGURE NO. 1**, depicting the numerous archaeological surveys performed in this area. In planning the Lako Street Extension, utmost consideration has been given to avoiding or reducing disturbance of the archaeological sites.

HISTORICAL BACKGROUND:

Records indicate that settlement of the Holualoa district probably started around 1200 A.D. Considerable information on this area was brought to light during the discussion and hearings on the proposed resort development at Kamo Point in Holualoa 4. The resort proposal never materialized as the protest over resort construction on this cultural site persuaded the State to purchase the Kamo Point parcel. The State Historic Sites Preservation Division received an enormous amount of testimony during this controversy.

The Kamo Point site focused attention on the cultural sites in this area and acquisition of the *Keakealaniwahine* complex opposite the *Keolonahihi* complex above Alii Drive was highly recommended. In 1998, the 16-acre *Keakealaniwahine* complex was donated to State to be added to the newly created *Keolonahihi* State Historical Park.



Previous Archaeological Work in Holualoa 1-4
 From: Report by Alan E. Haun

FIGURE 1

The *Keakealaniwahine* complex is of great cultural importance. The area is named for the daughter of *Keakamahana*, a great great granddaughter of *'Umi a Liloa*. It is said that she was five generations removed from *Liloa*, father of *'Umi*. *Keakamahana* was the great grand-daughter of *Keawe-nui-a-umi*. Her husband was *Iwikauikaua*. While she is praised in the ancient *meles*, there is little of her history.

Upon her mother's death, *Keakealaniwahine* succeeded her as *Moi* (sovereign) of Hawaii. Her son was *Keawe* whose grandson was *Keoua*, father of *Kamehameha*.

CULTURAL SIGNIFICANCE:

The *Keakealaniwahine* complex is said to have been the site of cultural practices begun in the early settlement of Hawaii by people from the southeast Pacific region. *Paa*, the legendary high priest reputed to have been from Tahiti, found the early Hawaiian people to be in a state of anarchy, a disorganized society. He brought *Pili-ka'aiea* to establish a ruling dynasty. This dynasty, which furnished the ruling chiefs of Hawaii, could claim down to *Kamehameha*. Further, he introduced new religious practices including human sacrifices.

The *Keakealaniwahine* complex including the *Keolonahihi* State Historical Park, of which it is a part, was the site where these religious and sacred rites were performed.

An excellent source of information for the *Keakealaniwahine* complex pertaining to cultural and religious rites can be found in the report prepared in 1980 by the State Division of State Parks, Outdoor Recreation, and Historic Sites. (Editor's Note: This agency is now separated into two divisions: Division of State Parks and Division of Historic Preservation of the Department of Land and Natural Resources.) The report is entitled: A Narrative Summarizing & Analyzing Historical and Archaeological Documents Gathered on the Kamo'a Point State Park, by Holly McEldowney. The testimonies and reports/studies of persons familiar with the Kamo'a

Point area and its significance found in the report include: Henry E. Kekahuna, Theodore Kelsey, George Pinehaka Nelson, Naluahine, Homer Hayes, F. Kalani Meinecke, Herbert K. Kane, and David K. Roy, Jr. The ceremonial rites purported to have been performed here included: *oki piko* (navel cutting), *kapu wohi* (high honor that gave permission for human sacrifice), *ho'ao* (ceremony to assure paternal identity of the first-born offspring, and *ho'omau keiki* (traditional term for *ho'ao*). The latter two are not supported by any historical evidence according to some. However, since established by *Pili-ka'aiea*, the continuation of the bloodline for the *alii* was of great importance. This is borne out by looking at the genealogical chart of the rulers of Hawaii. Please refer to the attached **FIGURE 2** showing the genealogy of the ancient chiefs from the time of *Liloa*. This chart is from the report mentioned above. Sports was also a part of the social fabric of this complex.

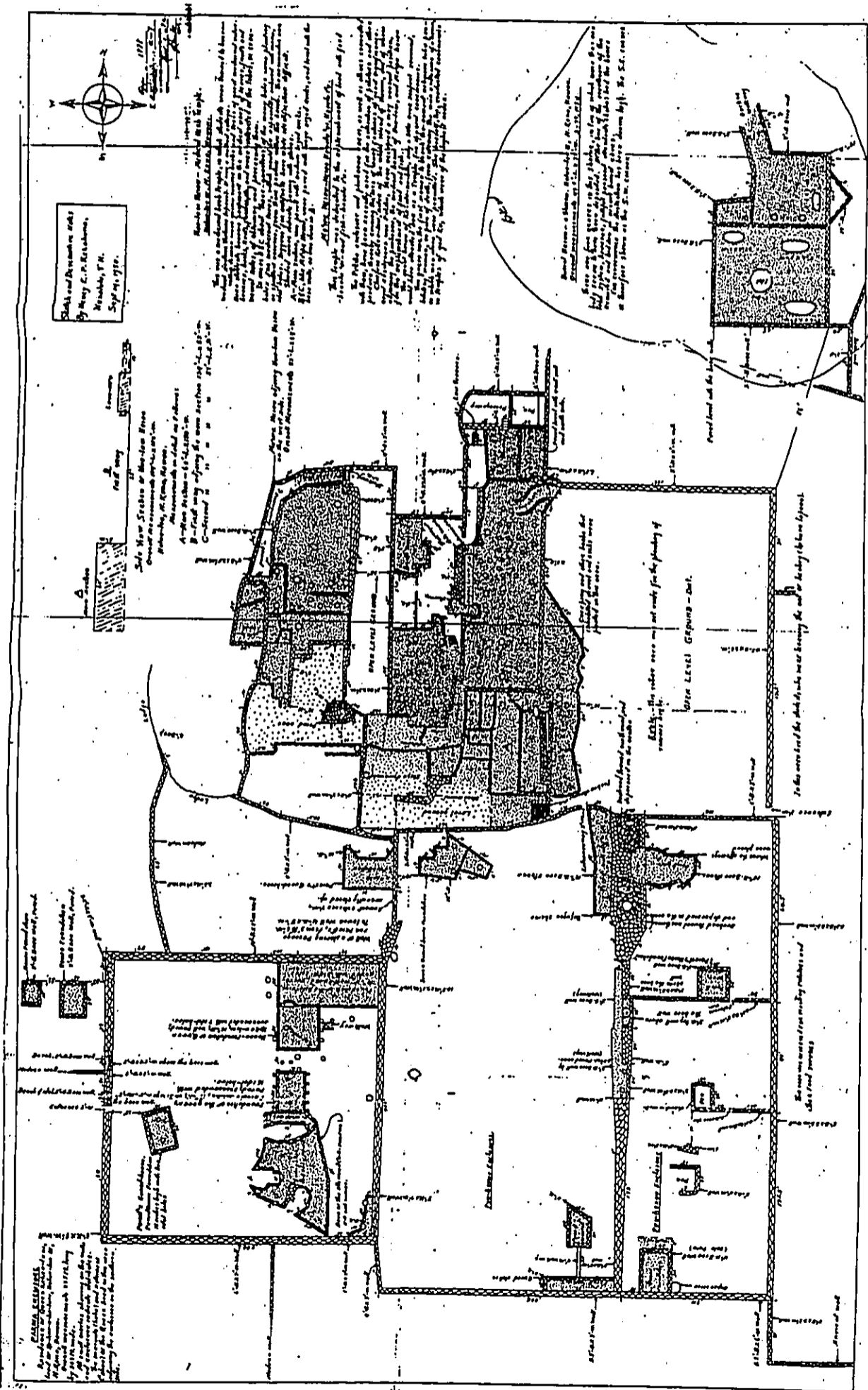
The oral history interview of Ms. Mikahala Roy is presented in full in **APPENDIX E**. Rather than a digest, it was felt that the statements of Ms. Roy supplemented with published reports by her father, David K. Roy, Jr., were of importance to understanding the cultural significance of the sites. Though the interview covered areas outside of the project site, their value lie in presenting a broader understanding of the cultural issues involved. Additional interviews were conducted. These are summarized and follow the Ms. Mikahala Roy interview.

A descriptive map of the *Keakealaniwahine* Complex is attached. This map, prepared in 1950 by Henry E.P. Kekahuna and furnished by the Friends of Kamo Point, is included to assist in understanding the numerous features of this Complex.

Conclusion: As stated in **SECTION 5**, the effect upon cultural practices will not be significantly impacted. The roadway project has taken measures to avoid impacting the nearby historic archaeological and cultural sites. There will be a buffer zone between the proposed road extension and the historic

Keakealaniwahine Complex. Unlike the Kahului-Keauhou Parkway right-of-way, which abuts Keakealaniwahine Complex, the goal has been to avoid entry into the Complex boundaries. Those few archaeological sites affected, relating to habitation and agriculture, are outside of the Complex boundaries. The future development of the Keakealaniwahine Complex and its cultural practices will not be significantly impacted by the road extension project.

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Oral History Interview with Miss Mikahala Roy
King Kamehameha Kona Beach Hotel, Kailua Village, North Kona, Hawaii
September 20, 2001

Introductory remarks by W.Y. Thompson.

MR: Aloha, my name is Mikahala Roy. My family comes from Kona. I am a native Hawaiian woman, kanaka maoli and a descendant of Chiefs. I am a teacher of Hawaiian history, language and heritage in Kona, Hawaii. Specializing in secondary education, currently I am the Executive Director of Kulana Hui Honua (Foundation for the Search of Wisdom), a non-profit 501-C3 organization with headquarters in the lobby of King Kamehameha's Kona Beach Hotel at Kamakahonu, Hawaii. As a girl I was raised in Kailua-Kona. My grandmother had operated the first motel named "Lihikai" and I was raised in the heart of Kailua though my family bloodlines originate at Kawanui Kona. I have lineal links in many segments of Kona, including along this area of particular importance with reference to the development of a roadway termed Lako. I'm fortunate to have had parents who were not afraid to speak on the merits and strengths of my heritage and culture. As such, growing up, I quickly surmised that I had an understanding of the depth and the merits of my culture just by having been told about our family, about the people, and about our history. Then, my father became instrumental in the restoration of Ahuena Heiau. He went on to be a leader in the securing of Keolonahihi complex by the State. He led the way for the saving of Kaloko-Honokohau along with other members of our Kona area and State. Because of his participatory processes, his family has been among the fortunate to have been educated along the way. We are fortunate to be able to speak in strength for our traditional Hawaiian way of life and history. This particular area that includes Holualoa I, II, III and IV, is in the area of Keolonahihi complex. These lands, in my father's

terms, are referred to as "The Bread Basket" of Kona. Kona has had an entirely high population; also, it is the "land of Chiefs." We know that in history 'Umi frequented and had residences in Kona. Before the '70's (1970's), the Kailua area pretty much was not protected culturally and so, many of the sites of 'Umi were destroyed. I'm told that he once resided at Kalake'e where Hulihe'e now stands. This is why I'm tenacious about knowing the ancient history where it pertains to historic sites and I'm uneasy about our whole land area in all of Kona and all of Hawaii. I'm particularly aware that the lands of Kona hold many key stories to our history and, therefore, I speak heavily in defense of keeping as many of our major sites intact so that these can be studied for the future for children of our culture, and for the world. Therefore, the areas of which I speak today are very important to me for this pertains to our future education and knowledge of who we are.

WYT: One question- now, you have mentioned your Dad and some of the things he did. I've known him for quite some time, I know his work at the King Kamehameha birth site. He led the team that built the memorial. Now looking at some of the things he's done at Ahuena Heiau, some of the historic sites, especially those in the area we're talking about has to be at least clear so we know what's out there and people will begin to appreciate the legacy or culture that has been left to us to enjoy and, I'd say, also to preserve. Now, on this Lako Street Project- as you know- the archaeologist has made a survey, looked at several ways. At the outset we said that we must avoid the sixteen-acre tract of the Keakealaniwahine Complex. We think we have sort of achieved this. I would like to ask you again, because this site is so important, can you point out some of the cultural practices that is associated with the site.

MR: Back in the '80s when Kona people united or gave testimony to the State in defense of saving Keolonahihi, it was the remnant of our bloodlines for these areas who spoke. We were told by the State at that time: "There is no history here, we will not afford much time to the community because

we feel there is not much in the way of documentation to be found here." When, in fact, there were many families at that time who moved forward. Matter of fact to my recollection it took three (3) days to record all of the people who wanted to give testimony as to their knowledge of Keolonahihi. Again, the sites tell us the ancient history and we have a lot to learn. But, we do know this much, by the recorded history- this was a point that was important to the entire Kingdom of Hawai'i. My elders tell me that this was a location where the very Kapu practice of "Ho'omau Keiki" happened. They tell me that Hawaii might be one of the very few, if not only, cultures on earth that absolutely ascertained the paternal line of lineage and can absolutely determine the tracking of sacred bloodlines. Why the importance, I asked myself, to the bloodlines? Well, scientists today are looking to the importance of DNA. Why is that such an important matter? This is a large question and perhaps our ancients knew about this. What I know is, the name Keolonahihi means the "entwining bloodlines." This site was important not only for Kona and Hawaii, this was important for all of the islands. It was a site such as Kukaniloko on O'ahu. It was important to all of the islands. At one time- at all times these islands were separated with their people but yet we are all the nation of Hawai'i. So, Keolonahihi holds yet many answers and much history. More information we do know about is this is a place where Kamehameha occupied. And also, by my father's latest research which he is making available to you today, he actually substantiates from documentation that Kamehameha the Great began his schooling with his uncle, Kalaniopu'u here. This is critically important to me as a teacher of Hawaiian because we are keeping together the history of Kamehameha, in addition to more ancient chiefs. Perhaps this is why there is a Hale-O-Ka'ili here. Why wasn't it at Ahu'ena? Perhaps because in his last days there was a home for Ka'ili (Ku-ka-'ili-moku) at Keolonahihi. There are existing sketches, in studies of Keolonahihi, of the sacred sites there recorded in different times and in different years. There are a number of

Heiau there and, again, for something so important as to the determination of bloodlines, I would say that this land is indeed, as they say, "Kapukapu" or, "intensely sacred." Let me remind us that the definition of a sacred site is a site so-determined first by God, not by man. So, here is a case where this kind of practice was drawn to this location because of God's distinction of this land for the purpose(s). This is how my people lived in their culture. The *kahuna kuhikuhipu'eone* were the ones, the masters, to divine most sacredly for this kind of purpose of function on the land and for serving of the people. So we know that the surfing area that is there was the spot where only chiefs surfed. I told my nephew that sometime recently.

WYT: Let me ask you a question now. You keep referring to Keolonahihi.

MR: Yes.

WYT: Now, as I mentioned earlier, we are staying away the Keakealaniwahine complex. The State has added the Keakealaniwahine complex to the Keolonahihi State Park. So I would assume that you are talking about both sites when you say Keolonahihi.

MR: That's correct.

WYT: Okay, one more question now. In reading the history of this area, Keakealaniwahine complex, took on added significance and this is because of this association with 'Umi. From what history says, 'Umi- while the ruling chiefs of Hawaii used to reside in Waipi'o,- he was the first chief that moved his royal court to this area. Can you elaborate on that?

MR: He did very much so move to Kona and this is what I mean when I learned of how many sites of 'Umi were broken down in the development of the Kailua-Kona area alone. I was saddened. I'm told that along the entire coast, 'Umi is known as the "mountain roamer," (Chief who roams the Mountains) and he, as you said, left Waipio and came to areas especially in Kona. So you are right, Keakealaniwahine complex. and Keolonahihi are important to these facts. In Kailua, on May 4, 2001, my father acted to restore Na Pohaku-kalai-a-'Umi, *the hand-hewn*

stones of 'Umi. Five centuries ago, these were the hand-hewn stones ordered supposedly by 'Umi. In the history of the Kingdom of Hawai'i, he is the only man who ordered such huge basalt stones to be hand-hewn in shapes of long rectangular squares. Remnants of these are found in cornerstones in Moku'aikaua Church and in other locations. There are stones under the banyan tree planted early in the 1900s in Kailua at Kamakahonu. These are the stones that were restored by my father, for we are in the lineage of this chief. And so, with God, he (my father) acted in prayer and in action to secure these stones, take them away from roots in that tree. And so under strict prayer and protocol, we found that this property was owned by the County and Dad made arrangements for the safe movement to unbind them from the tree. So today I've written a song, a mele to record this in our history today of the restoration. This restoration occurred in one day and these stones are now for display and they will be there. There will also be signs, beautiful signs, telling the public what they are. For many years these stones were considered just stones and they are, of all things, the same hand hewn stones that were ordered possibly in preparation for 'Umi's mausoleum. They, many of them, ended up in Kailua. My question is: Why? (Why are they here in such numbers?) It must be that he spent a lot of time here and along this whole coast. Generations later, these stones stayed on the lands of the Chiefs who enjoyed Kona's climate and comfort, I'm told. At Keauhou Beach in the area of Kahalu'u, there is an area called the Keauhou Beach Hotel now. These were lands, I'm told, that the Ali'i were attracted to for the purposes of "e luana" to "relax in respite". I've also see where Pukui refers to this land as "O Kahalu'u ku'u hom ho'ona'auao," or "Kahalu'u my beloved home of enlightenment."

WYT:

Coming back to 'Umi who moved over to the Kona side with his royal court, now the area has names: Keakamahana and Keakealaniwahine. I know that both of them are descendants of 'Umi. Now, can you explain their importance to this area and probably some of the cultural practices

that occurred.

MR:

Your questions are very good for this is the prime information that we want to know more about. This is kept carefully. Much of this information is going to be like the following passages that I will begin to read to you today. I'm leaving you a copy of this report that was secured by my father, David Roy, in his research. I believe that this comes from an article, newspaper article that he procured and has kept in his research. This talks about those periods of time in the lives of Keakealaniwahine and those great descendants of earlier chiefs. For this, in particular, is called "How the wahi kapu came about." It is translated this way:

*This kapu was called the wahi. This was a kapu that included the usual ways of that time due to the indignance of Keakealaniwahine stemming from Kala'ikauleleiaiwi's assertion that here were no more kapu left for her son. All of the kapu were taken up by the first born son of Keawekalinui I a mamo. The following is the way the story in that book goes:
As Kalaninuiimamao grew, the time arrived to cut his piko. Keawe ordered Ilikiamoana to go efore Keakealaniwahine for a kapu for their chief. Ilikiamoana then went to ell Keakealaniwahine, "say, your son has sent me for a kapu for your grandson, Kalaninuiimamao." She replied, yes. The kapu that he, Keawe, and I shared is the one he should give, that is the Moe, the kapu that requires lying prostrate on the ground. When the canoes sail without mast, the people in the canoe lie prostrate. Keawe saw that his mother gladly agreed to give the kapu to her grandson. Keawe ordered and selected to fetch Heulu, who was living at Paiaha'a, to come and get the kapu and to cut the piko of his chief. Keawe told his servant to fetch Heulu, go and tell him he has one day and one night o eat. Then, he should come and get the tapa clothing of this boy of his. This official went and spoke as he was instructed by his chief so that Heulu heard these words. He immediately came leaving behind his, poi and sleep because of his desire that his chief Kalaninuiimamao, receive his kapu. Heulubegan making his way upland at night until he reached Pahoehoe. He spent the night*

there. He descended upon seeing daylight. The reason he went to the lowlands was to avoid the falling shadows of a person or a chief, or a tree branch upon him. That was how the kapu of his chief would become profane, lose its sacred power. So he traveled without problems until he reached Kahalu'u, Keawe was residing there. He was at the beach. When he arrived near the houses of Keawe, he removed his malo and went inside the house. However before he entered, Keawe called out "Stop! Enter with a malo, that is a sacred malo of Keawe." And as he girded the malo about Heulu until it was completely one and then allowed Heulu to enter. Immediately thereafter the assembly marched in procession as the drums of Hale O Lono sounded until reaching the houses of Keawe to fully carry out their duties. Heulu fetched Kalaninuiiamamao and dressed him with tapa cloth about the loins and the piko of his child was cut with a bamboo knife. Then as he, the child, was dressed with the sacred kapa of Keawe the hair of this child immediately became curly as a traditional sign of a strong warrior. The sacred flag stood at this house night and day and this child burned with an intense heat because of Keawe's bestowing his whole kapu upon the child. The kind of piko cutting of royal sons at that time was not of real piko but of a piko of the royalty devoted to sacred use when the kapu was bestowed upon him. The real piko had been cut long before when he was a baby. And when he grew older the servant was instructed to circumcise him until blood flowed. The drums were sounded and the new piko cut, that is to say that when this ceremony was completed, Heulu wanted to know how the sacredness of this kapu of the chief would be honored. He and Kalaninuiiamamao began to travel everywhere from Kahalu'u to Keauhou. Heulu went in front with the flag of his chief and called out to the people, "Lie prostrate!", the people then immediately lay prostrate and this is how they sailed from there to Kainaliu. Sailing on a canoe whose sails, masts, everything had been taken down, and the people lay prostrate before the opening of the canoes with no masts or sails. They were hiding until the canoe of the chief and his entourage had passed by. When the masts of the canoe were once again set up, the people again stood up. News traveled and Kala'ikauleleiaiwi heard of these things she became extremely angry because she saw that all of the kapu

of Keawe and Keakealani had been taken up by the firstborn son, Kalaninuiiamamao. When Kalaninuiiamamao returned from Keauhou to Kahalu'u, the mother of Keawe said that two of them should go to see Kala'ikauleleiaiwi. As Kalaninuiiamamao traveled with the group of chiefs in front and Heulu in back, his mother, Kala'ikauleleiaiwi, violently grabbed and pulled him into the house where the kapu of Kalaninuiiamamao would be defiled. Heulu was keenly aware of the kapu of his chief so he restrained himself from entering. He sat at the door and saw the mother during the struggle of the two of them. The child was taken by Kala'ikauleleiaiwi who mistreated the child by saying all kinds of awful things to him. When she was done, Heulu went to tell Keawe. Keawe came and expressed his anger to his wife because of her mistreatment of his son.

Kalaninuiiamamao was taken another place, to his own place to live with Heulu who cared for him. All night long Kala'ikauleleiaiwi did not sleep well at all. At dawn she went before Keakealani, the old woman had awakened and was roasting some bananas, some sweet potatoes, some taro leaves and some dried aku for her grandson, Ke'eaumoku. She was carrying him, Ke'eaumoku, in her arms while seated. Her daughter, Kala'ikauleleiaiwi, came. Her head was wrapped in tapa cloth and she scolded her mother and grabbed the child, pulling it by the arms. While the grandmother of this grandchild held on to his body, she asked her daughter, "What is this you are doing to my grandson, hurt so by your violently pulling at him?" "Your grandson, so you go ahead and give away your kapu, you old woman and what happens to the rest of your kapu? Give me my son." The mother declared, "Perhaps I have not given all of my kapu to him, Kalaninuiiamamao. I have certainly not held him in my arms and your child here I have cradled on my lap." "What will happen to the rest of your kapu?" the mother declared. "You will not see my kapu if you abduct your child for these kapu of mine will then go to the grave with me." The daughter asked, "Show me." Keakealani declared, "You will not see my kapu until you consent to do as I tell you. Take off your tapa cloth." Kala'ikauleleiaiwi tentatively took off the tapa cloth that she had wrapped about her head and the sash about her loins.

Keakealani called out, "Come inside," and this daughter entered with her private parts in full view. She wore nothing until she reached inside the house, the mother took off all of her tapa clothing and placed it in a corner of the house and said to her daughter, "Well, now you are about to see my kapu and this kapu is the one I am intending for your son." This old woman went to get her tapa clothing that had been wrapped with her when she was born and girded on this tapa clothing. This tapa clothing was kapu. "This is the tapa clothing in which I was wrapped when I was born and here it is still with instructions from my grandmother that if I should give away this wrap of mine, then, I must wear this tapa clothing, and if not, then I will take it with me to my grave. So, you see you have come to get a kapu for your child and I will give to you soon." This old woman took hold of the skirt then picked up her grandson, Ke'eaumoku, carried him on her back and told the daughter, "This is the heat of your child. The searing fire that will heat your descendants." It was called "The Garment of Ku." This was the first kapu of the deity Ku. She again reached out for her grandson taking him from her back and placed him in front of her on her lap as she sat and told her daughter, "and you now see I have but one grandson that I hold in my arms, there is no other. And as for the kapu of your child, it will not be seen until the two have completed. His kapu will come, it will be hot, man-eating, deadly and your kapu will supersede that kapu. That kapu lying beneath this kapu. When the days of Hua arrive and he piko of your child is cut then you will have seen this kapu I speak about. They two will come to see me. Then you will see these two sons of yours." Kala'ikauleleiaiwi happily returned in spite of not knowing exactly how things would turn out until the days that the mother had spoken of actually arrived. When the days of Hua arrived, he piko of Kalanike'eaumoku was cut. The piko was like that of Kalaninuiiamamao. The drums sounded, the assembly marched in procession and this child arrived to see his grandmother. The other grandson of hers was also instructed to come and see his grandmother. He was also instructed to come so that the two grandchildren would meet. As Kalaninuiiamamao came Heulu came announcing the prostrate kapu and the people lay prostrate. But

Ke'eaumoku arrived in The "Garment of Foul Odor." And his servant called out, "Kapu! Lie prostrate!" Prostration was the kapu of Kalaninuiiamamao. Kala'ikauleleiaiwi saw this and was delighted, but Heulu became angry and immediately rolled up his flag and returned. The two boys came together and met. They exchanged greetings, kissing one another, and immediately went to see their grandmother. The grandmother had prepared two sweet potatoes and some aku fish for them to eat. The water gourds of the two were separated one from another. The kahili of the two were separated- one from another as were their spittoons. These two boys returned with their kapu, however, it was the flag of Kalanike'eaumoku that remained up until they reached the place where they parted. Then Kalaninuiiamamao stood but Kalanike'eaumoku's group went without a kapu which was taken up by Kalaninuiiamamao. That boy, Kalanike'eaumoku, retreated lying prostrate. The kapu was taken by him, Kalaninui I a mamao. This kapu called Wohi, superseded all of the kau(s) of that child, Kalanike'eaumoku, of hers. Should that kapu arrive then this one would supersede it.

When Kamehameha was residing ... When Keku'iapoiwa saw Kamehameha, this girl leaped with the intention of being carried on Kamehameha's back. Kala'ikauleleiaiwi became very angry and said to Keku'iapoiwa, "Goodness, don't climb onto his back because his back is not sacred because of his children. The back of that one over there is much more sacred," she pointed to Keohohiwa and, then, pointed next to the back of Keli'imaka'I.

This closes at this time this section of information that was secured by this article found by my father in research. This indication to me that more information is out there. This is written, but in my humble opinion, there is still information in family lines and there are many people of these areas who are lineal descendants still living in these areas between Kailua and Keauhou.

WYT: Oh, that's very interesting. You know, in the past people talk about growth as being desirable, helps the economy. In your earlier statement

you mentioned that you can have growth but we should preserve the significant sites. Looking at this Lako Street extension project, as I mentioned, care had been taken to avoid impact on the Keakealaniwahine Complex. { Pointing to map with proposed Alternate A road.} That, if any sites were to be disturbed it would be something of a minor archaeological feature. You know in looking at this project we say that it serves like three purposes: relieve the traffic on Royal Poinciana Drive, provide another outlet for the Komhana Kai Subdivision to Alii Drive and, also, and escape route for those along the coastlines. But in looking at this project, too, I kind of see another benefit that may be realized. This road would avoid the Keakealaniwahine Complex. It would skirt it, be on the side. But this road would make it easier to enter and to clean up the Complex and really add it as an outstanding addition to the Keolonahihi Complex, in that, the lower area has been cleaned but the mauka Complex area above Alii Drive is still overgrown with kiawe trees, haole koa, pasture grasses. Can you give me your thoughts on this?

MR:

I have testified in the recent public hearings regarding the general plan of Hawaii County that I am in favor of the securing of a buffer zone of at least two hundred acres around this area of Keolonahihi Complex-Keakealaniwahine Complex. It is because of all the hard work of people to date who have worked to secure this land. I am in total agreement with you that these lands surrounding this area are likewise very important. Particularly in light of the Kapa'akai O Ka'Aina Case where the Supreme Court ruled finding that impact to Hawaiian culture has been identified and acknowledged by development. We now need to be concerned about not only the physical harm to these sacred sites but the historical harm in the telling of history, and now, even more, the cultural harm. The threat of physical, historical and cultural harm has great impact to the Hawaiian people. These threats affect their culture and peace in their homeland. Therefore, these matters being very important to me, I am not convinced, particularly in light of the great controversy going on for

the building of a highway proposed between Kahului and Keauhou. (Reference is to the proposed Kahului-Keauhou Parkway.) I have become a member of the Hawaii Planning Advocate because I believe that planning should come from the people. I am aware that up to this point kupuna from my district, some years back in the 1980s, even from that point, have begun to give oral history to Kepa Maly for the purpose of recording history for our lands. All of them spoke of the need for better mauka-makai feeders, no need for a large four-lane, (especially, a four-laned highway) in this area. They speak of building any large roadways upland and suggest using the old railway bed and the already-existing Kauakini Highway as large roadway alternatives for the future. This cultural area, Kailua to Kealakekua, is too important. For this reason my father has done a lot of research recently and has compiled a letter to the County, by way of Mayor Harry Kim, on the importance of this area. I will read from this (written testimony of Mr. David K. Roy, Jr.) in a minute but getting back to the area of Keakealaniwahine and this buffer, I think that efforts such as those for Lako Street have been aimed at planning win-win alternatives for construction of this roadway. They've heard from the people that the route that was chosen so called "B" was very inappropriate as it appears to run too close to the historic complex. I've just said that Keakealaniwahine Complex is too important. Not enough information has been given in public hearing on Lako on both alternate plans A and B. In keeping with what I said earlier about Holualoa I, II, III, and IV, the "Bread Basket," this is where I am also told that there was a legendary village called Kaluaokalani. These things you don't see on maps but the people of that time knew it, just like you and I know where Kailua-Kona is, and Kailua Bay is and Kamakahonu. They knew where Kaluaokalani was. There, they say, a legendary figure by the name of Makualeoleo was a protector of 'Umi. These stories are still there but if these areas are greatly disturbed by a huge highway or an improperly planned roadway like Lako, , this impacts the Hawaiian

culture too much. We have to constantly worry about the safety of sites let alone bones that will be disturbed. There can be no true seeking of knowledge because it would be too much concern and uneasiness for the harm it does to these sacred lands. These lands, in my estimation, are all sacred lands between Kailua and Kealahou. You know the realtors call this area the "Gold Coast." Well, I know it for another kind of gold. These lands that I'm referring to in this area have suffered a disturbance after the loss of Kamehameha. The influx of cattle led to a new industry for Kona. Pasture land took over many of these areas I am now talking about. Many sites were destroyed that way. So, we have a long history, indeed, but we also have a part of history that disturbs the telling of the full story and we have to factor that in. Indeed, historical narratives of Abraham Fornander show us another world. I wish I could see that world where Heiau were prominently seen. One can imagine more readily what prominence they held in the Hawaiian culture. This is true on all islands but they have been disturbed for the growth of other industries, in this case, cattle and the influx of plants like kiawe which are not native. When I give my tours to people I say: "I wish could tell you what you are looking at (floral wise) on my land is what it looked like before, but in fact it is not. It's very far from that case." This makes our task much more important, which is the education relating to this aspect- that this land be preserved so that the information can be gathered at this time for now and the future. Growth is happening so fast. I read to you from a letter from my father to Mayor Harry Kim, excerpts and I will leave this with you:

"The road between Kailua and Keauhou has been aptly named "Alii Drive" as the alanui is a paved road that basically follows the original alahele along the kahakai from Keauhou to Kailua used by the Hawaiians for untold ages. It was traveled by the alii from the time of *Ehu nui kai malino* and before...."

"According to Abraham Fornander, another wellspring of

information, who had the foresight to collect ka'ao, oli, mookuauhau and mo'olelo existing fifty years before the advent of the missionaries and because he loved an alii and married into her family, he was privileged to firsthand cultural information from her immediate and extended family. Taking time to learn their language, history and cultural values, traditions of the ancient past in her family, he was able to gain more insight, understanding and cultural traditions of the Polynesian family and the Hawaiians than any other researcher known to me (which is my father). Due to his efforts in large part the history of the ancient Hawaiians has been made known to us their descendants today..."

"Kona has long been known to Hawaiians as the land of "Ehu nui kai malino" (Ehu of the calm seas of Kona) and he must have held sway in a remarkably benevolent manner. His reign was peacefully assumed by 'Umi who made alliances with his family members.

Abraham Fornander, in his most comprehensive collection of traditions relating to the ancient Polynesian migrations and the Hawaiian race to Kamehameha I, indicates the *Ehu nui kai malino* was born to Kuaiwa and his wife, Kamanawa. He was the son of Kalaunuiohua and Laakapu. Of his wife, Kamanawa, it was related to him that she was a granddaughter of Hualani, the Molokai wife of Kanipahu, of Maweke descent; that Laea nui kau manamana, his great-grandson, was the Kahunanui of Liloa who asked for and was given in perpetuity, the land of Kekaha (the land from the boundary of South Kohala to Kealakehe), as his personal holding, and which was held in the hands of his kahuna descendants, to the reign of Kamehameha I. From this, it can be appreciated that the alahele kahakai was traversed by him together with countless other alii and makaainana in succeeding generations. As such it was an alanui of great antiquity and was traversed by countless alii

and makaainana, from the time of Paa and Pili Ka'aiea. The former was a power kahuna who was at the forefront of the migratory stream from the south and did much to shape Hawaiian society, and whose descendants were influential to the time of Hewahewa, the Kahunanui of Kamehameha I. Pili was the first in an unbroken dynasty to Kamehameha I."

As you formerly spoke and asked me of Umi, I am going to read this statement again: "Pili was the first in an unbroken dynasty to Kamehameha I." So, this heritage here is that which we are interested in, in these lands that we're talking about. Indeed, Paa came at 1000 AD from the South and his line continues through Hewahewa, Kahunanui to Kamehameha I. Somehow when we get to talk about Kamehameha I, it becomes more close to us. But, indeed, I want this part that I am talking to you about to be as close one day to my children.

After much reading and study of Li's accounts, my father finally came to the conclusion that he of all the writers furnished the clue to the location of Kamehameha's residence after Keaweopala, successor to Alapa'i's rule, and with Kalaniopu'u. He was slain in battle at Kahauloa in Kona and the victor, Kalaniopu'u became the Mo'i. At that time, Kamehameha offered Kalaniopu'u his services.

Li wrote, in his "Fragments of Hawaiian History", page 135,

"The surf at Keolonahihi and Puu runs toward the north side of Puu directly beyond the spring there." The description given by Li, as to the surf at Keolonahihi running to the north side of Puu, beyond the spring there, revealed what I had failed to see [Referring to her father] after glancing over the passage time and again. It finally registered in my mind as to just where the land area called "Puu" is situated (it is given nowhere else in our maps or other literature). Keolonahihi is a familiar landmark to me and I recall that when I was little, there used to be a hill (puu, which is what Puu is) where Alii Drive now cuts through. I remember a high flight of concrete

stairs leading east from the road level up the side of a high hill which was a cemetery over which a house, now has been built, before one reaches Snug Harbor, a motel, that used to operate there. Directly past this site, next to it, toward the north a little, Keakealaniwahine's house still stands. The land area known as "Puu" to Ii can be no other than this he says on page 6: "...though he [Kamehameha] was not yet ready to rule. He was too young, being about 19 or 20 years old [at the time of the battle between Kalaniopu'u and Keaweopala], and the custom then was just as it is now.... this brought peace to the kingdom. Kalaniopu'u then returned to Kau, but left Kamehameha with his mother, Kekuiapoiwa II, and his guardians, Keaka and Luluka, at Puu in Holualoa, a place inhabited in Alapa'i's time and before. It was in the Holualoa lands of Kona the chiefs dwelt in olden times, from the time of Keakamahana, the great kapu chiefess of Hawaii and earlier. Where the large stone wall is located above Keolonahihi, was Keakealani's dwelling place, for her parents, Keakamahana and Iwikauikaua, resided there.... There Kamehameha learned to surf and to glide with a canoe over the waves, guarded by the kaikunane of Keaka, in accordance with her commands. Because he was well trained, Kamehameha excelled in these arts and in sailing canoes."

At Holualoa, Ellis remarks, Kaluaokalani, a village or town was located there on his trip around the island but it has since disappeared without a trace. Various sites and features seen today by certain students of ancient remains, have been observed without any record available to them other than legendary lore, which possibly are the physical evidence of the existence of such a place. When Kalaniopu'u next arrived from Kau, it was to take Kamehameha away with him, perhaps because Kamehameha's mother had died. This was in accordance with Keoua's request

before his death. Keoua, his father, Keouakupaikalaninui. From the above passages it is crystal clear to me [my father] where the king was raised as a youth and completes, for me, the story of his life. Incidentally, it is likely that the reason why there is no heiau for Kukailimoku to be found in Kailua in the vicinity of Kamehameha's temple, Ahu'ena, is that it was located in Keolonahihi while Kekuaokalani, who had been given the care and custody of "the land grabber," which is Kukailimoku, was in Kona. He refers to the map by Kekahuna.

The foregoing observations together with the anecdote discovered in and taken from Keohohiwa's genealogy book and subsequently translated from the Hawaiian [which I attach hereto], relating to the investiture of the Kapu Moe in Keawe's first-born, Kalaninuiiamamao, and that of the Kapu Wohi in Kalanikeeaumoku for the first time on the island of Hawaii, ascertains in my mind irrefutably, the major historical significance of the area along the shoreline between Kailua and Keauhou and, even farther, on to Kainaliu, the Hokuli'a, (present-day conflict), and beyond to Kaawaloa. The name "Alii Drive," presently in use is appropriate, in whatever form, being the familiar haunts to so many important alii in the island of Hawaii's history, in Kamehameha's day and before. A generation earlier, the land of birth, in some instances, but certainly frequented by most, if not all, of Kona's alii, was there at Holualoa. His official father Kalani kupu a pa i ka lani nui Keoua, son of Kalanieeaumoku and his uncle, Kalaniopuu, son of Kalani nui I whose birthplaces are either not mentioned or known, were both grandchildren of Keawe, and likely spent much with him at his home at Kahaluu, or in Holualoa, also Keawe's firstborn, Kalani I a mamao by Lono maa i kanaka, the daughter of I, as well as Ka lani ee au moku, born to him and

Kalani kaule ia iwi, (and thus a higher rank, being of a brother-sister marriage) and of Alapa'i, son of Kalani kau lele ia iwi with Ka uaua a Mahi son of her's, uncle of Kamehameha I. Ke ku'i apo iwa II, his mother who was born to Haae and Kekela, whose home was at Kahaluu, as well as that of his (Kamehameha I's) father's and aunt, Kala'ikau lele ia iwi's, that of Heulu, right-hand man of Keawe and father of Kamehameha's Counsellor, Keawe a Heulu, together with his consort, Iliki a Moana and a host of others. Another of Kamehameha's Counsellors, Keeaumoku, with his wife, Namahana ruled at Keauhou and Kahalu'u, and was, at the same time in charge of his ancient paternal lands of Kapililua. At Kahalu'u, Kuakini, their son, was born. Kamehameha's early residence after Alapai died, was at Puu, before he left for Kau to live under his uncle, Kalaniopuu. Kamakahonu was his home and capitol during his last years.

Quoting again from my father's research, just a point-

[Still referring to _____] "... that Ehu nui Kai malino was a grandson of Ka lau nui ohua, the father of Kahoukapu, Liloa's grandfather. He was the only other man in history [and I'm speaking of Kalaunuiohua] to conquer all of the islands in the Hawaiian chain, except Kauai. He was defeated by the aliiaimoku, Kukona who successfully met and vanquished him, holding him for ransom thus giving rise to legends of fabulous deeds and accomplishments. Kauai is the only island to have remained unconquered up to Kamehameha's time when it was peacefully ceded.

In view of the above, and the apparent high regard held by untold hosts of alii's, it is felt that Alii Drive, Alii Highway, Alii Ala Kai, whatever is selected in that vein is most appropriate for Kona's "Ala Kahakai," the old beach road, so known and marked on our old maps.

WYT: [Recording lost.]

MR: Going away from the direct reading. My father's point is that the name Alii Drive is certainly appropriate for the Ala Kahakai that has been in place from untold generations. To change this or give it any other name is inappropriate and would be a tragedy and an insult to our history. I leave you the full report in its entirety and I will be following through with sending any additional changes that have been found by him needing to be made. Thank you. Good day.

WYT: Thank you, Miss Roy. Your description of the cultural practices of this area is most illuminating. But I also find very compelling your mention of the places and people associated with this area. Thank you. Mahalo nui loa.

David K. Roy, Jr-Consultant
Hawaiian History, Culture, Restorations
"O ke 'ano o ka lahui, aia nu ia ma ka ohana"-Mauna
The character of the race is found in the family

The Historical significance of the Kona Coast
Kailua to Kealahou Bay

Kailua-Kona

September 18, 2001

The Honorable Mayor Harry Kim:

25 Aupuni St.

Hilo, Hawaii 96720

Alii Drive

Dear Sir:

The road between Kailua and Kealahou has been aptly named "Alii Drive" as the alanui is a paved road that basically follows the original alaheie along the kahakai from Kealahou to Kailua used by the Hawaiians for untold ages. It was travelled by the ali'i from the time of *Ehu nui kai malino* and before.

As set forth by Abraham Fornander, *Ehu* was the son of *Kuaiwa* who was himself born of *Ka lau nui ohua*, the only other ali'i to conquer all of the islands except one, Kauai. He was met by Kauai's then *Alii ai moku*, *Kukona*. He met and defeated *Ka lau nui ohua*, released his prisoners, and held him for ransom. This incident gave rise to the famous legend of *Waa hia*, the kahuna from Waipi'o, on Hawaii who successfully obtained the magical "Iron Knife," satisfied the ransom demanded, and secured the release of *Ka lau nui ohua*.

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Since then, *Kamehameha* was the only other alii to perform such a feat and he succeeded in doing so to the extent that it was peacefully ceded to him by *Ka umu ali'i*.

Before proceeding, I would like to refer, generally and briefly, to the sources of the information which was developed in this discussion. Many authors and documentary material have contributed their findings and thoughts in Hawaiian cultural history. Nearly all of the most reliable historians' writings have been studied for years, some of whose works have been read many times, especially American and British. German, Russian, French, and native Hawaiian translations have also shared in my background. If I have missed some, I ask for tolerance. However, I believe I have covered all pertinent sources, and I may stand corrected if information to the contrary is produced.

Of all of them, I hold *John Papa Ii* to be the most outstanding and reliable historian because he lived in the time the Hawaiian was in control of his culture and it was about to enter a new period of transition. He was the most outstanding example of the ancient Hawaiian intellect among those alii of the culture known to me. Considering his illiterate status while *kahu* to his chief, *Liholiho, Kamehameha II*, up to contact with western sources from around 1810 including early traders, and probably later on, after the decease of their majesties, *Liholiho* and *Kamamalu*, up to the Great Mahele of *Kamehameha III*. He rose to become 2nd Associate Chief Justice of the Supreme Court, appointed Jan. 15, 1846 and served as one of the Land Commissioners in 1852. He was a remarkable model of the *alii* existing in the Hawaiian society at the time, and anciently, for he

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reflected the thinking, modes of thought, and perspectives of ancient Hawai'i and the alii living then.

According to Abraham Fornander, another wellspring of information who had the foresight to collect *ka'ao*, *oli*, *mookuhāu*, and *mooolelo* existing fifty years before the advent of the missionaries, and because he loved an alii woman and married into her family, he was privileged to first-hand experience and information. Taking time to learn their language, history, and traditions of the ancient past in her family he was privy to many significant bits of historical and geneological history of the alii in her family in olden times. Due to his efforts, in large part, the history of the ancient Hawaiians has been made known to us, their descendants, today. Other exemplary individuals with superlative memories reflecting the height of sophistication of ancient Hawaiians is found among Mary Wiggins Puku'i, S. M. Kamakau, David Malo, Seraphin Kepelino, Stephen L. Desha, Hitchcock, Sheldon, Poeoe, John Wise, etc. Also, the work of western writers, including Ralph Kuykendall, E Craighill Handy, Burney, Corney, Beaglehole, Melville, Nordhoff and Hall, Stokes, Reinecke, Suggs, Dye, Kirch, and innumerable others, too many to list, have been carefully studied. Having said that, I can now proceed with my discussion.

Kona has long been known to Hawaiians as the land of "*Ehu nui kai malino*" (*Ehu* of the calm seas of Kona) and he must have held sway in a remarkably benevolent manner as his rule is fondly remembered in nostalgic and benign, *oli* and *mooolelo*. His reign was peacefully assumed by Umi in the 16th century, who made alliances with his family members.

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Abraham Fornander, in his most comprehensive collection of traditions relating to the "Ancient Polynesian Migrations and the Hawaiian Race to Kamehameha I," indicates that *Ehu nui kai malino* was born of *Kua iwa*, who was the son of *Ka lau nui ohua* and *Kaheka*. His grandson, *Laea nui kau mana mana, ka huna nui* of *Liloa* asked for and received, the land of *Ke kaha* (South Kohala to Kealahou), as his personal holding, and which was held in the hands of his *ka huna* descendants, *Ka manawa* and *Ka mee ia moku*, until the reign of *Ka meha meha I*. His mother was *Ka manawa*, the grandchild of *Hua Iani*, the Molokai wife of *Kani pahu*.

From this, it can be appreciated that the *ala hele kaha kai* was traversed by him and countless other *alii* and *ma ka 'aina na* in succeeding generations, and as such it was an *ala nui* of great antiquity and was used by countless *alii* and *ma ka 'aina na*, from the time of *Pa'ao* and *Pili Ka 'ai ea*. The former was a powerful *ka huna* who was at the forefront of the migratory stream from the south and did much to shape Hawaiian society, and whose descendants were influential to the time of *Hewa hewa*, the *Ka huna nui* who advocated the breaking of the ancient religion, regulated by the *kapu* system. *Pili* was the first in an unbroken dynasty to *Ka meha meha I*.

After much reading and study of Pili's accounts and others, I finally came to realize that he, of all writers I have read, furnished the clue to the location of *Ka meha meha's* residence after *Ke awe opala* was defeated by *Ka Iani opu'u* at *Ka hau loa*, in *Kona*, during which time he offered

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Ka lani opu'u his services. I'i wrote, in his "Fragments of Hawaiian History," p. 135, "The surf at Keolonahihi and Pu'u runs toward the north side of Pu'u, directly beyond the spring there." The description given by I'i, about the surf at Keolonahihi running to the north side of Puu, beyond the spring there," revealed what I had failed to see until then and after glancing over the passage time and again it finally registered in my mind as to just where the land area called "Pu'u" is situated (it is given nowhere else in our maps or other literature). Ke olo na hihj is a familiar landmark to me and I recall that when I was little, there used to be a hill (pu'u) where *Alii drive* now cuts through. I remember a high flight of concrete stairs leading east from the road level up the side of an elevated prominence which was once a cemetery over which a house has now been built, before one reaches Snug Harbor, which was once a motel. Directly past this site, next to it, toward the north a little, *Kea kea lani wahine's* residence still stands. The land area known as "Pu'u" to *li'* can be no other than this, where he says on p. 6, and I quote: ".....though he was not yet ready to rule. He was too young, being about 19 or 20 years old and the custom then was just as it is now. But strange to say, he was regarded as a ruler from the time of his birth. A few days after Kamehameha placed the kingdom in his uncle's charge, the opposing sides again met in combat. After a short battle, *Ke awe opala* fell into the hands of *Ka lani opu'u's* army, and this brought peace to the kingdom. *Ka lani opu'u* then returned to Kau, but he left *Ka meha meha* with his mother, *Ke ku'i apo iwa II*, and his guardians, *Ke aka* and *Luluka*, at *Puu* in *Holualoa*, a place inhabited in *Alapa's* time and

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before. At Puul in Holua loa, It was in the Holua loa lands of Kona that the chiefs dwelt in olden times, from the time of Ke aka mahana, the great kapu chiefess of Hawaii and earlier. Where the large stone wall is located above Ke olo na hihi, was Kea kea lani's dwelling place, for her parents, Ke aka mahana and Iwi kau i kaua, resided there.....There Ka meha meha learned to surf and to glide with a canoe over the waves, guarded by the kai kunane of Ke aka, in accordance with her commands. Because he was well trained, Ka meha meha excelled in these arts and in sailing canoes.

When Ka lani opuu next arrived from Ka'u, it was to take Ka meha meha away with him, perhaps because Ka meha meha's mother had died. This was in accordance with Keoua's request before his death....."

From the above passages it is crystal clear where the king was raised as a youth. Incidentally, it is likely that the reason why there is no heiau for Ku kaili moku to be found in Kai lua or in the vicinity of Ka meha meha's temple, Ahu'ena, or anywhere else in the neighborhood is that it was located in the heiau complex of Ke olo na hihi at Ka Lae o ka Moa, while Ke kua o ka lani, kahu (guardian or attendant) of "the land grabber, Ku kaili moku, was alive (see map by Kekahuna).

The foregoing observations together with the anecdote discovered in and taken from Ke oho hiwa's geneology book and subsequently translated from the Hawaiian (which I attach hereto), relating to the investiture of the Kapu Moe in Ke awe's first-born, Ka lani nui I a mamao, and that of the Kapu Wohi in Ka lani ee au moku, first born to the famous Ka la'i kau lele ia iwi and her brother Ke awe kekahi alii o ka moku, ascertains in my mind irrefutably,

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the major historical significance of the area along the shoreline between *Kai lua* and *Ke au hou* and even farther on to *Kai na liu*, *Hoku li'a*, of present-day conflict, and beyond, to *Ka awa loa*. The name "*Alii Drive*," presently in use is quite appropriate, in whatever form, being the familiar haunts to so many important *alii* in the island of Hawaii's history, in *Ka meha meha's* day and before. A generation earlier, the land of birth of *Ka lani kupu a pa i ka lani nui Ke oua*, his official father, that of *Ka lani ee au moku nui*, his grandfather, before that, *Ke awe i kekahi alii o ka moku* and *Kau lele ia iwi*, his great grand parents, and before them, his great-great-grand parents, *Iwi kau i ka ua* and *Kea kea lani wahine*, and still on before them, his ancestors back to *Pili ka ai ea*, the first in the line of his descent. It was the place Hawaiians called "*Ka Lae o ka Moa*," (the promontory or cape of the young warriors) *Puu* was there at *Holualoa* beach, was the grounds frequented by most of his relatives, if not all.

Ka lani opuu, his famous uncle, the *Moi* before him, and his brother, *Ka meha meha's* father, were said to be sons of *Pele io holani*, in *Oahu*, by the same mother, *Ka maka'i moku*, who was later also the wife of *Alapa'i*, uncle of *Kamehameha I*, and their child, was a girl named *Manono*.

Keawe's maka hiapo (first-born), *Kalani nui I a mamao* was born to him, and *Lono maa i kanaka*, the daughter of *I*. Then he and his sister, *Kau lele ia iwi*, as previously mentioned, had *Ka lani ee au moku*, the grandfather of *Ka meha meha I*, whose home was in nearby *Kaha luu*, like that of her brother, the *Moi*. The latter's right-hand man and father of *Kamehameha's* Counsellor, *Keawe a Heulu*, lived close by, together

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with his consort, *Iliki a Moana* and a host of others. Another of *Kamehameha's* Counsellors, *Kee au moku pap'i ahiahi*, with his wife, *Namahana* ruled at *Keahou* and lived at *Kahaluu*, at his heiau, *Moku ahi ole* at the site of the former *Ka lani kai*, a nightclub in the 1950's, now that of the "Makai Bar" of the "Keauhou Ohana Keauhou Beach Resort at *Kahaluu*," while his ancient paternal lands at *Kapalilua* (the general area from *Manuka* to *Hookena*) were in the care of his alii. There, *Kuakini*, their son, brother of *Kaahumanu*, was born.

Kamehameha's early residence after *Ke awe opala*, the son and heir of *Alapa'i*, died, as aforementioned, was at *Puu*, before he left for *Kau* to live under his uncle, *Kalaniopuu*, in the care of *Inaina ma* (those associated with *Inaina*). *Kamakahonu* was his home and capitol during his last years from 1812, when he returned to *Kona* with the fleet called "Ka ni'au kani."

Before *Keawe i kekahi aii o ka moku*, et als, *Puu* was the home of *Keakamahana* and her husband, *Iwi kau i ka ua*; she was an *alii pi'o* born to *Kea kea lani kane* and his full sister, *Ke alii o ka Lani*, children of *Ku ka'i lani*, brother of *Ke alii o kaloa*, and *Ke awe nui a Umi*. Both the former and the latter two were children of *Umi* who died at about the beginning of the 16th century and who reigned for some time in *Kona*. He is remembered for his "Hale o Umi" at *Hualalai*, also, "Na pohaku kalai a Umi" (the hewn stones of *Umi* seen at the banyan tree by the *Kona Beach Hotel*).

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As a native Hawaiian who claims lineal descent from our alii through *Ke ka ulu ohi mano*, daughter of *Ka la'i mamahu'* and *Ka heihei malle*, *Ka mehameha'* s half-brother and subsequently, his wife, who later was given in marriage by *Liholihoto*, *Kamehameha II*, to his close friend, *Charles Kanaina*, and becoming mother to *William C. Lunalilo*, last of the *Kamehamehas*, I implore you to spare us this further degradation to Hawaiians by malihini to our Hawaii. I speak as a native Hawaiian and a lineal descendant striving for identity and just treatment for Hawaiians in our *kulaiwi* (homeland). Your careful consideration will be duly noted by all *Kanaka Maoli* and those who love our land. Mahalo.

Owau no, me ka haahaa,

David K. Roy, Jr. *Kanaka Maoli*
cc: Mr Christopher Yuen, Director of
Planning

PERSONAL INTERVIEWS ON LAKO STREET EXTENSION

MS. RUBY MCDONALD
OHA Kona Representative
Kailua-Kona
December 16, 2003

After short introductory remarks, the interview turned to the draft environmental assessment that was developed for the Lako Street extension project.

Inasmuch as the Governor has signed Executive Order No. 4005 transferring jurisdiction of Keakealaniwahine to the Division of State Parks for inclusion in the Keolonahihi State Historical Park discussion centered on the appropriateness of this action. Ms. McDonald felt it was only natural for this follow. Even though they are generations separating the two complexes, it still should be considered as one cultural source that has grown over time.

The future of the Keakealaniwahine as part of the expanded State Keolonahihi State Historical Park was touched upon. While the success of parks are usually measured in number of visitors, Ms. McDonald was firm in the belief that the Keakealaniwahine Complex be treated with cultural respect. In this regard, it should not be opened to visitors to walk all over the site and, perhaps, tread on sacred grounds. Rather, the site should be for meditation, offerings, etc., in line with cultural practices. She felt that a development plan such as prepared for the Keolonahihi State Historical Park should be pursued.

In describing some of the features, Ms. McDonald mentioned how she was cautioned as a child in respecting kapu sites. In crossing an area, she was told not to go beyond a certain rock as it was kapu; this she obeyed.

In looking at the drawing prepared by Henry E.P. Kekahuna, Ms. McDonald felt that there are those who question his work. However, she felt that being a draftsman, his work could be considered reliable. Ms. McDonald commented that the garden for medicinal plants shown on the drawing should be investigated. She cited the work of the National Parks in researching seeds or remnants of long lost plants. Perhaps, the State could enlist the aid of the National Parks in this effort.

Ms. McDonald was asked to comment on roadway Alternate C which is the preferred choice for the Lako Street Extension alignment. She felt that the new roadway should not be south of the Keakealaniwahine Complex as there are many undiscovered archeological sites in Holualoa 4th. The buffer zone seems adequate but she questioned how it would be maintained. It was explained that the buffer zone would be private land and not part of the roadway project. However, the buffer zone could be acquired by legislative appropriation for the State Park Division. Other ways would be by donation for a tax write-off to the land owner;

or by some trade-offs.

Ms. McDonald felt that there are families or a *kahu* with ties to the Keakealaniwahine Complex who would be invaluable to the planning of the Keakealaniwahine Complex by the State. The information they possess are family traditional lore and not for general dissemination.

MR. GENE LESLIE
Hawaiian Civic Club
Kailua-Kona
January 27, 2004

After introductory remarks and examination of the proposed Lako Street Extension (Drawing No. 3 of the EA), Mr. Leslie expressed his regret that his Kona Chapter did not respond to the EA. The EA most likely was assigned to someone who probably did not complete his study and hence, no input from the Kona Chapter.

However, Mr. Leslie is aware of the Lako Street project and expressed his support. Since the proposed roadway provides a buffer zone of 200 feet, more or less, from the Keakealaniwahine Complex, he did not foresee any problem. He was pleased to note that no burial is within the proposed road right-of-way. He stated that it is the consensus of those living in the subdivisions above the Keakealaniwahine Complex that the roadway project is a community need and they are in favor of the project.

He provided additional names of those who are knowledgeable of this historic area and suggested these whose input could be of value: Marion Keliikipi, Lily Kong, Robert Lindsay, etal. The importance of the Lako Street Extension was such that Mr. Leslie felt that if the full endorsement of the Hawaiian Civic Club is necessary, he would obtain the Chapter's support.

MR. ARTHUR MAHI
Kalaoa, North Kona
January 27, 2004

After introductory remarks and studying Drawing No. 3 and going over the cultural section of the Lako Street Extension which included the report of Ms. Mikahala Roy; the discussion centered on the proposed alignment, Alternate C, of the roadway extension.

Mr. Mahi was briefed on the three alignments surveyed and why Alternate C is the route of choice. He was emphatic that only one mauka-makai roadway is to be built which is Alternate C. The other two alternates were for study purposes only, he was informed. He questioned the presence of the archaeological sites. It was pointed out that only five archaeological sites will be affected. No burial is within the proposed roadway. Mr. Mahi stated he is not against a mauka-makai roadway if done properly. He was shown

the 200 feet buffer of the roadway from the Keakealaniwahine Complex. This he felt is adequate in protecting the Keakealaniwahine Complex. In general, Mr. Mahi is against development that disturbs burial sites. Too much of this has been going on, he stated.

Mr. Mahi also informed me that he is a member of a Hawaiian cultural group that is meeting with the State Parks Division on the development and management of the Keolonahihi State Historical Park of which the Keakealaniwahine Complex is a part.

He reiterated his support for Alternate C of Drawing No. 3 as it will provide a community need in easing traffic in this area.

MS. MARION KELIIKIPI
Hawaiian Homes
January 28, and February 7, 2004

After introductory remarks, attention was centered on the cultural section of the Lako Street Extension EA which included Ms. Mikahala Roy's report and Drawing No. 3 which showed the proposed roadway alignment.

Ms. Keliikipi, was accompanied by her aunt, Rachel Kalili. Both were aware of the Lako Street Extension project. They are familiar with the descendants of those who lived in the makai Holualoa area around the Keakealaniwahine Complex. Her aunt was especially knowledgeable of the area and its people. The interview was postponed until both had a chance to review in depth the September 2003 EA and the archaeologist's report.

The interview resumed on February 7, 2004. Both Marion Keliikipi and Rachel Kalili belong to the Ka Ohana O Na Kupuna group. The group is concerned with the protection and preservation of Hawaiian cultural sites. Some of their members are in discussion with the Division of State Parks regarding the Keakealaniwahine Complex.

They are aware of the traffic problem in this area and the purpose of the Lako Street Extension to ease traffic congestion. The Lako Street Extension is a community priority they understand. Both agreed that in studying the three roadway alignments, Alternate C is acceptable as it disturbs the least archaeological sites; it provides a 200-foot buffer zone from the Keakealaniwahine Complex; and no burials will be disturbed. They were not in favor of any roadway construction south of the Keakealaniwahine Complex (Keauhou side). They were pleased to learn that the present EA under review is a preliminary step to the actual field stake out and archaeological site examinations (data recovery plans). Should any unexpected archaeological find arise, they were told that the matter will be referred to appropriate cultural groups and authorities to be resolved before proceeding with any construction.

Ms. Lily Kong
Farmer
Ka Ohana O Na Kupuna
March 17, 2004

Ms. Lily Kong is the acknowledged leader of the Ka Ohana O Na Kupuna, a Kona organization with membership throughout Kona. She is deeply involved in the preservation/protection of Hawaiian cultural sites. She also is a cultural consultant to Kamehameha Schools. Sharing the interview with Ms. Kong were Ms. Marion Keliikipi and her Aunt Rachel Kalili, both are members of Ka Ohana O Na Kupuna. Ms. Rachel Kalili is also a director of Ka Ohana O Na Kupuna.

Ms. Kong had participated in the County of Hawaii Public Works informational meeting of March 27, 2002, at which time she strongly recommended that the Lako Street Extension be located north of the Keakealaniwahine Complex. Her recommendation was a key factor in the final site selection, Alternate C, for the Lako Street Extension.

In reviewing Drawing No. 3 (of the September 2003 Environmental Assessment), and assessing the impact of the three alignments, she chose Alternate C as her choice as it affects the least number of archaeological sites; does not involve a burial site; and provides a 200-foot buffer zone which provides a fair degree of protection for the Keakealaniwahine complex. In her estimation, Alternate A is too close to the Keakealaniwahine Complex as compared to Alternate C. She repeated her earlier statement that the Lako Street Extension should not be located south of the Keakealaniwahine Complex due to the numerous archaeological features including burial sites- Alternate B.

Ms. Kong continued on to say that the State should definitely acquire the 200-foot buffer zone between Alternate C and the Keakealaniwahine Complex. Further, to protect the integrity of the Complex site, steps should be taken to also acquire that portion of Holualoa 4 that adjoins the Keakealaniwahine Complex. To fully protect and preserve the Complex site, her final recommendation was for the acquisition of the remaining undeveloped land in Holualoa 3 makai of the proposed Kahului-Keauhou Parkway.

Ms. Kong and her organization have been active participants in cultural matters affecting Kona. She emphasized the need for the preservation of the sites associated with 'Umi a Liloa who moved the Royal Court from Waipio Valley to North Kona thereby laying the foundation for the eventual establishment of the Hawaiian Kingdom by Kamehameha I.

Editor's Note:

The Ka Ohana O Na Kupuna organization is presently involved in the following projects in Kona: Hokulia, Kiilae, Kauleolii, Keakealaniwahine Complex, Kona Surf development and the Kona Lagoon restoration.

LAKO STREET EXTENSION PROJECT
Holualoa, North Kona, Hawaii

COMMUNITY INVOLVEMENT

An informal meeting was held on October 13, 2000, with residents of the Komohana Kai Subdivision and Ali'i Kai Subdivision. The meeting was to inform the residents of the proposed extension of Lako Street from the Komohana Kai Subdivision to Alii Drive. No prepared plans were under consideration as this was the first meeting called by the County to introduce the consultants and explain the scope of the project.

The first public informational meeting was held on March 15, 2001, at the Kahakai Elementary School cafeteria. A good turnout of local residents were on hand to view preliminary plans of the proposed Lako Street Extension project. The minutes of this meeting are attached.

A second public informational meeting was held on March 27, 2002 at the Kahakai Elementary School cafeteria. The summary of the minutes of this meeting is also attached.

County of Hawaii
Department of Public Works
LAKO STREET EXTENSION
Informational Meeting Held March 15, 2001 - 6:30 PM to 8:30 PM
Kahakai Elementary School Cafeteria

Record of Proceedings revised 3-19-01
Prepared by Stone-Swanson Enterprises

I. INTRODUCTION

Dennis Lee - Director of Public Works & Nancy Pisicchio - Councilwoman, welcomed the attending group and introduced County staff, guests and consultants (see-attached agenda and sign in lists).

Mr. Lee Noted:

1. The project will not move forward without the support of the community.
2. Initially the project was to be funded with matching Federal Funds (\$4 Federal for every \$1 County). Federal projects take much longer to get started and completed.
3. Councilwoman Pisicchio encouraged "fast tracking" the project by using *only* County funds.
4. A Bond had been passed for CIP funding of the road - these appropriations were near expiration. The new administration has since re-appropriated the \$3 million required for completion of the project.

II. PURPOSE OF MEETING

Jiro Sumada, Deputy Director outlined the purpose of the meeting.

1. To brief the public on the status of the project.
2. To address concerns the public may have regarding its progress.
3. To communicate and receive input on preliminary Environmental Assessment (EA) information and Preliminary Engineering alternatives (- *prior* to the completion of the final EA & plans by the consultants).

EA Discussion: Jiro explained to the group that he hopes to get public input *during* the preparation of an EA rather than waiting till the end of the process - which involves review of a large written document and address of issues through formal written comment.

Questions (Q)/Comments (C) and Response (R):

Q: Why an EA vs. an EIS (Environmental Impact Statement)?

R: *Preparation of the EA will often determine if there are significant issues that merit preparation of an EIS.*

Q: How fast can the project be completed?

R: *The EA will take 6-8 months. December 2001 is the scheduled date for completion of designs. This assumes the project moves quickly to meet this timetable. Construction is expected to be completed the year after - 2002 thru 2003.*

Q: Is this meeting going to determine if there is a real need for the project?

R: *By a show of hands - Everyone agreed there is a significant need!*

Q: Do you know where it will connect to Alii Drive?

R: *Consultants will review the alternatives with the group tonight.*

III. SITE ORIENTATION

Alan Haun, Archaeology Consultant, presented a site map with detailed location of the features identified to date. A significant group feature in the area is the *Kekealani - Wahine Complex* and several heiaus associated with the area. In total there are well over 350 features. These all have been classified

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revised 3-19-01*

into three categories. 1) Features that should be preserved or remain undisturbed. 2) Features of no-significance 3) features that may require further study to determine preservation levels.

Two alternate routes were indicated on the site plan that would avoid the primary archaeology features – a north route (A) and a south route (B). More detailed field studies will be conducted around the preferred route once that is determined. One community member identified building landmarks on the site map – to help the group understand where the Alii Drive connections are for the two alternatives.

Questions (Q)/Comments (C) and Response (R):

C: One community member is very concerned about preservation of the *Kekealani –Wahine Complex* features located in the project area and Parkway area. She indicated that these sites are extremely important “substrate” of Hawaiian culture (Statewide) and *must* be preserved. (Ho’omaukeiki – important associations to Hawaiians – a great deal of Mana!)

C: Many others in the group, expressed concern that unresolved cultural site issues could delay completion of the project (law suits).

R: Alan emphasized that the current survey of the area has been very comprehensive. However, further studies will be conducted as the project proceeds forward.

IV. ALIGNMENT ALTERNATIVES & DESIGN CRITERIA

Jiro Sumada & Rodney Kawamura, Design Consultant – discussed the two route alternatives. The north route (A) is relatively straight and averages @ 6.5% grade (existing end of Lako Street is near 12% grade). The south route B is longer, less steep (4%) and makes several curved turns down to Alii Drive. *(Include - reduced copies of plans presented at the meeting.)*

Questions (Q)/Comments (C) and Response (R):

Q: Do you realize there is a flood zone with in the northern route (option A)?

R: Yes – that could be a factor in selecting an alternative route.

C: The curving in route B is “traffic calming” and would reduce traffic speeds.

Q: Can other traffic controls be added to the upper part of Lako Street once the road is complete (stop/speed limit signs, speed bumps, other?)

R: The County will have to review that issue later based on availability of funds. The “community” has to fund a traffic study before the county will consider speed bumps.

Q: Can upper Lako be improved as well?

R: That depends on the private developer of that area.

Q: Since A is so “problematic” can we just skip that route and just focus on B?

R: Group Consensus on this question: Do not eliminate route A yet - more information and study is needed.

C: B is 1000’ longer and will cost more to build!

C: The area at the bottom of A has heavy parking congestion during high surf conditions.

C: The Land owner in alignment B area has offered the land (at no cost - & with fair share assessments) and wants to work with the County so there will be no condemnations.

C: The longer this project takes – the more potential there is for traffic/pedestrian accidents on Royal Poinciana!

Q: How do A & B compare on sight distances?

R: More design studies are underway.

Q: Is there a third option?

R: No build is always an option – however the designers are open to other options.

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- Q: How about a route further north?
R: Possible – however it would cross the flood plain and require a large culvert.
- Q: How far ahead does the County plan for another mauka-makai connection (Can we do both alignments in addition to others)?
R: Roadways are planned @ 20 years out – must also consider costs associated with future projects.
- Q: How wide is the new road and does it have the same features as the existing?
R: It is a 60' R.O.W. and will have the same features.
- Q: Will the road have underground wiring for Street Lights/utilities?
R: Those cost alternatives will be assessed later in the project.
- Q: Can the alternative connections to Alii Drive be marked for the Public to see?
R: The County will consider the option.
- Q: Do the intersections always have to be at a 90% angle.
R: For sight line safety, generally yes.

Parkway/Other Discussion:

- Q: How fixed is the Parkway alignment? What about underground utilities?
R: Parkway has more restrictions above and below that limit its alignment. Parkway intersections will be in the form of "round-a-bouts". There will be streetlights at these intersections.
- Q: When will the Parkway be complete?
R: Design complete end of 2001, construction will begin 2003 in two phases: Phase I – up to Lako Street.
- Q: When is the South Mamalahoa by-pass going to be complete? Traffic impacts from new development in area make this a critical project!
R: It may start April this year.

VI. CLOSING

Jiro Sumada, Dennis Lee, & Nancy Pisicchio, thanked the group for their participation and comments. Individuals were encouraged to review the plans and ask questions of the consultants and County staff at the close of the meeting. The date for the next meeting will be announced after further studies are completed for the EA.

County of Hawaii
Department of Public Works
LAKO STREET EXTENSION
Informational Meeting Held
MARCH 27, 2002 - 5:30 PM TO 7:30 PM
Kahakai Elementary School Cafeteria

Record of Proceedings (4-12-02)
Prepared by Stone-Swanson Enterprises

I. INTRODUCTION

Mr. Dennis Lee - Director of Public Works welcomed the attending group. Mr. Lee introduced County staff, Public officials, & Consultants involved with the project and encouraged all participants to sign attendance sheets (see-attached sign in lists).

Dennis Lee outlined the purpose of the meeting.

1. To receive input regarding the Draft Environmental Assessment (EA)
2. Communicate with the Community and receive comments regarding the proposed route - Comments will determine the ultimate route for the project.
3. Design of the route will proceed based on input from this meeting. The next engineering design phase will be presented to the community when complete.
4. Community input is an important part of the completion process.

The project is simply the extension of Lako Street down to Alii Drive (not to be confused with the Parkway, which is a separate road project - funded with both Federal and County funds).

The Draft EA currently addresses two alternative routes for the project.

- 1) Route A - (in Green on the exhibit) the northern route
- 2) Route B - (in Red on the exhibit) the southern route

Also included for general information was an exhibit of two "typical" intersection details that may occur at 1) the Kahului-Keahou Parkway (Parkway) and Lako Street and 2) at Alii Drive and Lako Street St.. Photographs of the existing site areas were included.

II. PROJECT DISCUSSION

Questions (Q), Comments (C) and Response (R):

C: The traffic study for Alii Kai Subdivision (Royal Poinciana Dr.) needs to be revised - since the installation of speed bumps. Regarding Route A - the ocean flooded the intersection at Alii Drive, recently during high seas. Therefore Route B is a better choice. Audience clapped in response to the statement about Route B.

Q: Is Route A cheaper since it appears to be a shorter, steeper route - is that why the County it is still considering this route?

R: A & B are the same gradient - the cost of one route over another is not what determines the route. It will take into consideration all impacts.

Q: Isn't this the same EA as presented two years ago? Aren't we supposed to be done by now?

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R: Correction- it was one year ago. There is no "deadline" per se with this project since Federal Funds are not involved. Also the previous studies were less detailed – additional studies were needed on flood plain limits and other site features. We are taking time to get comments from the community before submitting. After it is submitted to OEQC there will be an additional 30 days for formal comment.

Q: Costs are estimated at \$1.8-\$1.9 million for land acquisitions? There is no indication that the landowners have been contacted yet. Are your studies current or do they need to be updated? Are all of these potential costs included in your budget? Do you have enough money?

R: Yes the landowners have been contacted and Rights of Entry have been granted. The date of Archeology studies range back over 20 years to more detailed studies done within the last 2 years. The proposed alignments were surveyed in detail during (for Archeology) 2000. And yes, we do have the enough money for these costs. The CIP for Lako Street has been re-appropriated at \$3 million dollars and additional bonds could be floated if necessary.

C: There was discussion about the location of the Archeology sites in the area and how each alignment might impact these sites. A representative of RMB #20 commented regarding route A. The route will bisect their property and in combination with the archeological sites, the property will be difficult to use. They prefer a route further north.

R: Route A does avoid the Heiau in the Keakealaniwahine Complex– but is in close proximity to it (approx. sixty feet). Route B avoids the majority of burial sites – but a few may have to be relocated. The burial sites may be easier to mitigate than impacts on the Heiau. More studies are being done south of route B, however it is believed an even denser group of burials will be found in that area. A more northern route may have fewer major sites

C: There is concern that Royal Poinciana will still get the bulk of traffic since it is closer to Town.

R: There are studies underway for additional routes further south of Lako Street (in conjunction with private development) that could help with future traffic.

C: There was more discussion about the accuracy of the flood limits in and around the project area.

R: The maps are based on the latest FEMA information for the area. More extensive studies are available for surrounding areas (at the County offices - for those who would like additional information), however the exhibit indicates just the information related to the project area.

Q: There is an existing dirt road running mauka – just south of route B. Why not just use that – by connected it to the future Parkway and then over to the upper portion of Route B? Or just follow the road all the way up through another subdivision road connecting to Kuakini Hwy? At least open this mauka-makai road up for emergencies?

R: This would require two intersections on the Parkway instead of one. Additional Safety factors would be involved with the turning movements on the Parkway between two intersections.

C: That suggestion would also create very bad impacts on the subdivision involved. A new intersection at Kuakini would require traffic lights, more studies and would push the project back years!

C: Lako Street does not have any driveway access from any existing lot along its route. It was obviously designed as a through street from its inception.

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R: Consultants did not dismiss the route C option – they indicated that some of the concerns caused by proximity to the flood areas or other site features could be mitigated by effective engineering design.

Q: Can you please stake the routes in the field so the public can see them/walk them ASAP?

R: Yes we can.

III. CLOSING

Mr. Lee indicated the group needed to give the County some direction on the project. He called for a show of hands to indicate preference for one of three options. 1) Route A, 2) Route B, or 3) Do nothing.

The group overwhelmingly voted (again) for Route B. Consultants cautioned that the State Preservation Division/Burial Council could still reject or require significant alterations to Route B or other proposals.

Dennis Lee thanked the group for their participation and comments. Individuals were encouraged to review the plans and ask questions of the consultants and County staff at the close of the meeting. The date for the next meeting will be announced after further studies/comments are received on the Draft EA.

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C: Many individuals indicated a desire for more development of mauka-makai routes - in addition to Lako Street. Some were concerned that with out these additional routes - Lako Street and any other existing route will still be overburdened with traffic at excess speeds through residential areas.

Q: Are you considering speed bumps or other traffic calming devices? Many individuals concurred that this is already a problem - no traffic studies are needed to convince them of that need. Some felt speed bumps slow traffic too much. There was a request for the County to "commit" to the incorporation of calming devices in the area and on Lako Street.

R: *The County will consider all options, if traffic becomes a problem. There are many other ways to "calm" traffic - curves, traffic circles, etc.*

Q: Since Lako Street and Royal Poinciana both terminate at one intersection on Kuakini - What are you going to do about the increase in traffic at that intersection?

R: *The engineers do have a proposal for improving the intersection and planning studies to 4 lane Kuakini in that area is underway. Additional studies are being done in conjunction with Kamehameha III and Laaloa. Lako Street Mauka is also being studied to create traffic calming solutions up there. It is hoped that development of the Parkway will divert traffic away from Lako Street and other mauka areas.*

C: Unless the Parkway is completed prior to Lako Street completion - the traffic on Lako Street will get worse! The Parkway should be underway by now along with concrete plans for other mauka-makai routes. Your planning is not keeping up with our real time needs!

R: *Lako Street will not be delayed - since funding for Lako Street is totally available through County funds - The Parkway is constrained by Federal Funds (timetable - 2003 through 2005). We hope to have Lako Street completed prior to that - the Parkway and Lako Street should come together at about the same time. Again there are studies underway for other mauka-makai routes.*

C: Route A should not be considered because of its proximity to the Heiau - "the Hawaiian Community deserves better." One person does not want the Parkway at all - since it would negatively impact all the neighborhoods along its path.

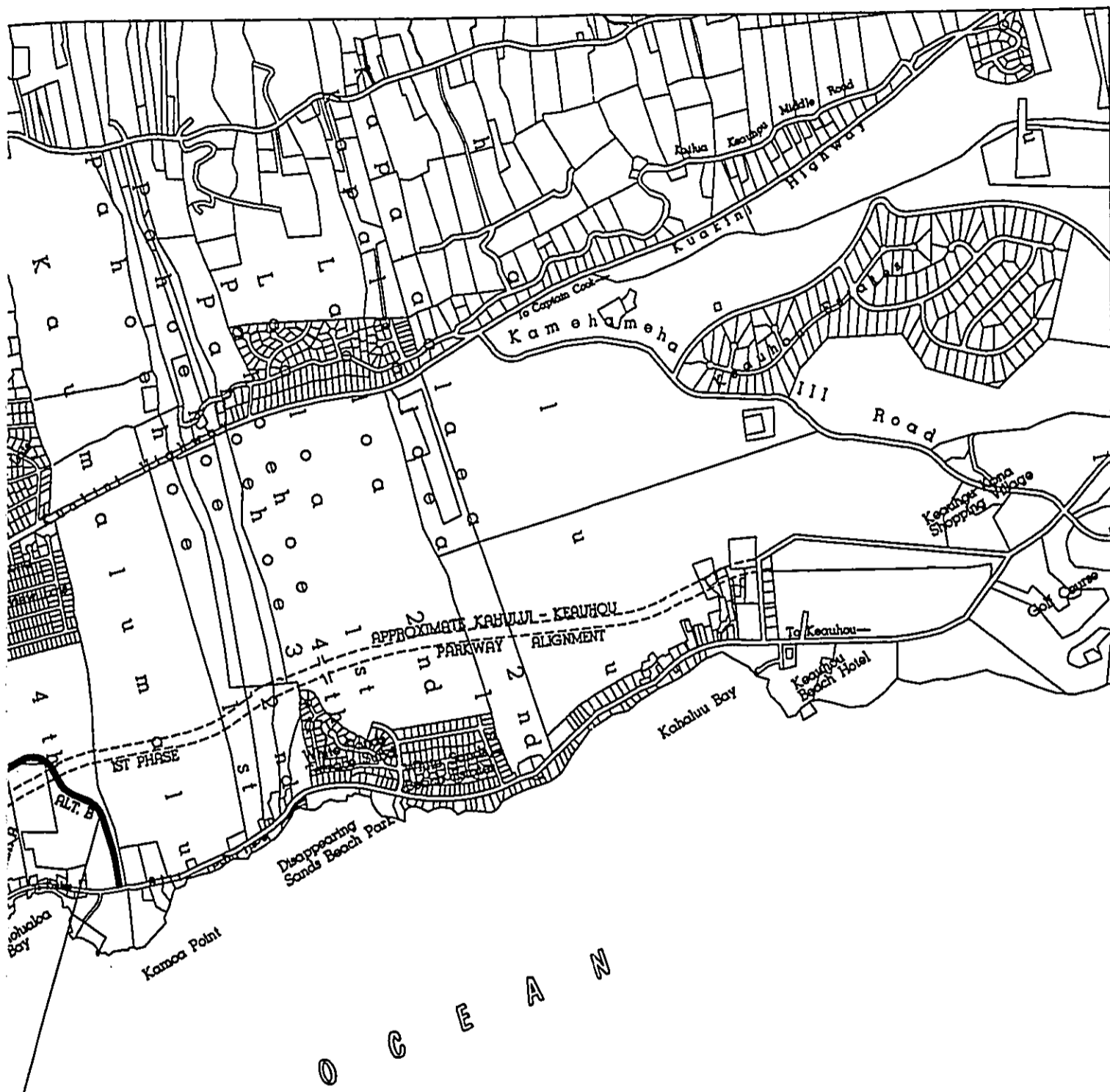
R: *The final selection of the site is highly contingent on the decisions made by the State Preservation Division and Burial Council regarding Historic, Cultural, and Burial sites. It is possible neither route will be acceptable to the State. Again - Route B has more burial sites effected, Route A is very close to the Heiau. The State is still waiting to hear comments from the Hawaiian community regarding these sites and proposals.*

Q: There were several questions regarding the status of the EA.

R: *The EA is only in Draft form and is still subject to input from the community. (Latest version published Feb. 2002) It was suggested that concerned parties should read through the document for more detailed information on project studies and proposals.*

C: It was noted that at the last Lako Street community meeting (3-15-01) - the group present had overwhelmingly voted to proceed with the route B option (contingent on more detailed studies, planning and design). At the meeting tonight (3-27-02) there was additional discussion about a possible route C - which would swing the road further north, closer to the flood plain - it would put more distance between sensitive historic areas. Suggestions were made to "buy" the sensitive areas and dedicate the land as a County Park.

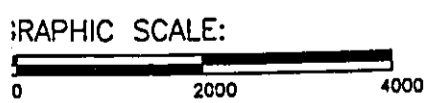
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**PROJECT
SITE**

VICINITY MAP

PROPOSED LAKO STREET EXTENSION
DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII
HOLUALOA 3RD & 4TH, NORTH KONA
ISLAND OF HAWAII, HAWAII



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DRAWING NO. 2

