

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

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FILE COPY

JUN 08 2016

KIRK CALDWELL
MAYOR



GEORGE I. ATTA, FAICP
DIRECTOR
ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

2016/ED-1(MS)

May 26, 2016

Mr. Scott Glenn, Director
State of Hawaii
Department of Health,
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Mr. Glenn:

SUBJECT: Chapter 25, Revised Ordinances of Honolulu (ROH)
Draft Environmental Assessment (DEA)
Project: Development of Four New Single-Family Dwelling Units
Applicant: Hawaii Rainbow Properties LLC
Agent: Environmental Communications, Inc. (Taeyong Kim)
Location: 47-407 Kamehameha - Kahaluu
Tax Map Key: 4-7-9: 11

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

16 MAY 26 P 3:37

RECEIVED

With this letter, the Department of Planning and Permitting hereby transmits the DEA and anticipated finding of no significant impact (DEA-AFONSI) for the Hawaii Rainbow Properties Project located on Tax Map Key Parcel 4-7-9: 11, in the Koolaupoko District on the island of Oahu, for publication in the next edition of "The Environmental Notice" on **June 8, 2016**.

We respectfully request publication. Enclosed, please find one hard copy and one electronic copy of the DEA and the Publication Form. The Publication Form, including Project summary was also sent via electronic mail to your office.

Should you have any questions, please call Malynne Simeon at 768-8023 or via email at msimeon@honolulu.gov.

Very truly yours,

Handwritten signature of George I. Atta in black ink.

George I. Atta, FAICP
Director

Enclosures: DEA, one hard copy and one CD
One copy of OEQC Publication Form

**NON-CHAPTER 343 DOCUMENT
PUBLICATION FORM
OFFICE OF ENVIRONMENTAL QUALITY CONTROL**

Project Name: 47-407 Kamehameha Highway Special Management Area Dwelling Units

Applicable Law: Chapter 25, Revised Ordinances of Honolulu

Type of Document: Draft Environmental Assessment

Island: Oahu

District: Koolaupoko

TMK: 1-4-7-009:011

Permits Required: Special Management Permit, Grading Permit, Building Permit

Applicant or Proposing Agency: Hawaii Rainbow Properties
Contact authorized consultant listed below

Approving Agency or Accepting Authority: Department of Planning and Permitting
650 South King Street, 7th Floor, Honolulu, Hawaii 96813; Contact Person - Malynne Simeon,
768-8023, msimeon@honolulu.gov

Consultant: Environmental Communications, Inc.
P.O. Box 236097, Honolulu, Hawaii 96823; Contact Person – Taeyong Kim, 528-4661,
tkim@environcom.com

Status: DEA-AFNSI

Project Summary:

(Summarize proposed action and purpose/need in less than 200 words in the space below):

The proposed Project consists of the construction of two additional detached dwelling units on a single lot (TMK: 4-7-009:011) which has already received building permits for two dwelling units, which have not yet been constructed. Access to the Project site is through the adjacent lot (TMK: 4-7-009:021) with frontage on Kamehameha Highway. The 31,565-square-foot Project site is located in R-5 Residential District. The site is presently vacant and when completed, will be a Condominium Property Regime (CPR) with a single common area driveway. No improvements are proposed along the shoreline.

The proposed addition of the two dwelling units, in addition to the already permitted two dwelling units will remain consistent with the surrounding neighborhood in both density and in value. The Project site is privately owned and does not serve as an area recreational resource. The site is located within the City's Special Management Area (SMA) and therefore requires the approval of a SMA Use Permit from the City Council. This Draft Environmental Assessment (DEA) is prepared in compliance with Chapter 25, Revised Ordinances of Honolulu.

FILE COPY

JUN 08 2016

DRAFT ENVIRONMENTAL ASSESSMENT
47-407 KAMEHAMEHA HIGHWAY
TMK 4-7-009: 011

Applicant:
Hawaii Rainbow Properties, LLC

Agent and Preparer:
Environmental Communications, Inc.

May 2016

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- B *A Cultural Impact Assessment for TMK: 4-7-09: 11,21 Located in Kahaluu Ahupuaa, Koolaupoko District, Island of Oahu*, Archaeological Consultants of the Pacific, Inc.

SECTION ONE

PROJECT SUMMARY

APPLICANT: Hawaii Rainbow Properties, LLC

AUTHORIZED AGENT: Environmental Communications, Inc.
P.O. Box 236097
Honolulu, Hawaii 96823

ACCEPTING AUTHORITY: Department of Planning and Permitting (DPP)
City and County of Honolulu

PROJECT NAME: 47-409 Kamehameha Highway

PROJECT LOCATION: Makai (north) of Kamehameha Highway, Kahaluu,
Koolaupoko, Oahu, Hawaii

TAX MAP KEY: 4-7-009: 011

OWNERSHIP: Hawaii Rainbow Properties LLC
LEILANI

LOT AREA: 4-7-009: 011 area 31,565 SF (0.752 acres)

ZONING: The project area is designated R-5 Residential District on the City and County of Honolulu Zoning Map.

SPECIAL DISTRICT: Special Management Area (SMA)

STATE LAND USE: Urban

EXISTING LAND USE: Vacant land within an existing residential neighborhood

NATURE OF DEVELOPMENT: The Applicant proposes the construction of two (2) detached dwelling units on a single lot (TMK: 4-7-009: 011) in addition to two dwelling units that have obtained building permits for construction. Site access to the development site is through the adjacent (TMK: 4-7-009: 021).

PROJECT TRIGGERS: Special Management Area Major Permit, Chapter 25 Revised Ordinances of Honolulu

Under the Special Management Area Regulations, two dwelling units may be developed on a single parcel, without a Special Management Permit. Additional units beyond the two units allowed, require a Special Management Permit Major.

PROJECT COST:

Approximately \$1,000,000

PROJECT SCHEDULE:

The project is anticipated to be completed in mid-2017.

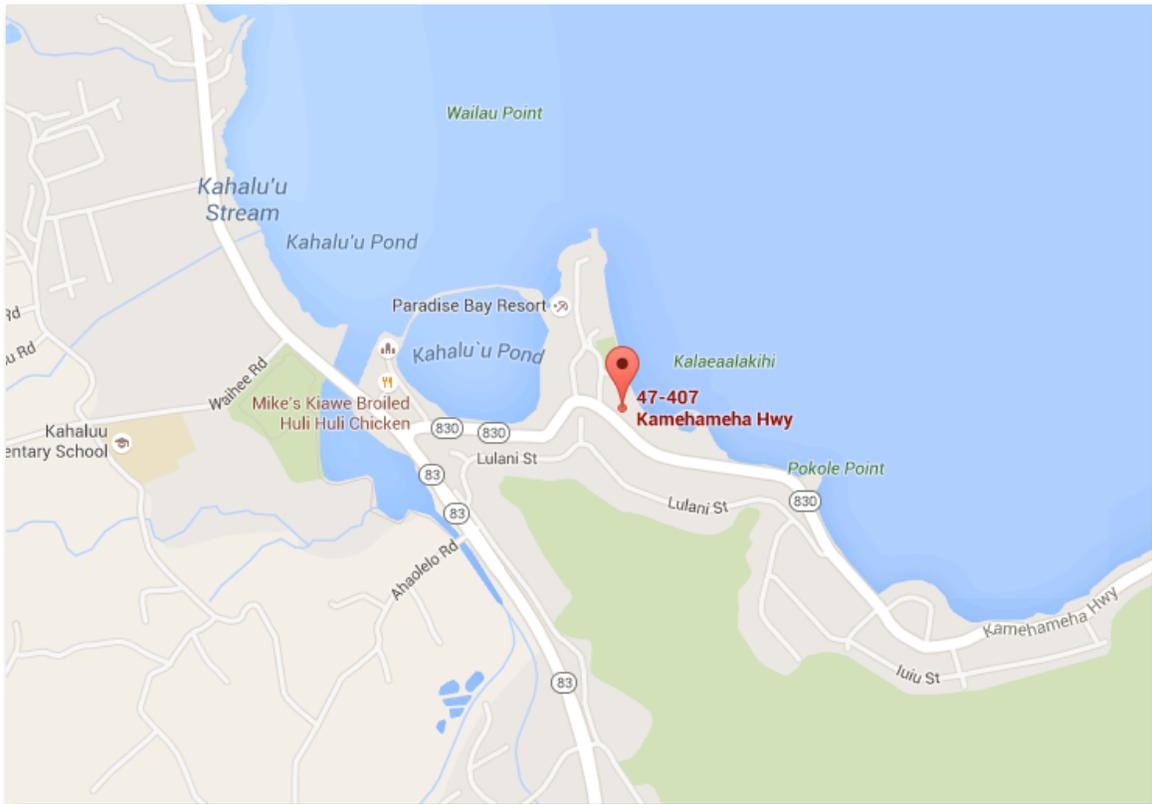
SECTION TWO PROPOSED PROJECT AND STATEMENT OF OBJECTIVES

2.1 PROJECT LOCATION

The project is located in the community of Kahaluu in East Honolulu, Hawaii. The site uses the street address of 47-409 Kamehameha Highway and is identified as Tax Map Keys: 4-7-009: parcel 011. The property is located immediately makai of Kamehameha Highway and leads to the shoreline of Kaneohe Bay. The majority of the shoreline was previously hardened and the remaining natural shoreline is stable and not subject to erosion or accretion.

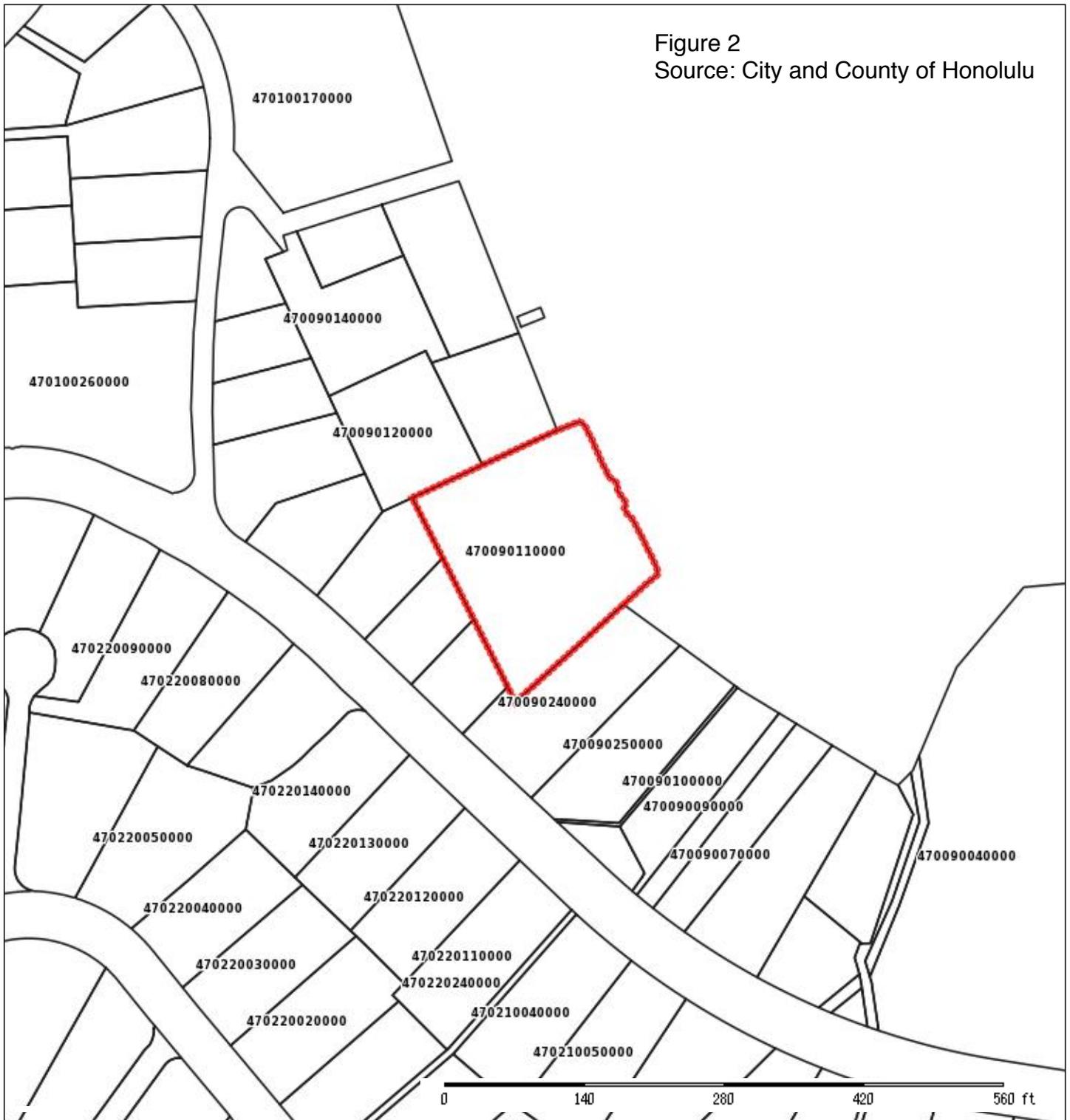
The project parcel consists of two single-family dwellings to be constructed under Building Permits 779445 and 779447. The lot size of the subject parcel allows for 5 dwelling units under the existing R-5 zoning. The owner proposes the construction of two additional units which are the subject of this document.

FIGURE 1: LOCATION MAP

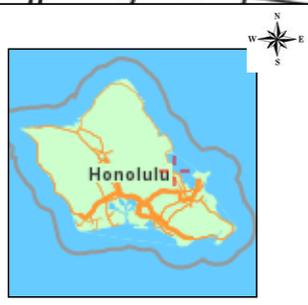


Source: Google

Figure 2
Source: City and County of Honolulu



Tax Map			
Parcel: 470090110000 Acres: 0.7246			
Name:	LAENANI	Land Value:	513400
Site:	47-470 A LAENANI DR	Building Value:	0
Sale:	\$1000000 on 2005-04-07 Reason=3 Qual=	Exempt Value:	0
Mail:		Taxable Value:	513400



*Honolulu County makes every effort to produce the most accurate information possible. No warranties, expressed or implied, are provided for the data herein, its use or interpretation. The assessment information is from the last certified taxroll. All data is subject to change before the next certified taxroll. The 'parcels' layer is intended to be used for visual purposes only and should not be used for boundary interpretations or other spatial analysis beyond the limitations of the data. The 'parcels' data layer does not contain metes and bounds described accuracy therefore, please use caution when viewing this data. Overlaying this layer with other data layers that may not have used this layer as a base may not produce precise results. GPS and imagery data will not overlay exactly.
Date printed: 05/26/16 : 04:04:33

MAP SHOWING
 SHORELINE SURVEY
 PORTION OF EXCLUSION 12
 LAND COURT APPLICATION 979
 PORTION R.P. 2112, L.C. AW. 2239,
 AP. 2 TO MAIKAI
 AT KAHALUU, KOOLAUPOKO, OAHU, HAWAII

SCALE : 1 IN. = 30 FT.
 APRIL 11, 2014 WALTER P. THOMPSON, INC.



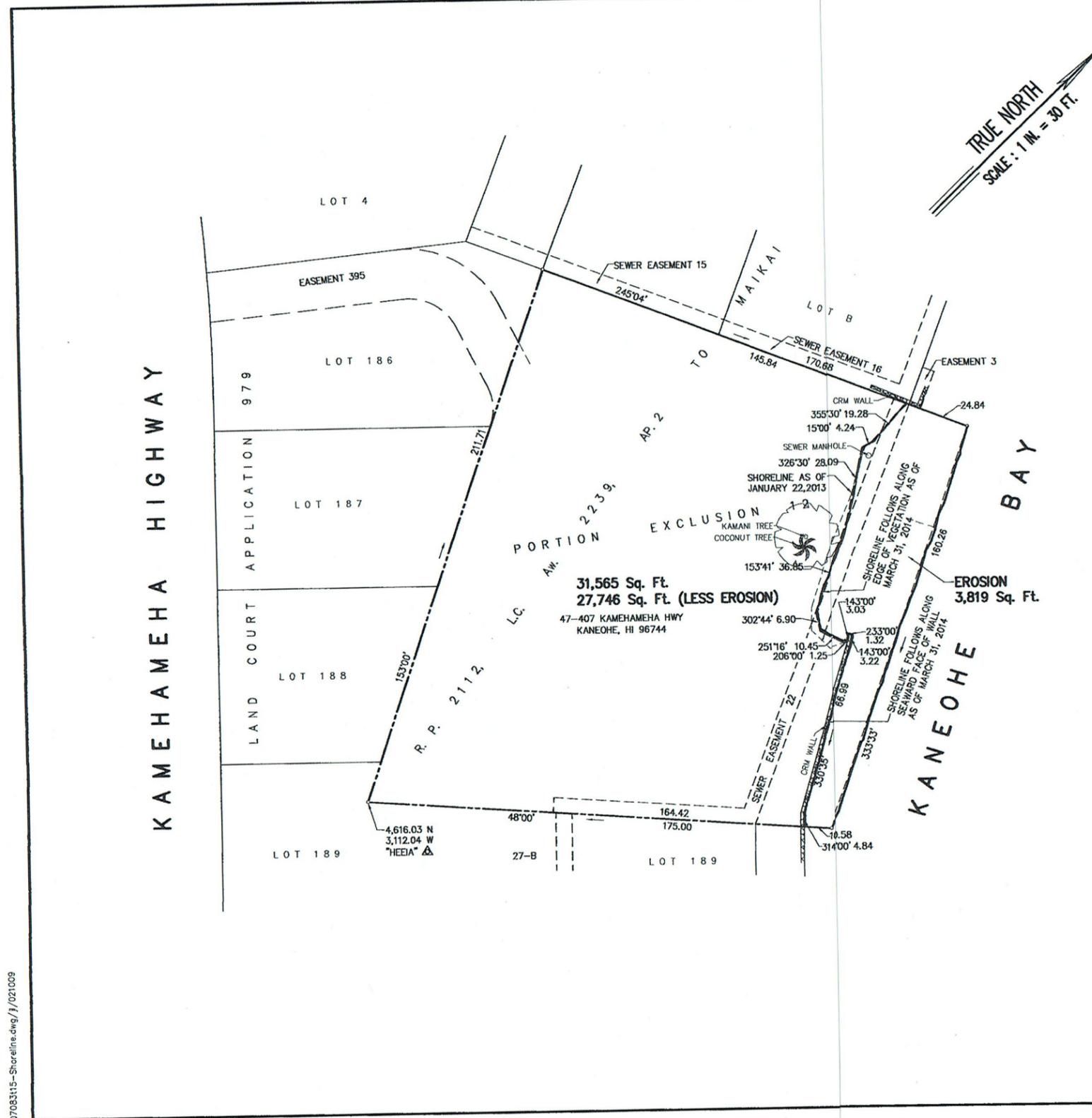
THIS WORK WAS PREPARED BY
 ME OR UNDER MY SUPERVISION

James R. Thompson
 Exp. 04/30/16

OWNER: HAWAII RAINBOW PROPERTIES LLC
 PO BOX 25640
 HONOLULU, HI 96825

The shoreline as delineated in red is
 hereby certified as the shoreline as of
 FEB - 5 2015

[Signature]
 Chairperson, Board of Land and Natural Resources



07083115-Shoreline.dwg//021009

TAX MAP KEY : 4 - 7 - 9 : 11

15"x 21" = 2.19 Sq.Ft.

2.2 PROJECT PURPOSE AND DESCRIPTION

The proposed project consists of the construction of two (2) detached dwelling units on 31,565 square feet of property located on a single parcel. The two units and parcel will be subject to a future Condominium Property Regime (CPR) as the units will share a single driveway with the adjacent 4-7-009: 021 which accesses Kamehameha Highway.

2.2.1 EXITING USE

The project site is presently vacant and overgrown. The site was previously occupied by homes that have since been demolished. A boathouse building was also located on the site but has also be demolished and removed.

2.2.2 BUILDING DESCRIPTION

The proposed project consists of a slab on grade, single-family dwellings of approximately 1,500 square feet. The buildings will feature clap siding and a composite EDPM roofing. Buildings will be light beige and gray with stained cedar accents. Energy efficiency measures will be used wherever practicable. The buildings will be located within the required yard setbacks with no setback incursions.

2.2.2 LANDSCAPING

Common landscaping will include a mix of native and ornamental plants including Naupaka, Lawai Fern, Plumeria, Areca Palm and bamboo. Two existing Monkey pod trees located on site will be retained and existing coconut trees will be retained where possible or relocated elsewhere on site.

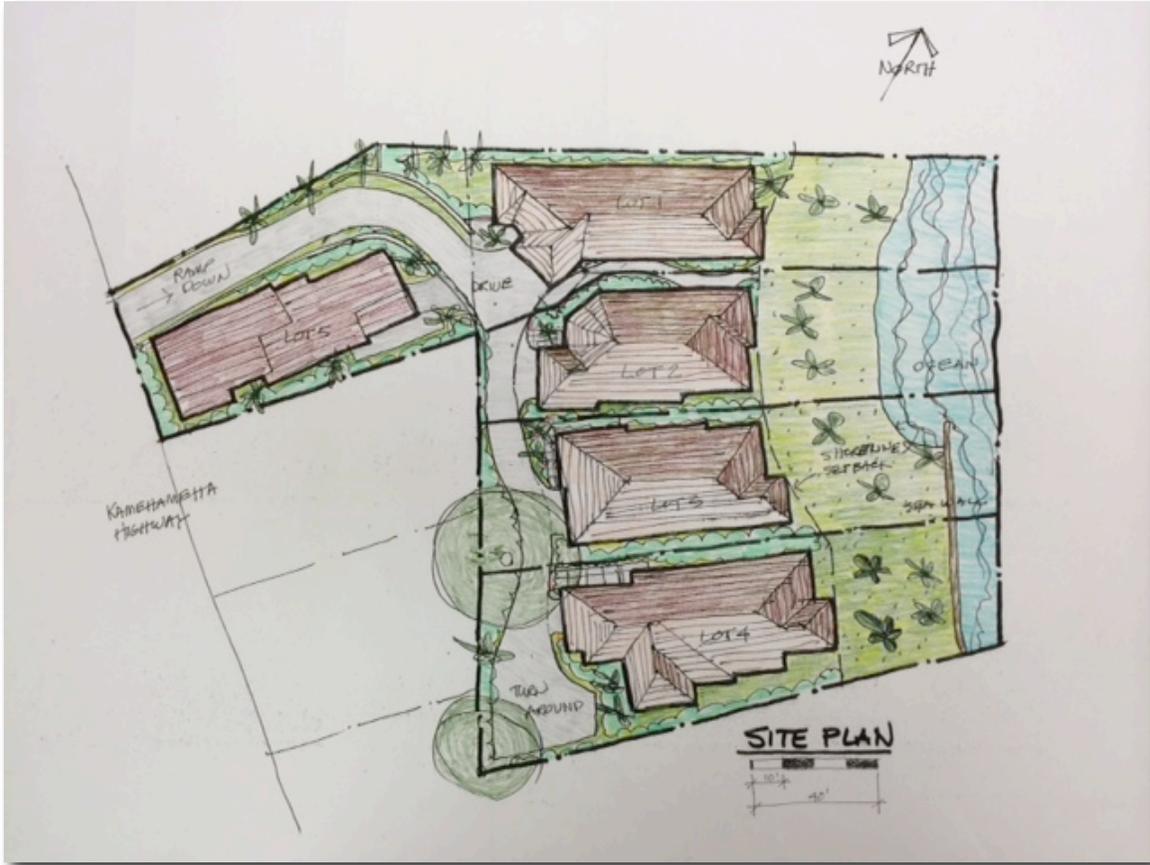
2.3 PROJECT OBJECTIVE

The applicant is seeking a Special Management Permit to allow the construction of two additional dwelling units on a single lot within the Special Management Area. The applicant intends to offer the dwellings for sale upon completion and expects the homes to be consistent with area prices.

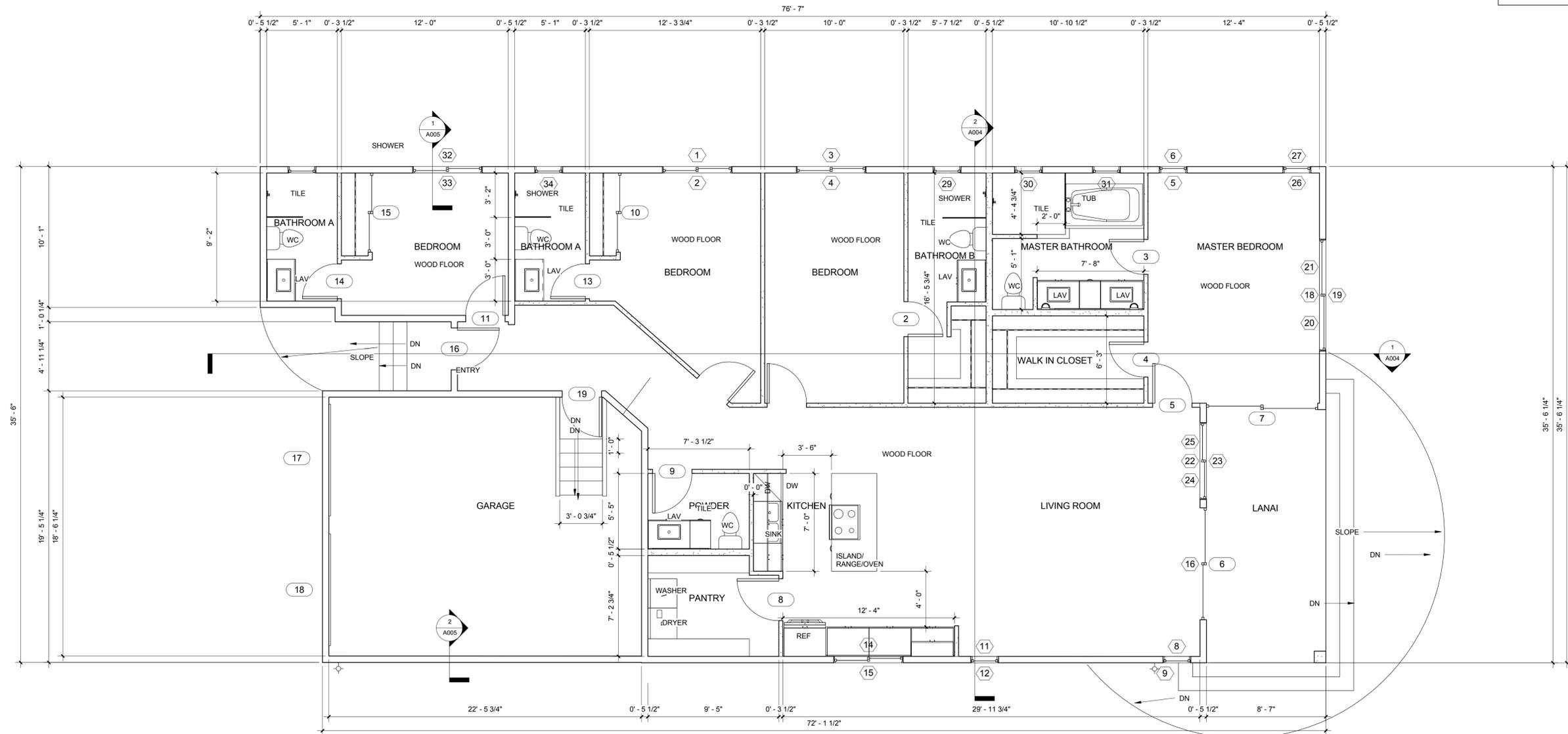
2.4 FUNDING AND SCHEDULE

The total development cost is approximately \$1,000,000 will be borne by the applicant. The project is intended to be completed within six months of the receipt of building permits with an anticipated construction completion by mid-2017.

FIGURE 5: RENDERED SITE PLAN



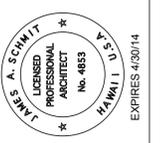
Source: JASA



1 LOT3 PLAN
1/4" = 1'-0"

REVISIONS/PLOTTED	
No.	Date

J.A. SCHMIT ARCHITECT
 P.O. Box 61116, HONOLULU, HI 96861
 PHONE: (808) 937-4919
 FAX: (808) 988-2429
 jms@jasarchitect.com



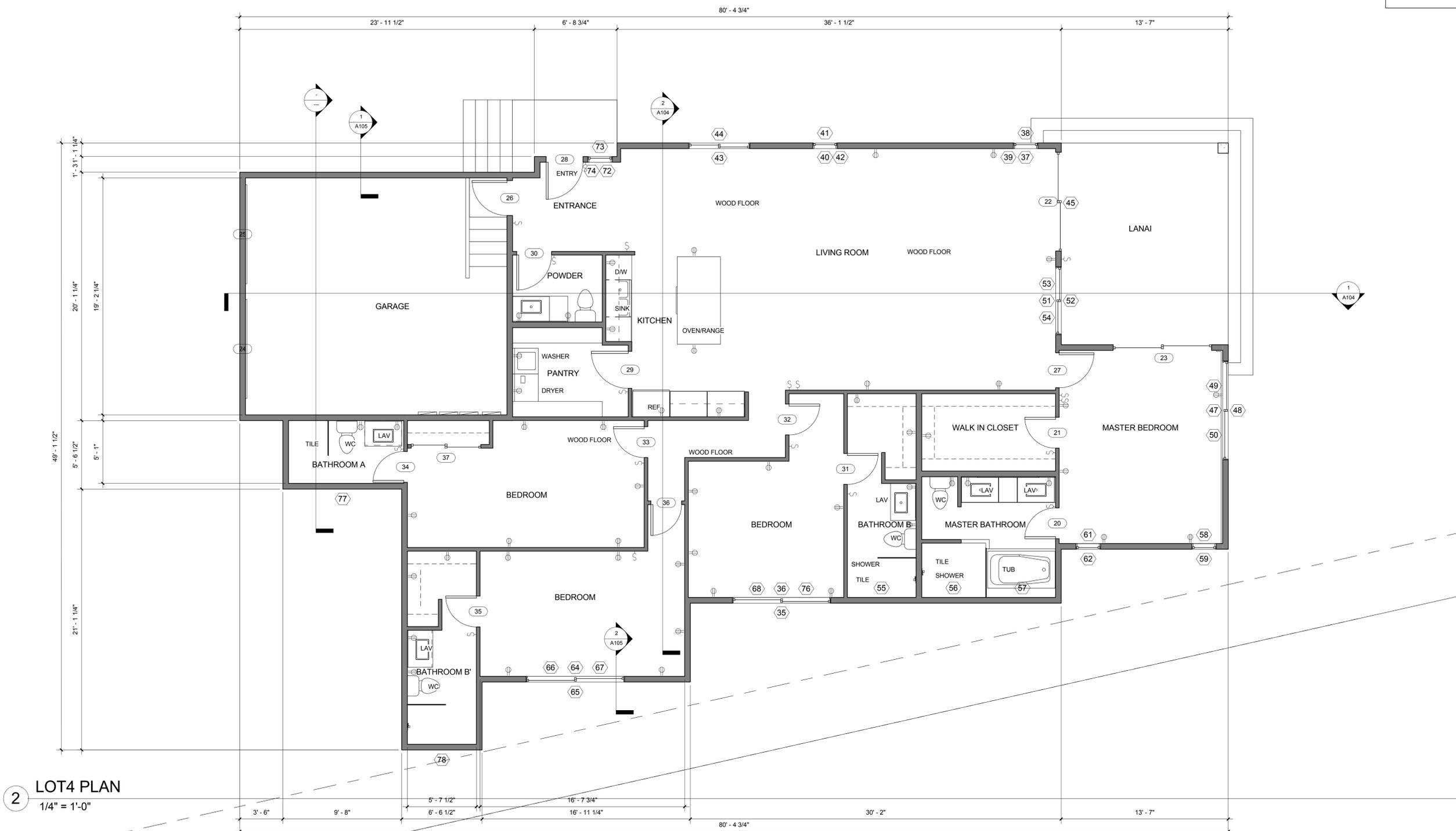
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

LOT3 FLOOR PLAN

2 NEW HOUSES FOR OWNER
 HAWAII RAINBOW PROPERTIES, LLC
 LAEMANI CONDOMINIUMS
 KANEHOE BAY DRIVE
 KANEHOE, HAWAII 96734
 TMK: 4-7-008011

12/23/2013	
DRW	GQ
CHK	JS

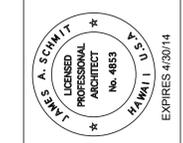
A001



2 LOT4 PLAN
1/4" = 1'-0"

REVISIONS/PLOTTED	
No.	Date

J.A. SCHMIT ARCHITECT
 P.O. Box 61116, HONOLULU, HI 96861
 PHONE: (808) 937-4919
 FAX: (808) 988-2429
 jasm@jasarchitect.com



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LOT4 FLOOR PLANS

2 NEW HOUSES FOR OWNER
 HAWAII RAINBOW PROPERTIES, LLC
 LAEMANI CONDOMINIUMS
 KANEHOE BAY DRIVE
 KANEHOE, HAWAII 96734
 TMM: 47-008011

12/23/2013	
DRW	GQ
CHK	JS

A101

SECTION THREE

DESCRIPTION OF ENVIRONMENT, ANTICIPATED IMPACTS AND MITIGATION MEASURES

3.1 ENVIRONMENTAL SETTING

The project site consists of vacant residential land that was formerly occupied by multiple dwelling units. The units were in extreme disrepair and were demolished as they were not salvageable. The site is located on a relatively flat land that is overgrown and contains two monkey pod trees and multiple coconut trees. The site and proposed use are consistent with the surrounding area and prevailing zoning code. Improvements to site will consist of minor grading for building pad construction and minor excavation for utilities which are readily available on-site. An old short retaining wall runs along the shoreline of the project and will not be affected by the project.

3.2 SURROUNDING USES

Surrounding uses consist primarily of single-family residences. The closest public facility is Laenani Neighborhood Park located approximately 500 feet northwest of the project site. Kahaluu Pond, a large privately owned pond is located approximately the same distance away as Laenani Neighborhood Park, and a smaller privately owned pond is located approximately 500 feet to the east. Kahaluu Regional Park is located approximately ½ mile to the west of the project site at the intersection of Kamehameha Highway and Waihee Road.

3.3 ENVIRONMENTAL CONSIDERATIONS

3.4.1 GEOLOGICAL CHARACTERISTICS

Topography

The project site is essentially flat in the area proposed for the dwelling units. Parcel TMK 4-7-009: 021 serves as a transition from Kamehameha Highway down to the project site. A low CRM wall is located along the southeastern boundary of the project site. The wall defines the shoreline for ½ of the site and will not be affected by any of the project improvements. In 2011, the retaining wall was noted to be leaning slightly in the makai direction (see photograph). By 2012, the wall was tied back in the mauka direction by a few inches to its correct vertical position. The north eastern shoreline is in a natural state.



PHOTO NO. 1

**TAKEN JUNE 8, 2011
SEE THE SLIGHT LEAN OF THE SEAWALL**

Climate

The geography of the Windward District is typically warm and temperate in climate. Prevailing trade winds arrive from the northeast. According to the National Weather Service Honolulu Office, over a period of 30 years, normal monthly high temperatures range from 80 degrees in January to a high of 89 degrees in August for an average of 84 degrees. Normal month low temperatures range from a low of 65 degrees in February and a high of 74 degrees in August for a monthly average of 70 degrees. Precipitation typically ranges from 0.44 inches in August to a high of 3.8 inches in December. The annual average rainfall in Honolulu is 70 inches per year.

USDA Soil Survey Report

The project site is located on soils classified KtC, Kokokahi clay according to the Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii by the U.S. Department of Agriculture Soil Conservation Service. This series consists of soils that have moderate to slow permeability with moderate runoff and an erosion hazard rating of slight to moderate.

3.4.2 WATER RESOURCES

Hydrologic Hazards and Resources

According to Panel 15003C0260F of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, the project site is located in D. Zone D consists of unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance is required for the property.

Sea Level Rise Analysis

The US Army Corps of Engineers has developed a assessment to assess potential relative sea level rise changes for US Army Corps of Engineers projects. By using this tool in conjunction with the FEMA Flood Insurance Rate Map, the Island of Oahu and the project site potentially range from a low of 0.53 feet to a high of 4.86-feet by year 2100. The project site improvements are located above 5.0 feet in elevation and will not be affected by potential sea level change.

Tsunami Inundation

The Civil Defense Tsunami Inundation Maps 21 Inset 2 indicates that the project site is located in an area vulnerable to tsunami inundation (Dept. of Planning and Permitting).

Special Management Area

The project site is located within the boundaries of the Special Management Area (SMA) Map. A Special Management Permit will be required for the proposed use. The specific permit sought is a Major permit based on the project construction value which is above \$500,000.

3.4.3 ARCHAEOLOGICAL CONDITION

Archaeological concerns were examined and address in the cultural impact study prepared for the project in 2003. The project site is not on any known of listed archaeological site and an inventory study conducted at the nearby Laenani Park concluded that there are no archaeological sites in the project area.

3.4.4 CULTURAL ASSESSMENT

The project site is not known to be of cultural significance. The site has been in private residential use for a long period of time and no native cultural practices have, or will be affected by the proposed use. A study entitled *A Cultural Impact Assessment for TMK: 4-7-09: 11,21 Located in Kahaluu Ahupuaa, Koolaupoko District, Island of Oahu* is included in its entirety in the Appendix.

According to the above referenced study, the general vicinity was formerly used for the agricultural purposes and native aquaculture. During the 1900's the area become commercialize with the introduction of the pineapple production and the Libby, McNiell and Libby Company cannery and the area surrounding the project site became known as "Libbyville" a plantation housing area.

3.4.5 TRAFFIC CONDITIONS

Existing traffic to and from the project site is minimal as the site is not in any active use. Use of the site for dwelling units only have minimal traffic impact as the addition of four dwelling units would essentially be the same as any typical residential development. The project would in fact, result in better traffic control as all units share a driveway and would therefore minimize points of entry and egress from the project site.

3.4.6 AIR QUALITY

Air quality impacts resulting from the proposed project are expected to be insignificant and would be typical of any residential development.

During the construction period, very minor increases in particulate matter may occur as a result of minor excavation however any impact will only occur during the period of the construction activity. Long-term impacts to air quality are not expected.

3.4.7 NOISE ENVIRONMENT

Noise generation by the proposed project is expected to be typical of residential development.

3.4.8 BIOLOGICAL CHARACTERISTICS

FLORA

The project site is presently vacant and is covered by various weedy and noxious species. Typical plant material found on site include field, buffel and California grasses, Koa Haole, and other weedy species. No rare or endangered species of flora were identified on the site. Two monkey pod trees and several coconut trees located on-site will be retained or moved for reuse on the site.

FAUNA

The site does not serve as a wildlife habitat although avifauna, feral cats, mongoose and rodents may be found on-site.

3.4.9 INFRASTRUCTURE AND UTILITIES

The proposed improvements are readily serviced by existing utilities located in the immediate vicinity. Electrical power will be provided by an overhead line. Septic tanks will be used for wastewater disposal.

POTABLE WATER

The project will continue to be serviced by the existing water system.

STORMWATER

The site is presently naturally drained. Onsite drainage occurs primarily through percolation and natural drainage patterns. Both during and after construction, the project will observe Best Management Practices (BMP) in accordance with the City's Rules Relating to Storm Drainage Standards. No site drainage will be directed to adjacent properties or existing roadways.

WASTEWATER

Septic tanks will be used for wastewater disposal.

SOLID WASTE

It is expected that municipal refuse collection service will be used to service the project location. The applicant may implement recycling programs upon project completion.

TELEPHONE AND ELECTRICAL SERVICES

Telephone and electrical services are available to the site.

3.4.10 PUBLIC FACILITIES

The proposed project is not expected to have any significant impact on existing public facilities including schools, parks, police, and fire or emergency medical services.

FIRE PROTECTION

Kahaluu Fire Station Number 37 provides fire protection service to the project area as well as emergency medical service. The station is located Waihee Road and is located within 1 mile of the project site. Response time to the site is less than 5 minutes. This station is equipped with one engine vehicle.

POLICE SERVICE

Police service is provided by the Honolulu Police Department (HPD) District 4, Sector 3. Response time to the site is less than 5 minutes.

3.5 RELATIONSHIP TO PLANS, CODES AND ORDINANCES

The State Land Use Commission Boundary Maps identify the project parcel as being within the Urban district. This is consistent with the surrounding residential uses.

City and County of Honolulu zoning maps show the project site within the R-5 residential district. The proposed project is consistent with this zoning.

From the City and County of Honolulu planning perspective, the project is located within the Koolau Poko Sustainable Communities Plan. Under Ordinance 99-19, objectives and guidelines have been formulated for the development and growth within the Windward District. Specifically, Section 3.6.1. addresses the expansion of residential development in the district. Expansion areas include infill of already urban lands and minor subdivisions of larger residential lots. The proposed project is consistent with both of

these objectives. The proposed project essentially replaces uses that previously existed on the site.

3.6 PROBABLE IMPACT ON THE ENVIRONMENT

The proposed project represents a consistent use of the residential zoned property. The project will return the site to productivity by providing market level housing in a highly desirable area.

The proposed use will result in a higher level of activity for the site. However given the size of the property and the overall low and limited number of homes proposed, the overall environmental impact is very small. Insignificant to minor increases in air, noise and traffic level may occur however in absolute numbers, these impacts should not result in any noticeable increase to the general public.

3.7 ADVERSE IMPACTS WHICH CANNOT BE AVOIDED

Adverse impacts that cannot be avoided are generally related to short-term construction impacts. These impacts can be minimized by sound construction practices, Best Management Practices (BMPs) adherence to applicable construction regulations as prescribed by the Department of Health, and coordination with applicable County agencies.

Increases in traffic and air and noise pollution will occur during construction as is expected of any use of this nature. These impacts are relatively small and do not have significant impact on the surrounding environment.

3.8 ALTERNATIVES TO THE PROPOSED ACTION

Alternatives considered for the site included variations in the number of units allowed under the prevailing R-5 zoning district. Under a previous development alternative, five units were considered for the project parcel as the lot is of adequate size to accommodate five units. This alternative was rejected in favor of a less dense plan where four units would be built with more circulation and open space. Fewer than four units would allow for even more generous CPR lot sizes but this would place the units out of the intended market prices resulting decreased housing inventory and significantly higher priced housing. Non-action was result in the land remaining fallow and unproductive. No other areas were considered as the project site is well suited for the proposed potato wine venture.

3.9 MITIGATION MEASURES

Long-term impacts resulting from the proposed improvements are expected to be minimal or non-existent based upon the subject environmental assessment. Long-term traffic, air and noise impacts are not expected to change significantly after improvements are completed. Short-term construction related noise and air quality impact mitigation measures include general good housekeeping practices and scheduled maintenance to avoid a prolonged construction period. The contractor will be directed to use best management practices (BMP) wherever applicable.

3.10 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Implementation of the proposed project will result in the irreversible and irretrievable commitment of resources in the use of non-recyclable energy expenditure and labor. Materials used for new construction may have salvage value; however, it is unlikely that such efforts will be cost-effective. The expenditure of these resources is offset by gains in construction-related wages, increased tax base and tertiary spending.

SECTION FOUR
LIST OF NECESSARY PERMIT AND APPROVALS

- 4.1 The proposed project will be require the following permits and approvals:
- Special Management Permit, City and County of Honolulu
 - Grading Permit, City and County of Honolulu
 - Building Permits

SECTION FIVE FINDINGS AND REASON SUPPORTING DETERMINATION

As stated in Section 11-200-12, EIS Rules, Significance Criteria: in determining whether an action may have a significant effect on the environment, every phase of a proposed action shall be considered. The expected consequences of an action, both primary and secondary, and the cumulative as well as the short-term and long-term effects must be assessed in determining if an action shall have significant effect on the environment. Each of the significance criteria is listed below and is followed by the means of compliance or conflict (if extant).

- Involves an irrevocable commitment to the loss or destruction of any natural or cultural resource.

The proposed action will occur on an existing developed site and will not impact any topographical resources. In the event that any archaeological remains are uncovered during the course of construction, all work will stop and the State Historic Preservation Office will be contacted for appropriate action.

- Curtails the range of beneficial uses of the environment.

The proposed use will benefit the public and will be environmentally consistent with the surrounding residential area. The proposed project will not curtail beneficial uses of the environment. The proposed project will provide needed housing inventory and is considered a highest and best use in the public interest.

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

The proposed action is consistent with the goals and guidelines expressed in Chapter 344, Hawaii Revised Statutes and NEPA. The proposed action is triggered by the need for a Special Management Area Permit. The subject Environmental Assessment has been developed in compliance with the Chapter 343.

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

The proposed action will make a positive contribution to the welfare and economy of the State and City by providing desirable and needed housing opportunities. The project will also contribute positively to the community through the use of goods and services in the area, through construction related employment, and through secondary and tertiary spending and taxes. The proposed action will not have any impact on any native cultural practices.

- Substantially affects public health.

The proposed improvements are not expected to have any direct impact on public health. No recreational resources will be impacted by the project, nor will the project increase any undesirable environmental impacts.

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

The proposed action will increase the population within the community and will increase the demand for public facilities. These impacts are consistent with residential development of this nature and are not considered adverse impacts. The change in population and demand for public facilities will be readily met by existing infrastructure and services.

- Involves a substantial degradation of environmental quality.

The proposed action will not degrade environmental quality. Impacts associated with the project, such as traffic impact and noise quality have been assessed to be minimal. The project is located in an urban environment. In that respect, the project is consistent with the overall land use of the district.

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

The site is appropriately zoned for the proposed development and does not serve as a component of a larger development.

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

The proposed action will not affect any rare, threatened or endangered species of flora or fauna, nor is it known to be near or adjacent to any known wildlife sanctuaries.

- Detrimentially affects air or water quality or ambient noise levels.

The proposed action will not impact air or water quality. Minimal impacts on air quality and noise are anticipated during construction, but will be limited by normal construction practices and Department of Health construction mitigation standards.

- 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 will not have any impact on an environmentally sensitive area.

- Substantially affects scenic vistas and viewplanes identified in County or State plans or studies.

The proposed action will not affect any scenic vistas or view planes.

- Requires substantial energy consumption.

The project will increase electrical energy consumption over the existing vacant land use. This increase will be consistent with residential use and will be typical of any low density residential use. The project will include energy conservation measures. General conservation goals include: meeting State energy conservation goals, using energy saving design practices and technologies, and recycling and using recycled-content products.

Based on the above stated criteria, the proposed two dwelling unit project is not expected to have a significant effect on the environment. As such, a Finding of No Significant Impact (FONSI) is anticipated for the project.

6.0 LIST OF PARTIES TO BE CONSULTED DURING THE DRAFT ENVIRONMENTAL ASSESSMENT REVIEW PERIOD

Agencies with ministerial or specific interests regarding the proposed project were contacted for their comments regarding the proposed project. Parties contacted are listed and the date of their comments are listed below.

Federal Agencies

US Army Engineer District
US Fish & Wildlife Service

State Agencies

Department of Health
 Environmental Management Division
 Clean Water Branch
 Clean Air Branch
 Solid and Hazardous Waste Branch
Department of Land and Natural Resources
 Land Division
Department of Land and Natural Resources
 State Historic Preservation Division
Land Use Commission
Office of Environmental Quality Control
Office of Hawaiian Affairs
Office of Planning
University of Hawaii Environmental Center

County Agencies

Board of Water Supply
Department of Planning and Permitting
 Planning Division
 Site Development Division
Department of Parks and Recreation
Fire Department
Police Department

Copies Provided also provide to the following

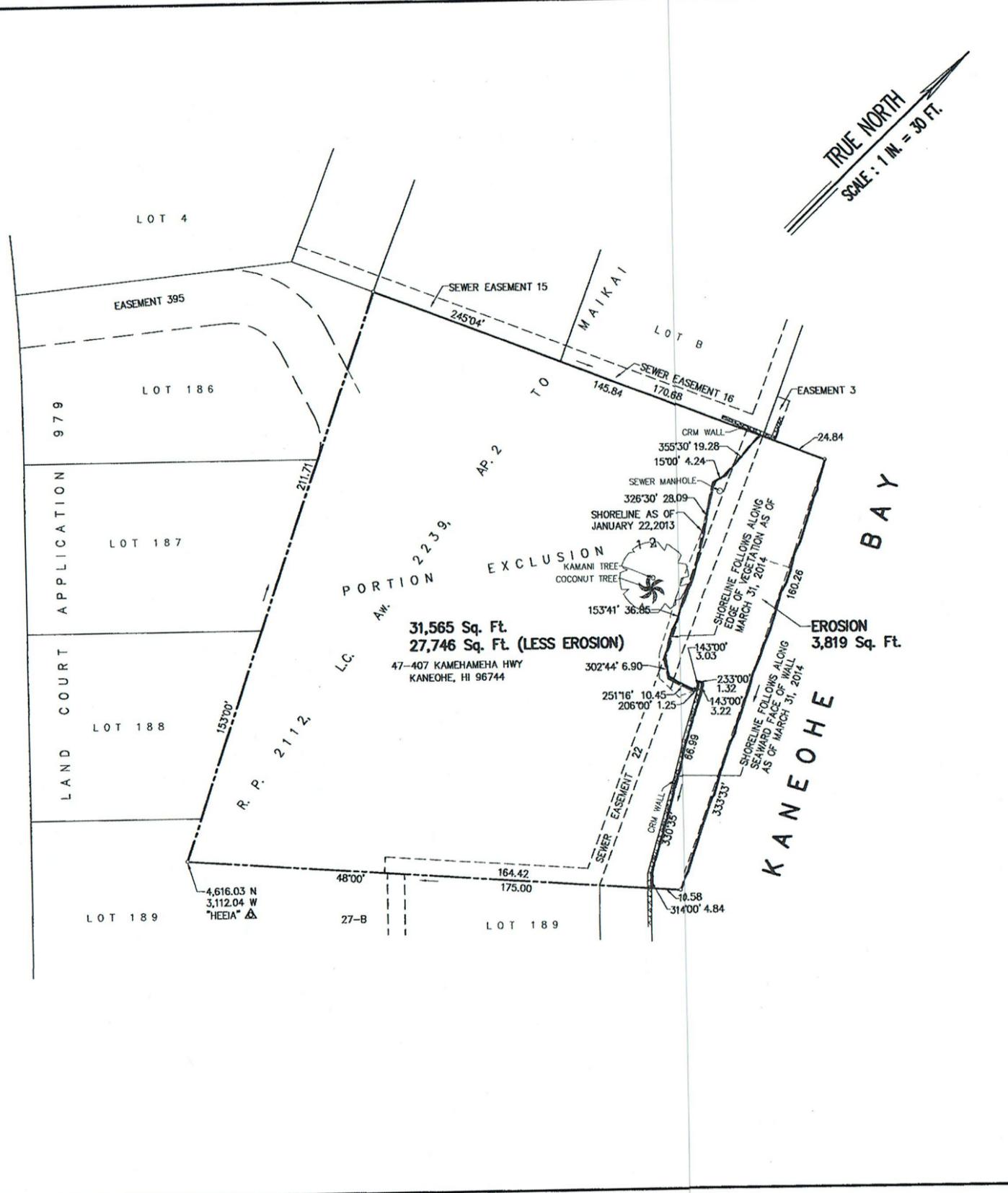
City and County of Honolulu Municipal Reference Center
Hawaii State Library
Kaneohe Public Library
Neighborhood Board No. 29
Windward City Hall

Appendix A
Shoreline Survey

07083115-Shoreline.dwg/1/021009

TAX MAP KEY : 4 - 7 - 9 : 11

KAMEHAMEHA HIGHWAY



TRUE NORTH
SCALE : 1 IN. = 30 FT.

MAP SHOWING
 SHORELINE SURVEY
 PORTION OF EXCLUSION 12
 LAND COURT APPLICATION 979
 PORTION R.P. 2112, L.C. AW. 2239,
 AP. 2 TO MAIKAI
 AT KAHALUU, KOOLAUPOKO, OAHU, HAWAII
 SCALE : 1 IN. = 30 FT.
 APRIL 11, 2014 WALTER P. THOMPSON, INC.



THIS WORK WAS PREPARED BY
 ME OR UNDER MY SUPERVISION
James R. Thompson
 Exp. 04/30/16

OWNER: HAWAII RAINBOW PROPERTIES LLC
 PO BOX 25640
 HONOLULU, HI 96825

The shoreline as delineated in red is
 hereby certified as the shoreline as of
 FEB - 5 2015
[Signature]
 Chairperson, Board of Land and Natural Resources

15"x 21" = 2.19 Sq.Ft.

Appendix B

Archaeological Survey

**AN ARCHAEOLOGICAL INVENTORY SURVEY REPORT
FOR A PROPERTY LOCATED AT TMK: 4-7-09: 11 & 21
IN KAHALU'U AHUPUA'A, KO'OLAUPOKO DISTRICT,
ISLAND OF O'AHU
JUNE 2004**

**Prepared for: Mr. Ralph Schrader
Schrader Realty
47-039 Lihikai Drive
Kaneohe, Hawaii 96744**

**Prepared by: Archaeological Consultants of the Pacific, Inc.
James R. Moore, B.S.
Amy Bevan, B.A.
Joseph Kennedy, M.A.
59-624 Pupukea Road
Haleiwa, Hawaii 96712**



JOSEPH KENNEDY
Archaeologist

Inventory Reports • Data Recovery Reports • Research Design Documents • Monitoring • Due Diligence Work • Historical Studies • Cultural Studies • Burial Treatment Plans • Preservation Plans • Interpretive Reconstructions • Restorations • Qualified Expert Witness Testimony

59-624 Pupukea Road Haleiwa, Hawaii 96712 Phone: 638-7442/Fax: 638-0703
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Abstract

An archaeological Inventory Survey has been conducted for a property located at TMK: 4-7-09: 11 and 21 in Kahalu'u Ahupua'a on the Island of O'ahu where a residential development is proposed. The purpose of the current investigations was to determine if significant historic properties exist within the project limits and, if present, properly document and evaluate those sites.

Investigations took the form of a 100% surface survey of the subject property and the mechanical excavation of four backhoe trenches. No sites of significance to the interests of historic preservation were identified during the current survey. Therefore, Archaeological Consultants of the Pacific, Inc., recommends that a determination be made of "no historic properties" for the current project area. No further archaeological work is recommended.

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An Archaeological Inventory Survey Report for a Property Located at TMK: 4-7-09: 11 and 21 in Kahalu'u Ahupua'a, Ko'olaupoko District, Island of O'ahu

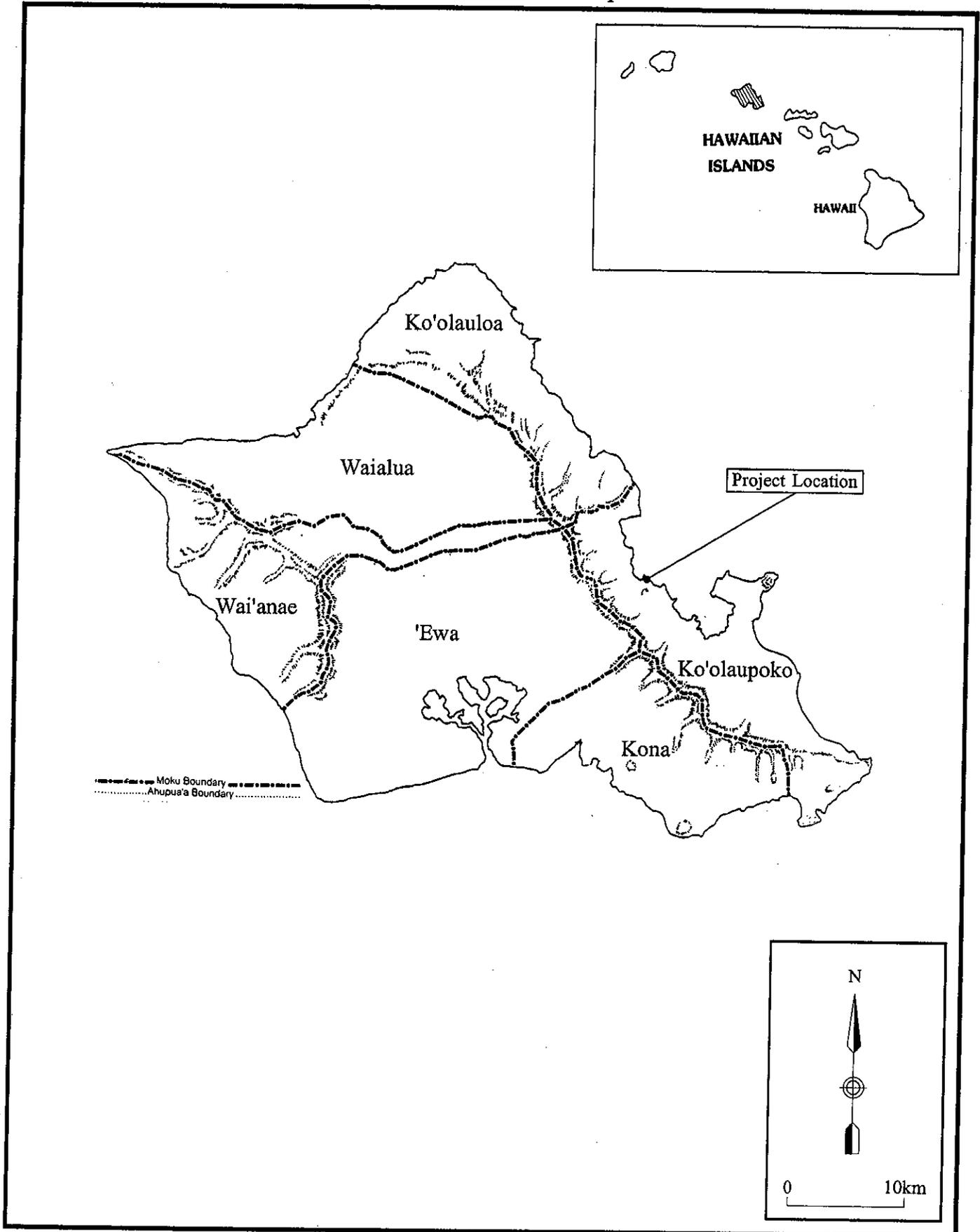
Section 1: Introduction

At the request of Mr. David Bills of Bills Engineering, Archaeological Consultants of the Pacific, Inc. (ACP) has prepared this Inventory Survey Report for TMK: 4-7-09: 11 and 21 located in the *ahupua'a* of Kahalu'u, district of Ko'olaupoko, Island of O'ahu (see Figure 1). The subject property is currently owned by Mr. Ralph Schrader and is to be developed for residential use.

The purpose of these archaeological investigations was to perform the tasks and meet the requirements specified by the Department of Land and Natural Resources, State Historic Preservation Division (DLNR-SHPD). These investigations would allow for the evaluation of the significance of potential historic resources located on the property, if any, including their eligibility for inclusion in the National Register of Historic Places. These investigations also allow for the making of recommendations concerning the mitigation of the impact of future land altering activities upon potentially significant historic resources.

The following report presents a background of the region which includes reviews of the previous archaeology conducted in the region, previous land uses and settlement patterns. Following these sections, detailed descriptions of the excavations undertaken during the investigation are provided.

Figure 1: Project Location on a Map of Oahu



Section 2: Physical Setting

The subject property (TMK: 4-7-09: 11 & 21) is located in Kahalu'u Ahupua'a, Ko'olaupoko District on the Island of O'ahu (see Figure 2). The parcels are situated in a residential neighborhood bordered by Kamehameha Highway along its southwestern border, Kane'ohu Bay and the Pacific Ocean on its northeastern boundary, and private residences to the northwest and southeast (see Figure 3). Being located along the coastline, elevation of the project area ranges from sea level on the northeast to approximately 40 feet above mean sea level (AMSL) along Kamehameha Highway.

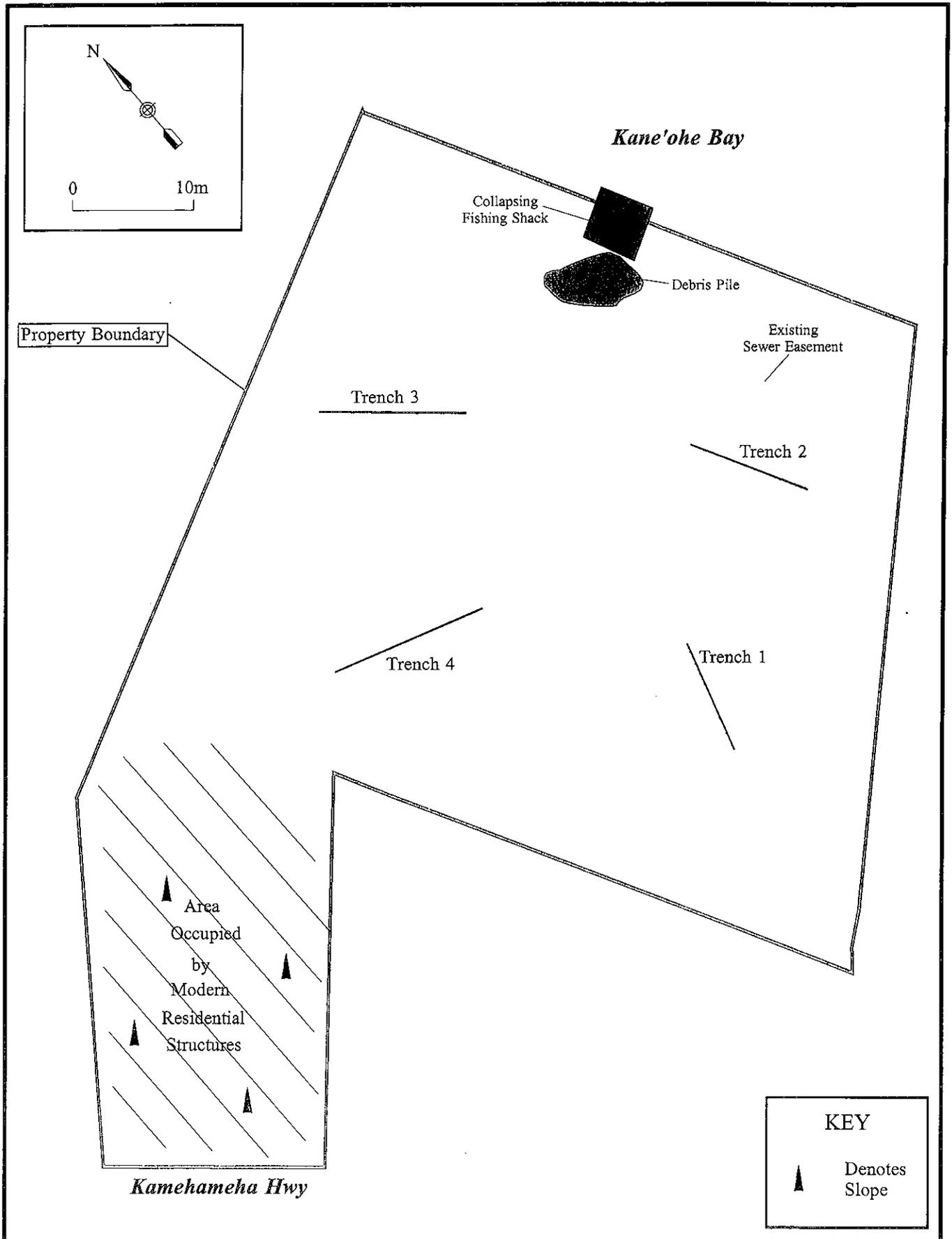
The current subject property is irregular in shape with the main body of the parcel being relatively square measuring 64m by 52m at its greatest dimensions. A small "panhandle" like portion of the parcel extends to Kamehameha Highway from the northwestern corner of the main body and measures 34m by 21m at its greatest dimensions (see Figure 4). The subject property covers a total area of approximately 0.998 acres.

The main body of the subject property is relatively level resting roughly between 1.5 and 2.0m (4.5 and 6ft) AMSL. This portion of the subject property topographically lies above the surrounding residential parcels. The terrain drops 4 to 5ft along both the northwestern and southeastern property lines and drops to sea level along the coast. The elevation of the panhandle rises sharply from the main body of the subject property until reaching 40ft AMSL at Kamehameha Highway. Two existing residential homes occupy the panhandle of the property while a small, collapsing fishing shack located along the coast overlying the bay is the only structure on the main body of the subject property.

Vegetation on the subject property consists of several individual mature trees scattered across the main body of the property including monkeypod (*Samanea saman*), coconut (*Cocos nucifera*) and false kamani (*Terminalia catappa*). Ground cover on the main body of the subject property consists predominately of stands of cane grass (*Saccharum* sp.) and a variety of other scattered grasses, vines and weeds. The panhandle of the property, being occupied by structures, is virtually devoid of vegetation with small areas of mown lawns and landscaped shrubbery present along the edges of the structures.

The *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* describe the soils on the subject property as consisting of the Kokokahi Series of clays (Foote, Hill, Nakamura & Stephens 1972). These soils are described as deriving from basic igneous rock and are found on talus slopes and alluvial fans. Average annual rainfall in the project area ranges between 50 and 75 inches (Armstrong 1973). There are no streams or intermittent water channels passing through this portion of Kahalu'u.

Figure 4: Trench Locations on a Plan Map of the Subject Property



Section 3: Historic Background

The subject property is located in the *ahupua'a* of Kahalu'u, district of Ko'olaupoko, Island of O'ahu. Kahalu'u Ahupua'a lies between the *ahupua'a* of He'eia on the southeast and Waihe'e to the northwest. Kahalu'u and 'Ahuimanu Streams meander through the center of the *ahupua'a*. The back of the *ahupua'a* is flanked by steep slopes of the Ko'olau Range. The northern boundary lies at the confluence of Kahalu'u and Waihe'e Streams while the southern boundary is demarcated by Puu Maelieli. The name Kahalu'u is literally translated as "diving place" (Pukui, Elbert & Mookini 1974).

Section 3.1: Traditional Accounts and Land Use in Kahalu'u Ahupua'a

Being located along the wet, windward side of the island, the Kane'ohe Bay region and Kahalu'u Ahupua'a are believed to have been some of the earliest areas settled by Polynesian colonists on O'ahu. Utilization of marine resources was likely one of the earliest land uses in the *ahupua'a*, and as such, original populations likely centered along the coastline. As the populations increased, agricultural pursuits likely followed with the interior of the *ahupua'a* being used to produce food staples such as taro and sweet potatoes. Over time, the coastal plain became increasingly developed with irrigated *lo'i* covering much of the land and helping to support a thriving community.

Inland of the coastal plain lie the steep slopes of the Ko'olau Range, where Kahalu'u Stream originates. Kahalu'u, Kalohaka, Ahuimanu and Waiola Streams converge "to irrigate the lower flats of Kahalu'u" (Handy 1940). Further into the interior, the valley cuts back into the Ko'olau Range where it is likely that additional cultivation occurred.

Handy (1940) describes Kahalu'u and the extensive taro cultivation that once occurred:

Kahaluu Stream, after which the *ahupua'a* is named, is joined a quarter of a mile from the sea by a small stream named Kalohaka; about three quarters of a mile from the sea it is joined by Ahulumanu, which in its turn, is amplified three quarters of a mile farther inland by Waiola Stream. It was from all these streams that the water was taken to irrigate the lower flats of Kahaluu which are continuous with those of Waihee. Kahaluu Stream extends back to the Koolau Range through a broad valley. There must have been terraces throughout the broad part of the valley for several miles inland. Some of those in the lower portion of the valley are cultivated now; most of them are neglected.

Dry taro now flourishing on the *kula* land between Kahaluu and Ahuimanu Streams is all planted by Orientals. There was no planting of this sort here in the old days.

On either side of the valley of Waiola Stream is an area of broad level terraces, the most extensive now cultivated, which in 1935 were all planted in wet taro for commercial purposes. Beginning about seven tenths of a mile along the road from the sea, and extending beyond for about half a mile, the terraces are continuous along broad level flats on either side of the stream up to Ahuimanu; most of them are now under grass. One old Hawaiian has several large terraces under cultivation in interior flats watered by Ahuimanu Stream.

The terrace sections of Kahaluu are tucked away in pockets of land watered from the several streams; there are few large continuous areas, but the total area under cultivation in ancient times must have been very considerable.

Handy and Handy (1972:452, 454) further describe the *ahupua'a* in relation to its surroundings:

Along the coast south and southeast of Waikane are five *ahupua'a* which topographically and environmentally are very much alike: Waiahole, Ka'alaea, Waihe'e, Kahalu'u and He'eia. All face seaward on the broad calm bay that extends from Kualoa to Kane'ohe, a bay that is really a very long lagoon within a barrier reef that is far distant from the shore. At low tide a muddy bottom is exposed along the shore and there are no sandy beaches, for the coast line is too far in from the reef for coral sand to wash in, and the water along the landward side of the bay or lagoon is too shallow and too dirty for coral heads to grow, as they do at Kane'ohe and northward from Ka'a'awa. Each of these five districts has a broad coastal plain, which was converted by Hawaiians into an almost continuous expanse of *lo'i* irrigated with water from large streams flowing out of the deep valleys that cut back into the Ko'olau range. The hinterland must have produced great quantities of sweet potato, yam, banana, upland taro, *wauke*, *olona*, and *'awa*. Undoubtedly the population was large, yet there was here a vacuum so far as lore is concerned, and these districts play no part in tradition or history. The reasons for this may have been the unattractiveness of the shoreline and the relatively inferior resources in fishing.

... The seaward flats of three contiguous *ahupua'a* of Ka'alaea, Waihe'e, and Kahalu'u together made up one of the largest single areas of wet-taro land on the Ko'olau coast. It is a region of ample rainfall. One of Hi'iaka's chants on traversing this coast of Oahu (*Ino Ko'olau, e, ino Ko'olau*, "The Bad Ko'olau Weather") refers to "the whisking rain of Kahalu'u" (N.B. Emerson, 1915, p.91).

One well documented system of wet taro complexes in Kahalu'u Ahupua'a, the 'Ahuimanu Terrace Complex (Site 1165), was most likely constructed before Western contact (Tuggle 1975). The 1971 Hawaii Register of Historic Places record of Site 1165, Kahalu'u Taro Lo'i, describes the complex (in Barrera 1984b):

The Kahalu'u taro *lo'i* [wet terraces] are located on Ahuimanu Stream and lie just under the pali of the Koolau Range. The site consists of a series of terraces or *lo'i* used in growing wet taro. A heavy cover today of hau, mango and guava makes it very difficult to accurately survey the entire system; however, it does include approximately 18 terraces and covers an area ca. 25 acres. These terraces have a front facing of stacked local stone with these facings often reaching a height of 2-2.5 meters. In shape, the terraces proper are in generally good condition except for the heavy vegetation cover noted above.

This system is the largest series of intact wet taro terraces, *lo 'i*, known on Oahu as well as among the most complex. In addition, these terraces stand alone as the best example of ancient expertise in this type of engineering. Despite the inroads of the vegetation cover noted, the facings of stacked stone remain in much the same good condition as they did when used for cultivating taro, a staple in the basic subsistence pattern of the Hawaiian. Heavy rainfall, 150" annually, and rather steeply sloping terrain notwithstanding, these terraces are neither washed away nor silted over; thus demonstrating still another facet of the expertise of the Hawaiians in conservation and flood-erosion control. Dates of use are not determinable at this time but could extend back into pre-contact times.

Numerous archaeological investigations have been conducted in association with this complex (refer to Section 3.2).

In addition to the cultivation of taro, bird hunting was also practiced in 'Ahuimanu, whose name may actually derive from this practice (Sterling in Tuggle 1975):

The name of the area may be roughly translated from the Hawaiian, Ahuimanu, to be referred to as "bunches of birds." It has been said that during the bird season, birds were hunted at Ahuimanu. The hunters, after finding and finally catching the birds, tied them by their legs, and put them in bunches that were hung from the waist of the hunter so he would have his hands free for climbing on the pali. As a result, the area became known as Ahuimanu.

In addition to the development of large irrigated agricultural system, those who occupied Kahalu'u Ahupua'a also engaged in aquaculture in the form of walled fishponds. The fishponds provided a relatively constant and steady supply of fish that was not dependent upon weather or surf conditions (Devaney, Kelly, Lee, & Motteler 1982). Kahouna Fishpond (Site 319)(now known as Kahalu'u Fishpond) is situated in a natural cove between Wailau Point and the mouth of Kahalu'u Stream. McAllister described the site as having walls that ran approximately 1200 feet in length with two outlets and one watchtower and that a man named Kaku was once the keeper of the fishpond (McAllister 1933). A small unnamed fishpond was reported by McAllister as being near Site 319 but no additional information could be recovered. Another fishpond along the shoreline of Kahalu'u is Pökole Fishpond (Site 322). Like Kahouna fishpond, Pökole Pond had one distinct outlet and possibly a second outlet at one time. At the time of McAllister's survey, the wall of Pökole Fishpond was 850 feet in length and had a loose semi-circular shape. He described the walls of the pond as being made of lava and coral stones, with the coral stones apparently being added at a later time to make the walls of the pond higher (McAllister 1933).

Four pre-Contact era religious structures have been documented in Kahalu'u. Haluakaiamoana Heiau (Site 320) was once adjacent to Kahouna Fishpond (Site 319) but was destroyed when the Libby, McNeill & Libby Company cannery was built over it. Eventually, the cannery failed and many *kama 'aina* credit the downfall to the cannery's desecration of the *heiau* (McAllister 1933). Kalaealakahi Heiau (Site 321) was close to the sea and thought to be a fisherman's temple (McAllister 1933). This *heiau* was

destroyed during the construction of Kamehameha Highway in the Kahalu'u area. The region around the *heiau* was called Kauapoihele o Kahalu'u (house-surrounding rain of Kahalu'u) (Devaney *et al.* 1982). The area was said to have been known by this name "because the rain circles round and round the hills and never goes beyond Kahalu'u" (McAllister 1933).

McAllister's work goes on to describe a *heiau* and *ko'a* (Site 322-A) located on Kapapa Island. Kapapa Island is only a few acres in area and about 2 miles from the shoreline at Kahalu'u. This *heiau* (whose name is unknown) was said to be small and comprised of two divisions. Informant testimony indicated that this site was thought to be a fishing *heiau* (or *kuula*). McAllister describes this structure as follows:

The *heiau* was small, approximately 40 feet at the extreme length by 40 feet at the extreme width, but not square. The walls were of coral and basalt 1 to 2 feet high and 2 feet wide. It had two main divisions, one low inclosure 40 by 15 feet, which was joined on the long side by another inclosure 24 by 27 feet. In this section, the floor level was possibly 1 foot higher than in the other division and also higher than the surrounding ground. This second division apparently had an entrance towards the west, which was towards Waihole [sic.] on the mainland.

The fishing shrine, or *ko'a*, was located on the highest point of the island. McAllister described it as having four slabs of coral placed on end with a piece of white coral in the center. McAllister found a resemblance between this fishing shrine and another shrine known as Kalanai in La'ie (Site 274). A local Hawaiian family that was camping on the island also told McAllister that there was another fishing shrine in the water just off the island. He was unable to get a name for the site or any distinguishable features to mark the site of which they had spoken.

One of the earliest recorded historic events associated with Kahalu'u occurred in 1820 when the Hawaiian monarchy was petitioned by the Catholic Church for land in the *ahupua'a* due to its large population, second only to that of Honolulu (Devaney *et al.* 1982). In 1848, a Royal Grant from Kamehameha III gave 216 acres in 'Āhuimanu Valley to the French Catholic Church for the purpose of establishing a mission. The mission was built soon after under the directorship of Father Dositheus Desvault. This mission lasted at 'Āhuimanu until 1880 when it was moved to Honolulu and renamed the College of Saint Louis. About this time, a man by the name of Henry McFarlane set up a dairy farm on the hill above 'Āhuimanu Stream. McFarlane raised cattle at this location until at least 1896.

During the Great Mahele, lands became available for private ownership for the first time for *maka'āinana* (commoners) as well as foreigners. Foreign and Native Resister and Testimony for land claims describe the various land uses in the mid-1800's. The current subject property contains a portion of Land Commission Award (LCA) 2239 *apana 2* granted to Maikai during the Mahele. Information regarding land usage for LCA 2239 was described in the Native and Foreign Testimony cited below (Board of Commissioners to Quiet Land Titles 1846-1855).

Foreign Testimony (398v11):

Holowale sworn says he knows the land of Claimant in Kahalu'u. It consists of 16 kalo patches in one piece. Four of these patches have not been cultivated for several years, and 4 of them only partially. The planted portion makes ten patches in two pieces.

The first piece of 8 patches is bounded on Kaneohe side by a stream, Mauka and Waiahole side by kula land, Makai by the Konohiki. The second piece of 2 patches is bounded on Kaneohe side by a stream, Mauka by the Konohiki, Waiahole side by kula land, Makai by Mahelehele.

Claimant has also a fishpond bounded on Kaneohe side and Mauka by a pali, Waiahole side and Makai by the sea.

His house site is on the Waiahole side of the fishpond. It is not enclosed. He has held the land about four years.

Native Register December 27, 1847 (412v3):

To the land Commissioners, Greetings: I, the one whose name is below, hereby state my claim for my 10 lo'i which are gathered together in one place. A stream is on the north, a pali is on the south, a little hill is on the east, adjoining Kipo's. There is also a house lot claim in the 'ili of Kealapii. Maikai

Based upon the testimony cited above, *apana 2* likely consisted of the fishpond and the house lot. The *lo'i* patches were likely located in a separate area further inland.

Following the Great Mahele came sweeping agricultural changes from the years 1865 to 1926. The land cultivated in taro for many hundreds of years was sequentially converted to three different crop bases: the first being sugarcane (1865-1885), then rice (1881-1898) and finally pineapple (1909-1926). The once thriving *lo'i* terraces across Kahalu'u were reduced to a fraction of their former productivity during that time.

As the 19th century progressed, diseases brought to the islands by foreigners significantly reduced the Hawaiian population. As the population dwindled in numbers, so did the consumption of taro. This lack of demand from the local population led to the disuse of many taro complexes (Tuggle 1975). It should be mentioned that with the decrease in population came a reduction in the available workforce for the taro fields. It was not until the decline of the rice industry in the Kahalu'u area, that the land began being used for taro production once again. There are some reports of "old Hawaiians" growing taro in scattered pond fields at 'Āhuimanu into the 1930's and 1940's, but these were likely isolated episodes (Tuggle 1975).

By 1865, sugarcane had begun being cultivated in the Kane'ohe region of O'ahu (Devaney *et al.* 1982). However, over time the production of sugarcane was not successful in the region. The Kane'ohe Sugar Plantation existed from 1865 to 1885 and was run by Charles Coffin Harris, Queen Kalama's partner and manager of the plantation. Later a sugar mill was built from the stones of the nearby Kalaoa Heiau. By 1885, the mill was no longer in business as rice-growing enterprises began to flourish (*ibid.*).

With the end of the sugarcane era came the advent of rice production and an intricate network of new irrigation ditches to turn previously unusable land into a lush production ground (Devaney *et al.* 1982). Increased rice cultivation in the Kane'ohe area led to the construction a rice mill between 1892 and 1893. However, the success of rice was also short-lived with a number of factors leading to the demise of its cultivation. The United States' annexation of Hawaii in 1898, the rise of rice production in California and the infestation of rice birds and the rice borer insect, were contributing factors to its downfall.

Production of pineapple took over in the Kahalu'u area from 1909 to 1926 (Devaney *et al.* 1982). In 1910, the Hawaiian Cannery Company became known as the Libby, McNeill & Libby Company and built a cannery on land known as the 'Āhuimanu Ranch in Kahalu'u. The cannery was placed where Haluakaiaamoana Heiau once stood and the construction of the cannery resulted in the destruction of the *heiau*. The location is now home to St. John's by the Sea Church (Shun 1992). The large cannery coupled with the plantation style homes earned the area the name of "Libbyville" (see Figure 5). By 1914, visitors were greeted with a sweeping change in landscape (Alexander in Devaney *et al.* 1982:62):

At last we reached the foot of the Pali ... Joe and I looked over the surrounding hills, but looked in vain for the great areas of guava through which but a few months ago we had fought and cut our way. As far as the eye could reach pineapple plantations had taken the place of the forest of wild guava. The newest industry in Hawaii was beginning even to press upon the cane fields of this side of the island (Alexander 1914:318).

By 1923 it became clear that the Windward side of O'ahu could not compete with the pineapple production in other, more suitable, parts of the island. Although many *kama'aina* attributed the downfall of the cannery to the destruction of the *heiau*, according to Harper (in Devaney *et al.* 1982) the cannery was closed due to economic reasons:

The relatively inefficient, high production costs of operating many small scattered fields resulted in a decision to discontinue pineapple growing on the Windward side. Many of the pineapple growing areas reverted to a native growth or pastures and some were converted to dairy operations.

The period between 1910 and 1920 also saw a replacement of Chinese workers with Japanese workers and the beginnings of a more diversified agricultural style. This diversified agriculture began to focus on crops such as cabbage, radishes, onions, turnips, beans and lotus root. Lychee, mango, lungan pomelo and bananas were also grown for private household consumption. In addition to a more diversified crop base, the Chinese rice farmers raised pigs, poultry and dogs and made use of horses and water buffalo. By 1963, the only remnants of the once flourishing rice production were empty pondfields and terraces neighboring abandoned shacks.

Figure 5: Photograph of "Libbyville" c. 1924 (with current subject property near the center of the photograph)



Kahala'u ISR TMK: 4-7-09: 11 & 21

source: "Paradise of the Pacific" Nov. 1924; in Devaney et al. 1982

It should be mentioned that aquaculture was as much a part of the native Hawaiian subsistence as agriculture (Devaney *et al.* 1982). Following the Great Mahele, the local fisheries became divided into privately owned shares. The *konohiki* (chiefs) and tenants of each *ahupua'a* were given fishing rights from the reef to the shore in keeping with the *mauka/makai* concept in an *ahupua'a* (*ibid.*). The *konohiki* were given the right to place a *kapu* on any variety of fish within the fishery they saw fit. In order to enforce this policy, the king and chiefs produced a list of *kapu* fish for each *ahupua'a*. For Kahalu'u Ahupua'a, a *kapu* was placed on squid such that any squid caught would be turned over to the *konohiki* (*ibid.*). Even as time passed and rules on fisheries became more complicated, the idea of tenant rights was always maintained. All fisheries were opened to the public by 1851 (*ibid.*).

Ko'olaupoko District followed the same population trend that occurred on all the Hawaiian Islands in the mid-19th century (Devaney *et al.* 1982). The area held a relatively robust population, approximately 4,987 people at the time of the 1831 census, despite its lack of political power (*ibid.*). By the time of the 1835 census, the population of the district dropped to a total of 4,636 people. The year 1849 was disastrous as the measles, the whopping cough, diarrhea and influenza claimed nearly half of the population of the district (*ibid.*). As the years passed, the population began to steadily increase. By 1910, the population had reached 3,251 people and continued to gradually climb until 1940. The years between 1940 and 1950 saw rapid urbanization, which caused the population of the district to increase from 9,006 people to 20,779 people (*ibid.*).

Section 3.2: Previous Archaeology

Only a small number of archaeological investigations have been conducted within Kahalu'u Ahupua'a. The majority of these investigations have been in the inland portions of the *ahupua'a*, primarily in relation to the 'Āhuimanu Terrace Complex, Site 1165 discussed above. McAllister (1933) was the first to conduct a formal survey of the region documenting Kahouna Fishpond (Site 319), Haluakaiamoana Heiau (Site 320), Kalaealakihi Heiau (Site 321), Pōkole Fishpond (Site 322) and a *heiau* and *ko'a* on Kapapa Island (Site 322-A), as summarized in Section 3.1. A more recent archaeological investigation that should be mentioned due to its close proximity to the subject property is that of Shun (1992). Upon completion of monitoring at Laenani Beach Park, Shun concluded there were no archaeological sites identified in the project area (TMK: 4-7-10: 17). Table 1 summarizes the previous archaeological work in Kahalu'u (refer to Appendix A).

Section 3.3: Summary of Settlement Patterns

The earliest utilization of Kahalu'u Ahupua'a would have likely consisted of temporary utilization of the littoral zone for the purpose of exploiting its marine resources. Simple structures constructed near the shore would have likely provided temporary shelter. As the population of the islands increased, permanent settlement would have likely been established along the coastal plain expanding inland for the development of *lo'i* and *kula* systems.

The archaeological evidence and historical research cited above indicate that land along the streams and floodplain were utilized for *lo'i*, and the *kula* slopes were used for dryland crops. Permanent habitation was likely restricted to the coast and the developed areas along the waterways. Scattered temporary habitation could have occurred further inland in association with *lo'i* and *kula* crops or in areas from which specific resources were regularly gathered. This pattern likely continued until the time of contact.

Section 3.4: Expected Finds

From the above review of the historic background of Kahalu'u Ahupua'a including traditional accounts, land use, previous archaeological investigations and settlement patterns, the expected finds may be ascertained. Because of the small size of the property and the fact that it is in a developed area, the chance of encountering surface finds is small. If present, surface features could include stone structures, walls, paving, platforms, terraces, mounds, *etc.*. Because LCA testimony indicated that a fishpond and house lot may have been located in the vicinity of the subject property, sedimentary deposits from the floor of the pond could be present in subsurface layers. Structures which may remain include walls or berms delineating the perimeter of the pond. Typically, subsurface cultural remains could include buried stone structures, midden deposits, post holes, fire pits and traditional artifacts such as fishing gear and stone tools, as well as historic debris. As with any sandy coastal location, there is also the possibility of encountering human burials.

Section 4: Archaeological Methodology

The current archaeological investigations were conducted December 19th and 20th, 2003 under the direction of the Principal Investigator, Joseph Kennedy, M.A.. Fieldwork was conducted by Joseph Kennedy, M.A. and James R. Moore, B.S., with the assistance of a backhoe provided by Ka'imi Trucking. Fieldwork methods consisted of a 100% surface survey of the subject parcel as well as subsurface testing in the form of backhoe trenching.

A pedestrian survey was utilized to systematically investigate the subject property. The purpose of the pedestrian survey was to identify all potentially significant historic properties which may be located on the surface of the subject property. The pedestrian survey was conducted by having the 2-man field crew sweep the property on foot using transects spaced approximately 5 meters (m) apart. Through the use of this procedure a 100% surface survey of the subject property was completed and all potentially significant historic properties were identified.

Subsurface investigations took the form of four mechanically excavated backhoe trenches. The purpose of conducting deep mechanical excavations in the form of backhoe trenches was to discover if significant subsurface cultural deposits exist and, if present, document both the horizontal and vertical extent of such deposits. Deep excavations also allow for an examination of the stratigraphic profile at depths difficult to reach through manual excavation thereby providing information relevant to the geomorphology of the area. In addition, because LCA information indicated that a fishpond may have once been located on the subject property, it was considered possible that backhoe excavations would expose sediment from the floor of the pond from which samples could be gathered.

A total of four trenches were excavated across the level main body of the subject property utilizing a backhoe with a 24 inch scoop. The trenches measured between 9.5 and 12.7m in length and reached depths of approximately 200 centimeters below surface (cmbs) where the water table was encountered.

All backdirt removed from the trenches was thoroughly examined for the presence of potential cultural remains by raking through and visually inspecting the soils from every backhoe scoop. The side walls of the trench were also examined for the presence of cultural deposits following the removal of every backhoe scoop. In addition, several shovel scoops of soil from every third backhoe scoop were sifted through one quarter inch mesh screen in order to examine and collect potential cultural materials from the screen residuum. All potentially significant cultural materials recovered from these procedures were collected while the presence of modern debris was noted but the material not collected. Soil samples were collected from each stratigraphic layer identified and a profile drawn of a representative section of at least one face of each trench.

A variety of techniques were utilized to ensure proper data collection. The locations of all trenches excavated were mapped using a compass and measuring tape and plotted on plans of the property drawn to scale. Notes were taken in the field describing the physical setting of the subject property including indications of former modifications and/or modern developments made to the parcel. Detailed field notes were also taken describing all subsurface excavations including a summary of the basic findings from each trench. All of these methods in data collection were conducted in order to provide an accurate and detailed visual and written record of the findings on the subject property.

All sampling was conducted using standard archaeological methods including the screening of soils using one quarter inch mesh in order to retrieve significant cultural deposits. Soil samples were collected from all layers encountered, placed in resealable plastic bags and labeled with the appropriate provenience information for use in laboratory analyses. Similarly, any potentially significant cultural materials were collected, placed in resealable plastic bags and labeled with the appropriate provenience information for use in laboratory analyses.

Laboratory analyses included a range of diagnostic endeavors. All analyses were conducted according to standard scientific and archaeological methods and recorded on standardized analysis forms. Soils were analyzed by ACP laboratory personnel according to USDA standards in order to obtain a scientific determination of their composition and color. This allowed for the distinction of the various stratigraphic deposits as they relate to geological and cultural events on the subject property.

A complete Inventory Survey Report has been prepared which provides complete descriptions of the investigations undertaken including written accounts, placement of the trenches on plans drawn to scale, and profiles depicting stratigraphic deposits. Also included is the presentation of the results of the laboratory analyses described above. The methods utilized have resulted in the production of an accurate and detailed report along with a determination of the impact of future construction endeavors.

All materials collected during Inventory Survey investigations have been bagged and labeled appropriately, placed in labeled and inventoried boxes, and curated at ACP facilities located at 59-624 Pupukea Road, Haleiwa, Hawaii.

Section 5: Archaeological Findings

The current investigations included a 100% surface survey of the subject property as well as subsurface investigations. The subject property is located in a coastal area which, based upon LCA testimony from the Mahele, was formerly the location of a fishpond and an adjacent house lot. The property is surrounded by residential lots on two sides (and partially on a third side) and a portion of the project area was occupied by existing homes at the time of the current investigations. No potentially significant historic properties were identified during the surface survey of the project area.

Subsurface testing consisted of the mechanical excavation of four backhoe trenches across the main body of the subject property. The findings from each trench will be described below.

Trench 1

Trench 1 (T1) was placed towards the southern corner of the main body of the subject property (see Figure 4). The trench measured 9.5m in length and was oriented approximately north to south. The excavation of Trench 1 encountered a surface cover of grass, roots and detritus underlain by a deposit (Layer I) of dark brown (7.5YR 3/4) clay which was excavated to a maximum depth of approximately 195cmbs (see Figure 6). Excavation of the unit was terminated due to the presence of the water table which was encountered at a depth of 190cmbs. A thin intermittent lens (Lens i) of yellowish brown (10YR 5/6) sandy clay was observed in the eastern face of the northern end of the trench immediately below the surface cover of grass and detritus and reaching a maximum depth of 20cmbs. In addition, a slight mottling of Lens i soils was present in the upper 30cm of Layer I along the entire length of the trench. A variety of modern debris was present in Layer I soils to depths of up to 150cmbs. Materials included broken bottles, rusted metal, plastic, Styrofoam, etc..

Trench 2

Trench 2 (T2) was placed towards the eastern corner of the main body of the subject property to the northeast of Trench 1 (see Figure 4). The trench measured 10.1m in length and was oriented roughly southeast to northwest parallel to an existing sewer line.

The excavation of Trench 2 encountered a surface cover of grass, roots and detritus underlain by a deposit (Layer I) of dark brown (7.5YR 3/4) clay which measured approximately 140cm in thickness reaching a maximum depth of 145cmbs (see Figure 7). Layer I rested on a deposit (Layer II) of black (7.5YN 2/0) clay which measured approximately 40cm in thickness reaching a maximum depth of 185cmbs and was underlain by a deposit (Layer III) of very dark gray (7.5YN 3/0) sand that was excavated to a maximum depth of approximately 205cmbs. Excavation of the unit was terminated due to the presence of the water table which was encountered at a depth of 190cmbs.

As with Trench 1, a variety of modern debris was present throughout Layer I soils including broken bottles and glass, rusted metal, plastic, a corroded car jack and pieces of

Figure 6: Profile of Trench 1

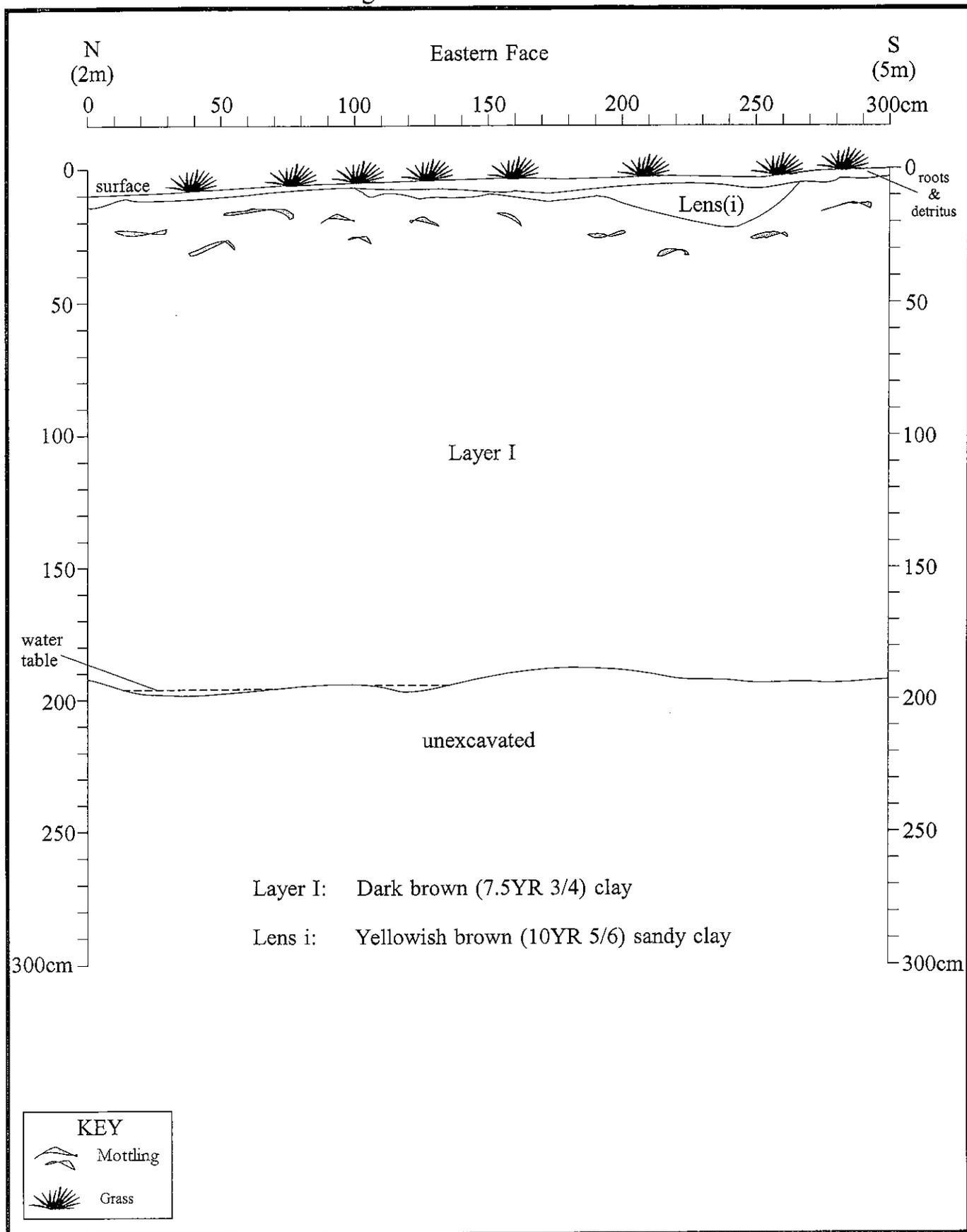
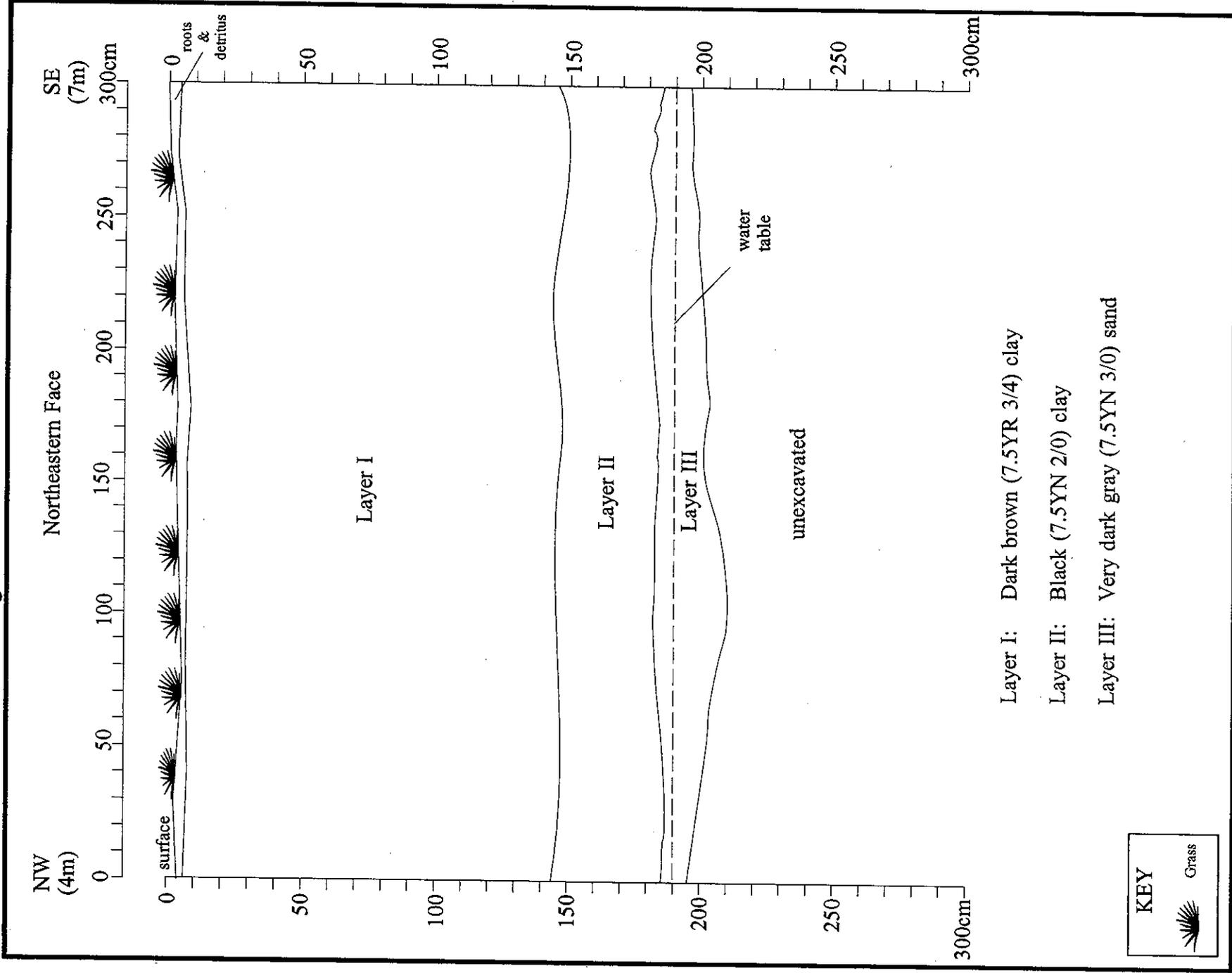


Figure 7: Profile of Trench 2



lumber. In addition, a small cluster of intact and broken bottles was encountered near the northwestern end of the trench immediately above the interface between Layers I and II. Several of the intact bottles were collected in order to attempt to assess their age. It was determined that the most recent bottle for which an age was able to be ascertained dated to the early to mid-1960's (Millar 1988). This information indicates that, in the area in which T2 was excavated, Layer I must have been deposited after that time. Layers II and III were culturally sterile.

Trench 3

Trench 3 (T3) was placed along the northwestern boundary of the main body of the subject property across a low berm where the level surface of the subject property slopes down toward the neighboring yards (see Figure 4). The trench measured 11.1m in length and was oriented roughly southeast to northwest.

The excavation of Trench 3 encountered a surface cover of grass, roots and detritus underlain by a deposit (Layer I) of brown to dark brown (7.5YR 4/4) clay at the northwestern end of the trench and by a deposit (Layer II) of very dark grayish brown (10YR 3/2) sandy clay loam at the southeastern end of the trench. Layer I was only present above the low berm and measured between 5 and 45cm in thickness reaching a maximum depth of 50cmbs (see Figure 8). Layer II generally measured between 65 and 80cm in thickness (although one spot measured up to 100cm in thickness) and reached a maximum depth of 130cmbs. Layer II rested on a deposit (Layer III) of dark yellowish brown (10YR 4/4) sand which was excavated to a maximum depth of approximately 230cmbs. Excavation of the unit was terminated due to the presence of the water table which was encountered at a depth of 160cmbs.

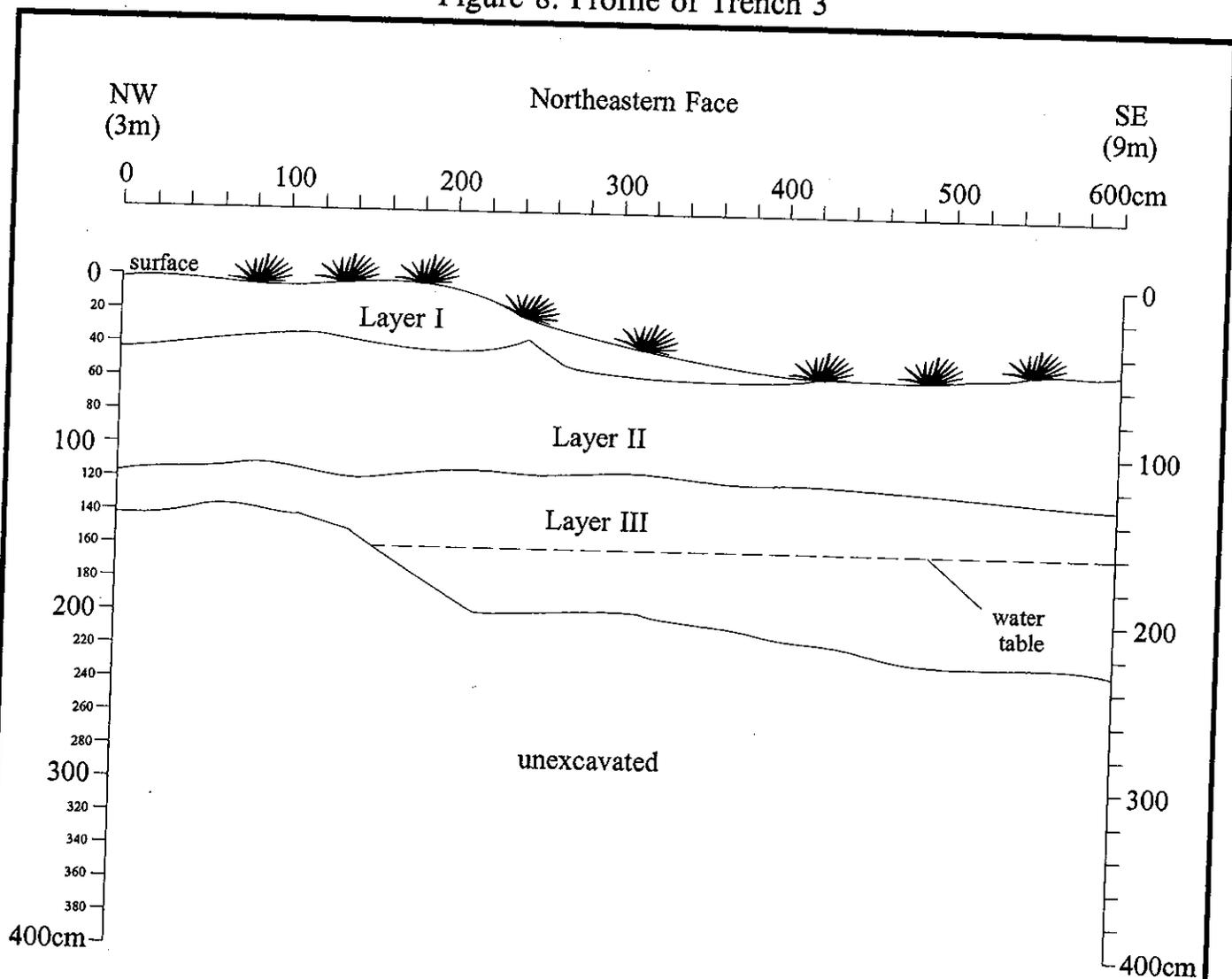
In Trench 3 modern debris was observed throughout Layer I as well as Layer II. The types of debris present were consistent with that found in Trenches 1 and 2 including materials such as broken glass, rusted metal, plastic, aluminum cans, etc.. Layer III was culturally sterile.

Trench 4

Trench 4 (T4) was placed towards the western corner of the main body of the subject property to the northwest of Trench 1 (see Figure 4). The trench measured 12.7m in length and was oriented roughly east to west.

The excavation of Trench 4 encountered a surface cover of grass, roots and detritus underlain by a deposit (Layer I) of brown to dark brown (7.5YR 4/4) clay which measured approximately 105cm in thickness reaching a maximum depth of 110cmbs (see Figure 9). Layer I rested on a deposit (Layer II) of black (10YY 2/1) sandy clay which measured approximately 60cm in thickness reaching a maximum depth of 170cmbs and was underlain by a deposit (Layer III) of brown (10YR 5/3) sand that was excavated to a maximum depth of approximately 200cmbs. Excavation of the unit was terminated due to the presence of the water table which was encountered at a depth of 190cmbs.

Figure 8: Profile of Trench 3



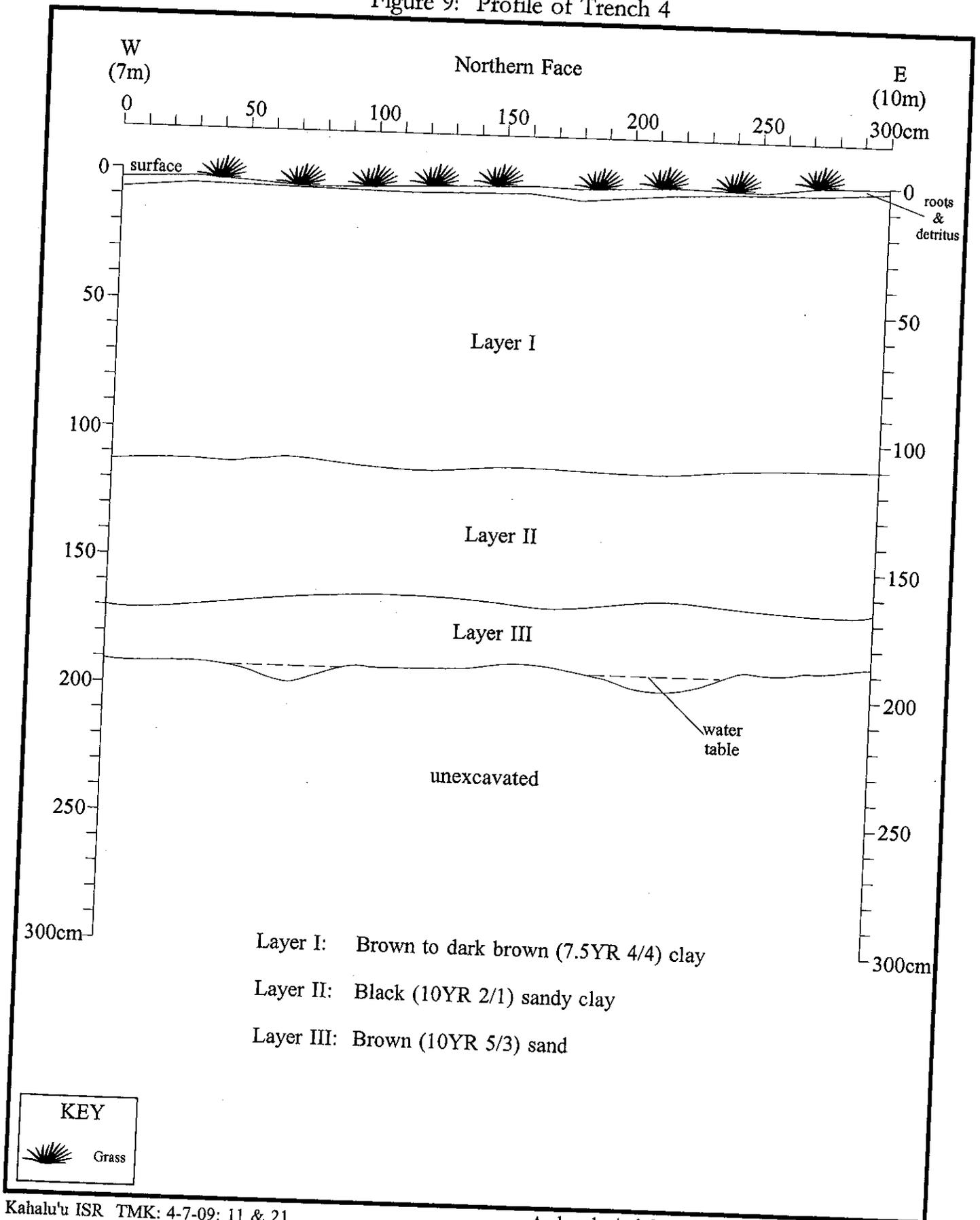
- Layer I: Brown to dark brown (7.5YR 4/4) clay
- Layer II: Very dark grayish brown (10YR 3/2) sandy clay
- Layer III: Dark yellowish brown (10YR 4/4) sand

KEY



Grass & Detritus

Figure 9: Profile of Trench 4



Modern debris was again present throughout Layer I soils however Layers II and III were culturally sterile.

Summarizing, no significant subsurface cultural deposits were encountered during the current investigations, however, based upon the results of the subsurface testing, the stratigraphy within the main body of the subject property can be assessed. Initial observations of the project area made note that the terrain on the property was elevated in relation to the neighboring residential parcels. Subsurface testing determined that a deposit of brown to dark brown clay formed the upper stratigraphic layer (Layer I) in each of the trenches excavated. The only location in which this deposit was not encountered was below the edge of the low berm along the boundary of the subject property at the southeastern end of Trench 3. Layer I was found to vary from over 190cm in thickness in Trench 1 to 40cm (or less) in thickness in Trench 3 (before thinning to termination).

Layer I was found to extend below the water table in T1 and to rest on deposits (Layer II) of clay or sandy clay in the remaining three trenches. Underlying Layer II in Trenches 2, 3 and 4, the basal layer identified (Layer III) was found to be a deposit of dark colored sand.

In each of the trenches excavated, Layer I was found to contain significant quantities of modern debris. In addition, one pocket of debris was observed in T2 at a depth of approximately 140cmbs (immediately above the base of Layer I) which contained intact bottles dating from the early to mid-1960's. The information summarized above citing the presence of modern debris in conjunction with the change in elevation between the terrain on the subject parcel and that of the neighboring properties indicates that Layer I was likely deposited as fill sometime in the mid-1960's.

Whether the clay and sandy clay deposits of Layer II are naturally occurring or are associated with Layer I is unclear. While culturally sterile in Trenches 2 and 4, Layer II yielded modern debris in Trench 3. The fact that Layer II deposits are relatively thick (measuring 30 to 60cm in thickness) and have distinct boundaries between the deposits above and below them implies that they may represent a former ground surface.

Although LCA testimony indicated that a fishpond had once been located in the vicinity of the current subject property, there are indications otherwise. Sea level is approximately 1.5m below the current ground level of the project area and it is generally accepted that the floors of fishponds are found at depths of 40 to 60cm below mean sea level (although some have estimated that they may be found at depths of up to 130cm below sea level)(Allen & Schilz 1999; Athens 2002). Soils encountered during the current investigations at these depths (200 to 210cmbs or 50 to 60cm below sea level) consisted of sands, inconsistent with soils found on the floors of fishponds. On the other hand, the clayey soils encountered during the current investigations which are consistent with those found on the floors of fishponds were only encountered above sea level. Based upon this information, it is unlikely that a fishpond was formerly located within the current project area.

Conclusion

An archaeological Inventory Survey has been conducted for a property located at TMK: 4-7-09: 11 and 21 in Kahalu'u Ahupua'a on the Island of O'ahu where a residential development is proposed. No sites of significance to the interests of historic preservation were identified during the current survey. Therefore, Archaeological Consultants of the Pacific, Inc., recommends that a determination be made of "no historic properties" for the current project area. No further archaeological work is recommended.

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APPENDIX A

Summary of Previous Archaeology

Table 1: Previous Archaeological Investigations in Kahalu'u

Reference	Type of Investigation	Location	Site Number (50-80-01)	Findings
McAllister 1933	Island-wide Survey	Kahalu'u	319, 320, 321, 322, 322-A, 323	survey identified 4 religious sites and 2 fishponds in Kahalu'u
Lono 1972	Reconnaissance	TMK: 4-7-04: 1 (Por) TMK: 4-7-51: 2 (Por)		no findings during reconnaissance at Club View Hills
Clark 1974	Reconnaissance	Kahalu'u Watershed (50-acres)		no findings; previous sites may have existed but destroyed by bulldozing/farming
Tuggle <i>et al.</i> 1975	Research/Field School	'Āhuimanu Terrace Complex	1165	extensive mapping and excavation of 'Āhuimanu Terrace Complex, Site 1165, a large terrace complex along 'Āhuimanu Stream
Barrera 1977	Reconnaissance	TMK: 4-7-08: 9 (Por)		no sites recorded on 5-acres in the <i>mauka</i> reaches of the <i>ahupua'a</i>
Schilt 1979		TMK: 4-7-08: 2		no findings during reconnaissance at Kahalu'u Wells, discussion of the possibility of terracing in the nearby dense vegetation
Nature Conservancy 1981	'Āhuimanu Hui Aloha Project Proposal	'Āhuimanu Terrace Complex	1165	proposal for the restoration of the 'Āhuimanu Terrace Complex, Site 1165
Kennedy 1981	Archaeological Procedure Plan	'Āhuimanu Terrace Complex	1165	plan for archaeological field procedures, including reconstruction of stratigraphic sequences from terraces and walls through testing and trenching
Barrera 1982	Reconnaissance	TMK: 4-7-11 :2 TMK: 4-7-26: 9		no findings during reconnaissance next to Kahalu'u, discussion of the possibility of subsurface deposits
Kennedy 1984	Interpretive Trail Construction and Testing	'Āhuimanu Terrace Complex	1165	Construction of an interpretive trail through a portion of the 'Āhuimanu Terrace Complex along with testing
Barrera 1984a	Reconnaissance	Mapele Road		several agricultural terraces and one or more <i>'auwai</i> identified in area of proposed well sites; no site numbers assigned; no site map
Barrera 1984b	Reconnaissance	<i>mauka</i> of 'Āhuimanu Terrace Complex		walls and terraces identified in area of proposed well sites just <i>mauka</i> of 'Āhuimanu Terrace Complex; no site numbers assigned; no site map

Table 1: Previous Archaeological Investigations in Kahalu'u (cont.)

Reference	Investigation	Location	Site Number	Description
Neller 1984	Inadvertent discovery of human remains	intersection of Lulani St. and 'Āhuimanu Rd.	2897	human remains inadvertently discovered during construction of new building for Hawaiian Telephone Company; unusual pit morphology with fire cracked stones lining base of pit and flakes, scrapers and an adze atop the remains
Ah Nee 1988	Inadvertent discovery of human remains	#12 Mapele Road	4063	Medical Examiner's report of isolated human bone inadvertently discovered
Kennedy 1989	Testing and Monitoring	'Āhuimanu Terrace Complex	1165	backhoe trenches placed in portion of Site 1165 containing 2 walls and 2 terraces for proposed road and monitoring of road construction
Shun 1992	Monitoring	TMK: 4-7-10: 17		monitoring of construction for wastewater pumping station at Laenani Beach Park; no sites identified