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STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Coastal Lands
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

File No. CDUA OA-3678

MEMORANDUM

JUN 25 2013

To: Genevieve Salmonson, Director
Office of Environmental Quality Control

From: Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

Subject: Draft Environmental Assessment (DEA) for Conservation District Use
Application (CDUA) OA-3678 for a telecommunications facility.

The Department of Land and Natural Resources has reviewed the draft EA for the subject project, and anticipates a Finding of No Significant Impact (FONSI) determination. Please publish notice of availability for this project in the July 8, 2013 issue of the *Environmental Notice*. We have enclosed one hard copies and one digital of the draft EA document, as well as the Conservation District Use Application, a Management Plan, and an Executive Summary. We will follow this with an electronic copy of the applicant's project summary and the OEQC Bulletin Publication Form.

Please contact Michael Cain of our Office of Conservation and Coastal Lands staff at 587-0048 should you have any questions.

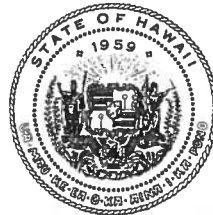
Attachments: Draft EA, CDUA, Management Plan, OEQC Pub Form, 3 discs

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

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DEPARTMENT OF LAND AND NATURAL RESOURCES
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LAND
STATE PARKS

ref:OCCL:MC
CDUA OA-3678

Acceptance Date: June 24, 2013
180 Day Expiration Date: December 21, 2013

JUN 24 2013

John Sakaguchi
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, HI 96826

Dear Mr. Sakaguchi,

Notice of Acceptance and Preliminary Environmental Determination
Conservation District Use Application (CDUA) File No. OA-3678
(BOARD PERMIT)

This acknowledges the receipt and acceptance for the processing of the Conservation District Use Assessment (CDUA) and associated draft Environmental Assessment (EA) and Management Plan on behalf of the State Department of Accounting and General Services (DAGS) for a new radio facility at Kamehame Ridge, Kuli'ou'ou ahupua'a, Ko'olaupoko, O'ahu, TMK (1) 3-9-009:001. The project area is in the Limited Subzone of the State Land Use Conservation District.

The project will be on a 1339-acre parcel owned by Kamehameha Schools. A Department of Hawaiian Homelands parcels forms the northern boundary of the site (TMK 4-1-014:007), but the proposed facility will not extend into the DHHL parcel.

The site is at the 1278 foot elevation on the Ko'olau range, at the edge of a vertical pali overlooking the eastern half of Waimanalo. Kamilo Nui and Kalama Valleys lie to the east and west of the site. Access is via a mile-long drive extending from the end of Kamehame Drive. There are a number of other telecommunications facilities in the area, including the Federal Aviation Administration (FAA) Remote Communication Outlet tower and Backup Enroute Communication site for the FAA's Mt. Ka'ala site; a City and County of Honolulu communication facility, and a US Coast Guard facility. Preliminary studies indicate that there will be no interference with existing facilities.

The proposed Kamehame Ridge Radio Facility will extend the reach of DAGS Information and Communication Services Department's (ICSD) Hawaiian Digital Microwave Radio System. Elements of the project include:

- A 50-foot, 4-sided self supported pipe leg tower;
- a 16-foot by 16-foot by 5-foot high at grade concrete tower foundation;
- a 1006 square-foot, 12-foot high support building to house radio equipment and an emergency generator;
- a double-walled 1000-gallon above ground fuel tank; and
- security fencing.

DRAFT ENVIRONMENTAL ASSESSMENT
Department of Accounting and General Services
Information and Communication Services Division

Kamehame Ridge Radio Facility

Maunalua, Oahu, Hawaii

Tax Map Key: 3-9-009:001 (por.)

DAGS Job No. 12-10-0640



Approving Agency:
State of Hawaii

Department of Land and Natural Resources
Office of Coastal and Conservation Lands

Applicant Agency:
State of Hawaii

Department of Accounting and General Services

Prepared by:
Wilson Okamoto Corporation

June 2013

DRAFT ENVIRONMENTAL ASSESSMENT

**Information and Communications Services Division
Kamehame Ridge Radio Facility
Maunaloa, Oahu, Hawaii**

DAGS Job No. 12-10-0640

Tax Map Key: 3-9-009:001



Approving Agency:

State of Hawaii
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
1151 Punchbowl Street
Honolulu, Hawaii 96813

Applicant Agency:

State of Hawaii
Department of Accounting and General Services
Division of Public Works
1151 Punchbowl Street
Honolulu, Hawaii 96813

Prepared by:

Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
WOC: 8083-01

June 2013

SUMMARY

Approving Agency:	State of Hawaii Department of Land and Natural Resources Office of Conservation and Coastal Lands 1151 Punchbowl Street Honolulu, Hawaii 96813
Applicant Agency:	State of Hawaii Department of Accounting and General Services 1151 Punchbowl Street Honolulu, Hawaii 96813
EA Preparer:	Wilson Okamoto Corporation 1907 South Beretania Street, Suite 400 Honolulu, Hawaii 96826 Contact: John L. Sakaguchi, AICP, Senior Planner Tel: 808.946.2277; Fax: 808.946.2253
Project Location:	Kamehame Ridge, Maunaloa, Oahu, Hawaii
Recorded Fee Owner:	Kamehameha Schools
Tax Map Key:	3-9-009:001
Area:	Project site: 6,326 square feet (0.15acres), approx; Total parcel: 1339.653 acres
State Land Use Classification:	Conservation, Limited Subzone
County Zoning:	P-1 Restricted Preservation
Proposed Action:	Construction of 1) an approximately 50-foot, 4 sided self supported tower; 2) an approximately 1,006-square foot by 12-foot high single story building to include equipment rooms and an emergency generator room; and 3) other related improvements, including security fencing, an above-ground diesel fuel tank, and other improvements for the State of Hawaii Department of Accounting and General Services (DAGS) Information and Communication Service Division to extend the reach of the Hawaiian Digital Microwave Radio System.
Impacts:	No significant impacts are anticipated from construction and operation of the proposed building addition and related improvements at the Kamehame Ridge Radio Facility project site.

**Parties Consulted During
Draft Assessment:**

Federal Agencies

U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
U.S. Coast Guard
U.S. Department of Transportation Federal Aviation
Administration

State Agencies

State Department of Business, Economic
Development & Tourism (DBEDT)
State DBEDT Land Use Commission
State DBEDT Office of Planning
State Department of Defense
State Department of Hawaiian Home Lands
State Department of Health (DOH)
State DOH Office of Environmental Quality Control
State Department of Land and Natural Resources (DLNR)
State DLNR Historic Preservation Division
State DLNR Division of State Parks
State DLNR Office of Conservation and Coastal Lands
State Department of Transportation
State Office of Hawaiian Affairs
University of Hawaii Environmental Center

City and County of Honolulu Agencies

Department of Design and Construction
Department of Emergency Management
Department of Emergency Services
Department of Facilities Management
Department of Information Technology
Department of Parks and Recreation
Department of Planning and Permitting
Department of Transportation Services
Fire Department
Police Department
Board of Water Supply

Elected Officials

State Senator Pohai Ryan
State Representative Chris Lee
State Representative Gene Ward
Honolulu City Councilmember Stanley Chang
Honolulu City Councilmember Ikaika Anderson

Organizations

Hawaii Kai Neighborhood Board No. 1
Waimanalo Neighborhood Board No. 32

Oahu Island Burial Council
Kamehameha Schools
Hawaiian Electric Company
Oceanic Time Warner Cable

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TABLE OF CONTENTS

	<u>Page</u>
SUMMARY.....	i
PREFACE	ix
1. INTRODUCTION.....	1-1
1.1 Project Background.....	1-1
1.2 Purpose and Need	1-2
1.3 Project Location and Conditions.....	1-2
1.3.1 Project Location.....	1-2
1.3.2 Existing Project Site Background.....	1-9
1.3.3 Existing Project Site Conditions	1-9
1.3.4 Other Project Site Data.....	1-10
1.4 Project Description	1-10
1.4.1 Project Access.....	1-10
1.4.2 Project Site Plan	1-11
1.4.3 Building Floor Plan.....	1-15
1.4.4 Building Tower Design Criteria	1-18
1.4.5 Tower and Antennas.....	1-19
1.4.6 Electromagnetic Radiation (EMR).....	1-24
1.5 Project Operation	1-24
1.5.1 Personnel	1-24
1.5.2 Hours of Operation	1-25
1.6 Preliminary Cost Estimate	1-25
1.7 Project Schedule.....	1-25
1.8 Other Project Considerations	1-25
2. DESCRIPTION OF EXISTING ENVIRONMENT, IMPACTS AND MITIGATION MEASURES.....	2-1
2.1 Geology and Soils.....	2-1
2.1.1 Existing Environment.....	2-1
2.1.2 Impacts and Mitigation Measures	2-2
2.2 Water Resources and Flood Hazard	2-3
2.2.1 Existing Environment.....	2-3
2.2.2 Impacts and Mitigation Measures	2-3
2.3 Biological Resources.....	2-4
2.3.1 Existing Environment.....	2-4
2.3.2 Impacts and Mitigation Measures	2-5
2.4 Agricultural Lands	2-6
2.4.1 Existing Conditions	2-6
2.4.2 Impacts and Mitigation Measures	2-7
2.5 Air Quality	2-7
2.5.1 Existing Environment.....	2-7
2.5.2 Impacts and Mitigation Measures	2-7

TABLE OF CONTENTS

	<u>Page</u>
2.6 Noise	2-8
2.6.1 Existing Environment	2-8
2.6.2 Impacts and Mitigation Measures	2-8
2.7 Traffic.....	2-9
2.7.1 Existing Environment.....	2-9
2.7.2 Impacts and Mitigation Measures	2-9
2.8 Recreational Resources	2-10
2.8.1 Existing Environment.....	2-10
2.8.2 Impacts and Mitigation Measures	2-11
2.9 Archaeological and Cultural Resources.....	2-11
2.9.1 Existing Environment.....	2-11
2.9.2 Impacts and Mitigation Measures	2-12
2.10 Cultural Impact Assessment.....	2-13
2.10.1 Existing Environment.....	2-13
2.10.2 Impacts and Mitigation Measures	2-17
2.11 Infrastructure.....	2-18
2.11.1 Water.....	2-18
2.11.2 Sewer	2-19
2.11.3 Electrical.....	2-19
2.12 Hazardous Materials	2-20
2.12.1 Existing Environment.....	2-20
2.12.2 Impacts and Mitigation Measures	2-20
2.13 Visual Considerations.....	2-21
2.13.1 Existing Conditions	2-21
2.13.2 Impacts and Mitigation Measures	2-21
2.14 Biological Exposure.....	2-22
2.14.1 Existing Electromagnetic Radiation Environment.....	2-22
2.14.2 Impacts and Mitigation Measures	2-24
3. RELATIONSHIP TO PLANS, POLICIES AND CONTROLS	3-1
3.1 Hawaii State Plan.....	3-1
3.2 Land Use Plans and Policies.....	3-2
3.2.1 State Land Use District.....	3-2
3.2.2 Coastal Zone Management Program, Objectives and Policies ..	3-3
3.2.3 City and County of Honolulu General Plan.....	3-8
3.2.4 East Honolulu Sustainable Communities Plan	3-10
3.2.5 City and County of Honolulu Zoning	3-11
3.2.6 City and County of Honolulu Special Management Area.....	3-11
4. ALTERNATIVES TO THE PROPOSED ACTION.....	4-1
4.1 No Action Alternative.....	4-1
4.2 Alternate Site	4-1
5. DETERMINATION	5-1
6. LIST OF PERMITS AND APPROVALS	6-1

TABLE OF CONTENTS

	<u>Page</u>
7. CONSULTATION	7-1
7.1 Pre-Assessment Consultation	7-1
8. REFERENCES	8-1

LIST OF FIGURES

Figure 1.1	Location Map.....	1-4
Figure 1.2	Project Site Map.....	1-5
Figure 1.3	Tax Map.....	1-6
Figure 1.4	Existing Topography	1-7
Figure 1.5	Site Photographs.....	1-8
Figure 1.6	Site Plan.....	1-12
Figure 1.7	Building Floor Plan	1-13
Figure 1.8	Building Elevations	1-14
Figure 1.9	Tower Plan.....	1-20
Figure 1.10	Antenna Coverage Plan	1-21
Figure 1.11A	Antenna Plan.....	1-22
Figure 1.11B	Antenna Plan.....	1-23
Figure 2.1	Tower Site Photo.....	2-23

APPENDICES

- Appendix A Comments and Responses to Pre-Assessment Consultation
- Appendix B Biological Resources Surveys for a Communication Antenna on Kamehame Ridge, Oahu
- Appendix C Archaeological Literature Review and Field Inspection Report
- Appendix D Cultural Impact Assessment - Summary

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PREFACE

Chapter 343, Hawaii Revised Statutes (HRS), as amended, Environmental Impact Statements, requires that a government agency or a private developer proposing to undertake a project consider the potential environmental impacts of the proposed project by preparing an assessment. Use of public lands and funds, and use of lands within the State Land Use Conservation District for a project are among the criteria set forth in Chapter 343, HRS which requires preparation of an environmental assessment. The Kamehame Ridge Radio Facility project will be constructed and operated with funds provided by the State of Hawaii Department of Accounting and General Services (DAGS) and is located in the Conservation District.

This Environmental Assessment (EA) has been prepared to meet the requirements of Chapter 343, HRS, as amended, and Hawaii Administrative Rules Title 11, State of Hawaii Department of Health, Chapter 200, Environmental Impact Statement Rules. Based on Hawaii Administrative Rules Title 11, State of Hawaii Department of Health, Chapter 200, Environmental Impact Statement Rules, Subchapter 6, Section 11-200-9 (4), construction and operation of the proposed project is not anticipated to warrant the preparation of an Environmental Impact Statement preparation notice. Further, based on the findings and the assessment of potential impacts from the proposed project, a Finding of No Significant Impact (FONSI) is anticipated.

The project site is located within the Conservation District, Limited Subzone, as designated by the State Land Use Commission. The facility is an identified land use within the Conservation District according to the Hawaii Administrative Rules (HAR), § 13-5-22, P-6, *PUBLIC PURPOSE USE, (D-1), Not for profit land uses undertaken in support of a public service by an agency of the county, state, or federal government, or by an independent non-governmental entity, except that an independent non-governmental regulated public utility may be considered to be engaged in a public purpose use and P-14 TELECOMMUNICATIONS; (D-1) New telecommunications facility.*

A Conservation District Use Permit (CDUP) approved by the Board of Land and Natural Resources will be required to construct and operate the facility.

The improvements will be entirely funded by the State of Hawaii.

A license to operate the frequencies assigned to the antennas will be required from the Federal Communication Commission.

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1. INTRODUCTION

The State of Hawaii Department of Accounting and General Services (DAGS) through its Information and Communication Service Division (ICSD) carries out the responsibilities for statewide telecommunications for the Executive Branch of the Hawaii State Government. ICSD owns and operates microwave radios, antenna systems, towers, buildings, and related facilities and infrastructure throughout the islands. The Kamehame Ridge Radio Facility will extend the reach of the ICSD's Hawaiian Digital Microwave Radio System.

The project includes the construction of: 1) an approximately 50-foot, 4-sided self supported tower; 2) a 16-foot by 16-foot by about 5-foot high at grade concrete tower foundation; 3) an approximately 1,006-square foot (SF) by 12-foot high building to include radio equipment rooms and an emergency generator room; 4) a double-walled 1,000-gallon above ground fuel tank; and 5) security fencing and other related improvements.

The project site and surrounding land are owned by the Kamehameha Schools. The landowner, Kamehameha Schools, will grant Hawaiian Electric Company (HECO) an easement to use the project site. Permission for State access to the project site will be granted through a joint use agreement between the ICSD and HECO.

1.1 Project Background

Through ICSD, DAGS carries out the responsibilities for statewide telecommunications for the State of Hawaii. The ICSD owns and operates microwave radio transmission systems, antennas, towers, buildings, and related communications facilities and infrastructure throughout the islands. The ICSD also plans, coordinates, organizes, directs, and administers services to ensure the efficient and effective development of communications systems. Over the years, public safety, emergency response, and law enforcement agencies have benefited from the significant advances in communications technology. To fulfill their public service missions, these government agencies rely on telecommunications systems to communicate and transmit information and data between offices and facilities, as well as with personnel in the field. In addition, the project site will also accommodate HECO communication facilities.

1.2 Purpose and Need

The Kamehame Ridge Radio Facility will extend the reach of the ICSD's Hawaiian Digital Microwave Radio System to the eastern and windward coast of Oahu. The Kamehame Ridge Radio Facility will also provide connections and facilities to support joint activities between State agencies and other levels of government, and HECO.

The purpose of the Kamehame Ridge Radio facility is to house and support the communications systems used by, various government agencies, Hawaiian Electric Co., and entities sponsored by the State, that are not-for-profit in nature and have a defined role in assisting the government in times of disaster or emergency. Other than the operations of HECO, no other commercial business will be contracted and no commercial, for-profit, or fee-for-service communications systems or traffic, is to be supported at the Kamehame Ridge Radio Facility.

Agencies supported at the Kamehame Ridge Radio Facility include the State Department of Public Safety, the State Civil Defense Division, the Department of Land and Natural Resources, and the State Department of Health. The Kamehame Ridge Radio Facility will also provide connections and facilities to support joint activities between State agencies and other levels of government, and HECO.

The Kamehame Ridge Radio Facility will also increase the reliability of HECO's communication system on eastern and windward Oahu, including their ability to communicate with personnel in the field.

1.3 Project Location and Conditions

1.3.1 Project Location

The project site is located on a portion of Tax Map Key: 3-9-009:001 in Maunaloa, Oahu near the northern end of a 5,900-foot (1.1 mile) long private access road, which connects to the upper end of Kamehame Drive. The project site is located at the edge of a vertical cliff at the east end of the Koolau Range, the eastern of two major mountain ranges on the island of Oahu. It occupies a portion of a former Nike facility in the Maunaloa area of East Honolulu, Oahu, Hawaii. The project site lies at about 1278 feet mean sea level (msl) at the edge of a vertical cliff which overlooks Kalaniana'ole Highway, Kaiona Beach Park, and the eastern end of Waimanalo. Kamilo Nui Valley lies to the west and Kalama Valley to the east of the project site.

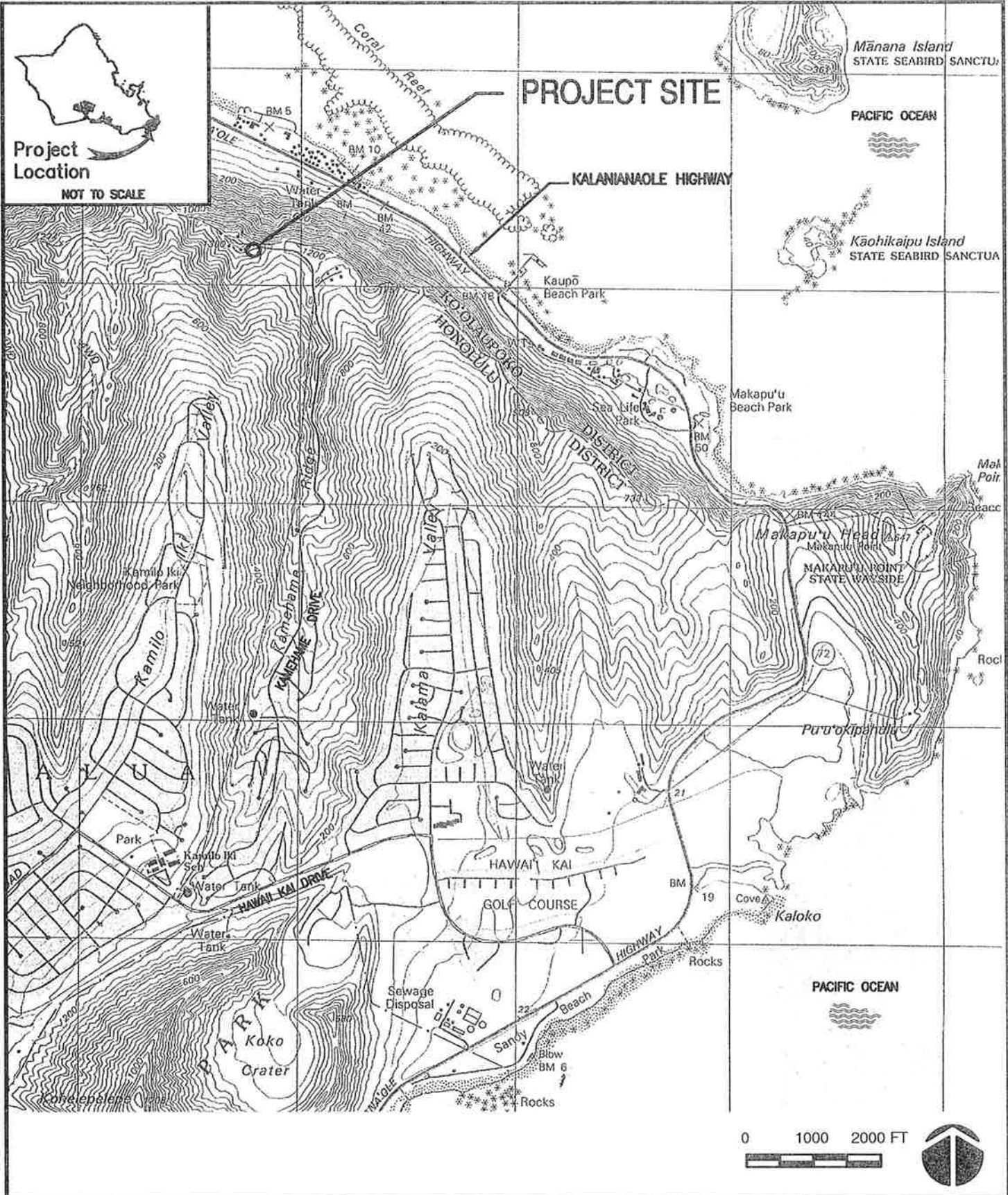
The entire approximately 1,339-acre parcel (Tax Map Key: 3-9-009:001) is privately owned by Kamehameha Schools and is not open to public access. Kamehameha Schools controls access to the 1.1-mile access road by a locked gate at the upper end of Kamehame Drive. Figure 1.1 shows the project location map. Figure 1.2 shows the project site map. Figure 1.3 shows the tax map. Figure 1.4 shows the project site topographic map. Figure 1.5 shows site photographs.

The State of Hawaii Department of Hawaiian Home Lands (DHHL) parcel (TMK: 4-1-014: 007) forms the northern boundary of the project site. The project site and facilities will not extend into the DHHL parcel.

The project site will encompass a total of approximately 6,326 square feet (0.15 acres) east of the existing US Department of Transportation Federal Aviation Administration (FAA) Remote Communication Outlet (RCO) facility which is used primarily for air to ground communication with general aviation aircraft. The FAA facility also functions as a Backup Enroute Communication (BUEC) site for the FAA Mt. Kaala site. The City and County of Honolulu communication facility, the recently completed US Coast Guard Rescue 21 facility, and other communication facilities are located west or uphill of the project site. Preliminary information shows these nearby facilities lie at higher elevations and will not be affected by the construction or operation of the DAGS Kamehame Ridge radio facility.

In addition, there are several towers with microwave antennas owned by commercial communication companies and a radio broadcasting station located east or downhill of the project site.

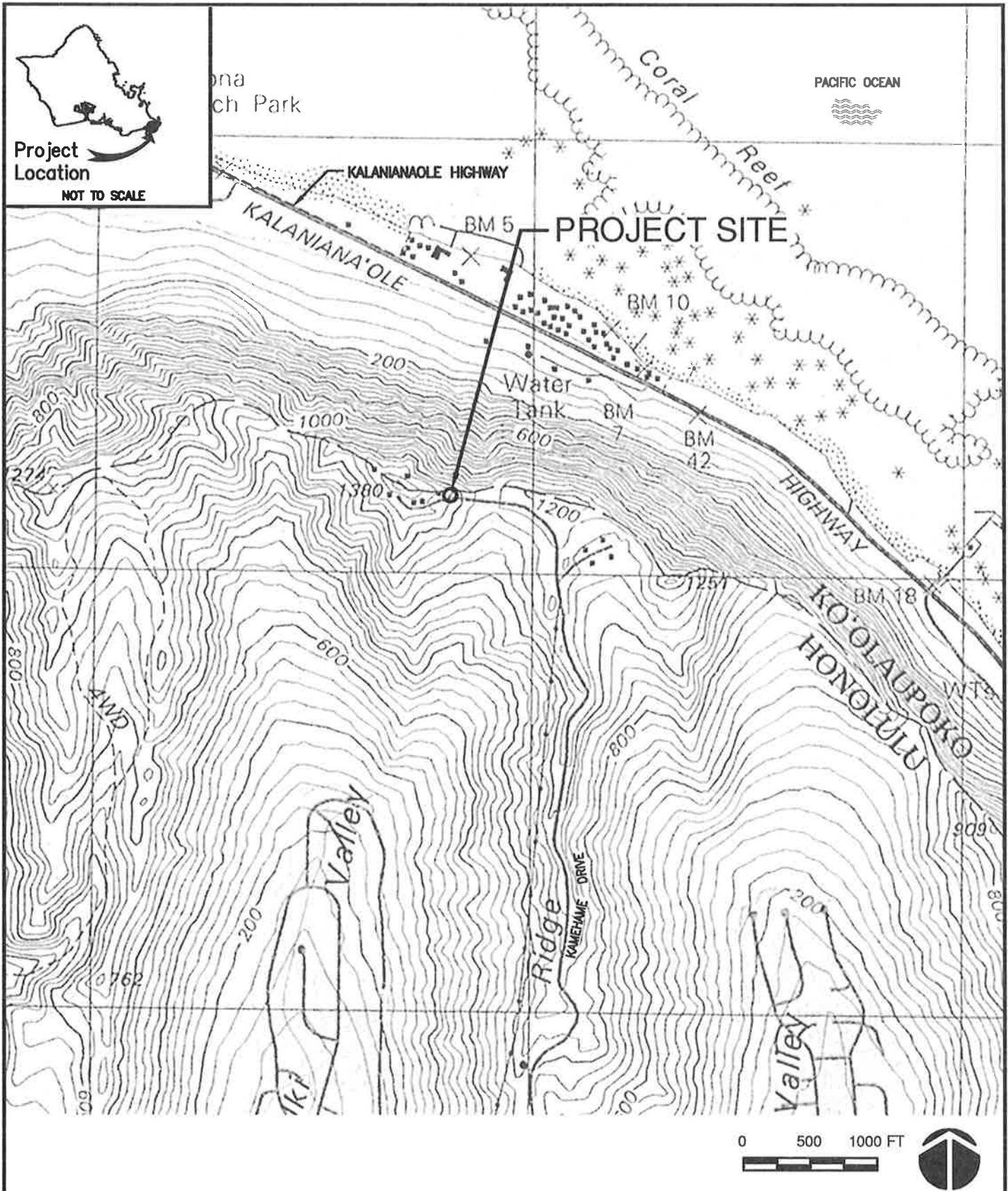
DAGS will initiate frequency coordination with the Federal Communications Commission (FCC) to ensure the Kamehame Ridge Radio frequencies and facilities do not interfere with these adjacent facilities.



INFORMATION & COMMUNICATIONS SERVICES DIVISION
 KAMEHAME RIDGE RADIO FACILITY, DAGS JOB NO. 12-10-0646

FIGURE
 1.1

PROJECT LOCATION MAP



WILSON OKAMOTO CORPORATION
ENGINEERS | PLANNERS | CONSULTANTS

INFORMATION & COMMUNICATIONS SERVICES DIVISION
KAMEHAME RIDGE RADIO FACILITY, DAGS JOB NO. 12-10-0646

PROJECT SITE MAP

FIGURE
1.2

3 9 09

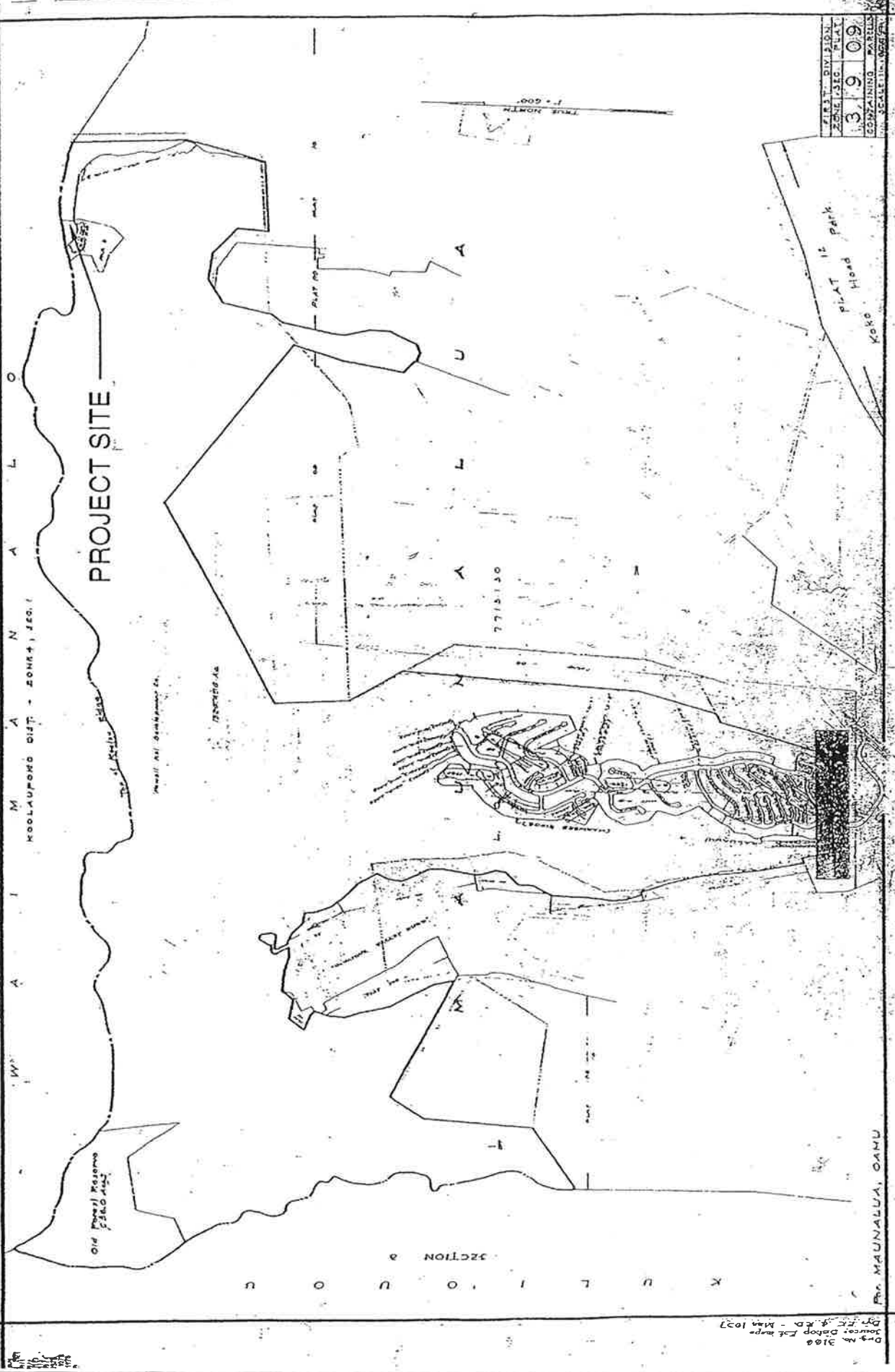


FIGURE
1.3

INFORMATION & COMMUNICATIONS SERVICES DIVISION
KAMEHAME RIDGE RADIO FACILITY, DAGS JOB NO. 12-10-0640

Wilson Okamoto Corporation
ENGINEERS | PLANNERS | CONSULTANTS

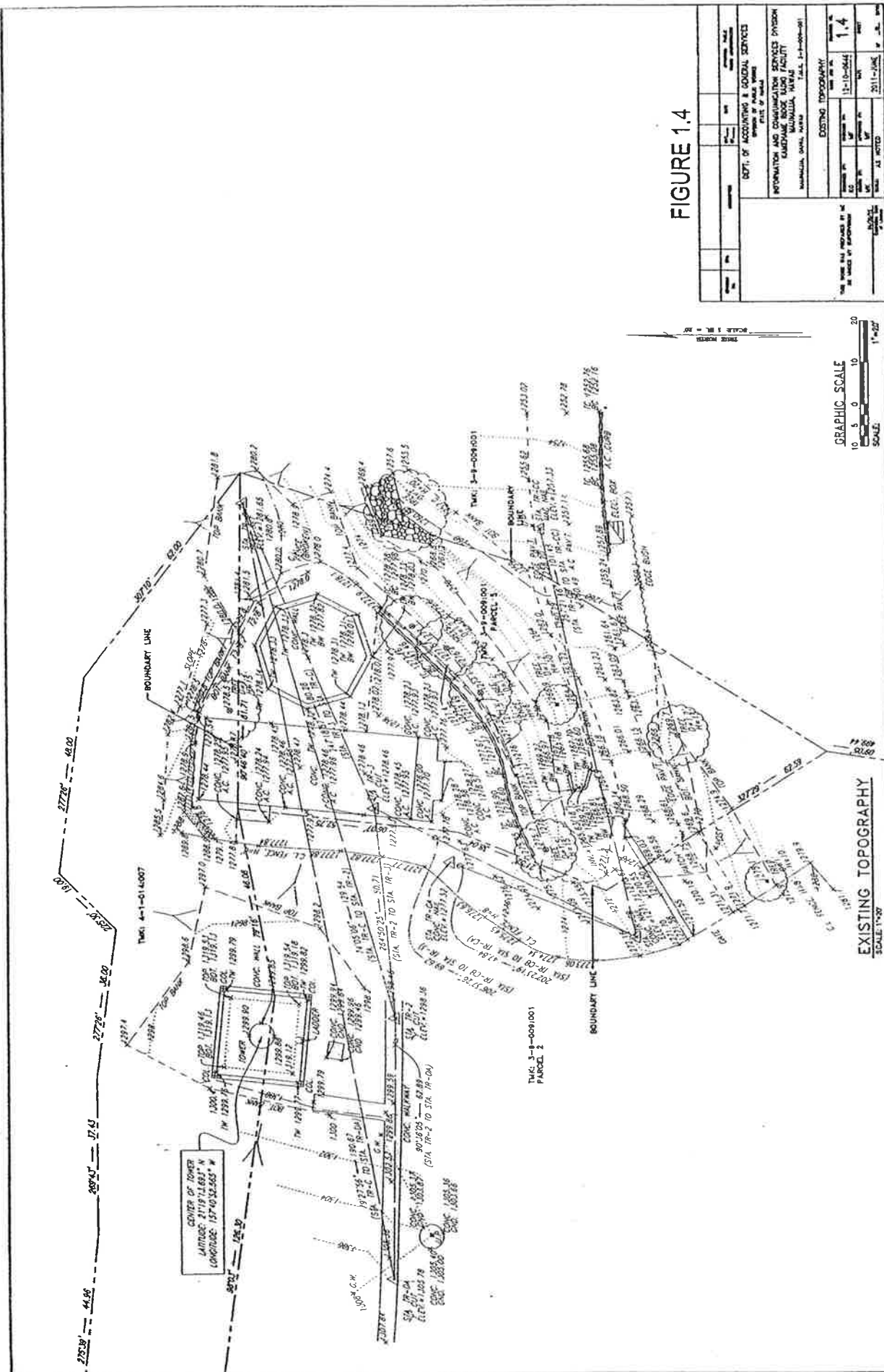
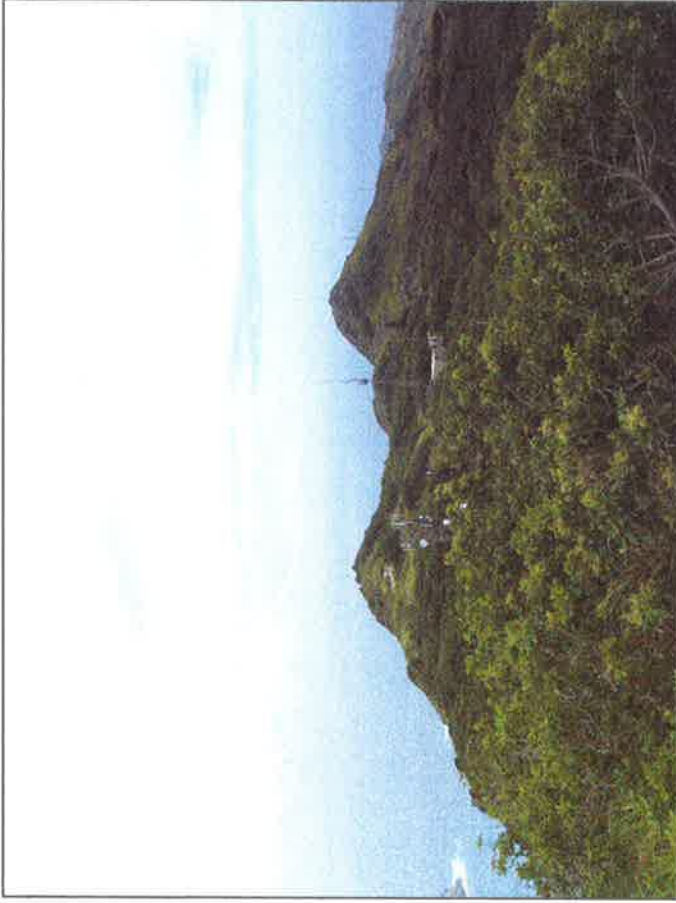


FIGURE 1.4

DEPT. OF ACCOUNTING & GENERAL SERVICES OFFICE OF ASSETS MANAGEMENT	
INFORMATION AND COMMUNICATION SERVICES DIVISION OPERATIONS AND SUPPORT WASHINGTON, D.C. 20548	
DISTING TOPOGRAPHY DATE: 11/11/04 SCALE: 1:4 SHEET: 14	

GRAPHIC SCALE
 0 5 10 20
 FEET
 1"=20'

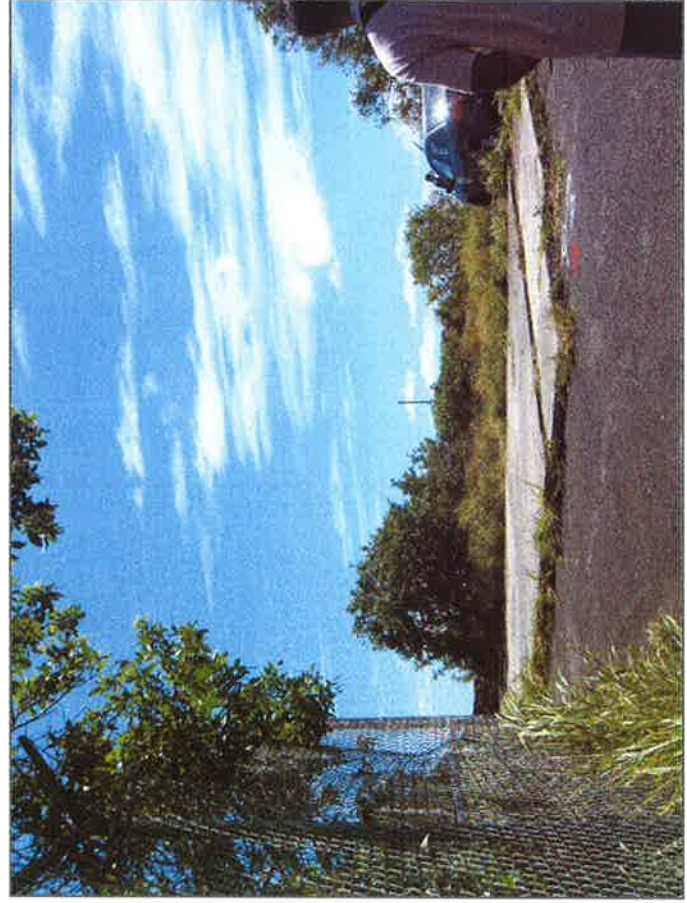
EXISTING TOPOGRAPHY
 SCALE 1"=20'



Project site looking east towards existing commercial towers.



Project site looking northeast – existing FAA tower to left.



Project site looking east at building and tower site.



View of shoreline from tower site looking north.

PROJECT SITE PHOTOGRAPHS FIGURE 1.5

1.3.2 Existing Project Site Background

The project site was originally developed during the late 1950s-early 1960s as one of four Nike missile sites on Oahu. Nike was the name given to a program which ultimately produced the world's first successful, widely-deployed, surface-to-air guided missile system which was intended to defend the US from long-range bombers of the Soviet Union. A total of 264 Nike sites were constructed in the US, including the four on Oahu.

A typical Nike air defense site consisted of two separate parcels of land. One area was known as the Integrated Fire Control (IFC) Area and the second was known as the Launcher Area.

The project site was part of the Nike Bellows/Waimanalo battery identified as Nike Site 3&4. The project site and surrounding area contained the Integrated Fire Control facilities and included the towers and buildings currently used by the FAA, the Navy, and the City and County of Honolulu. Bellows Air Force Station was the Launcher Area and contained the Nike missiles and related facilities needed to launch them.

1.3.3 Existing Project Site Conditions

The project site is approximately 6,326 square feet and consists of two areas, upper and lower portions, separated by an approximately 13-foot high natural embankment. The approximately 3,964-square foot upper portion, which will contain the facilities, was previously cleared and developed as part of the Nike facility and contains a concrete slab, the remnants of an octagonal-shaped curb, asphalt paving, and a guard rail along the southern edge. These improvements have removed any vegetation which might have been present when the Nike facilities were constructed. This upper portion of the project site is relatively flat. A few species of vegetation, including weedy and introduced species, can be found on the eastern edge and lower portion of the project site.

Except for an electrical transformer pad, the 2,361-square foot lower portion which includes the embankment will not be developed with facilities. However, the embankment area will be included as part of the project site to properly secure the upper portion and will be included within the security fence.

An existing improved access driveway connects the upper project site with the access road which lies about 8 feet lower at about elevation 1270 feet msl. This access driveway will remain without changes.

1.3.4 Other Project Site Data

The project site is in the Conservation District, Limited Subzone, as designated by the State Land Use Commission. A Conservation District Use Permit (CDUP) approved by the State Board of Land and Natural Resources will be required to construct and operate the proposed project.

The project site is designated Preservation on the City's East Honolulu Sustainable Communities Plan Land Use Map [June 2004]. The project site City zoning district is P-1 Restricted Preservation. The project site is not located within the City's Special Management Area (SMA). The proposed project will be a public facility to be used for public purposes.

In July 1993, the City and County of Honolulu issued an Environmental Assessment/Negative Declaration for the Waimanalo Ridge Communications Facility which discussed the construction of an approximately 1,300-foot underground duct line to provide electrical service to their facilities and to the FAA facility, both of which are located west or uphill from the project site. The underground system is located on the south side of the access road.

In November 2001, the State of Hawaii Department of Land and Natural Resources issued an Environmental Assessment/Finding of No Significant Impact (FONSI) for the Winner's Camp project which occupies the former Nike administrative facilities. The Winner's Camp facilities are located about 1,500 feet east or downhill from the project site.

1.4 Project Description

1.4.1 Project Access

Access to the project site will be off the existing improved private access road which connects to the upper end of Kamehame Drive. DAGS will secure an access easement with Kamehameha Schools and the FAA to access the project site from the access

road. Since the project site is remote, security fencing will be used to protect the facility. The security fence will not affect the access to the other nearby communication facilities.

1.4.2 Project Site Plan

The project site will encompass a total approximately 6,326 SF (0.15 acres) east of the adjacent FAA facility. As previously discussed, DAGS will use the project site through a joint use agreement between the ICSD and HECO.

The project will include:

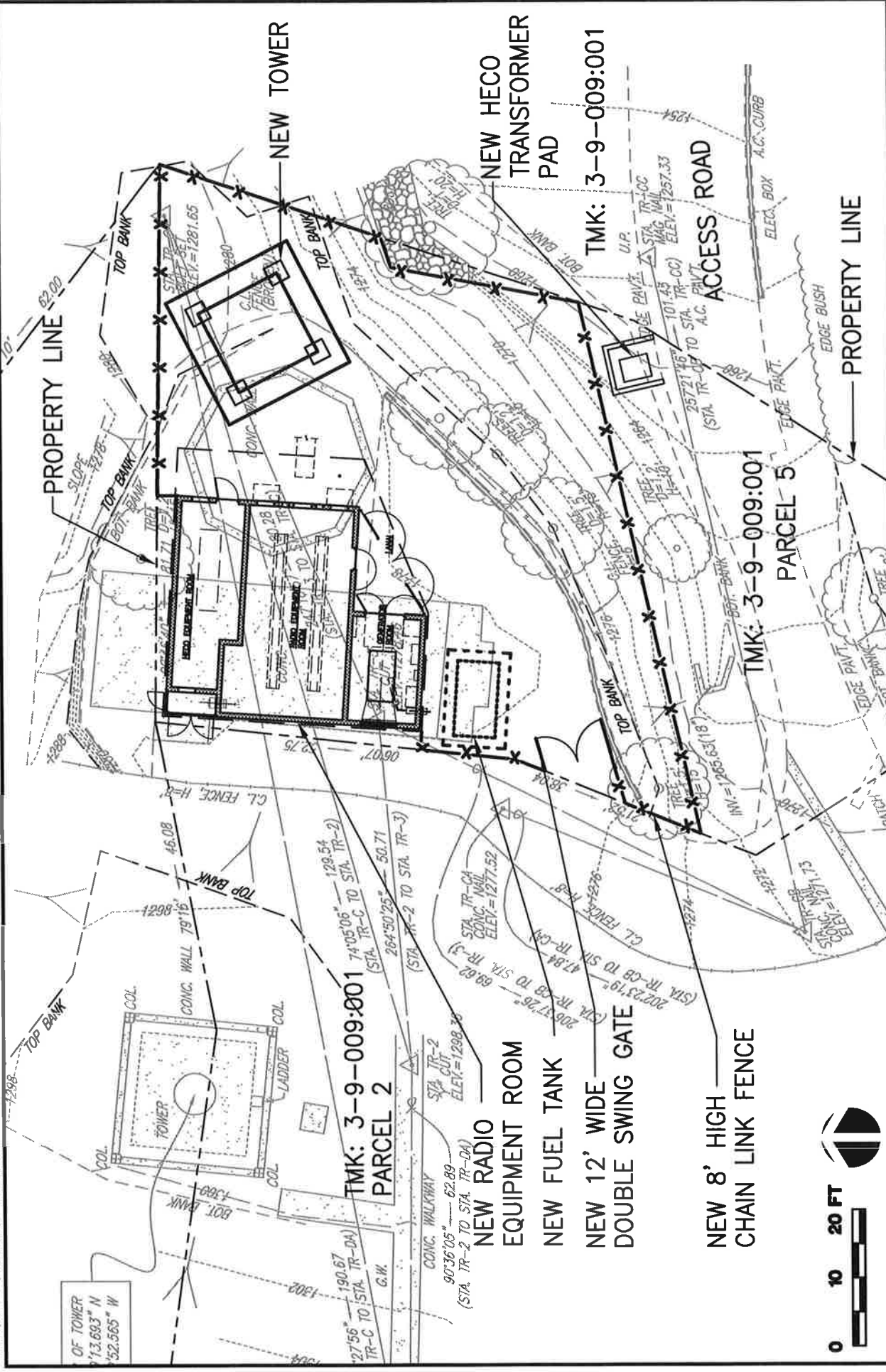
1. A 4 sided, 50-foot self supported tower with a 16-foot by 16-foot above grade reinforced concrete foundation used to support 7 microwave antennas and 12 land mobile radio antennas;
2. An approximately 1,006 SF by 12-foot high, single story building with three rooms, a DAGS equipment room (approximately 552 SF), a separate emergency generator room (approximately 189 SF) for an 80-kilowatt (KW) generator, and a 265 SF equipment room for Hawaiian Electric Co. (HECO);
3. Related site improvements, including a concrete pad for a 1,000-gallon double walled above-ground diesel fuel tank, concrete pavement of the upper portion of the project site, security fencing of the facility, and underground conduits for electrical lines.

Figure 1.6 shows the site plan and Figure 1.7 shows the building floor plan. Figure 1.8 shows the building elevations. The building will be designed and constructed to survive wind speeds of up to 155 mph, or the top wind speed expected in a Category 4 hurricane.

An 8-foot high chain link fence topped with three strands of barbed wire will be used to secure the upper and lower portions of the project site.

The upper portion of the project site will sloped to surface flow runoff to the east and south.


Electrical power will be supplied via connection to the underground system that services the other nearby existing facilities. A pad mounted transformer and underground



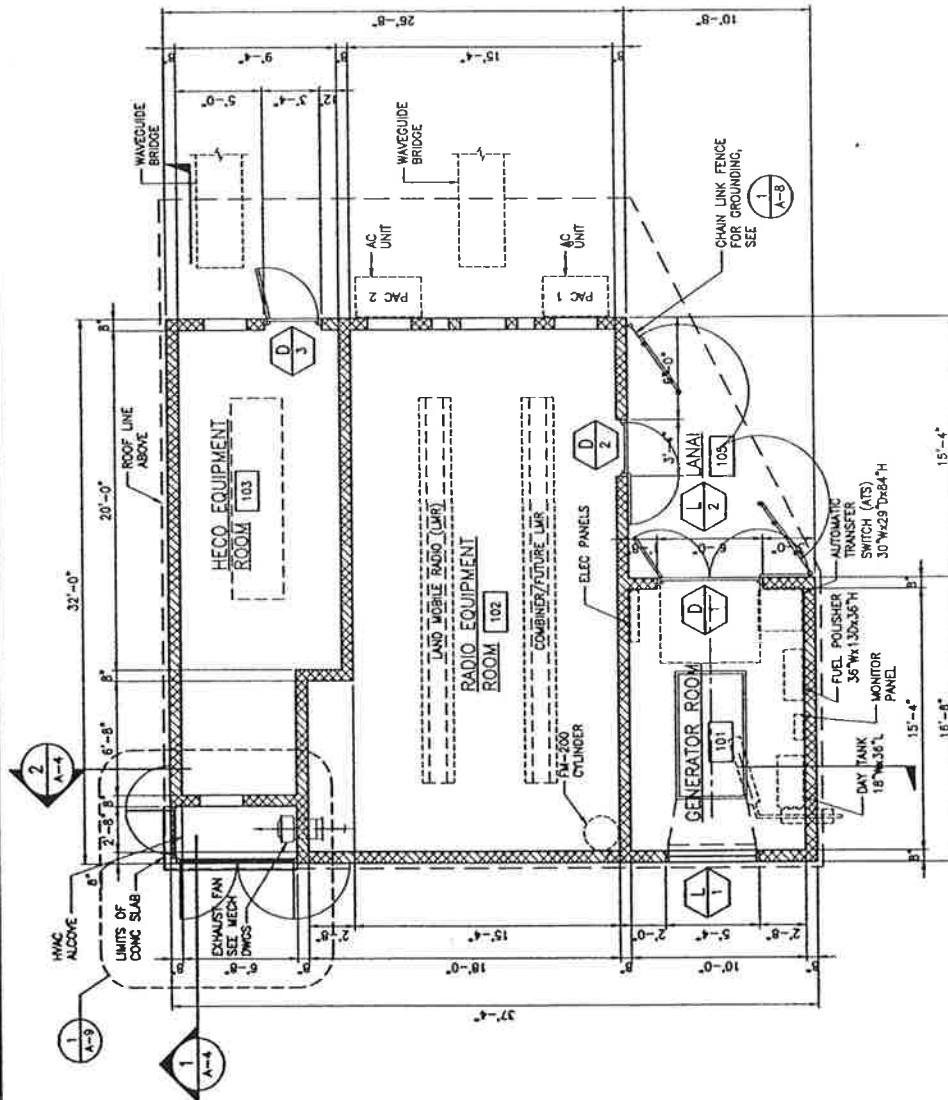
SITE PLAN

DAGS ICSD KAMEHAME RIDGE RADIO SITE AND TOWER, PROJ NO. 12-10-0625

FIGURE 1.6



WILSON OKAMOTO CORPORATION
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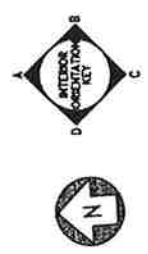
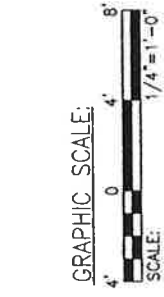
1 FLOOR PLAN
SCALE: 1/4"=1'-0"

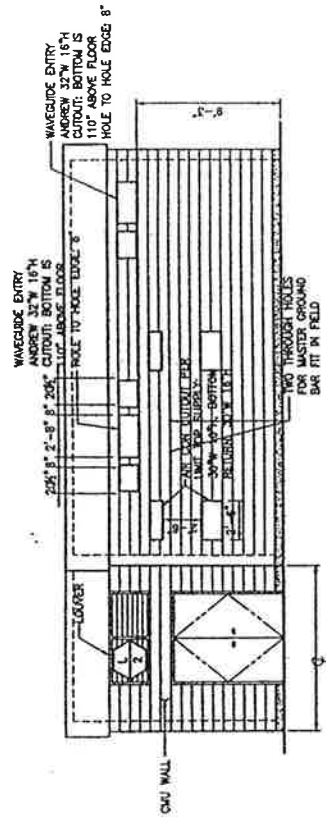
FIGURE 1.7

REVISION NO.	DATE	DESCRIPTION	BY	DATE	APPROVED, PUBLIC WORKS ADMINISTRATOR
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII					
INFORMATION AND COMMUNICATION SERVICES DIVISION KAMEHAME RIDGE RADIO FACILITY MAUNALUA, HAWAII T.H.K. 3-9-009-001					
FLOOR AND ROOF PLANS					
REVISION NO.	DATE	DESCRIPTION	BY	DATE	APPROVED, PUBLIC WORKS ADMINISTRATOR
1	12-10-0646				
2					
3					
4					
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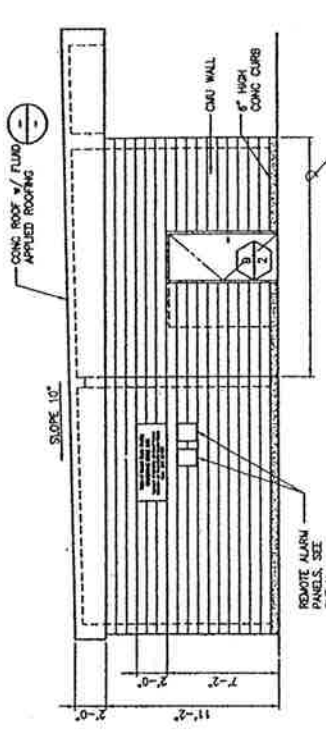


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
 04/29/12
 Expiration Date of License

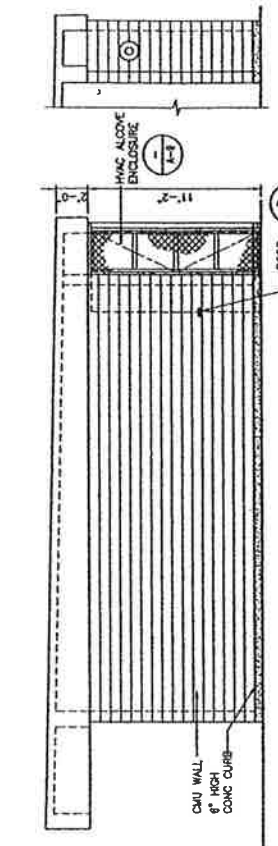




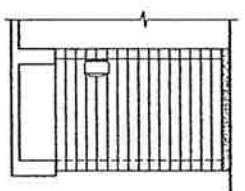
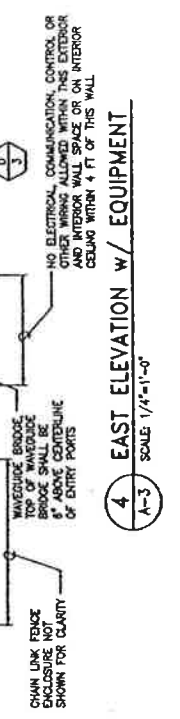
1 SOUTH ELEVATION
SCALE: 1/4"=1'-0"



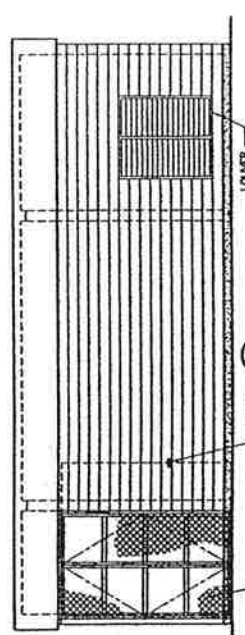
2 NORTH ELEVATION
SCALE: 1/4"=1'-0"



4 EAST ELEVATION w/ EQUIPMENT
SCALE: 1/4"=1'-0"



5 WEST ELEVATION
SCALE: 1/4"=1'-0"



WEST ELEVATION HVAC ALCOVE

FIGURE 1.8

GRAPHIC SCALE:
SCALE: 1/4"=1'-0"

DEPT. OF ACCOUNTING & GENERAL SERVICES
OFFICE OF PUBLIC WORKS

INFORMATION AND COMMUNICATION SERVICES DIVISION
TELECOMMUNICATIONS SECTION

UNIVERSITY MICROFILMS
SERIALS ACQUISITION
300 NORTH ZEEB ROAD
ANN ARBOR, MI 48106-1500

EXTERIOR ELEVATIONS

PROJECT NO.	DATE	SCALE	BY	CHECKED

AUG. 08. 11

conduits will be used to supply power to the building. Electrical power will be purchased from HECO.

No water service will be required for the project site for domestic or fire protection services. No toilet facilities will be provided at the project site.

1.4.3 Building Floor Plan

The single-story, three-room building will be approximately 1,006-SF, with 8-inch thick reinforced CMU walls and concrete slab floors to provide an approximately 552-SF equipment room for DAGS, a 189-SF emergency generator room, and an approximately 265-SF equipment room for HECO. Access to the DAGS equipment room will be from a covered lanai on the south side of the building. Access to the HECO equipment room will be from the east side which will have a 6-foot roof overhang. Each equipment room will also contain the batteries used to provide power to the radio equipment. The DAGS room will accommodate 2 rows of radio equipment racks, while the HECO room will have a single row of racks.

Access to the generator room will be via double doors opening on to the covered lanai. There will be no internal doorways or windows connecting the generator room to the equipment room. Louvered openings will be provided on the east and west walls of the generator room, as needed. The generator will provide service to both the DAGS and HECO equipment rooms in the event of an outage to the commercial service. A concrete fuel tank pad will be constructed on grade adjacent to the generator room.

The building will have a sloped concrete slab roof. The entry doors will have a raised threshold to prevent water from flowing into interior spaces.

The building will be designed with at least an 11-foot high clear height ceiling to accommodate overhead cable trays, and the installation of microwave waveguides and land mobile radio (LMR) coaxial cables, as well as cable and waveguide support hardware.

An integrated approach will be taken to protect the entire facility from the damage caused by lightning strikes. The equipment racks will be isolated from the floor with an insulation gasket as part of the effort to protect the equipment from damage caused by

lighting strikes. An internal ground halo will be provided for connection of non-active metallic items such as doorframes and cable racks. Surge protected entryways will be required for all waveguide, coaxial, signal (such as telephone, security cameras, or similar external system connections), and electrical power connections. Protection will also include the establishment of a single point ground for user equipment. The tower, building, and the fence ground systems will be interconnected to a ground well, buried ground halos, grounding trenches throughout the site, and exothermically welded connections to the reinforcing bars of the tower foundation (an Ufer ground).

The DAGS equipment room will house several independent battery systems, with at least one system to support State equipment and another to support other systems. These battery systems are comprised of strings of valve regulated lead acid (VRLA) battery cells which are an improved version of the lead acid batteries found in most vehicles. However, the VRLA batteries are supplied with a gelled electrolyte, do not require water, and have been designed not to leak. The VRLA batteries will be equipped with flame arresting safety vents.

Batteries installed at similar facilities elsewhere by the State have used 48 individual cells weighing 88 pounds to make a battery that will support the site equipment for 15 hours. Such a battery contains about 920 pounds of gelled electrolyte and 3,360 pounds of lead plates. The VRLA cells are not classified as hazardous materials.

The batteries are kept under constant charge by rectifiers that also normally provide direct current (DC) power to the critical radio equipment. The rectifiers will operate from commercial power that is backed up by an autostart generator. The use of the commercial/battery/generator redundancy is standard procedure in the telecommunications industry and at public safety facilities.

Although VRLA batteries have a projected service life of about 20 years, experience to date indicates that replacement should be scheduled at 10-year intervals. It is ICSD policy that all removed batteries be recycled, not disposed, in accordance with Federal and State environmental regulations.

The VRLA batteries will be tested, cleaned, and serviced semi-annually by contractor personnel.

The 189-SF generator room will house an 80-kilowatt (kW) diesel generator to provide emergency power in the event of a power outage to the commercial system. The DAGS specifications require an emergency power system capable of servicing the facility in the event of a 7-day electrical power outage. The emergency generator will be sized to provide sufficient power for operating the radios and for running the air conditioning units in both the DAGS and HECO equipment rooms.

The diesel fuel will be stored in a double-walled Convault style above-ground tank to be located immediately south of the building. It is expected that at least a 1,000-gallon total fuel capacity will be required to provide for the desired 7-day supply of fuel. The above-ground double-walled tank will not require a spill containment system around its base. The interstitial space between the walls of the tank contains a leak detection system. The tank fill openings contain an overfill protection system to contain any spills when the tank is being filled with fuel. The City has permitted the use of double-walled above-ground fuel tanks.

The emergency generator will be tested by operating it about once or twice a month for a period of no more than about 3 to 4 hours under load test to ensure that it is operational during emergency situations. Contractor personnel will conduct the tests and maintain the emergency power system.

The building will be equipped with a telemetry system to monitor door entries, high temperature conditions, and fire alarms.

The DAGS equipment room will be equipped with a FM-200 fire suppression system designed for electronic equipment. The fire suppression system will use a compound of carbon, fluorine, and hydrogen as the suppressant that is non-ozone depleting and safe for use in occupied spaces. The City Fire Department will be needed at the project site to safely enter the building in the event of a fire and/or the discharge of the fire suppression system. In addition, the equipment and generator rooms will be equipped with hand-held fire extinguishers suitable for use in rooms with electronic equipment.

The security lighting for the building will meet the City code for exterior lighting and will be downshielded to reduce the attraction of the facility to birds which might be in the area. The project site will not be lighted at night, unless required for night work.

The mechanical and electrical design drawings will meet City and County of Honolulu Revised Ordinances Chapter 32 which conforms with the Building Energy Conservation Code.

DAGS contract specifications do not specifically include a requirement for green architecture for this project given its scope and estimated construction cost.

1.4.4 Building Tower Design Criteria

The DAGS specifications require the tower, antennas, and building to remain operational at wind speeds up to 110 miles per hour (mph) and the facilities survive wind speeds up to 155 mph. Wind speeds of 110 mph are the highest sustained winds expected in a Safir-Simpson Category 2 hurricane. Wind speeds of 155 mph are the highest reached in a Safir-Simpson Category 4 hurricane.

The Kamehame Ridge tower will be designed to meet the guidelines set forth in ANSI/TIA-222-G, *Structural Standard for Antenna Supporting Structures and Antennas*. The new EIA-222-G standard is an all inclusive standard compared to the previous design standards. It replaces the EIA/TIA 222-F and earlier tower standards.

The wind speed in ANSI/TIA-222-G is now designated in 3-second gust format compared to fastest mile which had been used in the previous codes and standards. ANSI/TIA-222-G uses the speed up effect of the wind for towers built on mountain tops. This is especially significant for towers located on mountains, hills and escarpments. Depending on the steepness of the terrain the wind pressure is increased by factors greater than 1.

Wind loading is increased for the dynamic effects of the wind in the new standard. This also increases the wind pressure used in the design.

In addition to the wind speed factors, ANSI/TIA-222-G uses an "Importance Factor" load modifier for the structures. For normal communication structures it is 1.0. For structures that are classified as emergency communication structures (Structure Class III) a factor of 1.15 is specified. This increases the forces that the towers are designed for so that they have a greater ability to survive and be functional following significant wind storms or hurricanes.

The tower foundation will consist of an approximately 16-foot by 16-foot by 2-foot 6-inch above grade reinforced concrete mat connected to 20-foot deep by 5 1/2-inch diameter micropiles to resist overturning and uplift movements. A total of 8 micropiles will be used for the foundation. Pedestals at each tower leg will be used to raise the base of the tower by 2-foot 6-inches so that the tower base will be about 5-foot above the surrounding grade.

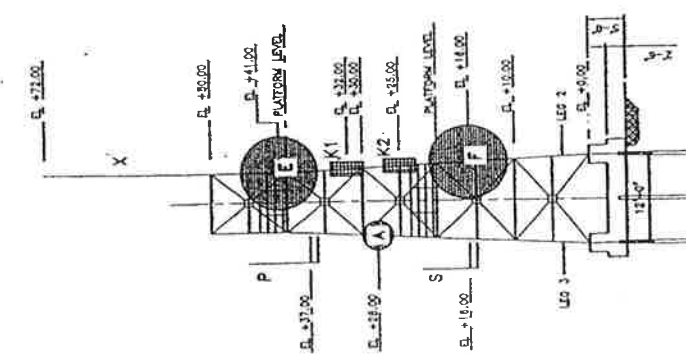
The design criteria used for the tower includes factors which will allow the addition of other antennas, depending on their specific characteristics.

1.4.5 Tower and Antennas

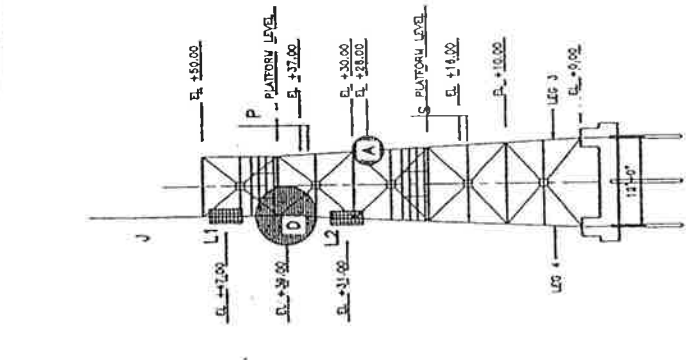
A 4-leg self-supporting pipe-leg, 50-foot high tower will be used to mount a total of 19 antennas, including 7 solid microwave antennas, two 10-foot, two 8-foot, one 6-foot, and two 4-foot diameter solid microwave antennas, and 12 other antennas including whips and side mounted smaller panel antennas. The tower will include a lightning rod, work platforms, internal climbing ladders equipped with a safety climb device, ladder and trap door locks, waveguide ladder, and covered transmission line bridges between the tower and the building two entry ports, one to service DAGS and the other for HECO. The tower will be 12 feet at the base and taper to 9 feet at the top and will be galvanized and painted a light gray shade similar to the color of the galvanized finish. The top of the lightning rod will be about 72 feet above grade. Figure 1.9 shows the tower plan, Figure 1.10 the antenna plan, and Figures 1.11A and 1.11B the antenna coverage plan.

The tower has been sited near the cliff edge to provide microwave line of sight for connection to the ICSD site at Puu Papaa and the HECO site at Kalaeho. The tower site has also considered the general geology of this area of Oahu which shows the cliff sides are susceptible to rock slides. Based on this, the tower has been sited about 10 to 12 feet from the cliff edge to protect against rock slides and to also ensure a microwave path to the DAGS and HECO radio sites.

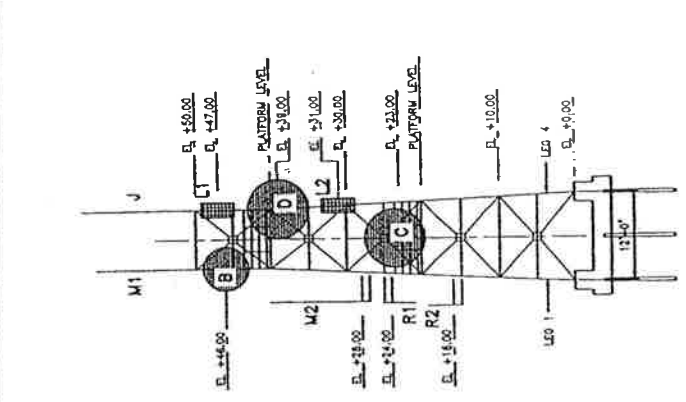
A FAA Form 7460-1, Notice of Proposed Construction or Alteration has been filed by the DAGS with the FAA to obtain approvals for the location and height of the tower and the use of radio transmitting facilities in the vicinity of the nearby FAA Remote Communication Outlet (RCO) facility, the City and County of Honolulu facility, and other communication facilities. The FAA Aeronautical Study will determine if the tower exceeds obstruction standards or would otherwise be a hazard to air navigation and will



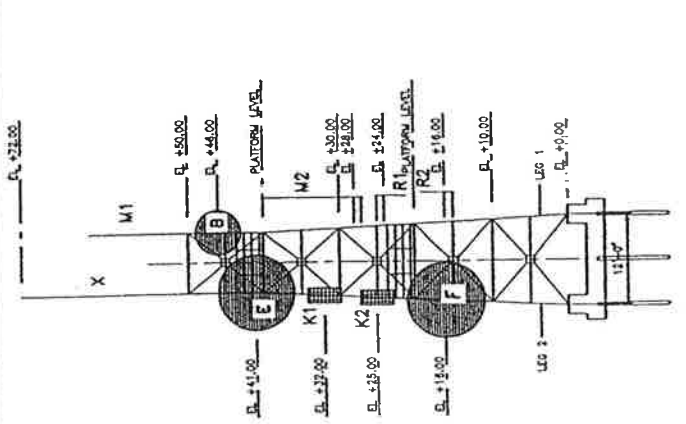
1 SOUTHEAST ELEVATION
S-24 SCALE: 1/8"=1'-0"



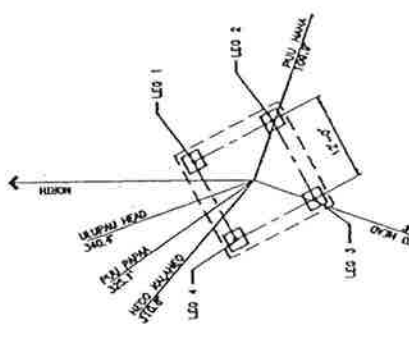
2 SOUTHWEST ELEVATION
S-24 SCALE: 1/8"=1'-0"



3 NORTHWEST ELEVATION
S-23 SCALE: 1/8"=1'-0"



4 NORTHEAST ELEVATION
S-23 SCALE: 1/8"=1'-0"



A ANTENNA TOWER SCHEMATIC PLAN
S-24 SCALE: 1/8"=1'-0"

FIGURE 1.9

INFORMATION FOR CONSULTATION SERVICES DIVISION HAWAIIAN BOND ISSUES FACILITY HONOLULU, HAWAII PROJECT NO. 11-10-0144 DATE: 11/10/01		SHEET NO. S-24 TOTAL SHEETS 11
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF GENERAL INVESTMENTS PROJECT NO. 11-10-0144 DATE: 11/10/01		SHEET NO. S-24 TOTAL SHEETS 11
ANTENNA TOWER ELEVATIONS SCALE: 1/8"=1'-0"		SHEET NO. S-24 TOTAL SHEETS 11



State of Hawaii proposed radio facility at KAMEHAME RIDGE, Oahu

NAD83 21-19-13.6 N, 157-40-51.4 W, elevation 1278 feet AMSL

1-Sep-11

Label	Antenna Make & Model	Antenna Size & Description	Frequency Band	Feedline(s)	Mount Position & Type	Leg	Elevation in feet: AGL, MSL, or MLLW, as appropriate for whip	Azimuth True N	Coordinate Site or Path Direction	User
A	Andrew UHX4-107B	4' Diameter Solid Dish Ultra High Performance with radome	11 GHz	2 each EW90	4-1/2" PIPE MOUNT and SEE NOTE: Provide ONE Additional Tie-Back Point	3	31	200.4°	Koko Head	State ICSD
B	Andrew UHX6-107	6' Diameter Solid Dish Ultra High Performance with radome	11 GHz	2 each EW90	4-1/2" PIPE MOUNT and SEE NOTE: Provide TWO Additional Tie-Back Points	1	46	325.1°	Puu Papaa	State ICSD
C	Andrew UHX8-59	8' Diameter Solid Dish Ultra High Performance with radome	6 GHz	2 each EW63	4-1/2" PIPE MOUNT and SEE NOTE: Provide TWO Additional Tie-Back Points	FACE 1 & 4	23	340.4°	Ulupau	State ICSD
D	Andrew UHX8-59	8' Diameter Solid Dish Ultra High Performance with radome	6 GHz	2 each EW63	4-1/2" PIPE MOUNT and SEE NOTE: Provide TWO Additional Tie-Back Points	4	39	310.8°	Kalaheo	HECO
E	Andrew UHX10-59	10' Diameter Solid Dish Ultra High Performance with radome	6 GHz	2 each EW63	4-1/2" PIPE MOUNT and SEE NOTE: Provide TWO Additional Tie-Back Points	2	41	109.9°	Puu Nana	HECO
F	Andrew UHX10-59	10' Diameter Solid Dish Ultra High Performance with radome	6 GHz	2 each EW63	4-1/2" PIPE MOUNT and SEE NOTE: Provide TWO Additional Tie-Back Points	2	16	109.9°	Puu Nana	HECO
G	Andrew HP4-107	4' Diameter Solid Dish Ultra High Performance with radome	11 GHz	1 each EW90	4-1/2" PIPE MOUNT and SEE NOTE: Provide TWO Additional Tie-Back Points	3	24	109.9°	Puu Nana	HECO
H - I	labels not used									
J	Sinclair SC432D-HF6-LDF (140, G06)	Dual 700 MHz omni 173-inches tall, base dia - 3.5 in 774.05625 tx	769 - 805 MHz rcv 769 - 775 MHz tx	2 each VXL5-50 7/8" OD heliax	B14119 pipe adaptor kit for 3-1/2-in OD to lower leg Do Not Use Top-Flange Mount	4 TOP	50		omni	State ICSD
K1	Sinclair SE414-SF3PALDF	700 MHz Public Safety band 4 dipole array panel with adjustable beam forming receive	769 MHz - 805 MHz	1 each VXL5-50 7/8" OD heliax	2-3/8" PIPE MOUNT B1163	2	32		Molokai	FUTURE State ICSD
K2	Sinclair SE414-SF3PALDF	700 MHz Public Safety band 4 dipole array panel with adjustable beam forming transmit	769 MHz - 775 MHz	1 each VXL5-50 7/8" OD heliax	2-3/8" PIPE MOUNT B1163	2	25		Molokai	FUTURE State ICSD



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ENGINEERS | PLANNERS | CONSULTANTS

INFORMATION & COMMUNICATIONS SERVICES DIVISION KAMEHAME RIDGE RADIO FACILITY; DAGS JOB NO. 12-10-0640

ANTENNA PLAN

FIGURE

1.11A

State of Hawaii proposed radio facility at KAMEHAME RIDGE, Oahu

NAD83 21-19-13.6 N, 157-40-51.4 W, elevation 1278 feet AMSL

1-Nov-11

Label	Antenna Make & Model	Antenna Size & Description	Frequency Band	Feedline(ft)	Mount Position & Type	Leg	Elevation to Ant AGL; also, height from CL; below for only	Azimuth True N	Coordinate Site or Path Direction	User
L1	Sindair SE414-SF3PALDF	700 MHz Public Safety band 4 dipole array panel with adjustable beam forming receive	700 MHz - 805 MHz	1 each VALS-50 7/8" OD heliax	2-3/8" PIPE MOUNT B1163	4	47	325°	Kaliua	FUTURE State ICSD
L2	Sindair SE414-SF3PALDF	700 MHz Public Safety band 4 dipole array panel with adjustable beam forming transmit	700 MHz - 775 MHz	1 each VALS-50 7/8" OD heliax	2-3/8" PIPE MOUNT B1163	4	31	325°	Kaliua	FUTURE State ICSD
M1	Sindair SC381-HF2-LDF Range F2	UHF omni whip (pole) 148" tall, 4.5" diameter	403 MHz - 470 MHz receive	1 each VALS-50 7/8" OD heliax	B1437 pipe adaptor kit for 5-9/16-in OD to lower leg Do Not Use Top-Flange Mount	1 TOP	50		omni	State ICSD
M2	Sindair SC381-HF2-LDF Range F2	UHF omni whip (pole) 148" tall, 4.5" diameter	403 MHz - 470 MHz transmit	1 each VALS-50 7/8" OD heliax	B1437 pipe adaptor kit for 5-9/16-in OD antenna to mount pipe, B1739 3-foot Standoff Pipe Mount (4-1/2-in OD pipe), B1825 13-4-1/4-in long Tie-Back Arm with brackets and hardware	1	28		omni	State ICSD
N - O	labels not used									
P	Sindair SC420-HF1LNF	800 MHz Collinear omni, 7.5 dBd gain	800 MHz - 854 MHz transmit	1 each VALS-50 7/8" OD heliax	4-foot Standoff Wireless Mount B3115	3	37		omni	State ICSD Mutual Aid
R1	Decibel DB630	UHF omni whip (pole) 35" tall, 4.5" diameter	403 MHz - 470 MHz		Use bottom of mount for antenna M2	1	24 inverted		omni	FUTURE State ICSD
R2	Decibel DB630	UHF omni whip (pole) 35" tall, 4.5" diameter	403 MHz - 470 MHz	1 each VALS-50 7/8" OD heliax	3-foot Standoff Wireless Mount B3100	1	16		omni	FUTURE State ICSD
S	Diamond X50NA	UHF UHF dual-band whip 67" tall 1.44 360 MHz transmit	144 MHz - 148 MHz tx 435 MHz - 450 MHz rx	1 each VALS-50 7/8" OD heliax	3-foot Standoff Wireless Mount B3100	3	16		omni	State ICSD
T	Sindair SC420-HF1LNF	800 MHz Collinear omni, 7.5 dBd gain	800 MHz - 854 MHz transmit	1 each VALS-50 7/8" OD heliax	Top Flange Mount	3 TOP	50		omni	FUTURE State ICSD
U - W	labels not used									
X	Vaimont Lightning Rod	22-foot tall Galvanized Steel Lightening Rod	DC - light	No downlead or any type	Vaimont 125233 lightning rod mast, A113 pipe cap, and B554 5/8" OD 4-foot tall lightning rod assembly Galvanized Steel ONLY	2 TOP	50		omni	
Cable Ladder	Waveguide Ladder 36-inch wide	30-inch vertical spacing rung-to-rung				FACE 4 & 3	base to 50' AGL			

NOTES:

1. Antenna height above ground level is measured in feet from the bottom of the tower leg and does not include the 5-foot tall concrete pad.
2. Heights AGL are measured to the center line of microwave dish antennas and yagi or similar antennas.
3. Heights AGL are measured to the bottom of the radome of whip antennas.
4. All microwave antennas 6-foot and larger require two additional stiff arm supports (side struts) to the outer ring - one to the left or right and one to the top or bottom.
5. All 4-foot diameter microwave antennas require one additional stiff arm support



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INFORMATION & COMMUNICATIONS SERVICES DIVISION KAMEHAME RIDGE RADIO FACILITY; DAGS JOB NO. 12-10-0640

ANTENNA PLAN

FIGURE

1.11B

determine if any marking and lighting are necessary for aviation safety. Based on previous experience, it is expected that the FAA will not require markings and lighting.

1.4.6 Electromagnetic Radiation (EMR)

The project site will support multiple radio transmitters that operate in two broad categories: point-to-point microwave and land mobile radio (LMR). The new point-to-point microwave transmitters to be installed by the State will operate in the 6 GHz and 11 GHz microwave bands. All of these microwave systems will transmit continuously and concentrate their emission in a narrow highly directional beam that does not move. None of the energy from these microwave transmitters is expected to reach, spill, or scatter into any nearby surface areas or structures that can be accessed by persons near the project site. The microwave transmitter output powers are typically in the range of one watt or less.

The LMR systems expected to be installed at the project site will operate on frequencies that range from just above 100 MHz to just under 900 MHz. LMR systems transmit intermittently with their duty cycles related to system traffic. A typical LMR system would have a transmitter output power of 100 watts (often less) and transmit in an omnidirectional (or wide sector) pattern with energy concentrated downhill or towards the horizon.

1.5 Project Operation

1.5.1 Personnel

No government or contractor personnel will be assigned to daily operation of the proposed project. However, contractor personnel will visit the project site on a periodic basis to conduct tests and to perform maintenance service on air-conditioning and power systems and to clean the building and surrounding area. Technician visits typically would not exceed twenty man-days per year per system (or agency). In total, about 10 to 20 trips/month will be made by contractor personnel to the proposed project. This is consistent with the frequency of personnel visits to the existing ICSD facility in the past.

1.5.2 Hours of Operation

The radio equipment will operate continuously on a 24 hours per day, 7 days per week basis.

1.6 Preliminary Cost Estimate

The budgeted construction cost, excluding the equipment, for the project is approximately \$2,000,000.00, which will be funded by DAGS. No Federal funds will be used for construction of the improvements.

1.7 Project Schedule

Construction is expected to start in late 2013 and should require about 12 months to complete. The facility should be in operation by late 2014.

1.8 Other Project Considerations

During the pre-assessment consultation for this EA with Federal, state and county agencies, the State Department of Defense Office of Civil Defense indicated it supports this project, as it supports the disaster response activities of the State. This infrastructure project is critical in the support of emergency management communications and will facilitate the State's public safety goal to protect the lives and property of the citizens of Hawaii. The comment letter is included in Appendix A.

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2. DESCRIPTION OF EXISTING ENVIRONMENT, IMPACTS AND MITIGATION MEASURES

2.1 Geology and Soils

2.1.1 Existing Environment

The project site is located at the edge of a cliff at the east end of the Koolau Range, the eastern of two major mountain ranges on the island of Oahu. The cliff or ridgeline separates the Koolau Range from the Waimanalo area which lies below. Kamilo Nui Valley lies to the west and Kalama Valley to the east.

In most areas of the world, earthquakes are caused by shift in the tectonic plates. In contrast, earthquakes in Hawaii are primarily linked to volcanic activity. Earthquake activity in Hawaii generally occurs before or during volcanic eruptions or from underground movement of magma that comes close to the surface without an actual eruption to the surface.

The City and County of Honolulu has adopted the 2003 International Building Code (IBC) as the applicable code for the construction of buildings, structures, and facilities. The purpose of the seismic provisions in the IBC is primarily to safeguard against major structural failures and loss of life, not to limit damage or maintain functions. Structures are to be designed and constructed at a minimum to resist the effects of ground motions from seismic events. The site seismic hazard characteristics in the IBC are based on the seismic zone and proximity of the site to active seismic sources.

The Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, prepared by the U.S. Department of Agriculture Soil Conservation Service (now Natural Resources Conservation Service) shows the soil type at the project site to be Rock Land (rRK). This soil consists of areas where exposed rock covers 25 to 90 percent of the surface. The rock outcrops and very shallow soils are the main characteristics of the soil type.

Geotechnical investigations were conducted at the project site as part of the design process. The preliminary geotechnical report shows the project site is underlain by a thin surface fill overlying weathered basalt rock formation extending to the maximum depth drilled of about 35 feet below the existing ground surface. The surface fill encountered in the borings varied from 1 to 3 feet thick. Weathering conditions of the basalt rock formation ranged from high to moderate. Based on available subsurface

conditions encountered in the borings and general geological setting in the project vicinity, the project site should be categorized as a rock site.

Groundwater was not encountered in the borings drilled during the field exploration. It should be noted that groundwater levels are expected to fluctuate with variation in rainfall, surface water runoff, groundwater withdrawal, and other factors.

2.1.2 Impacts and Mitigation Measures

Construction of the building and related improvements will require subsurface excavation for placement of the foundations. This will disturb surface and subsurface soils and displace the soils with on-grade slab foundations. However, this disturbance will not adversely affect the soils and geology of the project site and surrounding area.

The proposed project will be designed and constructed to meet the requirements of the 2003 IBC and comply with seismic loadings established for Oahu. This will ensure that the geological conditions at the project site do not adversely affect the building and facilities. (Note, DAGS requires the Kamehame Ridge Radio Facility to comply with the 2006 IBC, which is more stringent than the 2003 IBC.)

The rock formation near the cliff edge is exposed to the weather and thus, tends to be softer and usually more fractured as gravity pulls on the formation. This condition is the origin of most of the rocks that roll down the hillside. For major structures, such as a tower near the edge of a hillside, a deep foundation system is usually used since the deep foundation compensates for the reduced strength of the rock formation. However, due to the potential rock fall hazard caused by construction activities (vibrations), an above grade mat foundation will be used for the tower. The above grade foundation with minimal embedment will minimize potential rock fall hazard.

The tower foundation will consist of an approximately 16-foot by 16-foot by 2-foot 6-inch above grade reinforced concrete mat connected to 8, 20-foot deep by 5 1/2-inch diameter micropiles to resist overturning and uplift movements. A micropile consists of a small diameter (usually less than 12 inches), drilled and grouted, pile with steel reinforcing. The micropile foundation typically is constructed by drilling a borehole, placing reinforcing steel in the hole, and grouting the borehole.

The above grade foundation and micropiles will minimize surface and subsurface disturbance so there will be no adverse affects to the geological conditions of the area including to the adjacent cliff face. This will minimize the rockfall hazard from the project site. The disturbance from the micropiles will generally be limited to the drilled depth.

The US Geological Survey topographic maps show the elevation along Kalaniana'ole Highway to be around 40 to 50 feet mean sea level, or about 1,230 to 1,240 feet lower than the Highway. Thus, the micropiles will not adversely affect land uses located below the project site.

2.2 Water Resources and Flood Hazard

2.2.1 Existing Environment

The project site is located at an elevation of about 1278 feet msl. According to the U.S. Geological Survey (USGS) topographic map, no surface water resources are present on or near the project site.

The Federal Emergency Management Flood Insurance Rate Map, Community Panel 15003C0395G, revised January 19, 2011, shows the project site area is in Zone D, areas in which the flood hazard are undetermined, but possible.

The State of Hawaii Department of Land and Natural Resources Engineering Division confirmed the project site is in Zone D and indicated the National Flood Insurance Program does not have any regulations for developments in Zone D. See Appendix A.

2.2.2 Impacts and Mitigation Measures

There are no surface water sources present on or near the project site. There will be no discharges from the project site directed to waters of the U.S. or waters of the State of Hawaii. The construction of the facilities does not involve placement of dredged and/or fill material into waters of the U.S. During the pre-assessment consultation for this EA, the US Army Corps of Engineers stated authorization from the US Army Corps of Engineers will not be required for the Radio Facility project. See Appendix A.

The project site will be graded to construct the building, tower, and related improvements. The project site will be sloped to direct surface flow from rainfall away from the entrances to the building.

The construction plans and specifications for the project will include best management practices (BMPs) to minimize erosion on the project site during and after construction and will also include measures to contain runoff on-site during the construction period. Temporary erosion control measures will be used during construction to prevent soil loss and surface runoff to adjacent areas. These mitigation measures may include the placement of aggregate filled pouches and the erection of a silt fence to minimize surface runoff into adjacent areas. These measures will contain runoff within the project site to the extent possible during the construction period.

The design drawings and contract specifications set forth the applicable codes and rules related to pollution prevention during construction, including to surface water sources.

The project will comply with HAR, Chapters 11-54 and 11-55, as applicable, and discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 Water Quality Certification are required, must comply with the State's Water Quality Standards.

2.3 Biological Resources

2.3.1 Existing Environment

Botanical Survey

In June 2011, a botanical survey was conducted at the project site and surrounding area. The survey found the vegetation on the site is mostly weedy grasses and forbs, with some shrubs, these latter mostly in areas not previously developed or around the margins of the project site. The vegetation shows the effects of this moderately wet but windblown location. Fruticose lichens densely cover the branches of larger shrubs, an indication that much of the moisture reaching this site comes from cloud drip. Appendix B contains the biological resources report.

Avian Survey

In June 2011, an avian survey was conducted at the project site and surrounding area. A total of 21 individual birds of seven different species, representing seven separate families were recorded during the point count. An additional three species representing three other families or sub-families were detected as incidental observations while wandering in and around the project site. One of the species detected, Oahu 'Amakihi (*Hemignathus flavus*), is an Oahu endemic. The remaining nine species recorded are all considered to be alien to the Hawaiian Islands. See Appendix B.

Mammalian Survey

In June 2011, a mammalian survey was conducted at the project site. Two mammalian species were detected during the course of this survey. Tracks, scat, and signs of cat (*Felis catus*) and small Indian mongoose (*Herpestes a. auropunctatus*) were found throughout the general area near the project site. See Appendix B.

2.3.2 Impacts and Mitigation Measures

Botanical Resources

The majority of the plant species present at the project site are introduced, naturalized species, most having come onto the project site since the Nike facility was abandoned. The four native species *C'ilima*, *kawelu*, *'ala 'alawai nui wahine*, and the small fern, *Doryopteris decipiens*) are not considered rare species and not protected by statutes.

No plant species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawaii's endangered species programs (DLNR, 1998; USFWS, 2005, 2011) were recorded within the project site. Thus, development of the Radio Facility will not result in deleterious impacts to listed plant species.

Avian Resources

Avian diversity and densities were in keeping with the habitats present within the project site. Of the 13 different avian species recorded during the survey of the project site, ten are alien species. The other three species--White-tailed Tropicbird (*Phaethon lepturus*), Great Frigatebird (*Fregata minor*) and Red-footed Booby (*Sula sula*)-are indigenous breeding seabird species. All of these were seen soaring over the project site; none uses resources on the project site itself or areas adjacent to the project site.

Although not detected during this survey, it is possible that extremely small numbers of the threatened Newell's Shearwater (*Puffinus auricularis newell*), or 'a 'o, over-fly the project site between the months of May and November. Newell's Shearwaters have not been documented nesting on the Island of Oahu, though several have been picked up, off of the road in front of the Wilson Tunnel over the years.

There is a potential impact to the Newell's Shearwaters should the birds be downed after becoming disoriented by exterior lighting that may be required in conjunction with either night-time construction activities, including servicing of construction equipment at night. To reduce the potential for interactions between nocturnally flying Newell's

Shearwaters and external lights and manmade structures, external lighting will be properly shielded. Further, at this time, no night-time construction is expected and the only lighting at the project site will be located under in the lanai under the building roof overhang. The tower is not expected require obstruction lighting.

No avian species currently proposed for listing, or any that are listed under either Federal or the State of Hawai'i endangered avian species statutes were recorded in the survey of the project site. Thus, there will be no adverse impact to listed or proposed for listing avian species. However, as previously discussed, one listed seabird species may fly over the area.

Critical Habitat

The project site is not included in any Federally designated Critical Habitat. Thus, development of the site will not result in impacts to Federal Critical Habitat. No equivalent statute exists under state law.

2.4 Agricultural Lands

2.4.1 Existing Conditions

In 1975, the U.S. Department of Agriculture Soil Conservation Service (now Natural Resources Conservation Service) initiated a nationwide inventory of important farmlands. When completed, the inventory included three categories "prime", "unique", and "other farmlands of state-wide and local importance". This classification was later adopted by the State of Hawaii Department of Agriculture under the title "Agricultural Lands of Importance to the State of Hawaii" (ALISH).

The ALISH system defines "prime agricultural land" as the best suited for food, forage, and timber crops. "Unique agricultural land" is defined as land other than prime, used for the production of high-value food crops. "Other agricultural land" is defined as land used for the production of food, feed, fiber and forage crops, but not classified as "prime" or "unique".

According to the ALISH system, the project site is unclassified, indicating that the lands are not suitable for agriculture.

2.4.2 Impacts and Mitigation Measures

The project site occupies an approximate land area of 6,326 SF, which was previously developed as part of the Nike site and not used for agricultural production. Use of this land in support of the proposed project will not affect important agricultural lands in the State of Hawaii.

2.5 Air Quality

2.5.1 Existing Environment

The project site is located at the edge of a ridge in east Honolulu. The surrounding area is undeveloped. Below the project site along Kalaniana'ole Highway, there are residential lots and areas of agricultural production. The low level of development generally eliminates stationary and mobile sources of emissions, which could affect ambient air quality. Ambient air quality in the project vicinity is generally good, and sources of emissions in the area include vehicles traveling along Kalaniana'ole Highway.

2.5.2 Impacts and Mitigation Measures

Potential short-term adverse air-quality impacts during the construction phase include: 1) generation of fugitive dust from vehicle movement and soil excavation; and 2) exhaust emissions from on-site construction equipment and from construction workers' vehicles traveling to and from the project site. These adverse impacts will be short-term during the construction period.

Construction activities must comply with provisions of Chapter 11-60.1, Hawaii Administrative Rules (DOH), "Air Pollution Control" and, with respect to fugitive dust, Section 11-60.1-33. In addition, the entire project site is approximately 1,342 SF (0.031 acre), which will mean a relatively small area of disturbance. The DAGS Contract Specifications Section 01577 includes a standard Environmental Controls section with specific reference to Chapter 11-60. Under air pollution control, the Environmental Controls specifications provide that the contractor must maintain the areas within and without the project limits free from dust which would cause hazards to the work and to other persons or property. The specifications also state that the contractor will be permitted to use accepted methods for dust control such as enclosure and filtering. It is expected that the contractor will comply with State regulations and provide adequate means to control dust during the various phases of construction.

Once construction has been completed, operation of the project will involve contractor visits to the site to perform periodic maintenance and testing of equipment and systems. This level of activity will not generate sufficient traffic to adversely affect air quality in the area.

The 80-KW standby emergency generator will be tested once or twice per month to ensure proper operation in the event of an outage of the commercial power system. The testing will involve starting the generator, testing the switching systems, and placing the system under load conditions to ensure proper operation. This testing should require operation of the generator for about 3 to 4 hours per month, or less than 50 hours per year. This level of testing of the emergency generator should not create adverse impacts to the air quality in the area.

2.6 Noise

2.6.1 Existing Environment

The project site is located at a cliff edge on ridge at an elevation of about 1278 feet msl. Noise levels at the project site are generally low, as expected since the surrounding lands are undeveloped. The developed areas of Waimanalo, which lie below the cliff and to the west, may contribute to ambient noise levels at the project site. In general, noise at the project site is generally low and associated with vehicle traffic along Kalaniana'ole Highway.

2.6.2 Impacts and Mitigation Measures

Construction activities such as grading, digging for footings and foundations, and erecting the building will create noise. The equipment used for these activities typically include pick-up trucks, excavators, graders, rollers, backhoes, concrete delivery trucks, water tank trucks, and forklifts. Noise generated by this will be short-term during the period of construction. Once construction has been completed, the noise impact will no longer occur.

Once constructed has been completed, noise will be generated by vehicles used by contractors and others visiting the project site for testing and other purposes. An average total of about 10 to 20 trips per month will be made to the project site. This level of vehicle traffic should not create an adverse affect to the noise environment in the area of the project site.

The City zoning designation for the project site is Restricted Preservation (P-1). Title 11 Hawaii Administrative Rule State of Hawaii Department of Health Chapter 46, Community Noise Control identifies maximum permissible sound levels for the zoning districts established by counties. According to Chapter 46, for zoning district Class A, areas equivalent to lands zoned residential, conservation, preservation, public space, open space, or similar, the maximum permissible daytime (7 a.m. to 10 p.m.) sound level at any point at or beyond the property line is 55 dBA. The maximum permissible nighttime (10p.m. to 7a.m.) sound level is 45 dBA. The maximum permissible sound level shall apply in a manner deemed appropriate by the Director of the Department of Health.

The emergency generator will be placed within the building and will be designed to suppress noise during testing and operation. The project site is about 1,900 feet south, and about 1,278 feet above the nearest residential units located below the project site along Kalaniana'ole Highway. In the long-term, operation of the emergency generator should not adversely affect any surrounding properties.

2.7 Traffic

2.7.1 Existing Environment

Vehicle access to the project site will be via Kamehame Drive and the private access road. Kamehame Drive provides two travel lanes, one in each direction, and runs in almost a north-south orientation. Vehicle traffic tends to be relatively light as only short cul-de-sac ended roads connect to Kamehame Drive. These roads serve primarily residential land uses.

It would be expected that peak traffic occurs on weekday mornings between 7:15 and 8:15 a.m. Peak weekday traffic would be in the afternoons between 4:30 and 5:30 p.m. City bus service is not provided to Kamehame Drive.

2.7.2 Impacts and Mitigation Measures

Traffic impacts related to construction activities will occur while equipment and materials are moved to the project site. However, this traffic will be short-term occurring during the 12-month construction period. This should not create an adverse effect to traffic on Kamehame Drive as it will represent a very small proportion of the total traffic on this roadway.

No personnel will be assigned on a daily basis to the proposed project. Contract personnel will visit the project site to conduct tests and to perform maintenance service on the emergency generator and on other building systems. A total of about 10 to 20 trips per month will occur to conduct the necessary tests and perform maintenance on the equipment at the facility. This level of activity will not create an adverse affect to traffic on Kamehame Drive.

As part of the pre-assessment for this Draft EA, on June 16, 2011, the State of Hawaii Department of Transportation noted, it does not anticipate any significant adverse impacts to State transportation facilities. The DOT also noted that the transportation of oversized and overweight equipment/loads within any State highway facility requires a permit from the Department of Transportation's Highways Division. The design specifications and construction contract documents will require the contractor to obtain such a permit, if necessary. See Appendix A.

As part of the pre-assessment for this Draft EA, the Honolulu Police Department stated they had no concerns at this time. See Appendix A.

Similarly, the City and County of Honolulu Department of Transportation Services had no comments at this time. See Appendix A.

2.8 Recreational Resources

2.8.1 Existing Environment

The project site lies at about 1278 feet mean sea level at the edge of a vertical cliff which overlooks Kalaniana'ole Highway, the eastern end of Waimanalo, and the City and County of Honolulu Kaiona Beach Park which lies to the west and makai of the Highway. Other recreation uses located along the Highway include Waimanalo Beach Park to the west and Kaupo Beach Park to the east.

The Ka Iwi Scenic Shoreline, under the control of the State of Hawaii Department of Land and Natural Resources Division of State Parks, is also located below the project site along Kalaniana'ole Highway about 2.0 miles east of the project site.

2.8.2 Impacts and Mitigation Measures

There are no recreation facilities near the project site. Thus, there will be no adverse impacts to State or City and County recreation facilities.

As part of the pre-assessment for this Draft EA, the Division of State Parks stated it does not anticipate adverse impacts from the Radio Facility project to the Ka Iwi Scenic Shoreline. See Appendix A.

2.9 Archaeological and Cultural Resources

2.9.1 Existing Environment

In August 2011, an archaeological literature review and field investigation was conducted for the project site. The purpose of the archaeological study was to determine if there are any major archaeological concerns within the project site and to support the project's historic preservation review compliance requirements of the State DLNR Historic Preservation Division (SHPD).

The literature review component of the study included historic research to develop a history of land use and to determine if archaeological sites have been recorded near the project site. Historic and archival research included information obtained from the University of Hawaii Hamilton Library, the SHPD Library, the Hawaii State Archives, the State Land Survey Division, and the Archives of the Bishop Museum. Previous archaeological reports for the area were reviewed, as were historic maps and primary and secondary historical sources. In addition, a local historian, John D. Bennett, was consulted regarding Nike military history and related infrastructure.

The fieldwork component of the archaeological literature review and field inspection was conducted in June, 2011. The fieldwork consisted of a pedestrian inspection of the project site for surface cultural materials and features. The limited field inspection was to identify any surface archaeological features and to investigate and assess the potential for impact to such sites. The assessment identified sensitive areas that may require further investigation or mitigation.

Background research and a review of previous archaeological studies in the vicinity of the project site indicate that, although both the Maunaloa Ahupua'a and Waimanalo Ahupua'a contained areas utilized in pre- and post-contact times, no historic properties have been documented in close proximity to the project site.

The project site is located within a portion of a former U.S. Army facility which was in operation from 1961 to 1970. This military facility was an Oahu Defense Area (OA) installation associated with Project Nike, an anti-aircraft missile system program. The project site is located within Nike Project Site 3 & 4, an Integrated Fire Control (IFC) base. This particular military facility has been identified as OA-32 IFC. The octagonal foundation and adjacent concrete slab appear consistent with a HIPAR radar facility. The site has been designated State Inventory of Historic Properties (SIHP) # 50-80-14-7191.

Based on the results of the literature review and field inspection, the report recommends no further archaeological work for the project.

2.9.2 Impacts and Mitigation Measures

The findings of the literature review and the field inspection showed no archeological resources are present on the project site. The field inspection provided evidence that the project area is located on a cut and leveled ridgetop. Based on the study, the project specific effect recommendation for cultural resource management is "no further work".

On June 22, 2011, as part of the pre-assessment comment for this Draft EA, the State Historic Preservation Division stated, according to Historic Preservation Division records, the Radio Facility is not adjacent to any historic structures and the area is not known to have any archeological sites.

Although the project is not anticipated to encounter any historic resources, the general notes in the contract drawings will state that, should archaeological sites such as walls, platforms, pavements or mounds, or remains such as artifacts, burials, concentrations of shell or charcoal be encountered during construction activities, construction work shall cease immediately and the find shall be protected from further damage. The contractor shall immediately contact SHPD's Oahu Office (Tel. (808) 692-8015), and the agency will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

2.10 Cultural Impact Assessment

2.10.1 Existing Environment

On April 26, 2000, House Bill No. 2895 H.D.1 was approved by the Governor as Act 50, which amended Chapter 343 Hawaii Revised Statutes to require a cultural impact assessment be included in the preparation of an Environmental Assessment.

To meet the requirements of Act 50, a Cultural Impact Assessment was undertaken for the Kamehame Ridge Radio project. The purpose of the assessment was to assess potential impacts to cultural resources and practices as a result of development of the Kamehame Radio Facility. A summary of the Cultural Impact Assessment is shown in Appendix D. The complete document is on file with the State of Hawaii Department of Accounting and General Services, the State Historic Preservation Division, and the Office of Environmental Quality Control.

The following summarizes the main findings of the Cultural Impact Assessment.

The Project area is located on the summit (1,278 feet) of Kamehame (the hame tree), the easternmost ridge of Maunaloa. The wood of the hame tree was used for anvils in the preparation of olona (a native shrub) fiber used for fishing nets, and the grapelike fruit was used to color tapa cloth red. The ridge of Kamehame divides Waimanalo and Maunaloa, which used to be an 'iii kiipono of Waimanalo.

Several wahi pana (storied places) are located in the coastal area of Waimanalo at the base of the cliffs below the Project area, including two ko'a called Kini and Kaluahine, a pahaku (stone) called Pa'akiki, and Pahonu Pond.

Previous archaeological surveys did not locate any cultural sites along the higher elevation slopes of the ridges in Maunaloa, including Kamehame Ridge, possibly due to the distance from the ocean and fresh water, as well as the topography, which does not contain large overhangs, caves, or lava tubes.

The testimony of Charles Alona in 1939 suggests that at least one burial cave may be located in the mountainous section of Waimanalo in the vicinity of the Project area, near the fishing shrine called Kini. He states that "Straight up from here (Castle gate), near

the foot of the cliff, is an old burial cave" that included palaoa (whale tooth) ornaments and a canoe.

After observing that these objects and iwi kupuna (ancestral remains) had been removed from the burial cave, Mr. Alona resolved to not divulge the location of two other burial caves. In addition, several caves in the lower slopes of Maunaloa contain human remains. Human remains have also been uncovered below the Project area at Kaiona Beach Park.

Successive eras of ranching and sugar cultivation greatly modified the landscape of Waimanalo and Maunaloa. By the 1850s, the trail of Kealakpapa was a cobbled road. The subsequent construction of Kalaniana'ole Highway between Kuli'ou'ou and Waimanalo in the early 20th century paved the way for the dredging of Kuapa Fishpond and residential development in Maunaloa.

Following World War II, Bellows Air Force Station was part of an anti-aircraft surface-to-air Nike Hercules missile system that had a separate Integrated Fire Control (IFC) site, Oahu Defense Area (OA) 32, located at the summit of Kamehame Ridge with administrative barracks and radars. Two concrete foundations associated with OA-32 IFC are located within the Project and have been designated as SIHP 50-80-14-7191.

The OA-32 IFC site is currently owned by Kamehameha Schools. Portions of the site have been leased to the Federal Aviation Administration, the U.S. Navy, the Honolulu Police Department, and private commercial communication businesses for microwave relay antennae. The barracks downslope of the Project area have also been used as the site of a youth leadership program called "Winners Camp".

Hawaiian organizations, agencies, and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the Project area and the vicinity. The organizations consulted included the State Historic Preservation Division, the Office of Hawaiian Affairs, the Oahu Island Burial Council, Hui Malama I Na Kiiipuna O Hawai'i Nei, the Maunaloa and Waimanalo Hawaiian Civic Club, the Waimanalo and Hawai'i Kai Neighborhood Boards, and community members of Maunaloa and Waimanalo.

An attempt was made to contact 21 community members, and government community agency and community organization representatives. Of the five people that responded, three kupuna (elders) and/or kama'aina (Native-born) participated in formal interviews for more in-depth contributions to the CIA.

This community consultation indicates:

The mountainous areas of Waimanalo and Maunaloa, including the summit of Kamehame Ridge and the Project area, hold a deep spiritual significance for community participant Weston Correa, who lives below the Project area. Mr. Correa sees the greater Waimanalo region as part of an integrated cultural landscape that begins above the cliffs below the Project area, which he relates as the head of a great mo' o (lizard) that continues down to the tail in the ocean in La'ie. Mr. Correa summarily states that "The mountain is my contact to God and my ancestors." He elaborates that the cliff face below the Project area contains Hawaiian faces etched in stone, and marks the origin of the goddess Pele. Mr. Correa also explains that Night Marchers walk through his property and traverse the sheer cliffs up to the summit of Kamehame Ridge. Several burial caves are located below the Project area, according to Mr. Correa and Mrs. Nickie Hines (the hanai [foster] granddaughter of Charles Alona, as well as stone walls and enclosures once used to store valuable possessions.

Mr. Hines, the husband of Mrs. Nickie Hines, shares memories of his military service at the Nike Hercules site at the Project area. Prior to his active duty in Vietnam in 1968, Mr. Hines had trained at an Officers Candidate School (OCS) at the summit of Kamehame Ridge in 1962. He recalls that when he had driven up the ridge trail, no houses had yet been built. He also remembers that the Nike Hercules facility was operational, with a few buildings and personnel.

Mr. Correa, and Mr. and Mrs. Hines are supportive of the idea of the proposed radio facilities Project to enhance communication in times of disaster or emergency, but Mr. Correa and Ms. Coochie Cayan of SHPD articulate several concerns:

Mr. Correa is concerned that the proposed Project will impact the sanctity of the mountain in two ways. First, a newly constructed tower higher up on the ridge than the Project area is visible from Mr. Correa's property and has altered his view of the mountainside and the Hawaiian faces etched in stone. He feels that a second nearby

tower fifty feet high, if seen from his property, would add to this visual disturbance. Second, Mr. Correa is concerned that the proposed boring for the micropile foundations will somehow lead to unanticipated effects, such as the disruption of burial caves that he asserts are below the Project area, and possibly contributing to rockslides that generally occur at least once a year after heavy rainfall.

Ms. Cayan notes that the proposed Project area is an entryway to hike the ridge, and is concerned that gathering and access rights to cultural and natural resources should not be prevented during the proposed Project. Ms. Cayan notes that many halau hula (hula groups) and other cultural practitioners access the ridge to gather cultural resources and to practice cultural spirituality of the various kino lau (fonns) of the Hawaiian deities. In addition, modern cultural practices in the general area may include hunting of wildlife (pigs and birds) and gathering of native woods for cultural implements and tools.

Mr. Correa recommends that the Project be conducted in a pono (proper) manner, which includes offering a ho'okupu (offering) or other cultural ceremony to honor the mountain and asking the land for acceptance to build upon it. If any cultural sites are uncovered within or in the vicinity of the Project area, Mrs. Hines recommends erecting informational signs and assisting in their preservation.

Based on the information gathered for the cultural and historic background and community consultation detailed in this CIA report, the proposed Project may potentially impact Native Hawaiian burials, cultural beliefs and spirituality, and gathering practices.

As a result of the community contacts, the Cultural Impact Assessment identified the following potential impacts and makes the following recommendations:

Previous archaeological surveys have not located any cultural sites along the higher elevation slopes of the ridges Maunaloa, including Kamehame Ridge, and the accompanying Archaeological Literature Review and Field Inspection (See Appendix C) did not document any cultural sites in the Project area except the historic-era OA-32 IFC (SIHP 50-80-14-7191). Yet, there is a possibility that land disturbing activities during construction may uncover presently undetected burials or other cultural finds. Personnel involved in the construction activities of the Project should be informed of the possibility of inadvertent cultural finds, including human remains. Should burials (or other cultural finds) be identified during ground disturbance, the construction contractor should

immediately cease all work and the appropriate agencies notified pursuant to applicable law.

Community participant Mr. Correa expressed concerns that the Project's 50-foot tower will impact the visual landscape of Waimanalo and that the drilling of the micropiles will impact the spiritual quality of the mountain, possibly impact burial caves on the lower slopes, and possibly contribute to rockslides. DAGS should brief and consult with community members and organizations as the Project design and construction progresses in order to inform the community of any changes that could result in unanticipated adverse cultural impacts and to better understand and incorporate the Hawaiian cultural worldview.

Community participant Ms. Cayan expresses concerns that the construction of the Project may hinder gathering and access rights to cultural and natural resources. Although the private access road to the Project area is restricted, DAGS should implement best management practices to reduce or avoid impacts of the construction on any cultural activities near the summit of Kamehame Ridge.

2.10.2 Impacts and Mitigation Measures

Evidence of traditional cultural practices in the area of the project site per se would be unlikely as the project site and surrounding lands are privately-owned and closed to public access. In addition, land modifications associated with the development of the Nike site have extensively modified the land. Disturbances (i.e., grading and leveling) associated within these associated land modifications would likely have removed any evidence of pre- and post-contact land use that may have been present. Also, the research conducted as part of the Archaeological Literature Review and Field Inspection revealed no evidence of traditional cultural practices at the project site. Lastly, as previously discussed, the community contacts did report use of the project site for traditional cultural practices.

A total of 8 micropiles each approximately 20-foot deep by 5 1/2-inch diameter will be used to resist overturning and uplift movements related to the tower. As previously discussed, the above grade foundation and micropiles will minimize surface and subsurface disturbance so there will be no adverse affects to the geological conditions of the area including to the adjacent cliff face. This will minimize the rockfall hazard

from the project site. Further as previously discussed, the disturbance from the micropiles will generally be limited to the drilled depth. The project site is at about 1280 feet mean sea level. The US Geological Survey topographic maps show the elevation along Kalaniana'ole Highway to be around 40 to 50 feet mean sea level, or about 1,230 to 1,240 feet lower than the Highway. Thus, the micropiles will not adversely affect land uses located below the project site.

As previously stated, although the project is not anticipated to encounter any historic resources, the general notes in the contract drawings will state that, should archaeological sites such as walls, platforms, pavements or mounds, or remains such as artifacts, burials, concentrations of shell or charcoal be encountered during construction activities, construction work shall cease immediately and the find shall be protected from further damage. The contractor shall immediately contact SHPD's Oahu Office (Tel. (808) 692-8015), and the agency will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

The entire approximately 1,339-acre parcel (Tax Map Key: 3-9-009:001), which includes the project site, is privately owned by Kamehameha Schools and is not open to public access. Kamehameha Schools controls access to the 1.1-mile access road by a locked gate at the upper end of Kamehame Drive. Thus, the project site and surrounding lands are not open to the public for hiking or gathering practices. Further, the project site is a former Nike facility which was constructed in the late 1950's-early 1960's and most of the project site consists remnants of a concrete slab. Construction of the former Nike facilities removed vegetation from the project site, except for some weedy species on the eastern end. Based on this, construction of the Kamehame Ridge Radio Facility will not affect native gathering practices.

2.11 Infrastructure

2.11.1 Water

Existing Conditions

There is no potable or fire protection water service to the project site or to the other nearby communication facilities.

As part of Draft EA review, the City and County of Honolulu Board of Water Supply did not have any comments on the project. See Appendix A.

Impacts and Mitigation Measures

The Kamehame Ridge Radio Facility building will not require water service for potable or fire protection purposes. The improvements will not cause adverse impacts to the City and County of Honolulu Board of Water Supply (BWS) water system, including sources of water.

The equipment room will be equipped with a fire suppression system suitable for use in rooms with electronic equipment. The fire suppression system will use a compound of carbon, fluorine, and hydrogen as the suppressant which is non-ozone depleting and safe for use in occupied spaces. Hand-held fire extinguishers will also be placed in the rooms according to code. The City Fire Department will be needed at the project site to safely enter the building in the event of a fire and/or the discharge of the fire suppression system.

2.11.2 Sewer

Existing Conditions

There is no sewer service to the project site or to the other nearby communication facilities.

The Radio Facility will not include toilet facilities.

Impacts and Mitigation Measures

The facility will not require wastewater services from the City and County of Honolulu or utilize an on-site system for treatment or disposal. The project will not adversely affect the City's wastewater system nor create adverse affects due to on-site disposal of wastewater.

2.11.3 Electrical

Existing Conditions

Hawaii Electric Company (HECO) provides commercial electrical power via underground electrical lines to the existing communication facilities near the Kamehame Radio Facility project site, including to the FAA and City and County communication facilities.

Impacts and Mitigation Measures

Electrical service to the project site will be provided from the existing HECO underground service and a new underground conduit to be installed as a part of the

project improvements. A new service meter would be located on the building. The Radio Facility will have a maximum design peak electrical load of about 60 to 70 kilowatts to service the radio equipment and air conditioning and other systems. Thus, the project will not adversely impact the HECO system.

2.12 Hazardous Materials

2.12.1 Existing Environment

The lands surrounding the project site were formerly used for Nike facilities. A visual survey of the project site shows no evidence of underground storage tanks (USTs) which might contain hazardous materials or facilities which might have used hazardous materials. Further, the geotechnical investigation did not reveal any hazardous materials during the borings at the project site.

2.12.2 Impacts and Mitigation Measures

The equipment room will contain valve regulated lead acid (VRLA) batteries which will generate a direct current (DC) power source for the microwave repeaters and the land mobile repeaters. The batteries will not require water and will be equipped with flame arresting safety vents. The VRLA batteries are not classified as hazardous materials and will be mounted over a spill containment system. Thus, the VRLA batteries should not adversely affect the environment of the project site and nearby areas.

The emergency generator will use diesel fuel which will be stored in an above-ground, double-walled concrete encased tank such as those manufactured by Convault. A leak from the inner tank would be contained in the interstitial space between the walls of the tank. These types of tanks are equipped with a monitor system to detect leaks in the interstitial space between the walls of the tank. It is expected that at least a 1,000-gallon total fuel capacity will be required to provide for the desired 7-day supply of fuel. According to the U.S. Environmental Protection Agency (EPA), an above-ground, double-walled concrete tank will not require a secondary spill containment system around its base. The City Fire Department has allowed use of above-ground, double-walled fuel storage tanks.

The fill pipe for the tank will be provided with two or more of the following methods to protect them against overflow: a) direct reading level gauge at the tank which is visible from fill pipe location; b) valve located within fill-pipe access to close automatically at a

specified fill level; and c) audible high level alarm activated by a float switch at a specified fill level. These measures will protect against spills from overflowing when the tank is being filled with fuel.

2.13 Visual Considerations

2.13.1 Existing Conditions

It is not anticipated that the tower will require lighting which might detract from views during the night or might attract seabirds. In addition, it is not anticipated that tower will require marking for aviation safety. The US Department of Transportation Federal Aviation Administration (FAA) will make the final determination for the requirement for lighting the tower. However, it should be noted that, for other DAGS radio facility projects, the FAA has determined that the tower did not exceed obstruction standards and marking and lighting would not be necessary for aviation safety.

The project site lies at about 1278 feet mean sea level near the edge of a vertical cliff which overlooks Kalaniana'ole Highway. As previously discussed, there are other communication facilities, which also include towers, near the project site. For the most part, the upper portions of the towers are visible at distant locations in areas around Waimanalo and Hawaii Kai.

2.13.2 Impacts and Mitigation Measures

As with any above ground structure, the Kamehame Ridge Radio Facility tower and antennas will be visible when viewed from lower elevations at a distance. The visual impact of the Kamehame Ridge Radio Facility tower and antennas will be mitigated since the tower will be painted a light gray shade, similar to the shade of a galvanized finish. At a distance, these colors will not contrast sharply with the other adjacent towers and the surrounding background. Given the existing towers and distance to project site, the Kamehame Ridge Radio tower would not be introducing a new visible use to this area of Kamehame Ridge.

The view planes in this area of Oahu are typically oriented in the makai direction where views of the shoreline and open ocean dominate public views. The cliff edge location of the project site means views of the tower would be limited to distant views where the tower would be located within the area of existing towers. Public views of the tower would be confined to distant glimpses of the upper portion of the tower from distant

viewpoints on public roadways. Thus, the project will not substantially affect scenic vistas or viewplanes.

Analysis was undertaken from the makai side Kalaniana'ole Highway approximately below the project site and near the existing structure on the mauka property. The photographs show a portion of the existing tower FAA platform tower is visible from below. In addition, the recently constructed US Coast Guard tower is also visible from the below. Based on this, the upper portion of the DAGS tower will most likely also be visible. See Figure 2.1.

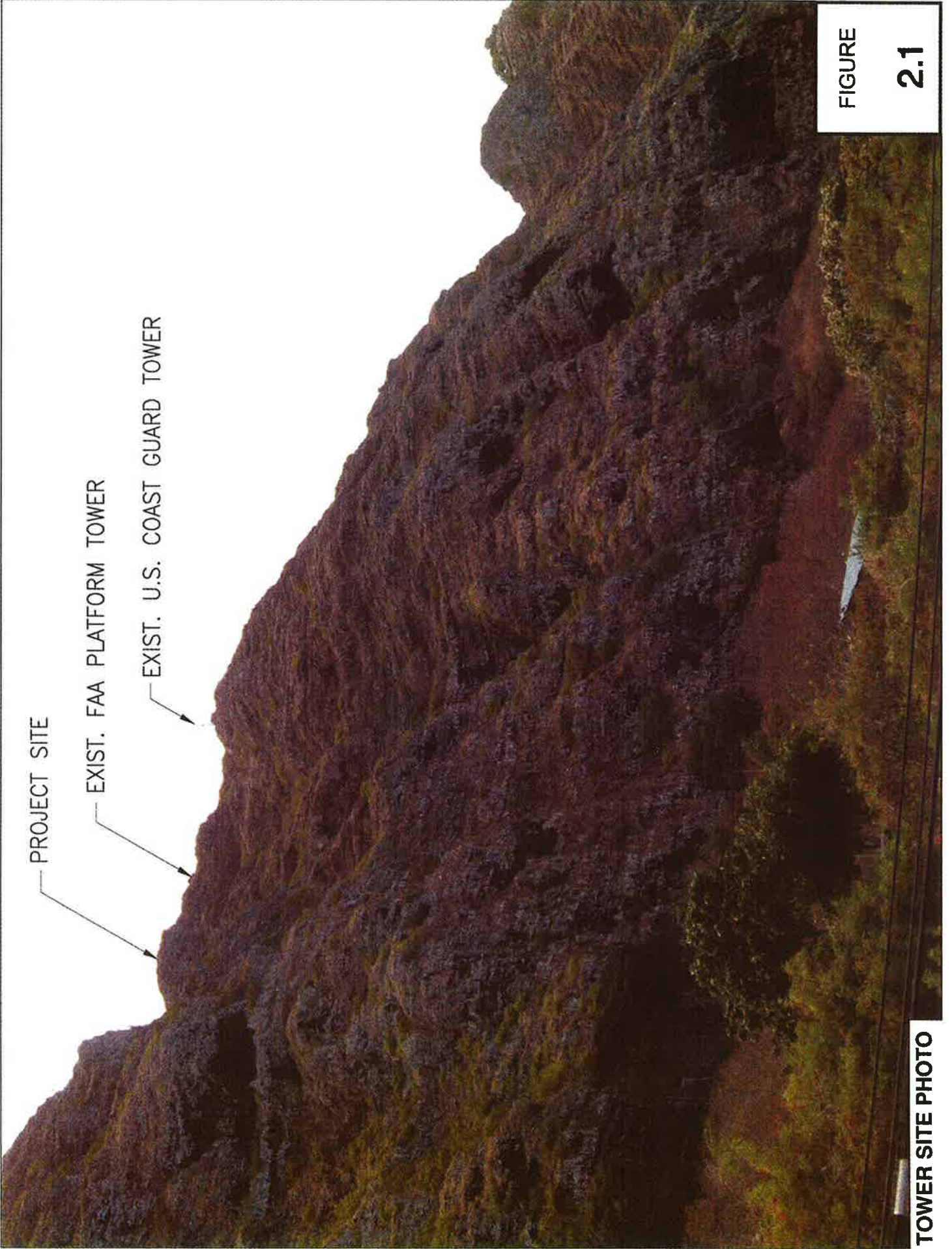
2.14 Biological Exposure

2.14.1 Existing Electromagnetic Radiation Environment

Radio frequency (RF) radiation is part of the electromagnetic radiation (EMR) spectrum that applies to frequencies between 3 kilohertz (kHz) and 300 gigahertz (Ghz). A variety of commercial communications and data systems are made possible by transmitting information via electromagnetic waves. For example, most amplitude modulated (AM) radio stations transmit signals in the frequency range of 550 kHz to 1,600 kHz, while frequency modulated (FM) radio stations transmit signals in the frequency range of 88 MHz to 108MHz.

The Federal Communications Commission (FCC) has established maximum permissible exposure (MPE) limits to electromagnetic radiation. A summary of the FCC's "Local Official's Guide to RF" explains:

The FCC's guidelines establish separate MPE limits for "general population/uncontrolled exposure" and for "occupational/controlled exposure." The general population/uncontrolled limits set the maximum exposure to which most people may be subjected. People in this group include the general public not associated with the installation and maintenance of the transmitting equipment. Higher exposure limits are permitted under the "occupational/controlled exposure" category, but only for persons who are exposed as a consequence of their employment (e.g., wireless radio engineers, technicians). To qualify for the occupational/controlled exposure category, exposed persons must be made fully aware of the potential for exposure (e.g., through training), and



PROJECT SITE

EXIST. FAA PLATFORM TOWER

EXIST. U.S. COAST GUARD TOWER

TOWER SITE PHOTO

FIGURE

2.1

they must be able to exercise control over their exposure. In addition, people passing through a location, who are made aware of the potential for exposure, may be exposed under the occupational/controlled criteria. The MPE limits adopted by the FCC for occupational/controlled and general population/uncontrolled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

The FCC limits for EMR are discussed in detail on the FCC website at <http://www.fcc.gov/oet/rfsafety/>.

Based on the FCC guidelines, any area located outside of a radio facility fence is defined as a "general population/uncontrolled exposure" area. Almost all people live and work in an "uncontrolled" environment filled with radio energy from sources as diverse as broadcast stations (AM, FM, and TV), cellular telephone transmitter sites and handheld cellular telephones, and land mobile radios (LMRs), wireless computer networks, and natural radio energy sources such as thunderstorms. However, this "uncontrolled" environment is safe because the signal energies are usually well below the MPE limits. Although the Kamehame Ridge project site will be considered an "occupational/controlled exposure" environment, the expected EMR levels both on the ground inside the fenced compound and inside the equipment building will be below the MPE limits for a "general population/uncontrolled exposure" environment. Personnel servicing and testing equipment within the building should not be exposed to an EMR hazard. However, tower maintenance personnel can be exposed to potentially unsafe levels of EMR if proper access and work procedures are not followed.

2.14.2 Impacts and Mitigation Measures

EMR consists of time varying electromagnetic fields that have the characteristic of motion or propagation. Unfortunately, radio frequency EMR is often confused with ionizing radiation which has known biological hazards ascribed to X-rays, gamma rays, and particle beam energies. Even moderate levels of ionizing radiation are dangerous as they have sufficient quantum energy to expel an electron from a molecule. This expulsion leaves the molecule positively charged and thereby affecting its interactions with neighboring molecules. In biological systems this ionization can alter the molecule functions fundamentally and often irreversibly.

The energies from nonionizing radiation, such as radio frequency EMR, are much lower such that, even at very high signal intensities, their primary effect is to agitate or vibrate the molecular structure rather than to ionize them. The effect of this agitation is to produce heat. In humans, the heat produced by such exposure is undetectable above the heat produced by the normal metabolic rate. Even at intentional exposure, the thermoregulatory capabilities of mammals and birds can adequately accommodate dissipation of the added heat load.

The lowest microwave dish antenna at the Kamehame Ridge project site will be mounted with its centerline at 16 feet above ground level and its bottom rim at 11 feet above ground level. Thus, the Kamehame Ridge Radio Facility will not produce an EMR hazard to people or animals beyond the fence line.

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3. RELATIONSHIP TO PLANS, POLICIES AND CONTROLS

3.1 Hawaii State Plan

The Hawaii State Plan, adopted in 1978 and revised in 1988, establishes the overall theme, goals, objectives, and priority guidelines to guide the future long-range development of the State. The proposed project supports and is consistent with the following State Plan objectives and policies:

Section 226-6 Objectives and policies for the economy - in general.

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

The project will involve construction of a building, tower, and related facilities. The project will increase the level of construction activity on Oahu during the period of construction, which will enhance the State's growth objectives.

Section 226-10.5 Objectives and policies for the economy – information industry

(b) (1) Encourage the continued development and expansion of the telecommunications infrastructure serving Hawaii to accommodate future growth in the information industry.

The project will enhance the voice communication and data transmission capabilities of public agencies to provide information to all areas of the public sector. The project supports the future needs of public agencies using the system.

Section 226-11 Objectives and policies for the physical environment - land-based, shoreline, and marine resources.

(b) (3) Take into account the physical attributes of areas when planning and designing activities and facilities.

The project site is located adjacent to an existing FAA communication facility and in close proximity to the City's communication facility and to the recently constructed US Coast Guard tower. The co-location of telecommunications facilities minimizes the visual impact on the surrounding area and allows shared use of the underground

electrical system. The project site has also been designed to take into account the topographic conditions at the project site to minimize excavation or grading.

Section 226-14 Objectives and policies for facility systems – general.

(b) (1) Accommodate the needs of Hawaii's people through the coordination of facility systems and capital improvement priorities in consonance with the state and county plans.

The project has been planned to be jointly used by State public agencies and HECO to provide vital transmission of voice and data communications.

3.2 Land Use Plans and Policies

3.2.1 State Land Use District

The Hawaii Land Use Law of Chapter 205, Hawaii Revised Statutes, classifies all land in the State into four land use districts: Urban, Agricultural, Conservation, and Rural. The project site is located in the Conservation District.

The Conservation District has five subzones: Protective, Limited, Resource, General and Special. Omitting the Special subzone, the four subzones are arranged in a hierarchy of environmental sensitivity, ranging from the most environmentally sensitive (Protective) to the least sensitive (General). The Special subzone is applied in special cases specifically to allow a unique land use on a specific site. The project site is located in the "Limited" subzone.

In a letter dated June 8, 2011, the State Department of Land and Natural Resources, Office of Conservation and Coastal Lands (OCCL) confirmed that the use is an identified land use in the Conservation District. According to Hawaii Administrative Rules, Section 13-5-22, Identified land uses in the Limited subzone, P-6, PUBLIC PURPOSE USES, D-1, "*land uses undertaken by the State of Hawaii or the counties to fulfill a mandated governmental function, activity, or service for public benefit and in accordance with public policy and the purpose of Conservation District. Such land uses may include transportation systems, water systems, communication systems, and recreational facilities.*" Since the project is a public facility used as a communication facility, the project will be consistent with the Hawaii Administrative Rules, Section 13-5-22 related to the Conservation District.

3.2.2 Coastal Zone Management Program, Objectives and Policies

The Kamehame Ridge Radio Facility project is consistent with the following objectives, and policies as set forth in HRS Chapter 205A-2 Coastal zone management program; objectives and policies.

Objective (1) Recreational resources;

(A) Provide coastal recreational opportunities accessible to the public.

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

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

The project site is located adjacent to the existing FAA, City and County of Honolulu, and US Coast Guard communication facilities on a portion of TMK 3-9-009:001. The parcel is owned by the Kamehameha Schools and is at 1278 feet msl about 1900 feet south from the closest shoreline. However, the project site is separated from the shoreline by the approximately 1300-foot high cliff.

The 6,326 SF project site was previously developed by the US Army as a Nike site. The development removed the vegetation cover which was present at that time. The 1278-foot msl location means the project will not affect public access to and along shorelines with recreational values.

Objective (2) Historic resources;

(A) Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policy (A) Identify and analyze significant archaeological resources.

In August 2011, an archaeological literature review and field investigation was conducted for the project site. The purpose of the archaeological study was to determine if there are any major archaeological concerns within the project site and to support the project's historic preservation review compliance requirements of the State DLNR Historic Preservation Division (SHPD).

The literature review component of the study included historic research to develop a history of land use and to determine if archaeological sites have been recorded near the project site. Historic and archival research included information obtained from the University of Hawaii Hamilton Library, the SHPD Library, the Hawaii State Archives, the State Land Survey Division, and the Archives of the Bishop Museum. Previous archaeological reports for the area were reviewed, as were historic maps and primary and secondary historical sources. In addition, a local historian, John D. Bennett, was consulted regarding Nike military history and related infrastructure.

The project site is located within a portion of a former U.S. Army facility which was in operation from 1961 to 1970. This military base was an Oahu Defense Area (OA) installation associated with Project Nike, an anti-aircraft missile system program. The current project area is located within Nike Project Site 3 & 4, an Integrated Fire Control (IFC) base. This particular military base has been identified as OA-32 IFC. The octagonal foundation and adjacent slab appear consistent with a HIPAR radar facility. The site has been designated State Inventory of Historic Properties (SIHP) # 50-80-14-7191.

Based on the results of the literature review and field inspection, the report recommends no further archaeological work for the project.

Objective (3) Scenic and open space resources;

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

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

The project site is located at about 1278 feet mean sea level near the edge of almost vertical cliff and about 1900 feet south from the closest shoreline. The project site will be visible in the distance from Kalaniana'ole Highway. As such, the project will not affect public views across the site from a highway to the ocean. Further, since the project site is at an elevation of about 1278 feet mean sea level, it will not affect views of coastal landforms.

Objective (4) Coastal ecosystems;

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

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

The project site is located about 1,900 feet south from the closest shoreline and at approximately 1278 feet mean sea level. This separation from the shoreline will ensure that the project will not affect beach processes. The project will be consistent with the protection of coastal resources.

Objective (5) Economic uses;

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

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

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

The primary purpose of the Kamehame Ridge facility is to house and support the communications systems used by, various government agencies, Hawaiian Electric Co., and entities sponsored by the State, that are not-for-profit in nature and have a defined role in assisting the government in times of disaster or emergency.

The Kamehame Ridge Radio Facility will extend the reach of the DAGS Information and Communication Services Division's Hawaiian Digital Microwave Radio System to the eastern and windward coast of Oahu. The Kamehame Ridge Radio Facility will also provide connections and facilities to support joint activities between State agencies and other levels of government, and Hawaiian Electric Co.

Government agencies have become reliant on modern telecommunications systems to communicate and transmit data between offices and facilities and to communicate with personnel in the field. The facilities needed to provide these capabilities, such as those at Kamehame Ridge, have increased over the recent years. Public safety, emergency response, and law enforcement agencies have become among the primary users of these late 20th Century and early 21st Century high-speed, high-capacity digital communication systems.

The Kamehame Ridge project will be a public facility used for public purposes. Modern telecommunications systems are necessary to protect and promote the health and welfare of the residents and visitors to the City and County of Honolulu. A safe and protected environment is necessary to promote the State's economy. Thus, the proposed project will be consistent with Policy C (iii).

Objective (6) Coastal hazards;

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

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

Policy (C): Ensure that developments comply with requirements of the Federal Flood Insurance Program.

The project site is at an elevation of about 1278 feet msl. According to the U.S. Geological Survey (USGS) topographic map, no surface water resources are present on or near the project site.

The Federal Emergency Management Flood Insurance Rate Map Community Panel 15003C0395G, revised January 19, 2011 shows the project site area is in Zone D, areas in which the flood hazard are undetermined, but possible. Thus, the project is consistent with Policy C.

The State of Hawaii Department of Land and Natural Resources Engineering Division confirmed the project site is in Zone D and indicated the National Flood Insurance Program does not have any regulations for developments in Zone D. Thus, the project is consistent with Policy C.

Objective (7) Managing development;

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

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

On May 31, 2011, as part of the Pre-Assessment consultation for this Draft Environmental Assessment (EA), Federal, State and City and County of Honolulu agencies, Hawaii Kai Neighborhood Board No. 1, Waimanalo Neighborhood Board No. 32, and elected State and City and County of Honolulu officials who represent the surrounding area were notified of the project. Appendix A includes the comments and responses to the Pre-Assessment consultation.

Objective (8) Public participation;

(A) Stimulate public awareness, education, and participation in coastal management.

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

On May 31, 2011, as part of the Pre-Assessment consultation for this Draft Environmental Assessment (EA), Federal, State and City and County of Honolulu agencies, Hawaii Kai Neighborhood Board No. 1, Waimanalo Neighborhood Board No. 32, and elected State of Hawaii and City and County of Honolulu officials who represent the surrounding area were notified of the project. Appendix A includes the comments and responses to the Pre-Assessment consultation.

Objective (9) Beach protection;

(A) Protect beaches for public use and recreation.

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

The project site is located at an elevation of about 1278 feet msl and about 1,900 feet south from the closest shoreline. According to the U.S. Geological Survey (USGS) topographic map, no surface water resources are present on or near the project site.

Objective (10) Marine resources;

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

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

The project site is located at an elevation of about 1278 feet msl and about 1900 feet south from the closest shoreline. According to the U.S. Geological Survey (USGS) topographic map, no coastal or marine resources are present on or near the project site.

3.2.3 City and County of Honolulu General Plan

The City and County of Honolulu General Plan is “a comprehensive statement of objectives and policies which sets forth the long-range aspirations of Oahu’s residents and the strategies of actions to achieve them. It is a focal point of a comprehensive planning process that addresses physical, social, economic, and environmental concerns affecting the City and County of Honolulu.” The October 2002 edition of the General Plan is the current document used by the City.

The General Plan is a guide for all levels of government, private enterprise, neighborhood and citizen groups, organizations, and individual citizens in 11 areas of concern. The General Plan objectives and polices applicable to the Koko Head Radio Facility are set forth below.

The City and County of Honolulu General Plan sets forth basic objectives and policies pursuant to the City Charter, which mandates preparation of a General Plan and area development plans to guide “the development and improvement of the city.” The General Plan and development plans provide a policy context for the land use and budgetary actions of the City across eight geographic regions, including the Primary Urban Center, Central Oahu, Ewa, Waianae, North Shore, Koolauloa, Koolaupoko and East Honolulu.

The General Plan is a guide for all levels of government, private enterprise, neighborhood and citizen groups, organizations, and individual citizens in 11 areas of concern. The General Plan objectives and polices applicable to the Kamehame Ridge Radio Facility are set forth below.

V. Area of Concern: Transportation and Utilities

Objective C

To maintain a high level of services for all utilities

Policy 3

Plan for the timely and orderly expansion of utility systems

Objective D

To maintain transportation and utility systems which will help Oahu continue to be a desirable place to live and visit.

The Kamehame Ridge facility will house and support the communications systems used by various government agencies, Hawaiian Electric Co., and entities sponsored by the State, that are not-for-profit in nature and have a defined role in assisting the government in times of disaster or emergency.

The Kamehame Ridge Radio Facility will extend the reach of the DAGS Information and Communication Services Division's Hawaiian Digital Microwave Radio System to the eastern and windward coast of Oahu. The Kamehame Ridge Radio Facility will also provide connections and facilities to support joint activities between State agencies and other levels of government, and Hawaiian Electric Co.

VIII. Area of Concern: Public Safety

Objective B

To protect the people of Oahu and their property against natural disasters and other emergencies, traffic and fire hazards, and unsafe conditions.

Policy 5

Cooperate with State and Federal agencies to provide protection from war, civil disruptions, and other major disturbances.

Policy 8

Provide adequate search and rescue and disaster response services.

The Kamehame Ridge facility will house and support the communications systems used by various government agencies, Hawaiian Electric Co., and entities sponsored by the State, that have a defined role in assisting the government in times of disaster or emergency.

The Kamehame Ridge Radio Facility will extend the reach of the DAGS Information and Communication Services Division's Hawaiian Digital Microwave Radio System to the eastern and windward coast of Oahu.

3.2.4 East Honolulu Sustainable Communities Plan

On May 28, 1999, the City and County of Honolulu adopted the *East Honolulu Sustainable Communities Plan* to serve as the policy guide for East Honolulu's future development consisting of policies, guidelines, and conceptual schemes that will serve as policy guide for more detailed zoning maps. The *East Honolulu Sustainable Communities Plan* is one of the eight geographic planning regions on Oahu.

Two of the eight planning regions, Ewa and the Primary Urban Center, are the areas to which major growth in population and economic growth will be directed over the next 20 years and beyond. The other six planning regions, including East Honolulu, are envisioned to remain relatively stable. Thus, plans for these regions have been titled "Sustainable Communities Plans" which includes policy guides for public actions to support that goal. The vision statement and supporting provisions of the *East Honolulu Sustainable Communities Plan* are oriented toward maintaining and enhancing the region's ability to sustain its unique character and lifestyle. The City and County of Honolulu Department of Planning and Permitting is in the process of preparing a Public Review Draft of the Plan. To date, the Public Review Draft has not been released.

Seven key elements of the vision are set forth in the *East Honolulu Sustainable Communities Plan*. The applicable element that applies to the Kamehame Ridge Radio Facility is discussed below.

- Preserve scenic value of the Koko Head-Makapuu viewshed, including the mauka and makai views.

The site plan for the Kamehame Ridge Radio Facility has been developed to site the facilities away from the cliff edge. The tower has been set back from the cliff edge to the extent possible. However, the public views will only be from below the cliff, primarily from along Kalaniana'ole Highway, or from distant vantage points in the vicinity.

The East Honolulu Sustainable Communities Plan land use map shows the desired long-range land use pattern for East Honolulu. The project site is designated "Preservation" on the plan's Land Use Map.

Given the expected relatively stable level of development for *East Honolulu Sustainable Communities Plan* does not include a discussion of telecommunications facilities. However, Section 4.4 of the Primary Urban Center Development Plan (June 2004) lists policies and guidelines for telecommunications facilities. In general, the City's policy is to minimize visual impacts and potential health hazards that may be associated with communications towers. Guidelines support this policy by describing visual mitigation and siting recommendations for towers and antennae.

3.2.5 City and County of Honolulu Zoning

The City Land Use Ordinance (LUO) regulates land use in accordance with land use policies including the Oahu General Plan and the Development Plans. The City's zoning designation for the project site is Restricted Preservation (P-1).

The project site is located within the State Conservation District, where land use and activities are regulated by the State Department of Land and Natural Resources.

3.2.6 City and County of Honolulu Special Management Area

The Coastal Zone Management Act contains the general objectives and policies upon which all counties within the State have structured specific legislation which created Special Management Areas (SMAs). Any development within the City's designated SMA requires approval of an SMA Use permit, administered by the City Department of Planning and Permitting pursuant to Section 205A, HRS, and Chapter 25 Revised Ordinances of Honolulu. The objectives, policies and SMA guidelines, as set forth in Chapter 205A, HRS, are intended to ensure that adequate shoreline access is provided, public recreation and wildlife preserves are reserved, and that minimum adverse effects to water, visual and natural resources are assured.

The project site is not located within the City's SMA.

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4. ALTERNATIVES TO THE PROPOSED ACTION

4.1 No Action Alternative

Under the No Action alternative, resources in the form of financial capital, construction materials, fossil fuels, and human labor required for planning, engineering, construction, and operation/maintenance of the new facility would not be expended. The approximately 6,326-square-foot project site would remain as a remnant of the former Nike site.

Although the No Action alternative would use no resources, there are a number reasons to proceed with the proposed project. Without the improvements, public safety radio users would be limited to the use of existing voice and data communication systems which have limited capabilities and a questionable amount of service lifetime remaining. Also, the various public agency users would have to rely on dated facilities for transmitting data and voice communications. Although there would be no disturbance to the project site, use of the limited and dated systems would not be in the public interest.

The No Action alternative would mean there would be no facilities to house and support the communications systems used by various government agencies, including the State Department of Public Safety, the State Civil Defense Division, the Department of Land and Natural Resources, and the State Department of Health, and Hawaiian Electric Co., to assist the government in times of disaster or emergency. Thus, the long-standing shortfalls in existing public safety communications to support Federal, State, and local users in the Honolulu vicinity would remain unaddressed. Based on these considerations, the No Action alternative is not considered a feasible alternative.

4.2 Alternate Site

Currently, other structures from the Nike facility still remain near the Kamehame Radio Facility project site. As previously discussed, the project site is adjacent to the existing FAA facilities and lies below other communication facilities, some of which use facilities originally constructed as part of the Nike facility. Use of other former Nike areas is possible. However, these are located within the parcel controlled by the Department of Hawaiian Home Lands or do not lie adjacent to the cliff edge. Use of a site away from the cliff edge would require a higher tower to achieve the microwave line of sight needed for the microwave antennas. Further, although most of the vegetation was removed and the area developed for facilities, the vegetation has now become re-established and an

alternate site would require clearing of this vegetation, which is not required at the selected site. Construction at an alternative site is not a preferred alternative.

5. DETERMINATION

Short-term construction impacts include disruption to the project site and surrounding areas during construction, decline in air quality from construction activities, and increase in noise levels. Once construction has been completed, the short-term adverse impacts will no longer occur.

Based on analysis of the impacts, a Finding of No Significant Impact (FONSI) is anticipated for the project. The significance criteria to make this determination are set forth below and in Hawaii Administrative Rules Title 11, State of Hawaii Department of Health, Chapter 200, Environmental Impact Statement Rules.

- 1) *Involve an irrevocable commitment to loss or destruction of any natural or cultural resources;*

The project site does not provide habitat for Federal or State of Hawaii listed or candidate threatened or endangered species of flora or fauna. The approximately 6,326-square foot project site consists of two areas, upper and lower portions, separated by an approximately 13-foot high natural embankment. The approximately 3,964-square foot upper portion, which will contain the facilities, was previously cleared and developed as part of the Nike facility and contains a concrete slab, the remnants of an octagonal-shaped curb, asphalt paving, and a guard rail along the southern edge. These improvements have removed any vegetation which might have been present when the Nike facilities were constructed. Use of the project site will not result in the loss or destruction of natural or cultural resources.

- 2) *Curtail the range of beneficial uses of the environment;*

The project site is located within the State Conservation District. The proposed use is an identified land use permitted in the Limited subzone of the State Conservation District. The project site will occupy an area of 6,326 square feet in an area previously cleared and developed as part of the Nike facility. Thus, the project will not curtail beneficial uses of the environment.

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

The Kamehame Ridge Radio Facility project will not involve actions or activities that would adversely affect natural resources in the area. The project will be consistent with the guidelines of Chapter 344, HRS, as it will provide a public facility to support the critical functions assigned to the State of Hawaii. As such, the project will not conflict with the State's long-term environmental policies or goals as expressed in Chapter 344, HRS.

4) *Substantially affect the economic or social welfare of the community or state;*

The Kamehame Ridge Radio Facility project will be a public facility to be used for public agency purposes. The project is an integral part of the infrastructure needed to maintain the health and welfare of the community. The project will not have an adverse effect on the economic or social welfare of the community.

5) *Substantially affect public health;*

An efficient and well-maintained voice and data communication system is needed to protect the public health of residents and visitors to Oahu. The Kamehame Ridge Radio Facility will extend the reach of the State's Hawaiian Digital Microwave Radio System to the eastern and windward coast of Oahu. The Kamehame Ridge Radio Facility will also provide connections and facilities to support joint activities between State agencies and other levels of government, and Hawaiian Electric Co., the electric utility serving Oahu. The Kamehame Ridge Radio facility will house and support the communications systems used by various government agencies, Hawaiian Electric Co., and entities sponsored by the State, that are not-for-profit in nature and have a defined role in assisting the government in times of disaster or emergency. Thus, the project will not have an adverse effect on public health.

6) *Involve substantial secondary impacts, such as population changes or effects on public facilities;*

The Kamehame Ridge Radio Facility will be a publicly-owned facility which will be used by the State of Hawaii to support its mission critical applications. No government or contractor personnel will be assigned to daily operation of the Kamehame Ridge facility. Contract personnel will visit the project site to conduct tests and to perform maintenance service on the air conditioning and power systems and to clean the building and surrounding area. The contractor personnel are expected to be residents from Hawaii.

Thus, construction of the project will not create secondary impacts, such as population changes or effects on public facilities.

7) *Involve a substantial degradation of environmental quality;*

The Kamehame Ridge Radio Facility project is anticipated to result in short-term impacts to noise, air quality and traffic in the immediate vicinity of the project site during construction. However, due to the project site location and distance from residential uses, these impacts will not be significant. The project site does not contain Federal or State listed or candidate threatened or endangered species of flora or fauna.

8) *Have a cumulative effect upon the environment or involves a commitment for larger actions;*

The project does not involve a commitment to further actions to other State of Hawaii related projects in Hawaii. As a result, the project will not have any negative cumulative effects upon the environment or involve a commitment by the State to larger actions.

9) *Affect a rare, threatened or endangered species;*

The project site does not contain Federal or State listed or candidate threatened or endangered species of flora or fauna. The surrounding area was used for Nike facilities constructed during the early 1906s and does not provide unique habitat. Thus, the project should not result in adverse affects to threatened or endangered species.

10) *Detrimentially affect air or water quality or ambient noise levels;*

Operation of construction equipment would increase noise and exhaust emission levels in the immediate vicinity of the project site. Once operational, the facility will contribute almost no additional noise or air emissions to the local area. There are no groundwater or surface water resources on or near the project site that will be affected by the construction and operation of the facility.

11) *Affects or likely to suffer damage by being located in an environmentally sensitive area such as a floodplain, tsunami zone, beach, erosion-prone area, geographically hazardous land, estuary, fresh water or coastal water;*

The Federal Emergency Management Flood Insurance Rate Map (FIRM) Community Panel 15003C0395G, revised January 19, 2011 shows the project site area is in Zone D, in which the flood hazard are undetermined, but possible.

The State of Hawaii Department of Land and Natural Resources Engineering Division confirmed the project site is in Zone D and indicated the National Flood Insurance Program does not have any regulations for developments in Zone D.

Based on the above, the project site is located in area not subject to flood hazards, a hazardous floodplain or a tsunami zone. The project site is not located within the City and County of Honolulu Special Management Area. Thus, the project site is not located in an environmentally sensitive area.

- 12) *Substantially affect scenic vistas and viewplanes identified in county or state plans or studies;*

The view planes in this area of Oahu are typically oriented in the makai direction where views of the shoreline and open ocean dominate public views. The cliff edge location of the project site means views of the tower would be limited to distant views where the tower would be located within the area of existing towers. Public views of the tower would be confined to distant glimpses of the upper portion of the tower from distant viewpoints on public roadways. Thus, the project will not substantially affect scenic vistas or viewplanes.

- 13) *Require substantial energy consumption.*

The Kamehame Ridge Radio Facility is a publicly-owned facility to be used for public agency purposes. The facility will be planned and designed to minimize use of electrical power. Thus, the project will not create a substantial increase in energy consumption.

Based on these findings and the assessment of potential impacts from the Kamehame Ridge Radio Facility, a Finding of No Significant Impact (FONSI) is anticipated. Further, based on Hawaii Administrative Rules Title 11, State of Hawaii Department of Health, Chapter 200, Environmental Impact Statement Rules, Subchapter 6, Section 11-200-9 (4), construction of the Kamehame Ridge Radio Facility does not warrant the preparation of an environmental impact statement.

6. LIST OF PERMITS AND APPROVALS

- Conservation District Use Permit
- Building Permit

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7. CONSULTATION

7.1 Pre-Assessment Consultation

The following parties were consulted during the pre-assessment phase of the Draft Environmental Assessment. Each party was sent a copy of a project summary and a request for their written comments on the project. Those who formally replied are indicated with a ✓. All written comments and responses are reproduced in Appendix A.

Federal Agencies

- ✓ U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Coast Guard

State Agencies

- State Department of Business, Economic Development & Tourism (DBEDT)
- State DBEDT Land Use Commission
- State DBEDT Office of Planning
- ✓ State Department of Defense
- ✓ State Department of Hawaiian Home Lands
- ✓ State Department of Health (DOH)
- State DOH Office of Environmental Quality Control
- ✓ State Department of Land and Natural Resources (DLNR), Land Division
- ✓ State Department of Land and Natural Resources (DLNR), Engineering Division
- ✓ State DLNR Historic Preservation Division
- ✓ State DLNR Division of State Parks
- ✓ State DLNR Office of Conservation and Coastal Lands
- ✓ State Department of Transportation
- ✓ State Office of Hawaiian Affairs
- University of Hawaii Environmental Center

City and County of Honolulu Agencies

- ✓ Department of Design and Construction
- Department of Emergency Management
- Department of Emergency Services
- ✓ Department of Facilities Management
- Department of Information Technology
- Department of Parks and Recreation
- Department of Planning and Permitting
- Department of Transportation Services
- ✓ Department of Transportation Services
- ✓ Fire Department
- ✓ Police Department
- ✓ Board of Water Supply

Elected Officials

State Senator Pohai Ryan
State Representative Chris Lee
State Representative Gene Ward
Honolulu City Councilmember Stanley Chang
Honolulu City Councilmember Ikaika Anderson

Organizations

Hawaii Kai Neighborhood Board No. 1
Waimanalo Neighborhood Board No. 32
Oahu Island Burial Council

Utilities

✓ Hawaiian Electric Company
Oceanic Time Warner Cable

8. REFERENCES

Federal Emergency Management Flood Insurance Rate Map Community Panel Number 15003C0385G, revised January 19, 2011.

City and County of Honolulu. *City and County of Honolulu General Plan*, Amended October 3, 2002.

City and County of Honolulu Building Department. *Negative Declaration for Waimanlo Ridge Communications Site Electrical Service*. July 16, 1993.

East Honolulu Sustainable Communities Plan. City and County of Honolulu, Department of Planning and Permitting. April 1999.

Primary Urban Center Development Plan. City and County of Honolulu Department of Planning and Permitting. June 2004.

State of Hawaii Department of Accounting and General Services. *Final Environmental Assessment, Anuenue (formerly Rainbow) Radio Facilities and Towers Statewide, Koko Head Site, Maunaloa District, Island of Oahu*. Prepared by Wilson Okamoto Corporation, September 2004.

State of Hawaii Department of Accounting and General Services. *Final Environmental Assessment, Department of Accounting and General Services, Information & Communication Services Division Kaupulehu Radio Site and Tower, Kaupulehu, North Kona District, Island of Hawaii*. Prepared by Wilson Okamoto Corporation, July 2009.

State of Hawaii Department of Land and Natural Resources, Land Division. *Finding of No Significant Impact for the Final Environmental Assessment by the Winner's Camp Foundation*. November 2001.

The Hawaii State Plan Chapter 226, Hawaii Revised Statutes. Office of the Governor Office of State Planning. 1988.

Title 11 Hawaii Administrative Rules State of Hawaii Department of Health Chapter 46 Community Noise Control. September 23, 1996.

US Department of Agriculture Soil Conservation Service. *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. December 1973.

U.S. Department of Agriculture Soil Conservation Service. *Agricultural Lands of Importance to the State of Hawaii*. January 1977.

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APPENDIX A



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT
FORT SHAFTER, HAWAII 96888-5440

REPLY TO
ATTENTION OF:

June 10, 2011

Regulatory Branch

Wilson Okamoto Corporation
Attn: Mr. John L. Sakaguchi, Senior Planner
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

We have received your request for the Department of the Army to review and comment on the proposed Kamehame Ridge Radio Facility project. We have assigned the project the reference number POH-2011-00151. Please cite the reference number in any correspondence with us concerning this project. We have completed our review of the submitted document and have the following comments:

Section 10 of the Rivers and Harbors Act of 1899 (Section 10) requires that a Department of the Army (DA) permit be obtained from the U.S. Army Corps of Engineers (Corps) prior to undertaking any construction, dredging, and other activities occurring in, over, or under navigable waters of the U.S. Section 404 of the Clean Water Act of 1972 (Section 404) requires that a DA permit be obtained for the discharge (placement) of dredge and/or fill material into waters of the U.S., including wetlands.

Based on the information provided, it appears that there are no aquatic resources, such as wetlands and drainage ditches on site. Therefore, the authorization from our office does not appear to be required. However, we recommend you conduct an aquatic resource inventory of the project site prior to designing any new facilities. The inventory should record any drainage features, streams, ditches, gulches, wetlands, etc., since these features may be jurisdictional waterbodies subject to Section 10 and/or Section 404 regulations. Wetland delineations must be conducted in accordance with the Corps of Engineers 1987 Wetland Delineation Manual and the Hawaii and Pacific Islands Supplement. Information regarding the physical, chemical, and biological characteristics of each aquatic resource should also be documented.

If you discover there are aquatic resources on site and they may be impacted on the proposed project, please contact our office to determine potential regulatory requirements. As a reminder, you must apply for and receive authorization from our office to the commencement of jurisdictional activities. Unauthorized work may subject to an enforcement action, including civil and criminal penalties.

Thank you for contacting us regarding this project and providing us with the opportunity to comment. Should you have any questions regarding our Regulatory Program or the application process, please contact Ms. Deserie Bala via email at Deserie.M.Bala@usace.army.mil or (808) 439-9258.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

(7682-01)
6/14/11 JS

cc: AAS
AAS

JS

U.S. ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT
FACILITY DEVELOPMENT DIVISION
1907 SOUTH BERETANIA STREET, SUITE 400
HONOLULU, HAWAII 96826
PHONE: (808) 439-9258
FAX: (808) 439-9259
WWW.USACE.ARMY.MIL



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 FAX: 808-946-2253
 www.wilsonokamoto.com

8083-01
 August 30, 2011

Mr. George Young, Chief
 Regulatory Branch
 U.S. Army Corps of Engineers
 Building 230, Room 205
 Fort Shafter, HI 96858

Subject: Pre-Assessment/Draft Environmental Assessment,
 Information and Communications Services Division ~
 Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu,
 DAGS JOB No. 12-10-0646; Tax. Map Key: 3-9-009:001
 Response to Comment

Dear Mr. Young:

Thank you for your June 10, 2011 comment letter (File No. POH-2011-00151) regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note that the project site is located at elevation about 1280 feet mean sea level and in an area without streams or rivers and will not require any construction, dredging, or other activities occurring in, over, or under navigable waters of the U.S.

As stated in the Project Summary, the project site is a portion of the former Hawaii Nike Project Site 3 & 4 and has been partially cleared leaving a concrete pad. The Draft EA will state authorization from the US Army Corps of Engineers will not be required. As part of the Draft EA, botanical and biological resources surveys will be conducted on the project site. Further, should any streams, ditches, gulches, or wetlands be identified during surveys of the project site, this information will be included in the Draft EA.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,

John L. Sakaguchi, AUCP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
 R. Hivak, DAGS

NEIL ABERCHONBE
 GOVERNOR OF HAWAII



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

June 9, 2011

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, Hawaii 96826
 Attn: John Sakaguchi, Senior Planner

Dear Mr. Sakaguchi:

Thank you for the opportunity to review and comment on the proposed Kamehame Ridge Radio Facility in Maunaloa, O'ahu.

Ka Iwi State Scenic Shoreline is located below the ridge, however we do not anticipate any impacts resulting from the project's implementation. Please check with the Office of Conservation and Coastal Lands regarding their requirement for a Conservation District Use Permit.

Very truly yours,

Daniel S. Quinn
 State Parks Administrator

0803-01
 WILLIAM L. LAILA, JR.
 GOVERNOR OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 DIVISION OF STATE PARKS
 POST OFFICE BOX 621
 HONOLULU, HAWAII 96809

WILLIAM NG TAM
 DEPUTY DIRECTOR - WATER
 AQUATIC RESOURCES
 DIVISION OF STATE PARKS
 HONOLULU, HAWAII 96809
 CONSERVATION AND RESTORATION
 DIVISION OF STATE PARKS
 HONOLULU, HAWAII 96809
 FORESTRY AND WILDLIFE
 DIVISION OF STATE PARKS
 HONOLULU, HAWAII 96809
 NATURAL RESOURCES COMMISSION
 STATE PARKS

cc: D. DePonte

RECEIVED
 JUN 16 2011

WILSON OKAMOTO CORPORATION



1907 South Beretania Street
 Arteejan Plaza, Suite 400
 Honolulu, Hawaii, 96826 USA
 Phone: 808-846-2277
 FAX: 808-846-2253
 www.wilsonokamoto.com

8083-01
 August 30, 2011

Mr. Daniel Quinn, Administrator
 Division of State Parks
 Department of Land and Natural Resources
 State of Hawaii
 P.O. Box 621
 Honolulu, HI 96809

Subject: Pre-Assessment/Draft Environmental Assessment,
 Information and Communications Services Division -
 Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
 DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009;001
 Response to Comment

Dear Mr. Quinn:

Thank you for your June 8, 2011 comment letter regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note that the Ka Iwi Scenic Shoreline is located below the project site. However, the Division of State Parks does not anticipate adverse impacts from the Radio Facility project.

We appreciate your participation in the EA review process.
 If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner
 JS/dh

cc: D. DePonte, DAGS
 R. Hliivak, DAGS

WILLIAM J. AILA, JR.
 BOARD OF LAND AND NATURAL RESOURCES
 COMMISSION ON WATER RESOURCES MANAGEMENT



11 JUN 07 PM 11:02 ENGINEERING

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



June 7, 2011

MEMORANDUM

TO: DLNR Agencies:
 Div. of Aquatic Resources
 Div. of Boating & Ocean Recreation
 Engineering Division
 Div. of Forestry & Wildlife
 Div. of State Parks
 Commission on Water Resource Management
 Office of Conservation & Coastal Lands
 Land Division -Oahu District
 Historic Preservation
 Div. of Conservation & Resources Enforcement

RECEIVED
 LAND DIVISION
 JUN 13 10 1:54
 DIVISION OF FORESTRY & WILDLIFE
 JUN 13 10 1:54

FROM: Charlene Unoki, Assistant Administrator
 SUBJECT: Pre-Assessment for Draft Environmental Assessment for the ICSD Kamehame Ridge Radio Facility
 LOCATION: Island of Oahu
 APPLICANT: Wilson Okamoto Corporation on behalf of Department of Accounting & General Services

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by June 18, 2011.

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

Attachments

- () We have no objections.
- () We have no comments.
- (x) Comments are attached.

Signed:
 Date: 6/13/11

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

L/CharleneInoki
RE:DEAKamRidgeRadioFacility
Oahu.837

COMMENTS

- () We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone _____.
- (X) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone D. The Flood Insurance Program does not have any regulations for developments within Flood Zone D.
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is _____.
- () Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.
- () Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:
 - () Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
 - () Mr. Carter Romero at (808) 961-5943 of the County of Hawaii, Department of Public Works.
 - () Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
 - () Ms. Wynne Ushigome at (808) 241-4890 of the County of Kauai, Department of Public Works.
- () The applicant should include water demands and infrastructure required to meet project needs. Please note that projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.
- () The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.
- () Additional Comments: _____
- () Other: _____

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

Signed: 
CARTI S. CHANG, CHIEF ENGINEER
Date: 10/13/11



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Meridian Plaza, Suite 100
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8083-01
August 30, 2011

Mr. Russell Y. Tsuji, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
PO Box 621
Honolulu, HI 96809

Attention: Engineering Division
Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division -
Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009:001
Response to Comment

Dear Mr. Tsuji:

Thank you for the Engineering Division's June 13, 2011 comment letter regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note that according to the Flood Insurance Rate Map (FIRM) the project site is located in Flood Zone D. The Flood Insurance Program does not have any regulations for developments within Zone D.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,



John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hivak, DAGS



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



808 5-01
6/22/11
cc: DAGS
JL

June 20, 2011

RECEIVED
JUN 21 2011

WILSON OKAMOTO CORPORATION

Wilson Okamoto Corporation
1907 South Beretania Street Suite 400
Honolulu, Hawaii 96826

Attention: Mr. John L. Sakaguchi, Senior Planner
Ladies and Gentlemen:

Subject: Pre-Assessment/Draft Environmental Assessment for Information & Communications Services Division Kamehame Ridge Radio Facility

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Engineering Division, Office of Conservation & Coastal Lands, Land Division-Oahu District, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0414. Thank you.

Sincerely,

Russell Y. Tsuji

Russell Y. Tsuji
Administrator



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



June 7, 2011

MEMORANDUM

TO: *TL*

- DLNR Agencies:
- Div. of Aquatic Resources
 - Div. of Boating & Ocean Recreation
 - Engineering Division
 - Div. of Forestry & Wildlife
 - Div. of State Parks
 - Commission on Water Resource Management
 - Office of Conservation & Coastal Lands
 - Land Division - Oahu District
 - Historic Preservation
 - Div. of Conservation & Resources Enforcement

FROM: *TL*

Charlene Unoki, Assistant Administrator
Pre-Assessment for Draft Environmental Assessment for the ICSD Kamehame Ridge Radio Facility

LOCATION: Island of Oahu
APPLICANT: Wilson Okamoto Corporation on behalf of Department of Accounting & General Services

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by June 18, 2011.

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

Attachments

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

Signed: *TL*
Date: *6/8/11*

WILLIAMS, J. A., JR.
 BOARD OF LAND AND NATURAL RESOURCES
 CHAIRMAN
 CITY OF HONOLULU
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 1515 ALI'OLE DRIVE
 HONOLULU, HAWAII 96813
 TEL: 808-521-1200
 FAX: 808-521-1201



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

CORRESPONDENCE O.A.-11-223
 JUN - 8 2011



REF:OCCL/MC
 John Sakaguchi
 Wilson Okamoto Corporation
 1907 South Beretanis Street
 Artesian Plaza, Suite 400
 Honolulu, HI 96826

SUBJECT: PRE-ASSESSMENT / DRAFT ENVIRONMENTAL ASSESSMENT
 Kamehame Ridge Radio Facility
 Kamehame Ridge, Maunaula, Oahu
 TMK (1) 3-9-009:001

Dear Mr. Sakaguchi,

The Office of Conservation and Coastal Lands (OCCL) has reviewed the information you provided regarding the proposed Kamehame Ridge Radio Facility. The project area is in the State Land Use Conservation District. The parcel contains lands in both the Limited and the General Subzones. We were unable to determine which subzone the project site is in, and assume that this will be addressed in the Environmental Assessment.

The project will include a four-sided self-supported 40-foot tall tower, a 900-square foot equipment building, an above ground diesel fuel tank, security fencing, and a grounding system. The facility will house and support communications systems used by the government agencies, Hawaiian Electric Corporation, and other entities sponsored by the State.

The facility is an identified land use within the Conservation District according to the Hawai'i Administrative Rules (HAR), § 13-5-22, P-6, PUBLIC PURPOSE USE, (D-1), Land uses undertaken by the State of Hawai'i or the counties to fulfill a mandated government function, activity, or service for public benefit and in accordance with public policy and the purpose of the conservation district. Such land uses many include transportation services, water systems, communications systems and recreation facilities.

This use will require a Conservation District Use Permit (CDUP) issued by the Board of Land and Natural Resources, who have the final say on whether to grant, modify, or deny any permit.

Please contact Michael Cain at 587-0048 if you have any questions.

Sincerely,

SAMUEL LEMMO, Administrator
 Office of Conservation and Coastal Lands

c: Chair

1907 South Beretanis Street
 Artesian Plaza, Suite 400
 Honolulu, Hawaii 96826
 Phone: 808-946-2277
 FAX: 808-946-2253
 www.wilsonokamoto.com

8083-01
 August 30, 2011

Mr. Russell Y. Tsuji, Administrator
 Land Division
 Department of Land and Natural Resources
 State of Hawaii
 PO Box 621
 Honolulu, HI 96809

Attention: Land Division - Oahu District

Subject: Pre-Assessment/Draft Environmental Assessment,
 Information and Communications Services Division -
 Kamehame Ridge Radio Facility, Maunaula, Island of Oahu;
 DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009:001
 Response to Comment

Dear Mr. Tsuji:

Thank you for the Oahu District's June 8, 2011 comment letter regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note that the Land Division Oahu District had no comments.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
 R. Hivivak, DAGS

8083-01
August 30, 2011



1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, HI 96826 USA
PHONE: 808-946-2277
FAX: 808-946-2253
WWW.WILSONOKAMOTO.COM

Mr. Russell Y. Tsuji, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
PO Box 621
Honolulu, HI 96809

Attention: Office of Coastal and Conservation Lands

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division –
Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009:001
Response to Comment

Dear Mr. Tsuji:

Thank you for the Office of Conservation and Coastal Lands' June 8, 2011 comment letter regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note the project site is located in the Conservation District. The Draft EA will also include the facility is an identified land use within the Conservation District according to the Hawaii Administrative Rules (HAR), § 13-5-22, P-6, PUBLIC PURPOSE USE, (D-1). *Land uses undertaken by the State of Hawaii or the counties to fulfill a mandated government function, activity, or service for public benefit and in accordance with public policy and the purpose of the conservation district. Such land uses may include transportation services, water systems, communications systems and recreation facilities.* This use will require a Conservation District Use Permit (CDUP) issued by the Board of Land and Natural Resources.

We appreciate your participation in the EA review process. If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,
John L. Sakaguchi

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hivak, DAGS

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



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

June 15, 2011

Mr. John L. Sakaguchi, AICP
Senior Planner
Wilson Okamoto Corporation
1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

SUBJECT: Pre-Assessment/Draft Environmental Assessment, Information and
Communications Services Division – Kamehame Ridge Radio Facility,
Maunaloa, Island of Oahu; DAGS JOB No. 12-10-0646
TMK: 3-9-009:001

Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have no comments at this time, but reserve the right to future comments. We strongly recommend that you review all of the Standard Comments on our website: www.hawaii.gov/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this application should be adhered to.

The same website also features a Healthy Community Design Smart Growth Checklist (Checklist). The Hawaii State Department of Health, Built Environment Working Group recommends that State and county planning departments, developers, planners, engineers and other interested parties apply the healthy built environment principles in the Checklist whenever they plan or review new developments or redevelopments projects. We also ask you to share this list with others to increase community awareness on healthy community design.

If there are any questions about these comments please contact the Environmental Planning Office at 586-4337.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON, Acting Manager
Environmental Planning Office

8083-01
6/21/11
LORETTA J. RUDDY, ACSW, M.P.H.
DIRECTOR OF HEALTH
cc: DAGS jcm

Reply please refer to
the
EPO-11-108

JS

RECEIVED

JUN 17 2011

WILSON OKAMOTO CORPORATION

8083-01
August 30, 2011



Ms. Genevieve Salmonson, Acting Manager
Environmental Planning Office
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, HI 96801

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division -
Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009:001
Response to Comment

Dear Ms. Salmonson:

Thank you for your June 15, 2011 comment letter regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will include applicable discussions of air quality, noise, water quality, hazardous waste, and wastewater.

We appreciate your participation in the EA review process. If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,
John L. Sakaguchi

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hliivak, DAGS

NEIL ABERCROMBIE
GOVERNOR
MAJOR GENERAL BARRY L. D. WONG
DIRECTOR OF CIVIL DEFENSE
EDWARD T. TEIXEIRA
VICE DIRECTOR OF CIVIL DEFENSE



STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3849 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4485

June 27, 2011

RECEIVED
JUN 29 2011
WILSON OKAMOTO CORPORATION

Mr. John L. Sakaguchi
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

Environmental Assessment/Environmental Impact Statement Review
Kamehame Ridge Radio Facility, Maunaloa, Oahu
TMK Map Key: 3-9-009:001

Thank you for the opportunity to comment on this development. This office supports this project, as it supports the disaster response activities of the State. This infrastructure project is critical in the support of emergency management communications and will facilitate the State's public safety goal to protect the lives and property of the citizens of Hawaii.

If you have any questions, please call Ms. Fay Alarima-Rose, State Civil Defense Assistant Telecommunications Officer, at (808) 733-4300, ext. 531.

Sincerely,

Edward T. Teixeira
EDWARD T. TEIXEIRA
Vice Director of Civil Defense

c: Hawaii State Planning Office
SCD Radio Shop
Honolulu City and County Planning Office
Department of Emergency management

8083-01
6/30/11
PHONE (808) 733-4300
FAX (808) 733-4277
cc: DAGS
JTS



1307 South Beretania Street
Aiea Iken Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-948-2277
FAX: 808-946-2253
www.wilsonokamoto.com

8083-01
August 30, 2011

Mr. Edward Teixeira, Vice Director of Civil Defense
Department Of Defense
State of Hawaii
3949 Diamond Head Road
Honolulu, HI 96816-4495

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division -
Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009:001
Response to Comment

Dear Mr. Teixeira:

Thank you for your June 27, 2011 comment letter regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note that the Department of Defense Civil Defense supports this project as it supports the disaster response activities of the State. This infrastructure project is critical in the support of emergency management communications and will facilitate the State's public safety goal to protect the lives and property of the citizens of Hawaii.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,
John L. Sakaguchi

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hijiwak, DAGS

NEEL ABERNETHY
GOVERNOR OF HAWAII



RECEIVED
JUN 30 2011

WILSON OKAMOTO CORPORATION
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAHUIHEWA BUILDING
601 KAMOKILA BLVD, KAPOLEI HI 96706



WILLIAM J. ALIA, JR.
GOVERNOR OF HAWAII
OFFICE OF THE GOVERNOR
100 W. WILSON ST., SUITE 100
HONOLULU, HI 96813
TELEPHONE: 808-521-8311
FAX: 808-521-8312
WWW.GOV.HI

WILLIAM H. TAN
COMMISSIONER
DEPARTMENT OF LAND AND NATURAL RESOURCES
100 W. WILSON ST., SUITE 100
HONOLULU, HI 96813
TELEPHONE: 808-521-8311
FAX: 808-521-8312
WWW.DLN.HI

7/1/11
cc: CS4/ev
DAS

DATE: June 22, 2011

TO: Mr. John Sakaguchi, Senior Planner
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

LOG: 2011.1610
DOC: 1106AW15

JS

SUBJECT: Section 6E-42 Historic Preservation Review
Project: Pre-Assessment/Draft Environmental Assessment Information and Communications Services Division - Kamehame Ridge Radio Facility
Permit # (None)
Building Owner: State of Hawaii
Location: Kamehame Ridge, Maunaloa, Oahu, Hawaii
Tax Map Key: (1)13-9-009-001

This letter is in response to materials dated May 31, 2011 and received by this office on June 6, 2011, regarding the Pre-Assessment/Draft Environmental Assessment Information and Communications Services Division - Kamehame Ridge Radio Facility.

According to our records, the Radio Facility as described is not adjacent to any historic structures and the area is not known to have any archeological sites. We look forward to receiving additional information regarding the building, accessory items and the extent of the fencing - as well as photographic documentation of view planes to tower and new radio equipment building.

SHPD appreciates the opportunity to comment on the project and participation in the EA review process. Any questions should be addressed to Angie Westfall, at (808) 692-8032 or angie.r.westfall@hawaii.gov.

Thank you for the opportunity to comment.

Angie Westfall

Angie Westfall
Architecture Branch Chief

In the event that historic resources, including human skeletal remains, structural remains, sand deposits, midden deposits, lava tubes, or lava blisters/bubbles are identified during construction activities, please cease work in the immediate vicinity of the find, protect the find from additional disturbance, and contact the State Historic Preservation Division at (808) 692-8015.



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Aiea Ikuu Plaza, Suite 400
Honolulu, Hawaii, 96825 USA
PHONE: 808-946-2253
FAX: 808-946-2253
www.wilsonokamoto.com

8083-01
August 30, 2011

Dr. Puualoakalani Aiu, Administrator
Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
601 Kamokila Boulevard, Suite 555
Kapolei, HI 96707

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division -
Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009;001
Response to Comment

Dear Dr. Aiu:

Thank you for your Jun2 22, 2011 comment letter (LOG: 2011.1610; DOC: 1106AWIS) regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project.

The Draft EA will note, according to Historic Preservation Division records, the Radio Facility as described is not adjacent to any historic structures and the area is not known to have any archeological sites. The Draft EA will include a description of the building, accessory items and the extent of the fencing - as well as photographic documentation of view planes to tower and new radio equipment building.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hihvak, DAGS

NEIL ABERCROMBIE
GOVERNOR



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

June 16, 2011

Mr. John L. Sakaguchi, AICP
Senior Planner
Wilson Okamoto Corporation
1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

Subject: Kamehame Ridge Radio Facility
Pre-Assessment/Draft Environmental Assessment (EA)

Thank you for requesting the State Department of Transportation's (DOT) review of the subject project. DOT understands the State Department of Accounting and General Services (DAGS), Information and Communication Services Division (ICSD) is proposing to construct and operate a 40-foot tall tower, a 900 square foot building adjacent to some existing communication facilities. Access to the project is provided via Kamehame Drive that connects to Kalaniana'ole Highway.

DOT does not anticipate any significant adverse impacts to the State transportation facilities. However, the DAGS is required to obtain a permit from DOT Highways Division, to transport oversize and overweight equipment/loads within the State highways facilities.

DOT appreciates the opportunity to provide comment. If there are any questions or the need to meet with DOT staff, please contact Mr. David Shimokawa of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Very truly yours,

GLENN M. OKIMOTO, Ph.D.
Director of Transportation

(808) 831-7976
7/1/11
GLENN M. OKIMOTO
DIRECTOR
Deputy Directors
FORD N. FUCHIGAMI
JAN S. GOUIEIA
RANDY GRUINE
JADINE URAKAMI

cc: DAGS
IN REPLY REFER TO:
STP 8.0461



1907 South Beretania Street
Aiea Iiian Plaza, Suite 400
Honolulu, Hawaii, 96828 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

8083-01
August 30, 2011

Mr. Glenn Okimoto, Ph.D., Director of Transportation
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, HI 96813-5097

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division -
Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
DAGS JOB NO. 12-10-0646; Tax Map Key: 3-9-009:001
Response to Comment

Dear Mr. Okimoto:

Thank you for your June 16, 2011 comment letter (STP 8.0461) regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note that the Department of Transportation does not anticipate any significant adverse impacts to State transportation facilities. The Draft EA will note the contractor must obtain a permit from the DOT Highways Division to transport oversize and overweight equipment or loads on State highway facilities.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DeFonte, DAGS
R. Hliivak, DAGS

NEL ABERCROMBIE
GOVERNOR
STATE OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

P.O. BOX 1879
HONOLULU, HAWAII 96805

July 14, 2011

RECEIVED
AUG 11 2011
MICHIELE K. KAUIHANE
DEPUTY TO THE CHAIRMAN

Mr. John L. Sakaguchi
Senior Planner
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Aloha Mr. John Sakaguchi:

Subject: PRE-ASSESSMENT/DRAFT ENVIRONMENTAL ASSESSMENT,
INFORMATION AND COMMUNICATIONS SERVICES DIVISION-
KAMEHAME RIDGE RADIO FACILITY, MAUNALOA, ISLAND OF OAHU;
DAGS JOB NO. 12-10-0646; TAX MAP KEY: 3-9-009:001

Mahalo for the opportunity to review and provide comments on this subject matter. I apologize for the late response. The Department of Hawaiian Home Lands has no comment to offer.

If you have any questions, please call our Planning Office at (808) 620-9519.

Me Ke aloha,

Albert "Alapaki" Nahale-a
Chairman
Department of Hawaiian Home Lands

8083-01



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Honolulu, Hawaii, 96828 USA
Phone: 808-946-2277
Fax: 808-946-2277
www.wilsonokamoto.com

8083-01

August 30, 2011

Mr. Albert "Alapaki" Nahale-a, Chairman
Department of Hawaiian Home Lands
State of Hawaii
PO Box 1879
Honolulu, HI 96805

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division -
Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009;001
Response to Comment

Dear Mr. Nahale-a:

Thank you for your June 14, 2011 comment letter regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note that the Department of Hawaiian Home Lands has no comments to offer.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hivak, DAGS

John Sakaguchi

From: John Sakaguchi
Sent: Tuesday, June 21, 2011 2:31 PM

To: 'Keola Lindsey'
Subject: RE: Kamehame Ridge Radio Facility pre-DEA
Categories: Filed by Newforma

Mr. Lindsey: Thank you for your response. We will include this message in the Draft EA. We will send you a copy of the Draft EA.
John Sakaguchi

From: Keola Lindsey [mailto:keolal@oha.org]
Sent: Tuesday, June 21, 2011 2:22 PM
To: John Sakaguchi
Subject: Kamehame Ridge Radio Facility pre-DEA

Aloha John Sakaguchi- The Office of Hawaiian Affairs (OHA) is in receipt of your May 31, 2011 letter seeking comments ahead of a draft environmental assessment for the Kamehame Ridge Radio Facility proposed by the State of Hawai'i-Department of Accounting and General Services.

OHA has no substantive comments at this time. We do look forward to the opportunity to review the DEA when it is available and provide comments at that time. Should you have any questions, please feel free to contact me.

Thank you, Keola Lindsey

Keola Lindsey
Office of Hawaiian Affairs
Compliance Monitoring Program
711 Kapiolani Boulevard
Honolulu, Hawaii 96813
keolal@oha.org (email)
(808) 594-0244 (office)

6/29/2011

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4587
Web site: www.honolulu.gov



PETER B. CARLISLE
MAYOR

808301
7/9/11
cc: DMS Lam

COLLINS D. LAM, P.E.
DIRECTOR
LORI M. K. KAWIWA, P.E.
DEPUTY DIRECTOR

June 29, 2011

RECEIVED
JUL 07 2011

WILSON OKAMOTO CORPORATION

John L. Sakaguchi, AICP
Senior Planner
Wilson Okamoto Corporation
1970 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

Pre - Assessment/ Draft Environmental Assessment
Information and Communications Services Division

Thank you for the opportunity to review and comment on this project. The Department of Design and Construction has no comments.

Should there be any questions, please contact me at 768-8480.

Sincerely,
for Collins D. Lam, P.E.
Director

CDL:pg(419267)



1507 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
Fax: 808-946-2277
www.wilsonokamoto.com

8083-01
August 30, 2011

Mr. Collins Lam, P.E., Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, HI 96813

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division -
Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009;001
Response to Comment

Dear Mr. Lam:

Thank you for your June 29, 2011 comment letter regarding the proposed State of Hawaii Departments of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note that the Department of Design and Construction has no comments.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,
John L. Sakaguchi

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hivak, DAGS

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU

1000 Ulukouia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 768-3343 • Fax: (808) 768-3381
Website: www.honolulu.gov



PETER B. CARLISLE
MAYOR

WESTLEY K. CHUN, Ph.D., P.E., BCEE
DIRECTOR & CHIEF ENGINEER
GEORGE 'KOKI' MIYAMOTO
DEPUTY DIRECTOR
IN REPLY REFER TO:
DRM 11-430

June 15, 2011

RECEIVED

JUN 26 2011

ALSO SEE: 8083-01

Mr. John L. Sakaguchi
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

Subject: Pre-Assessment/Draft Environmental Assessment (DEA)
Information and Communications Services Division
Kamehame Ridge Radio Facility, Maunaula, Oahu
DAGS Job No. 12-10-0646; Tax Map key: 3-9-009:001

Thank you for the opportunity to provide comments on the pre-assessment to the DEA for DAGS proposed Kamehame Ridge Radio Facility.

We have no comments to offer as the proposed facility will be within privately-owned property and will have negligible impact on our facilities and operations.

Since the proposed radio facility will not affect our facilities or operations, we request that the Department of Facility Maintenance be removed from the environmental assessment process for this project.

Should you have any questions, please call Charles Pignataro of the Division of Road Maintenance, at 768-3697.

Sincerely,

Westley K.C. Chun, Ph.D., P.E., BCEE
Director & Chief Engineer



1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

8083-01
August 30, 2011

Dr. Westley K.C. Chun, Ph.D., P.E., BCEE, Director
Department of Facility Maintenance
City and County of Honolulu
1000 Ulukouia Street, Suite 215
Kapolei, HI 96707

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division -
Kamehame Ridge Radio Facility, Maunaula, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009:001
Response to Comment

Dear Dr. Chun:

Thank you for your June 15, 2011 comment letter (DRM 11-430) regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note that the City and County of Honolulu Department of Facility Maintenance has no comments and the project will have negligible impacts on City facilities.

As requested, the Department of Facility Maintenance will be removed from the Draft EA mailing list. We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hiriyak, DAGS

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 768-4730 • Internet: www.honolulu.gov



PETER B. CARLISLE
MAYOR

June 23, 2011

Mr. John L. Sakaguchi
Senior Planner
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

Subject: Pre-Consultation Draft Environmental Assessment (DEA) Information
and Communications Services Division – Kamehame Ridge Radio
Facility, Maunaula, Island of Oahu; DAGS Job. No. 12-10-0646; Tax
Map Key (TMK): 3-9-009:001

This responds to your letter of May 31, 2011, requesting our comments
concerning this proposed project.

We have no comments to offer at this time. We reserve further comments on
the project pending the preparation of a traffic assessment in conjunction with the
submission of a Draft Environmental Assessment (DEA).

Thank you for the opportunity to review this matter. Should you have any further
questions, please contact Michael Murphy of my staff at 768-8359.

Very truly yours,

WAYNE Y. YOSHIOKA
Director

8083-01

cc: Dags Jen

WAYNE Y. YOSHIOKA
DIRECTOR

KAINANI KRAUT, P.E.
DEPUTY DIRECTOR

KENNETH TORU HANAYASU, P.E.
DEPUTY DIRECTOR

TP6/11-4-19238R

RECEIVED
JUN 26 2011
WILSON OKAMOTO CORPORATION



1907 South Beretania Street
Aristian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808.946.2253
Fax: 808.946.2253
www.wilsonokamoto.com

Mr. Wayne Yoshioka, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, HI 96813

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division –
Kamehame Ridge Radio Facility, Maunaula, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009:001
Response to Comment

Dear Mr. Yoshioka:

Thank you for your June 23, 2011 comment letter (TP6/11-4-19238R) regarding the
proposed State of Hawaii Department of Accounting and General Services (DAGS)
Information and Communications Services Division-Kamehame Ridge Radio Facility
project. The Draft EA will note that the City and County of Honolulu Department of
Transportation Services had no comments at this time.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hlivak, DAGS

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET - HONOLULU, HAWAII 96813
TELEPHONE: (808) 528-3111 - INTERNET: www.honoluluupd.org



PETER B. CARLISLE
MAYOR

OUR REFERENCE BSW-LS

June 17, 2011

Mr. John L. Sakaguchi, AICP
Senior Planner
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

This is in response to your letter dated May 31, 2011, requesting comments on the Pre-Assessment Consultation, Draft Environmental Assessment, for the Kamehame Ridge Radio Facility project.

The Honolulu Police Department has no concerns to offer at this time.

If there are any questions, please call Major Susan Ballard of District 4 (Kaneohe) at 247-2166 or Major Evan Ching of District 7 (East Honolulu) at 529-3362.

Sincerely,

LOUIS M. KEALOHA
Chief of Police

By *[Signature]*
BRYAN S. WAUKE
Assistant Chief of Police
Support Services Bureau

Serving and Protecting With Aloha



1907 South Beretania Street
Arlisstar Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-546-2277
FAX: 808-546-2253
www.wilsonokamoto.com

8083-01
August 30, 2011

Chief Louis M. Kealoha, Police Chief
City and County of Honolulu
Police Department, Honolulu
801 S. Beretania Street
Honolulu, HI 96813

Attention: Bryan S. Wauke, Assistant Chief of Police,
Support Services Bureau

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division -
Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009:001
Response to Comment

Dear Chief Kealoha:

Thank you for your June 17, 2011 comment letter regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note that the City and County of Honolulu Police Department has no concerns to offer at this time.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,

[Signature]

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hliivak, DAGS

8083-01
6/22/11
cc: DAGS Team

LOUIS M. KEALOHA
CHIEF
DAVE W. MAJINER
MAJOR
DEPUTY CHIEF

JS

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JUN 21 2011

WILSON OKAMOTO CORPORATION

HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

838 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7199 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd



PETER B. CARLISLE
MAYOR

June 13, 2011


Mr. John Sakaguchi, AICP
Senior Planner
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

Subject: Preassessment/Draft Environmental Assessment
Information and Communications Services Division
Kamehame Ridge Radio Facility
Tax Map Key: 3-9-009: 001

In response to your letter of May 31, 2011, regarding the above-mentioned subject, the Honolulu Fire Department reviewed the material provided and has determined that there will be no significant impact to its services.

Should you have any questions, please call Acting Battalion Chief Gary Lum of our Fire Prevention Bureau at 723-7152.

Sincerely,

KENNETH G. SILVA
Fire Chief

KGS/SY:bh



1907 South Beretania Street
Artisan Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
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8083-01
August 30, 2011

Kenneth G. Silva, Chief
City and County of Honolulu
Fire Department, Honolulu
636 South Street
Honolulu, HI 96813

Attention: Acting Battalion Chief Gary Lum, Fire Prevention Bureau

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division -
Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009:001
Response to Comment

Dear Chief Silva:

Thank you for your June 13, 2011 comment letter regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note that Honolulu Fire Department has determined there will be no significant impact to Fire Department services from the project.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hivak, DAGS

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



June 16, 2011

8083-01
8/17/11
SS

PETER B. CHARLSE, MAYOR
RANDALL Y. S. CHUNG, Chairman
DENISE M. C. DE COSTA
ANTHONY R. GUERRERO, JR.
THERESIA C. MCMURDO
ADAM C. WONG
WESTLEY K.C. CHUN, Ex-Officio
GLENN M. OKIMOTO, Ex-Officio
WAYNE M. HASHIRO, P.E.
Manager and Chief Engineer

DEAN A. NAKAYO
Deputy Manager

cc: D. DePonte

RECEIVED
JUN 16 2011

WILSON OKAMOTO CORPORATION

Mr. John L. Sakaguchi, AICP
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

Subject: You Letter Dated May 31, 2011 Requesting Comments on the Draft
Environmental Assessment for the Kamehame Ridge Radio Facility Project

TMK: 3-9-9: 1

Thank you for the opportunity to comment on the proposed Information and
Communications Services Division Radio Facility project.

We do not have any comments on the proposed Kamehame Ridge Radio Facility.

If you have any questions, please contact Robert Chun at 748-5443.

Very truly yours,

PAUL S. KIKUCHI
Chief Financial Officer
Customer Care Division



1907 South Beretania Street
Aristeian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
PHONE: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

8083-01
August 30, 2011

Mr. Paul S. Kikuchi, Chief Financial Officer
City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, HI 96843

Attention: Mr. Robert Chun

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division –
Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009:001
Response to Comment

Dear Mr. Kikuchi:

Thank you for your June 16, 2011 comment letter regarding the proposed State of
Hawaii Department of Accounting and General Services (DAGS) Information and
Communications Services Division-Kamehame Ridge Radio Facility project. The
Draft EA will note that the City and County of Honolulu Board of Water Supply does
not have any comments on the project.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hirvak, DAGS

200 Akamainui Street
Mililani, Hawaii 96789-3999
Tel 808-625-2100
Fax 808-625-5888



June 8, 2011

Wilson Okamoto Corp.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Attention: John L. Sakaguchi

Project: Kamehame Ridge Radio Facility

Subject: Oceanic Time Warner Cable comments

Mr. Sakaguchi,

At this time Oceanic Time Warner Cable has no comments regarding the radio facility placement on Kamehame ridge. We do not have any facilities that far up Kamehame ridge.

Sincerely,

Lionel Aguiar
OSP Engineer
Oceanic Time Warner Cable

7682.01
6/14/11 JS
cc: DAGS



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Arteklin Plaza, Suite 400
Honolulu, Hawaii 96826 USA
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8083-01
August 30, 2011

Mr. Lionel Aguiar, OSP Engineer
Oceanic Time Warner Cable
200 Akamainui Street
Mililani, HI 96789

Subject: Pre-Assessment/Draft Environmental Assessment,
Information and Communications Services Division -
Kamehame Ridge Radio Facility, Maunaloa, Island of Oahu;
DAGS JOB No. 12-10-0646; Tax Map Key: 3-9-009:001
Response to Comment

Dear Mr. Aguiar:

Thank you for your June 8, 2011 comment letter regarding the proposed State of Hawaii Department of Accounting and General Services (DAGS) Information and Communications Services Division-Kamehame Ridge Radio Facility project. The Draft EA will note that Oceanic Time Warner Cable does not have any facilities near the project site.

We appreciate your participation in the EA review process.

If you have any questions, please call me at 808.946.2277 or fax to 808.946.2253.

Sincerely,



John L. Sakaguchi, AICP, Senior Planner

JS/dh

cc: D. DePonte, DAGS
R. Hlivak, DAGS

RECEIVED
JUN 13 2011
COMMUNICATIONS DIVISION



APPENDIX B

Biological resources surveys for a communication antenna on Kamehame Ridge, O'ahu

September 13, 2011

DRAFT

AECOS No. 1267

Eric Guinther and Reginald David¹
 AECOS, Inc.
 45-939 Kamehameha Hwy, Suite 104
 Kane'one, Hawaii 96744
 Phone: (808) 234-7770 Fax: (808) 234-7775 Email: guinther@aecos.com

Introduction

This report² presents results from biological resources surveys undertaken at the approximately 1 ac (0.4 ha) ICSD Kamehame Ridge radio site ("Project") on the Ko'olau ridgeline in eastern O'ahu (Fig. 1). The primary purpose of the surveys was to determine if any botanical, avian or mammalian resources occur on the Project site that would be of special concern, particularly species listed under either federal and/or state endangered species statutes or are currently proposed for listing. We were also asked to evaluate the potential impacts that the Project might pose to any sensitive or protected species, or species proposed for protection, and to suggest appropriate minimization and or mitigative measures to reduce or eliminate any such impacts. Site improvements will include a 40-ft radio antenna, a 10-ft microwave dish antenna, a small building housing radio equipment, batteries, and a diesel generator, fuel tank, and a surrounding security fence. The site is part of a complex of communication facilities arrayed along the Ko'olau ridgeline, accessible by a gated road on Kamehame Ridge. The site is presently devoid of structures, but has been utilized in the past and includes a concrete pad, stairs, remains of a fence and barrier, and a paved driveway and parking area (Fig. 2). Consequently, the vegetation is limited mostly to the perimeter of the site and ruderal weeds on and around the previously leveled and paved ground.

¹ Rana Biological Consulting, Inc., Kailua-Kona, Hawaii.

² This report has been prepared for Wilson Okamoto Corp. to accompany Project entitlement submissions (DAGS Job No. 12-10-0625) and will become part of the public record.



Figure 1. Proposed DAGS Kamehame Ridge radio site location in satellite view.

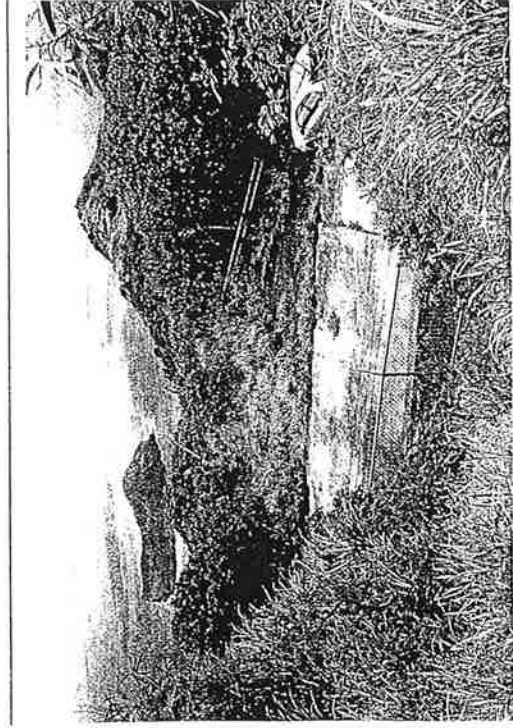


Figure 2. Project site seen from an adjacent site.

Methods

Botanical Survey

The botanical survey conducted by Eric Guinther on June 21, 2011 entailed traversing all parts of the less than 1-ac site for the Project and surrounding areas, with the exception of the steep *pali* immediately north of the site. The latter was only viewed from above. During the field survey, any flowering plants, conifers, ferns, and fern-allies were identified and semi-quantitative estimates made of their relative abundances (rare, uncommon, occasional, common, abundant, and dominant) within the Project site.

As needed, plants not immediately identified in the field were photographed and/or a piece "collected" for identification in the laboratory. Plant names follow *Manual of the Flowering Plants of Hawai'i* (1999) for native and naturalized flowering plants, *A Tropical Garden Flora* (2005) for crop and

ornamental plants, and *Hawaii's Ferns and Fern Allies* (2003) for ferns and fern allies.

Avian Survey Methods

Due to the small area of the Project site, Reginald David established a single avian point count station within the site on June 21, 2011. One 8-minute point count was made at this count station. The site and adjacent areas were walked, including along the ridgeline well above and below the Project boundary, to provide a better understanding of the avian species that use resources within the Project area. Field observations were made with the aid of Leica 10 X 42 binoculars and by listening for vocalizations. A running tally was kept of all bird species recorded during the time spent on the site.

The avian phylogenetic order and nomenclature used in this report follows the *AOU Check-List of North American Birds* (American Ornithologists' Union, 1998), and the 42nd through the 51st supplements to the Check-List (American Ornithologists' Union 2000; Banks et al., 2002, 2003, 2004, 2005, 2006, 2007, 2008; Chesser et al., 2009, 2010).

Mammalian Survey Methods

With the exception of the endangered *ʻŌpeʻapeʻa* or Hawaiian hoary bat (*Lasiurus cinereus semotus*), all terrestrial mammals currently found on the Island of O'ahu are alien species. Most are ubiquitous. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed, heard or detected by other means within the Project area.

Results

Botanical Survey

A list of the plant species encountered (flora) is presented as Table 1. The vegetation on the site is mostly weedy grasses and forbs, with some shrubs, these latter mostly in areas not previously developed or around the margins of the site (see Fig. 2). The vegetation shows the effects of this moderately wet but windblown location. Fruticose lichens densely cover the branches of larger shrubs (Fig. 3), an indication that much of the moisture reaching this site comes from cloud drip.

Table 1. Flora for a proposed radio transmitter site on Kamehame Ridge, O'ahu.

Species	Common name	Status	Abundance	Notes
<i>FERNS and FERN ALLIES</i>				
PTERIDACEAE				
<i>Doryopteris decipiens</i> (Hook.) J. Sm.	---	End	R	
<i>FLOWERING PLANTS</i>				
DICOTYLEDONE				
ANACARDIACEAE	Christmas berry	Nat	AA	
<i>Schinus terebinthifolius</i> Raddi				
ASCLEPIADACEAE	giant toad plant	Nat	R	
<i>Stapelia gigantea</i> N.E. Brown				
ASTERACEAE (COMPOSITAE)				
<i>Ageratum conyzoides</i> L.	<i>maile hohono</i>	Nat	U2	
<i>Bidens alba</i> L.	<i>ki</i>	Nat	C	
<i>Emilia fosbergii</i> Nicolson	Flora's paintbrush	Nat	R	
<i>Tridax procumbens</i> L.	coat buttons	Nat	R	
CACTACEAE	<i>pānini</i>	Nat	---	<1>
<i>Opuntia ficus-indica</i> (L.) Mill.	garden spurge	Nat	U2	
EUPHORBIACEAE				
<i>Euphorbia hirta</i> L.				
FABACEAE				
<i>Acacia farnesiana</i> (L.) Willd.	<i>kiu</i>	Nat	---	<1>
<i>Chamaecrista nictitans</i> (L.) Moench	partridge pea	Nat	O	
<i>Desmanthus pernambucanus</i> (L.) Thellung	virgate mimosa	Nat	U	
<i>Desmodium incanum</i> DC	Spanish clover	Nat	O	
<i>Indigofera hendecaphylla</i> Jacq.	prostrate indigo	Nat	U	
<i>Indigofera suffruticosa</i> Mill.	indigo	Nat	O	
<i>Leucaena leucocephala</i> (Lam.) de Wit	<i>koa haole</i>	Nat	A	
LAMIACEAE				
<i>Hyptis pectinata</i> (L.) Poil.	comb hyptis	Nat	O1	
<i>Plectranthus parviflorus</i> Willd.	<i>'ala 'ala wai nui wahine</i>	Ind	O1	
MALVACEAE				
<i>Malvasium coromandelianum</i> (L.) Garcke	false mallow	Nat	R	
<i>Sida fallax</i> Walp.	<i>'ilima</i>	Ind	R	
PASSIFLORACEAE				
<i>Passiflora suberosa</i> L.	<i>huehue haole</i>	Nat	R	

Table 1 (continued).

Species	Common name	Status	Abundance	Notes
PHYTOLACCACEAE				
<i>Rivina humilis</i> L.	coral berry	Nat	U1	
PORTULACACEAE				
<i>Portulaca oleracea</i> L.	pigweed	Nat	R	
PRIMULACEAE				
<i>Anagallis arvensis</i> L.	scarlet pimpernel	Nat	R	
STERCULIACEAE	<i>'ihala'ala</i>	Nat	R	
VERBENACEAE				
<i>Lantana camara</i> L.	lantana	Nat	---	<1>
<i>Stachytarpheta cayennensis</i> (Rich.) Vahl	nettle-leaved vervain	Nat	---	<1>
<i>Stachytarpheta australis</i> Moldenke	---	Nat	R	
MONOCOTYLEDONES				
POACEAE (GRAMINEAE)				
<i>Bothriochloa pertusa</i> (L.) A. Camus	pitted beardgrass	Nat	O1	
<i>Cenchrus echinatus</i> L.	common sandbur	Nat	---	<1>
<i>Chloris barbata</i> (L.) Sw.	swollen fingergrass	Nat	O	
<i>Chloris virgata</i> Sw.	feather fingergrass	Nat	U	
<i>Digitaria insularis</i> (L.) Mez ex Ekman	sourgrass	Nat	---	<1>
<i>Digitaria violascens</i> Link	violet crabgrass	Nat	R	
<i>Elysiene indica</i> (L.) Gaertn.	wiregrass	Nat	U	
<i>Eragrostis variabilis</i> (Gaud.) Steud.	<i>kāwehi</i>	End	U	<2>
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	Nat	---	<1>
<i>Paspalum fimbriatum</i> Kunth	Panama grass	Nat	U1	
<i>Panicum maximum</i> Jacq.	Guinea grass	Nat	AA	
<i>Sataria verticillata</i> (L.) P. Beauv.	bristly foxtail	Nat	---	<1>
Legend to Table 1				
Status = distributional status				
End = endemic, native to Hawai'i and found naturally nowhere else				
Ind = indigenous, native to Hawai'i, but not unique to the Hawaiian Islands.				
Nat = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivated areas				
Abundance = occurrence ratings for plants on property in March 2008				
R = Rare - only one or two plants observed				
O = Occasional - found regularly, but not abundant anywhere				
C = Common - considered an important part of the vegetation and observed numerous times				
A = Abundant - found in large numbers; may be locally dominant				
AA = Abundant - very abundant and dominant; defining vegetation type				
Numbers (as in R3) offset occurrence ratings (1 = several plants; 2 = many plants; 3 = abundant in a limited area); in cases where distribution across the survey area may be limited, but individuals seen are more than indicated by the occurrence rating alone				
Notes:				
<1> Observed in immediate area, but not on the subject parcel *				
<2> Plant lacking flowers or fruit; identification uncertain				

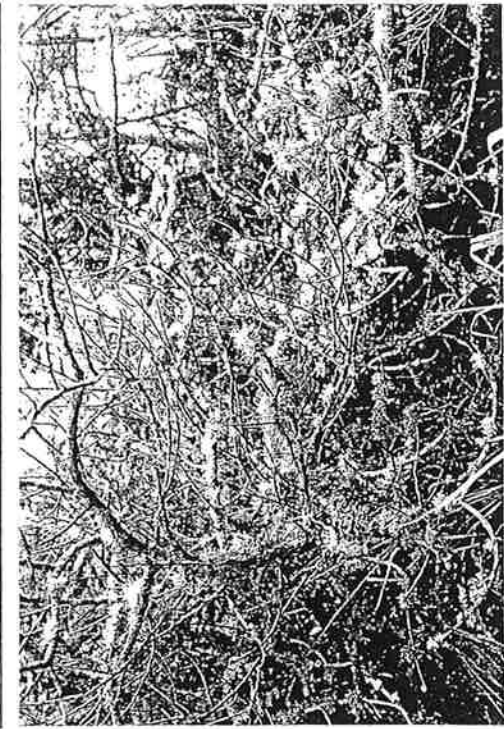


Figure 3. Fruticose lichens densely covering branches of a Christmas berry shrub at the Project site. These lichens indicate a moisture regime based on cloud drip.

The status column in Table 1 indicates native vs. non-native species. Only native plants (indigenous or endemic species) would have any resource value in this location. In all, the listing comprises 40 species, with 8 of these actually recorded from the area and not seen on the Project site itself. A total of 4 of the species (10% or 12.5% for the site species alone) are considered native to the Hawaiian Islands; percentages generally typical for most lowland locations on O'ahu.

Avian Survey

Twenty-one individual birds of seven different species, representing seven separate families were recorded during the point count (Table 2). An additional three species representing three other families or sub-families were detected as incidental observations while wandering in and around the Project site (also given in Table 2). One of the species detected, O'ahu Amakihī (*Hemignathus*

flavus), is an O'ahu endemic. The remaining nine species recorded are all considered to be alien to the Hawaiian Islands.

Table 2. Avian species detected at and near the Project site on Kamehame Ridge, June 2011

Common Name	Scientific Name	ST	No.
Gray Francolin	PHASIANIDAE - Pheasants & Partridges Phasianinae - Pheasants & Allies <i>Francolinus pondicerianus</i>	A	1-2
White-tailed Tropicbird	PHAETHONIFORMES PHAETHONTIDAE - Tropicbirds <i>Phaethon lepturus</i>	IB	1
Great Frigatebird	SULIFORMES FREGATIDAE - Frigatebirds <i>Fregata minor</i>	IB	2
Red-footed Booby	SULIDAE - Boobies <i>Sula sula</i>	IB	3
Rock Pigeon	COLUMBIFORMES COLUMBIDAE - Pigeons & Doves <i>Columba livia</i>	A	3
Zebra Dove	<i>Geopelia striata</i>	A	1
Red-vented Bulbul	PASSERIFORMES PYCNOTOTIDAE - Bulbuls <i>Pycnonotus cafer</i>	A	7
Japanese White-eye	ZOSTEROPIDAE - White-eyes <i>Zosterops japonicus</i>	A	1
Red-billed Leiothrix	TIMALIIDAE - Babblers <i>Leiothrix lutea</i>	A	1
White-rumped Shama	TURDIDAE - Thrushes <i>Copsychus malabaricus</i>	A	2
Yellow-faced Grassquit	EMBERIZIDAE - Emberizids <i>Tiaris olivaceus</i>	A	3
Northern Cardinal	CARDINALIDAE - Cardinals Saltators & Allies <i>Cardinalis cardinalis</i>	A	1
House Finch	FRINGILLIDAE - Pringilline and Carduline Finches & Allies Carduelinae - Carduline Finches <i>Carpodacus mexicanus</i>	A	2

Table 2 (continued).

Common Name	Scientific Name	ST	No.
Common Waxbill	<i>Estrilda ostrild</i>	A	2
ST	Status		
A	Alien Species		
IB	Indigenous Breeding Species – native, but not unique to the Hawaiian Islands,		
ST	Estrildinae - Estrildine Finches		
No.	Number of birds counted during point count		
I-	Incidental observation – number of birds recorded while transiting the site		

Legend to Table 2.

Avian diversity and densities were low, though in keeping with the vegetation present on the site and the ridgeline nature of the site. The most commonly recorded species was Red-vented Bulbul (*Pycnonotus cafer*).

Mammalian Survey

Two mammalian species were detected during the course of this survey. We encountered tracks, scat, and sign of cat (*Felis catus*) and small Indian mongoose (*Herpestes a. auropunctatus*) throughout the area.

DISCUSSION

Botanical Resources

The majority of the plant species present at the Project site are introduced, naturalized species, most having come onto the site since a previous facility was abandoned. The four native species (*Ilima*, *kāwela*, *ʻalaʻalawai nui wahine*, and the small fern, *Doryopteris decipiens*) are not considered rare species and not protected by statutes.

Avian Resources

Avian diversity and densities were in keeping with the habitats present within the site. Of the 13 different avian species recorded during this survey, ten are alien species. The other three species—White-tailed Tropicbird (*Phaethon*

lepturus), Great Frigatebird (*Fregata minor*) and Red-footed Booby (*Sula sula*)—are indigenous breeding seabird species. All of these were seen soaring over the site; none uses resources on the site itself or areas adjacent to the site.

Although not detected during this survey, it is possible that extremely small numbers of the threatened Newell's Shearwater (*Puffinus auricularis newelli*), or 'a'o, over-fly the project areas between the months of May and November (Banko, 1980; Day et al., 2003; Harrison, 1990). Newell's Shearwaters have not been documented nesting on the Island of O'ahu, though several have been picked up, off of the road in front of the Wilson Tunnel over the years. This pelagic species nests high in the mountains in burrows excavated under thick vegetation, especially *uluhe* (*Dicranopteris linearis*) fern.

The primary cause of mortality for Newell's Shearwaters is thought to be predation by alien mammalian species at the nesting colonies (USFWS, 1983; Simons and Hodges, 1998; Ainley et al., 2001). Collision with man-made structures is considered to be the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds may collide with man-made structures; and if not killed outright, dazed or injured they become easy targets for feral mammals (Hadley, 1961; Telfer, 1979; Sincock, 1981; Reed et al., 1985; Telfer et al., 1987; Podolsky et al., 1998; Ainley et al., 2001). No suitable nesting habitat occurs within or close to the project site for this species.

Mammalian Resources

The findings of the mammalian survey are in keeping with the habitats present and the general nature of the Project site. It is likely that several of the four Muridae species—European house mice (*Mus musculus domesticus*), roof rat (*Rattus r. rattus*), Norway rat (*Rattus norvegicus*), and Polynesian rats (*Rattus exulans hawaiiensis*)—known to be established on the Island of O'ahu occur in the vicinity of the Project site on a regular basis.

Protected Species

NATIVE HAWAIIAN PLANTS — No plant species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawai'i's endangered species programs (DLNR, 1998; USFWS, 2005, 2011) were recorded within the Project property. Therefore, development of the site will not result in deleterious impacts to listed plant species.

NEWELL'S SHEARWATER — The principal potential impact that the proposed action poses to Newell's Shearwaters is the increased threat that birds will be downed after becoming disoriented by exterior lighting that may be required in conjunction with either night-time construction activities, including servicing of construction equipment at night. To reduce the potential for interactions between nocturnally flying Newell's Shearwaters and external lights and man-made structures, it is recommended that any external lighting be properly shielded (Reed et al., 1985; Telfer et al., 1987).

No avian species currently proposed for listing, or any that are listed under either federal or the State of Hawaii endangered species statutes was recorded in our survey of the site (DLNR, 1998; USFWS, 2005, 2011). However, one listed seabird may fly over the area. If this project will require an FCC license to operate, it is probable that the action agency will need to consult with the USFWS under Section 7 of the endangered species act of 1973, as amended, over potential impacts to listed species.

Critical Habitat

The subject property is not included in any federally designated Critical Habitat. Thus, development of the site will not result in impacts to federal Critical Habitat. No equivalent statute exists under state or county law.

Jurisdictional Waters

No federal waters or special habitats are present on the subject parcel.

References

- Ainley, D. G., R. Podolsky, L. DeForest, G. Spencer, and N. Nur. 2001. The Status and Population Trends of the Newell's Shearwater on Kaua'i: Insights from Modeling. *in*: Scott, J. M., S. Conant, and C. Van Riper III (editors) *Evolution, Ecology, Conservation, and Management of Hawaiian Birds: A Vanishing Avifauna*. Studies in Avian Biology No. 22: Cooper's Ornithological Society, Allen Press, Lawrence, Kansas. (Pg. 108-123).
- American Ornithologist's Union. 1998. *Check-list of North American Birds*. 7th edition. AOU, Washington D.C. 829 pp.
- _____. 2000. Forty-second supplement to the American Ornithologist's Union *Check-list of North American Birds*. *Auk*, 117: 847-858.

Banko, W. E. 1980. Population Histories—Species Accounts Seabirds: Newell's Shearwater (A'o). Cooperative National Park Resources Studies Unit, University of Hawaii at Manoa, Department of Botany, Technical Report #5A.

Banks, R. C., C. Cicero, J. L. Dunn, A. W. Kratter, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, and D. F. Stotz. 2002. Forty-third supplement to the American Ornithologist's Union Check-list of North American Birds. *Auk*, 119: 897-906.

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APPENDIX C

Management Summary

Reference	Archaeological Literature Review and Field Inspection Report for the DAGS Radio Facilities Project, Kamehame Ridge Site, Maunaloa Ahupua'a, Honolulu (Kona) District, O'ahu Island TMK: [1] 3-9-009; 001 (Runyon, Shideler and Hammatt 2011)
Date	October 2011
Project Number (s)	Cultural Surveys Hawai'i, Inc. (CSH) Job Code: MAUNALUA 9
Investigation Permit Number	CSH completed the fieldwork component of this study under Hawai'i State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR) permit No. 11-17, issued per Hawai'i Administrative Rules (HAR) Chapter 13-13-282.
Project Location	The project area is located on the summit of Kamehame Ridge at approximately 1278 ft. elevation, in Honolulu (Kona) District, in east O'ahu. The project area is depicted on the 1999 U.S. Geological Survey 7.5-minute series topographic map, Koko Head Quadrangle.
Land Jurisdiction	Kamehameha Schools (KS)
Agencies	Department of Accounting and General Services (DAGS), SHPD/DLNR
Project Description and Project Related Ground Disturbance	The proposed development includes the construction of an equipment building, a 50 foot tall radio tower, and an above ground fuel tank. Demolition of existing concrete foundations within the radio facility project area will be necessary. Ground disturbance is proposed to include minimal excavation for foundation footings and a security fence.
Project Acreage	Approximately 0.15 acres (approximately 6,534 square feet)
Area of Potential Effect (APE)	The Area of Potential Effect (APE) includes the entire 0.15-acre project area.
Historic Preservation Regulatory Context	This document was prepared to support the proposed project's historic preservation review under Hawai'i Revised Statutes (HRS) Chapter 6E-42 and HAR Chapter 13-13-284.
Fieldwork Effort	A field inspection was conducted on June 23 and 24, 2011 by David Shideler, M.A. The fieldwork required approximately 4 hours to complete.
Number of Historic Properties Identified	One; consisting of two concrete foundations related to a former Nike military Oahu Defense Area (OA) facility, OA-32. According to background research the facility was in operation from March 1961 to March 1970. As the existing structure remnants are 50 years or older, they are considered to be historic properties (in accordance with HAR 6E-2). The site has been designated State Inventory of Historic Properties (SIHP) 50-80-14-7191.

DRAFT

Archaeological Literature Review and Field Inspection Report for the DAGS Radio Facilities Project, Kamehame Ridge Site, Maunaloa Ahupua'a, Honolulu (Kona) District, O'ahu Island

TMK: [1] 3-9-009: 001

Prepared for
State of Hawai'i Department of Accounting and General Services (DAGS)

and
Wilson Okamoto Corporation

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<p>Historic Properties Recommended Eligible to the Hawai'i Register* of Historic Places</p>	<p>SIHP # 50-80-14-7191 is recommended eligible to the Hawai'i Register* under criterion A (associated with events that have made an important contribution to history).</p>
<p>Project Effect Recommendation</p>	<p>The field inspection documented the project area to exist within a cut embankment at the summit of a ridge top. According to background research and review of previous archaeological studies in the vicinity, no sites have been documented on Kamehame Ridge or in the near vicinity of the project area. Therefore, CSH's project specific effect recommendation is "no further [archaeological] work".</p>

* To be considered eligible for listing on the Hawai'i Register a cultural resource must possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet one or more of the following broad cultural/historic significance criteria: "A" associated with events that have made an important contribution to the broad patterns of our history; "B" associated with the lives of persons important in our past; "C" embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, or possesses high artistic value; "D" have yielded, or is likely to yield information important for research on prehistory or history; and, "E" have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property, or due to associations with traditional beliefs, events or oral history accounts – these associations being important to the group's history

Table of Contents

Management Summary i

Section 1 Introduction 6

1.1 Project Background 6

1.2 Scope of Work 6

1.3 Environmental Setting 11

1.3.1 Natural Environment 11

1.3.2 Built Environment 11

1.4 Document Review 13

Section 2 Background Research 14

2.1 Traditional and Historical Background 14

2.1.1 Traditional and Early Historic Accounts of Waimānalo Ahupua'a 14

2.1.2 Traditional Accounts of Maunaloa Ahupua'a 17

2.1.3 1900s 24

2.2 Military Use of the Project Area in the mid- 1900s 25

2.2.1 History of Project Nike 25

2.2.2 Project Nike on O'ahu 30

2.2.3 Oahu Defense Area OA-32 36

2.3 Previous Archaeological Research 43

2.3.1 Previous Archaeology in Waimānalo Ahupua'a within the Vicinity of the Project Area 43

2.3.2 Previous Archaeology in Maunaloa Ahupua'a within the Vicinity of the Project Area 47

2.4 Background Summary and Predictive Model 49

Section 3 Results of Fieldwork and Background Research 50

Section 4 Documented Historic Properties 57

Section 5 Summary and Interpretation 58

Section 6 Significance Assessments 59

6.1 Significance Assessments 59

6.1.1 SIHP # 50-80-14-7191 59

Section 7 References Cited 60

List of Figures

Figure 1. Portion of a 1999 Koko Head U.S. Geological Survey 7.5-Minute Topographic Quadrangle Map, showing the location of the project area.....	7
Figure 2. Tax Map Key (TMK) plat map [1] 3-9-009 showing the location of the project area.....	8
Figure 3. Aerial photograph (source: Google Earth 2008), showing the location of the project area.....	9
Figure 4. Proposed construction plan showing the current project area (outlined in red) and proposed project structures (provided by client).....	10
Figure 5. Overlay of Soil Survey of the State of Hawai'i (Foote et al. 1972), indicating sediment types within and surrounding the current project area (source: soils Survey Geographic Database [SSUGRO] 2001, U.S. Department of Agriculture).....	12
Figure 6. 1916 Wall map of Waimānalo showing the location of the project area, notice LCA 3265 on the north coast.....	16
Figure 7. Photograph of Kuapā Pond circa 1915, view to west (source: Bishop Museum).....	18
Figure 8. Photograph of a portion of the Kuapā Pond wall (<i>kuapā</i>), view to east (source: Bishop Museum).....	18
Figure 9. Portion of the 1884 Jackson map of the East Coast of Oahu (Reg. Map 1019), showing the location of the project area.....	23
Figure 10. Portion of the 1927-1928 KokoHead U.S. Geological Survey 7.5 minute quadrangle, showing the location of the project area.....	26
Figure 11. 1943 War Department map showing the location of the project area.....	27
Figure 12. 1954 Army Map Service map showing the location of the project area, notice the development in the valleys of Maunaloa.....	28
Figure 13. Photograph of Henry J. Kaiser (at right) overseeing the beginning stages of planned development of Hawai'i Kai.....	29
Figure 14. Photo showing the Nike missile family, including Nike Ajax, Nike Hercules, and Nike Zeus (from foreground to background) (Source: Redstone Arsenal Historical Information, accessed at Wikipedia 2011b).....	31
Figure 15. Map showing Nike Hercules Missile Battery Locations; notice the location of "OA-32 IFC Site" (Bennett 2009:1).....	32
Figure 16. Figure showing the communication link between the IFC satellites, computer system, and launcher (Bennett 2009:10).....	34
Figure 17. Figure showing a High Powered Acquisition Radar (HIPAR) (NHS 2011).....	35
Figure 18. Plan showing a general "inline" consolidated site configuration of a typical Nike Hercules facility, notice the HIPAR radar (13), nearby buildings, and satellite configuration (NHS 2011).....	37
Figure 19. Plan showing a general "T" shaped non-consolidated site configuration of a typical facility equipped with the Nike Hercules, notice the HIPAR radar (10), associated HIPAR building (9), and satellite configuration (NHS 2011).....	38
Figure 20. Photo of Nike Hercules missiles at Bellow AFS, notice the raised berms surrounding the launch location (Bennett 2009).....	39
Figure 21. Photo showing a Bellows AFS former Nike Launcher Area (Bennett 2009:24).....	39
Figure 22. Portion of the 1965 U.S. Army map showing the locations of OA-32 and OA-45 at Bellows AFS and Kamehame Ridge.....	41

Figure 23. Photo of the OA-32 IFC site area, showing the Control Area on the right and Administration Building and Barracks Mess Hall to the left (according to Bennett 2009) (GoogleEarth 2011).....	42
Figure 24. Photo of the OA-32 IFC administration building/ mess hall area (Bennett 2009:24).....	42
Figure 25. Portion of the 1999 Koko Head USGS 7.5-Minute Topographic Quadrangle, showing the location of previous archaeological studies in the vicinity of the current project area.....	44
Figure 26. Map of O'ahu, showing locations of all U.S. Army installations on the island (Rosendahl 1977a).....	48
Figure 27. Proposed construction plan showing the current project area (outlined in red), proposed project structures (outlined in black), and existing concrete foundation remnants (outlined in blue).....	51
Figure 28. Photo showing an overview of the project area, view to east.....	52
Figure 29. Photo of the large rectangular concrete foundation (Foundation A), view to north.....	52
Figure 30. Photo showing a portion of the octagonal foundation (Foundation B), view to northwest.....	53
Figure 31. Photo showing a platform tower just west of Foundation A (in foreground), view to west; notice the cut hillside adjacent to the fence line.....	53
Figure 32. Photo showing the cut hillside adjacent to Foundation A, view to north.....	54
Figure 33. Photo showing the cut hillside at the northern edge of the project area, notice the concrete added to the ridge ledge for structural support, view to north.....	54
Figure 34. Photo of the project area showing Kamehame Road and an adjacent berm covered in thick vegetation, view to west.....	55
Figure 35. Photo of the project area showing a cut hillside within a thickly vegetated area, view to west.....	55
Figure 36. Photo showing existing buildings to the east of the current project area, view to east; notice Manana Island (also referred to as Rabbit Island) in the background.....	56
Figure 37. Photo looking down from the project area at Kaiona Beach Park, Pāhonu Turtle Kraal, and residential housing, view to north.....	56

List of Tables

Table 1. Table Listing Nike Missile Launching Sites on O'ahu (Bennett 2009:3).....	33
Table 2. Previous Archaeological Studies Located in the Vicinity of the Current Project Area.....	45
Table 3. SIHP # 50-80-14-7191.....	57

Section 1 Introduction

1.1 Project Background

At the request of the State of Hawai'i Department of Accounting and General Services (DAGS) and Wilson Okamoto Corporation, Cultural Surveys Hawaii'i, Inc. (CSH) has completed an archaeological literature review and field inspection for the DAGS Radio Facilities Project, Kamehame Ridge Site, Maunaloa Ahupua'a, Honolulu (Kona) District, O'ahu Island, TMK: [1] 3-9-009-001. The project area is located at the summit of Kamehame Ridge in east O'ahu, at approximately 1278 ft. elevation. The project area is adjacent to the border of Waimānalo Ahupua'a, Ko'olaupoko District. The location of the project area is shown in Figure 1 through Figure 3.

The project area is privately owned by Kamehameha Schools (KS) and encompasses approximately 0.15 acres (approximately 6,534 square feet). Accordingly, the area of potential effect (APE) for the proposed project area includes the entire 0.15-acre project area.

The proposed development includes the construction of a new equipment building, a 50 foot tall 4-leg self supporting radio tower, and an above ground fuel tank (Figure 4). Demolition of existing concrete foundations within the radio facility project area will be necessary. Ground disturbance is proposed to include minimal excavation for foundation footings and a grounded security fence. This document was prepared to support the proposed project's historic preservation review under Hawai'i Revised Statutes (HRS) Chapter 6E-42 and HAR Chapter 13-13-284.

The project area is located within a portion of a former U.S. Army base which was in operation from 1961 to 1970. This military base was an Oahu Defense Area (OA) installation associated with Project Nike, an anti-aircraft missile system program. The current project area is located within Nike Project Site 3 & 4, an Integrated Fire Control (IFC) base. This particular military base has been identified as OA-32 IFC. As a result of this field inspection, the site has been designated State Inventory of Historic Properties (SIHP) # 50-80-14-7191.

1.2 Scope of Work

The archaeological literature review and field inspection study was designed to be a useful resource for planning stages of the proposed project. The scope of work was designed to address potential archaeological site types and locations, and allow for future work recommendations.

- 1) Historical research to include study of archival sources, historic maps, Land Commission Awards and previous archaeological reports to construct a history of land use and to determine if archaeological sites have been recorded on or near this property.
- 2) Limited field inspection of the project area to identify any surface archaeological features and to investigate and assess the potential for impact to such sites. This assessment will identify any sensitive areas that may require further investigation or mitigation before the project proceeds.

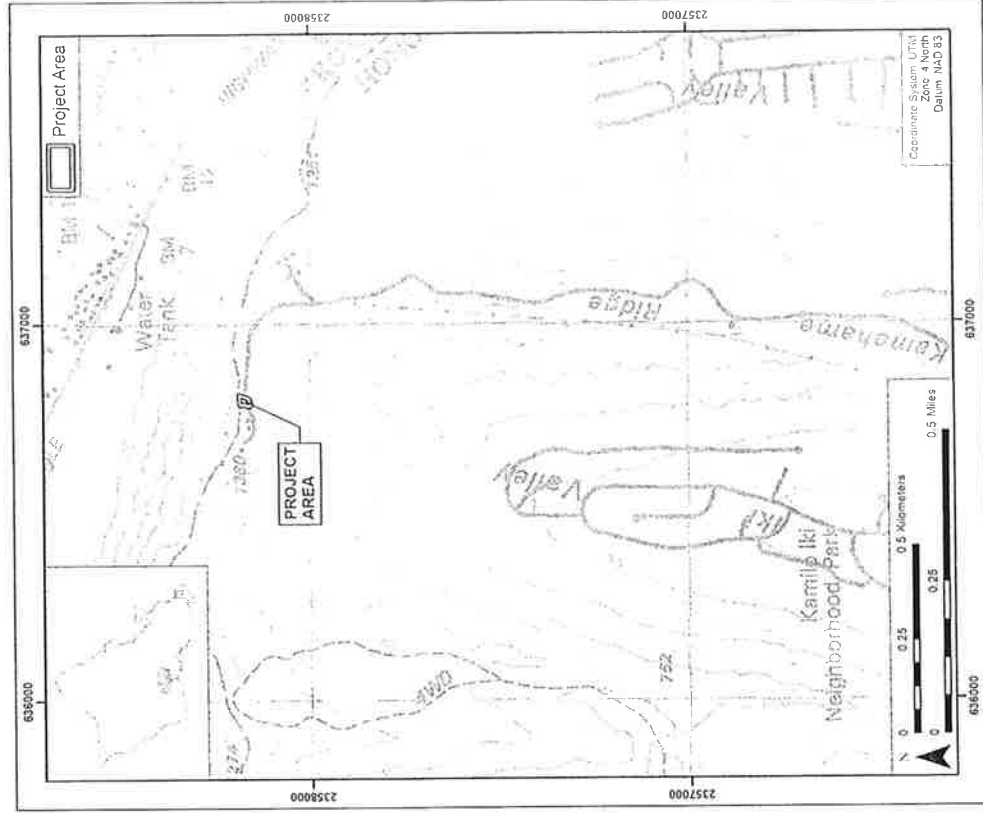


Figure 1. Portion of a 1999 Koko Head U.S. Geological Survey 7.5-Minute Topographic Quadrangle Map, showing the location of the project area

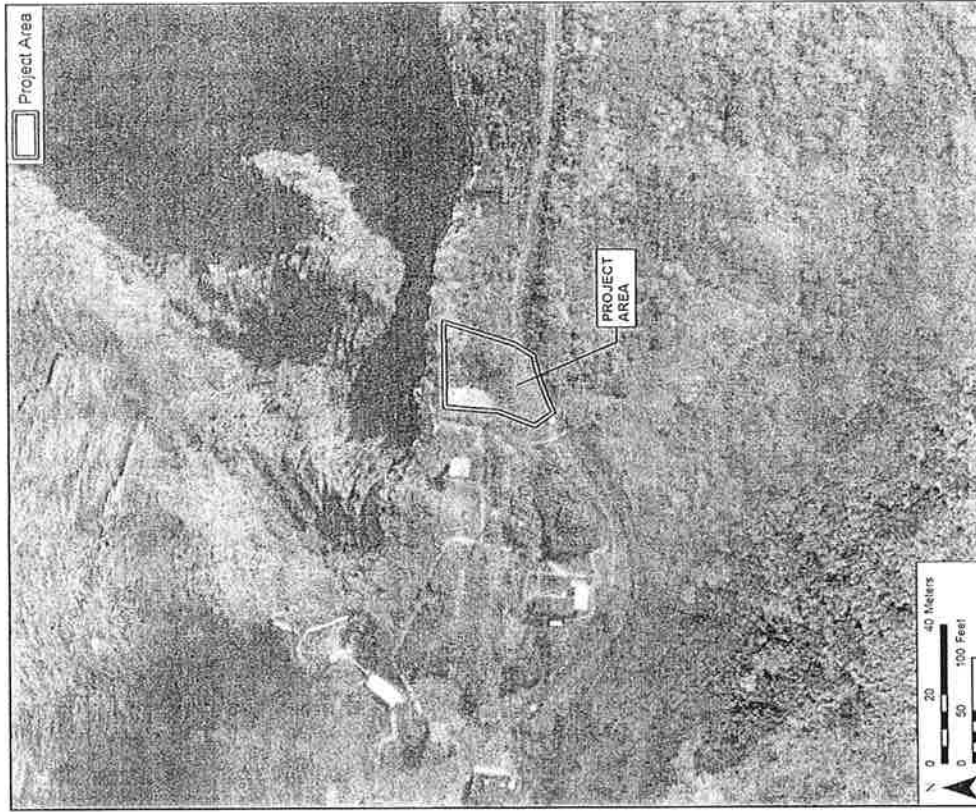
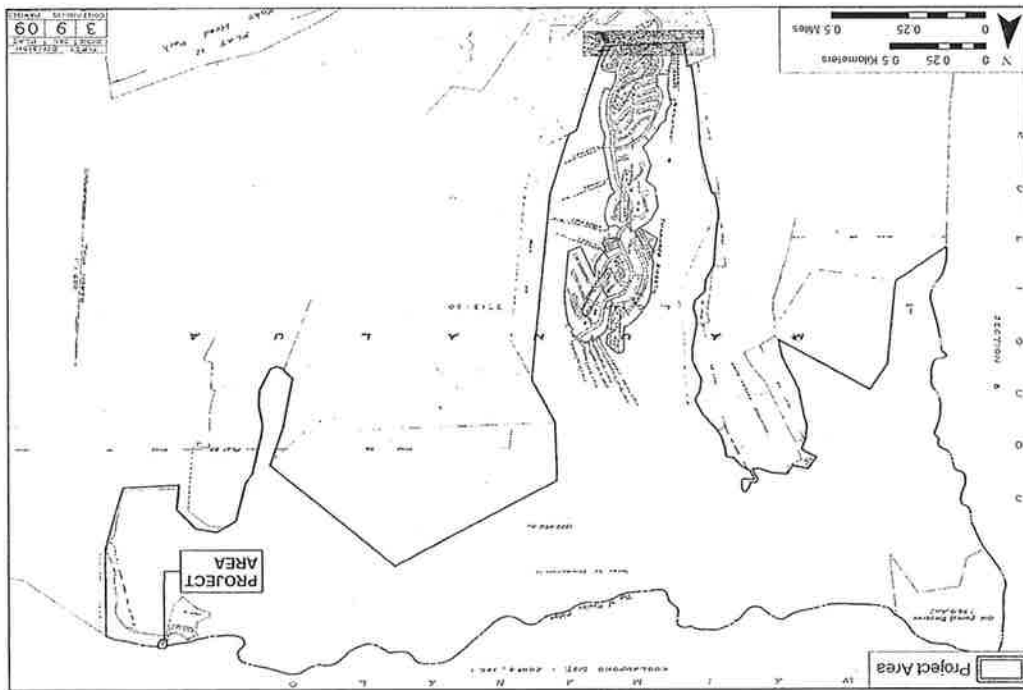


Figure 3. Aerial photograph (source: Google Earth 2008), showing the location of the project area

Figure 2. Tax Map Key (TMK) plat map [1] 3-9-009 showing the location of the project area



- 3) Preparation of a report to include the results of the historical research and the limited fieldwork with an assessment of archaeological potential based on that research, with recommendations for further archaeological work, if appropriate. It will also provide mitigation recommendations if these are archaeologically sensitive areas that need to be taken into consideration.

This scope of work includes full coordination with the SHPD/DLNR and county relating to archaeological matters. This coordination takes place after consent of the owner or representatives.

1.3 Environmental Setting

1.3.1 Natural Environment

The project area is situated on the summit of the Ko'olau Mountain Range at approximately 1380 ft. elevation, within Maunaloa Ahupua'a, Honolulu (Kona) District. The project area is located adjacent to the border of Waimānalo Ahupua'a, Ko'olaupoko District. However, the project area is only accessible from Kamehame Ridge on the Honolulu (Kona) District side of the island. The project area is located on an undulating slope and is bordered by the very steep cliffs of the Ko'olau Mountains to the north. Vegetation observed within the project area includes *koa haole* (*Leucaena glauca*), Christmas berry (*Schinus terebinthifolius*), *kiawe* (*Prosopis pallida*), and various grasses.

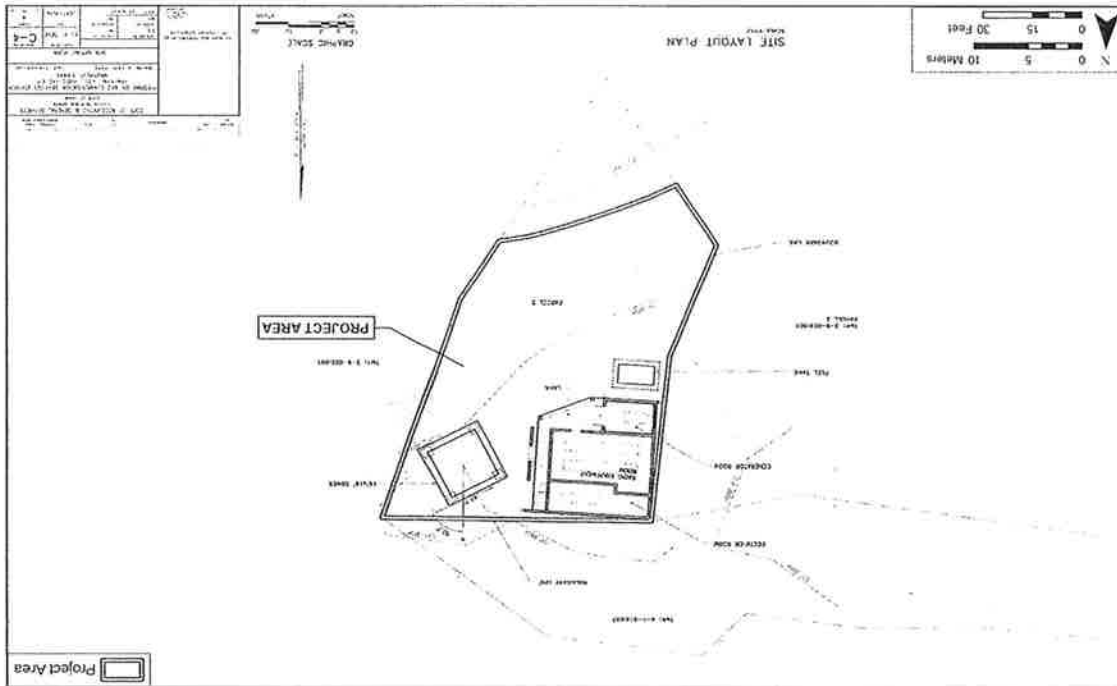
The Ko'olau Mountain Range was formed during the Ko'olau Volcanic Series which occurred several million years ago (Macdonald and Abbott 1974). Geologically, the Ko'olau Mountain Range consists of the west half of what was once a very large shield volcano. The caldera of the Ko'olau volcano comprised the entirety of what we now refer to as the windward side of O'ahu. A review of east O'ahu geology indicates the soils within the project area are classified as Rock land (rRK). This type of soil is characterized as having 25-90% exposed rock surfaces and very shallow soils (Foot et al. 1973) (Figure 5).

Kamehame Ridge generally runs north to south and is situated between Kalama Valley to the east and Kamiloiki Valley to the west. The project area is situated approximately 0.3 miles (0.55 kilometers) from the closest coast on the north shore of Waimānalo Ahupua'a and just less than 2.5 miles (3.8 kilometers) from the southern coast of O'ahu in Honolulu Ahupua'a. The climate of the area is relatively wet, receiving annually between 30 and 40 inches of rain per year (Armstrong 1973).

1.3.2 Built Environment

The project is located within a former U.S. military base, therefore several buildings and concrete walkways, foundation remnants, and tower platforms exist in the general vicinity. The only road which provides access to the project area, Kamehame Road, runs through the southern portion of the project area. An asphalt surface and two concrete foundations cover the majority of the proposed construction area. A metal guard rail and chain link fence line the perimeter of the project area.

Figure 4. Proposed construction plan showing the current project area (outlined in red) and proposed project structures (provided by client)



1.4 Document Review

Background research included: a review of previous archaeological studies on file at the SHPD/DLNR library; review of historical documents at Hamilton Library of the University of Hawaii'i, the Hawaii'i State Archives, the Mission Houses Museum Library, the Hawaii'i Public Library, and the Archives of the Bishop Museum; study of historic photographs at the Hawaii'i State Archives and the Archives of the Bishop Museum; study of historic maps at the Hawaii'i State Land Survey Division; and study of historic maps and photographs at the CSH library. In addition, a local historian, John D. Bennett, was consulted regarding Nike military history and related infrastructure. This research provided the environmental, cultural, historic, and archaeological background for the project area. The sources consulted were used to formulate a predictive model regarding the expected types and locations of historic properties that may be located in the project area.

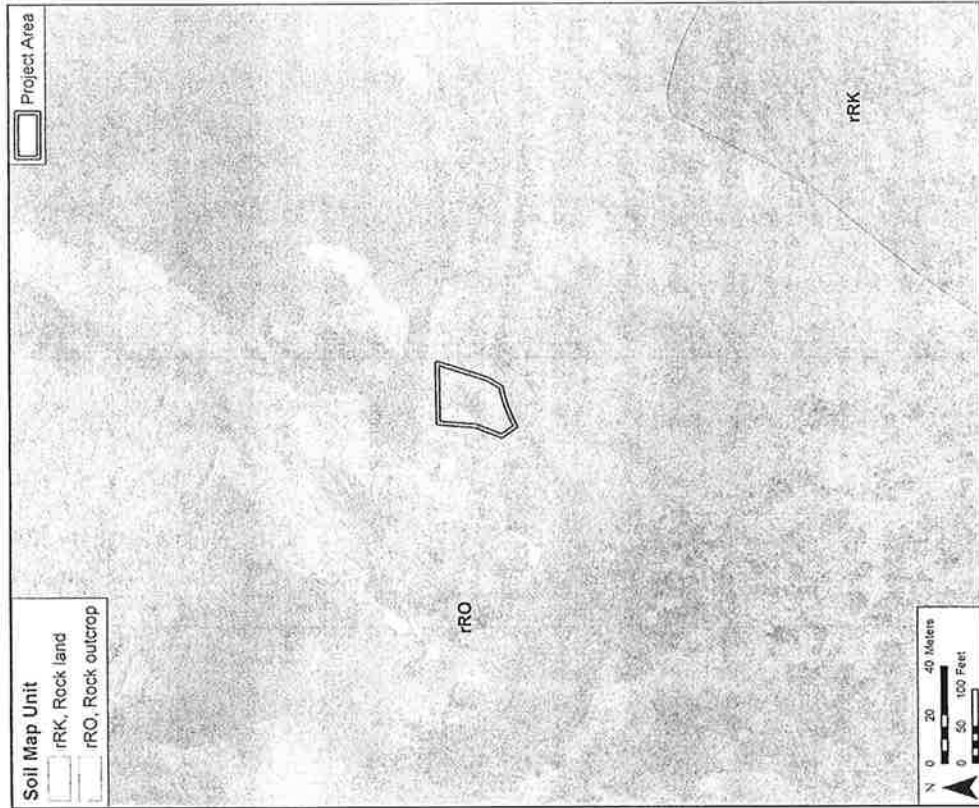


Figure 5. Overlay of Soil Survey of the State of Hawaii'i (Foote et al. 1972), indicating sediment types within and surrounding the current project area (source: soils Survey Geographic Database [SSUGRO] 2001, U.S. Department of Agriculture)

Section 2 Background Research

2.1 Traditional and Historical Background

The project area is situated within the *ahupua'a* (traditional land division) of Maunaloa and is adjacent to the border of Waimānalo Ahupua'a. Due to the location of the project area on the border of two *ahupua'a*, a brief overview of compiled background research pertaining to Waimānalo Ahupua'a followed by a more thorough overview of Maunaloa Ahupua'a is presented below.

2.1.1 Traditional and Early Historic Accounts of Waimānalo Ahupua'a

Traditional accounts present some generally recurring themes regarding Waimānalo. The themes include: the scarcity of water except for small springs and the Waimānalo Stream; the abundance of food crops along Waimānalo Stream; the good fishing resources and the broad reef fronting Waimānalo; and the somewhat isolated location of Waimānalo.

Generally speaking, the Makapu'u end of Waimānalo was known to be barren and desolate. The area of Ko'onāpou was a sweet potato planting area (Handy and Handy 1972:459). Logically, sweet potato is the only type of crop that can grow in dry, arid areas where even dryland taro will not grow. It is apparent that daily subsistence was difficult. The area provided a main food source — fish, which was plentiful, and people bartered with nearby Waimānalo neighbors for vegetables and variety. A short distance away, at Kalapueo, Mālet commented on the unproductiveness of the land.

It is indeed a barren land. Fish is the only food it produces. Our vegetables come from Waimānalo. When the people of that district bring down bundles of food we barter for it our fish. When we have guests, however, we try to set vegetable food before them (Emerson 1993:89).

The environment would have been a limiting factor to settlement along this barren coast.

Makepu'u is a site of many myths and was an area rich in marine resources. Makapu'u was known to fisherman for the *ūhū* or parrotfish that frequented the waters there and for its importance as a canoe landing. When the Hawai'i Island chiefs, Hua'a and Kulukulu'a prepared to make war on O'ahu, they sailed with numerous canoes and many men and landed at Makapu'u (Fornander 1916-1919, Vol. V:262). During the reign of Kahahana, Kahekili schemed to take the O'ahu rule away from him. Kahekili's advisors counseled him to request from Kahahana the lands from Makapu'u Point to Kualoa. When Kahekili asked "What is the value of that place?" His *kāhuna* answered, "Kailua and Waimānalo are important canoe landings. . ." (*Ka Loea Kalaina*; January 13, 1900).

Adjacent to Makapu'u Beach Park on the Waimānalo side is the land section of Kaupō. It is believed that this area was a later historic settlement. Formerly, this area was said to be named Ko'onāpou after the posts which supported the thatched roofs of the stone houses in this village (Pukui and Elbert 1986:117). The village was established by Kapo'i, a *kāhuna* who had healing powers. The frame of Kapo'i's house was "braced by heavy props (*kō'o*) that held the posts (*nā pou*) secure against the winds of the sea" (Handy and Handy 1972:459). Thus, the name

Ko'onāpou was given to the small village. Later Ko'onāpou became known as Kaupō or "night landing". This could be a reference to the landing of canoes there. Hawaiians, attempting to flee the smallpox epidemic in Honolulu and the quarantine, escaped to the Kaupō area and set up temporary housing (McAllister 1933:193). Some say people were drawn here because of Kapo'i and his healing powers.

Early 19th century accounts give little detail of the vicinity, other than to depict the area as "barren and deserted". In 1821, Loomis traveled from Maunaloa (Hawai'i Kai) to Kailua and made no mention of a settlement at Kaupō (In McAllister 1933:195). A year later, Mathison wrote, "... we passed over successive hills and plains, dry and barren, without trees or human habitations. . . At six o'clock we reached a small village about a mile from the seashore [probably not far from the present village of Waimānalo], and easily obtained a tolerable hut to pass the night in; it belonged to an English sailor, who had established himself here. . ." (In McAllister 1933:194).

Two early foreign visitors, both missionaries, were generally unimpressed with Waimānalo; however, their descriptions are of interest. Levi Chamberlain in 1828 commented on Waimānalo being a "considerable settlement" and while there, stayed in a native house, "a miserable place for the abode of human beings and presented a motley group of children and women, dogs, hogs and fowls" (Chamberlain 1856:80-1). In 1830, Edwin Hall writes, "we could not however, but notice, that most of the inhabitants on the eastern end of the island were much more degraded, and exhibited far less evidence of improvement than any we saw on other parts of the island; a fact calling for our sympathy and pity, and for our endeavors to enlighten and elevate them" (Hall 1839:111).

In the mid 1800s, the *ahupua'a* of Waimānalo was awarded to Victoria Kamāmalu subject to the *kūleana* claims of the commoners. Approximately 113 *kūleana* Land Commission Award (LCA) claims were awarded in Waimānalo. Nearly all of these *kūleana* were along Waimānalo Stream or its upper tributaries in the west portion of the *ahupua'a*. There appear to have been only three LCAs in all of central and east Waimānalo, all located on the coast in east Waimānalo. One of these LCAs were awarded north of the project area, *makai* (seaward) of Kalamiana'ole Highway in Waimānalo.

LCA 3265 was awarded to Lauheiku in 1848. Lauheiku claimed:

...one *mo'o* (narrow strip of land), in the land of Kaalehu, two *lo'i* (taro patch) in Mauae's land, three *mala* (garden) of sweet potatoes and one *mala* of *wauke* (paper Mulberry) at Mooiki, one *mala* in Kaina's land and a house claim. I got these in the time of Lono. They are at Waimanalo, on Oahu.

Lauheiku's claim 3265:2 was located near the ocean in an area that would have included a home site and *māla* (garden) of sweet potatoes, grown on the Waimānalo coast (Figure 6).

2.1.2 Traditional Accounts of Maunaloa Ahupua'a

In traditional Hawaiian times, Maunaloa Valley was an 'i'i (small land division) of Waimānalo Ahupua'a in the Ko'olaupoko District. In 1859 Maunaloa became part of the Kona District as an 'i'i of Waikī Ahupua'a (Takemoto et al. 1975). Subsequently Maunaloa was considered an *ahupua'a* itself. Maunaloa is noted for several large topographic features, including Koko Head, Koko Crater, and Kuapā Fishpond. Handy and Handy (1972:483-484) described the land:

Maunaloa, the land area at the southeastern most tip of Oahu, marked by the two great barren mountain masses, Koko Head jutting seaward and Koko Crater, Maunaloa (Two-Mountain) was notable for its great fishpond (*loko kuapā*) covering 523 acres. Actually this great pond, named Ke-ahu-pua-o Maunaloa (the shrine of the baby mullet of Maunaloa) was a broad shallow bay, walled off at the seaward side, with an inlet and a gate which was opened to let fish in as the tide came in and was closed when the tide began to run out.

The Hawaiian name of Koko Crater in Maunaloa was once Kohelepelepe, which literally translates as, "vagina labia minor" (Pukui et al. 1974:115). When the pig god, Kamapua'a tried to rape Pele, the goddess of the volcanoes, the goddess Kohelepelepe sent her detachable vagina to lure him away. He followed it to "Koko Head on Oahu, where it rested upon the hill, leaving an impression to this day on the Makapu'u side" (Summers and Sterling 1962:43).

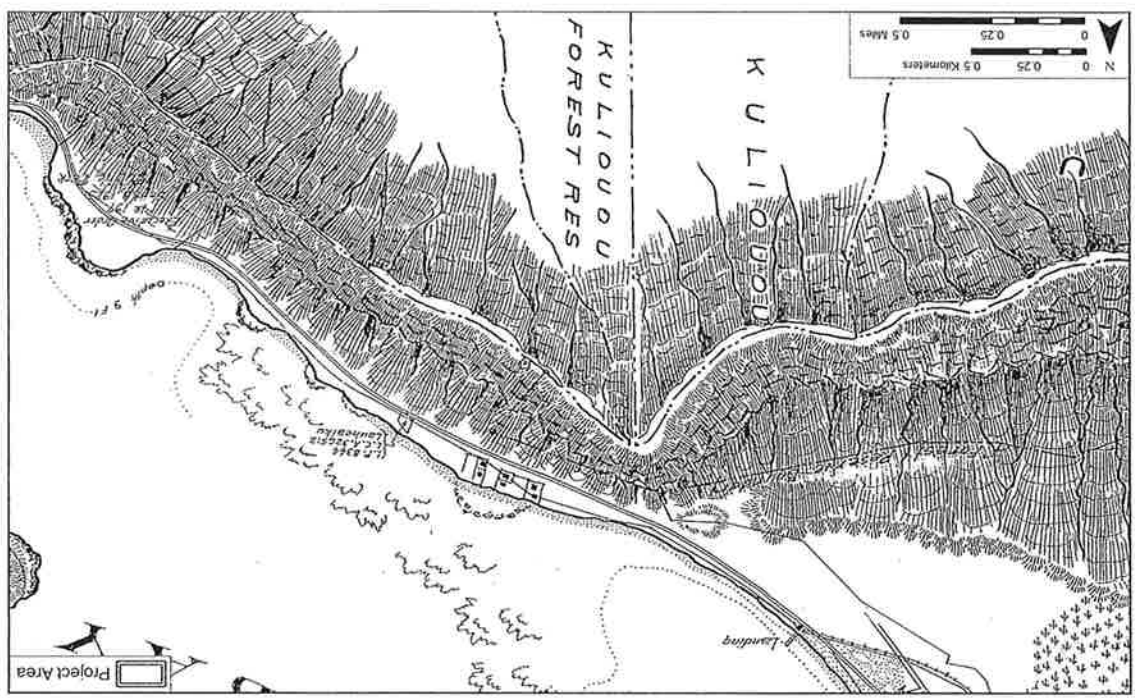
Kuapā Fishpond was originally known as Ke-ahu-pua-o Maunaloa and may have covered as much as 523 acres at one time (ca. 1850) (Sterling and Summers 1978) (Figure 7). A study of Hawaiian fishponds carried out by Kikuchi (1973:21), classified Kuapā Fishpond as a *loko kuapā* (Figure 8). "Loko kuapā is a fishpond whose main characteristic is a seawall (*kuapā*) as its artificial enclosing feature and in most cases contains one or more sluice gates (*makahā*)" (Kikuchi 1973:9).

Kuapā Fishpond, and other *loko kuapā* (walled fishponds) were often home to *akua mo'o*, or lizard water gods or goddesses. The gods in these ponds were believed to ensure the "health and welfare of the people, and to bring them fish" (Kamakau 1968:82). Lakupuku was the goddess for Maunaloa pond, and when people honored her "the ponds would fill with fish, and the fish would be fat" (Kamakau 1968:84).

The pond is not the only source of fish for Maunaloa. The coastline from Makapu'u Point to Maunaloa Bay is a very productive near shore and off-shore fishery. This portion of O'ahu's coastline includes Hanauma Bay, which was "a favorite royal fishing resort", known to have been enjoyed by Queen Ka'ahumanu as well as Kamehameha V (Fornander quoted in Sterling and Summers 1978:267).

According to Thrum (1906:45), there was once a *heiau* (temple) in Maunaloa along the southeastern edge of the base of Kahuani Ridge, called Hawea Heiau. In his "Hawaiian Almanac and Annual of 1907", Thrum lists *heiau* of O'ahu, "Hawea, Maunaloa.—About 75 feet square, now all gone; stones used to build walls with" (Thrum 1907:45). It is said that the *heiau* was used as a house for the sacred drum called Hawea. In the 16th century, a chief called Kūali'i unified all of O'ahu under his rule. (Fornander II, 1969:270-181). He was born at the *heiau* of Alala in 'Ewa, and for the occasion, the sacred drums of Opuku and Hawea were brought to

Figure 6. 1916 Wall map of Waimānalo showing the location of the project area, notice LCA 3265 on the north coast



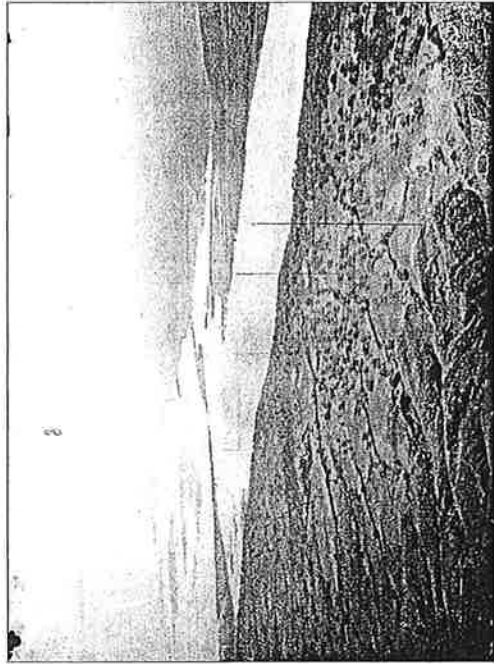


Figure 7. Photograph of Kuapā Pond circa 1915, view to west (source: Bishop Museum)

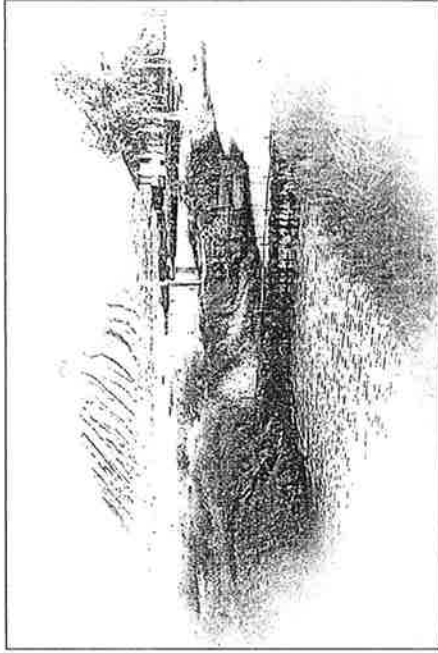


Figure 8. Photograph of a portion of the Kuapā Pond wall (*kuapā*), view to east (source: Bishop Museum)

Alala. The legend of La'a-mai-kahiki, the adopted son of Moikeha, and the sacred drum, Hawea, is important in understanding the identity of Hawea Heiau. The legend states:

La'a sails with a company consisting of his kahuna Ku-kaikupolo, his astronomer Kukeao-ho'omihama, his diviner (Luhau-kapawa), his seer Maula, his drummer Kupa, and forty men to handle the canoes. They pass to the left of Hawaii and sail north past Maui and Molokai sounding the drum over the sea. A certain man named Haikamalama hears the strange sound from the Oahu coast at Hanauma bay and follows the canoe along the shore, beating out the notes on his breast to get the rhythm, and repeating the drummer's chant. When the canoe beaches at Ka-waha-o-ka-mano in Waihaikalua, he pretends, in order to get a good look at it, that the drum is well known on Oahu, and then makes an exact copy of his own (Beckwith 1970:359).

Previous research suggests that the drum was probably kept at the *heiau* bearing the same name, Hawea (Takemoto 1975; Carlson and Rosendahl 1990).

2.1.2.1 Early Historic Period

During the inter-island warfare that preceded Kamehameha's unification of the Hawaiian archipelago, Maunaloa's natural harbors of Hanauma and Koko (Maunaloa Bay) were considered vulnerable points in the defense of O'ahu. Alapai, the 18th century *ali'i nui* of the island of Hawaii, attempted an attack of O'ahu. After his warriors were driven back first at Waikiki, then at Waialea, and then at Koko, Alapai's troops were beaten a final time at Hanauma Bay (Kamakau, 1961:71 cited in Takemoto 1975:12). Following this successful defense of O'ahu, O'ahu's rulers maintained the rulership of their island for a number of years. However, in 1783, Kahekili, the King of Maui, defeated the forces of the ruler of O'ahu in a battle at Honolulu and took control of the island (Takemoto 1975).

It was during the rule of Kahekili that the first Europeans landed and traded at Maunaloa. On June 1st, 1786 the English ships King George and Queen Charlotte, under the commands of captains Nathaniel Portlock and George Dixon, respectively, anchored in Maunaloa Bay. They rowed to the shore of Maunaloa and were taken by natives to a spring at the mouth of Kuli'ou'ou. The landing party came up against a "salt water river" that stopped their progress along the coast. This salt water river is likely the waterway between Kuapā Fish Pond and Maunaloa Bay (Takemoto 1975:13-15). Portlock described the Maunaloa landing site as follows: "the low land and vallies being in a high state of cultivation, and crowded with plantations of taro, sweet potatoes, sugar cane, [and] interspersed with a great number of cocoa-nut trees" (Portlock 1968:74 cited in Takemoto 1975:14).

Captain Portlock named Maunaloa Bay "King George", and Koko Head "Point Dick", in honor of his patron, Sir John Dick (Scott 1968:696). On a second visit, they were given "a large quantity of very fine mullet, which he [a native] told me were caught in a small salt lake at the head of the bay" (Portlock 1968:158).

When Kamehameha conquered the island of O'ahu in 1795, it was devastated by twenty years of interisland war. Kamehameha encouraged the reconstruction of agricultural fields and fishponds by helping with the rebuilding. Maunaloa (Kuapā) Fishpond was one of the fishponds that he was supposed to have helped rebuild himself (Kamakau 1961:192). **Kamehameha**

"...encouraged the chiefs and commoners to raise food and he went fishing and would work himself at carrying rock or timber... He worked at the fishponds at Kaiwai-nui, Ka-'ele-pulu, Uko'a, Mauna-lua, and all south O'ahu" (Kamakau 1961:192).

Kamehameha I gave the land of Maunaloa to Kuihelani, a steward of his, who he also made governor of O'ahu in 1796. Kuihelani was forced to forfeit the land later because of an offense of his wife to Ka'ahumanu, wife of Kamehameha (Kamakau 1961: 173, 389). The land was reassigned to Ke'eaumoku, Ka'ahumanu's father. Ke'eaumoku died in 1804, and Ka'ahumanu retained the lands. She later bequeathed the land to Chiefess Kīna'u, a daughter of Kamehameha I, and mother of Victoria Kāmāmalu. The next record for ownership was in 1826. The missionary, Levi Chamberlain, reported that Maunaloa was owned by Kalola, the grandmother of Kamehameha's wife, Keōpūolani.

John 'Ī'i, a member of Kamehameha's court, visited Maunaloa sometime around 1810. Traveling aboard the ship *Apuaketau* from Honolulu to the island of Hawai'i, 'Ī'i stopped at Kawahoa, the landing at Maunaloa Bay that was a common stop-over point for inter-island and circle-island navigation at this time ('Ī'i 1983:108). 'Ī'i also discusses the old trail systems extant on O'ahu circa 1810. Regarding the route to southeast O'ahu from Honolulu 'Ī'i notes several trails that met at "the sand and go along Keahia and so on to Maunaloa, to the sea of Koko, to Makapu'u, and so on" ('Ī'i 1983:94). Undoubtedly the route ran through Maunaloa, through Kealākīpapa Valley, to Waimānalo via the cliff at the Waimānalo Gap just *mauka* (inland) of Makapu'u Head. There are several accounts of early missionaries taking this route.

Gilbert Mathison most likely followed this same route during his excursion around the island of O'ahu in 1821. Within Maunaloa he noted the large salt water lake (Kuapā Fishpond) around which he saw scattered approximately 100 huts. The people of the area were described as fisherman (Takemoto 1975:17).

Levi Chamberlain visited the area in 1826 and 1828 to view the new language schools. In 1826, he counted 18 houses in this village, which was located on a causeway on the pond. This may mean there was a population of about 90 to 100 at this time. In 1828, he talked to a group of about 30 people in the village, perhaps suggesting that the population was about 60 or more at this time. In 1828, 65 students attended school in the area. Four years later, the number had dropped to only nineteen. This may be an indication of the rapid depopulation of the area.

The earliest map of Maunaloa was made by William Webster, a 19th century surveyor for the Hawaiian Kingdom, in 1851. He recorded that Maunaloa contained a land area of 6,491 acres and a fishpond area of 523 acres. He labeled the fishpond "Kuapa Pond", naming it after the type of pond, a *loko kuapā*, rather than its traditional name (Pukui et al. 1974:119). He also illustrated a road that began at the *pali* (cliff) of Makapu'u Bay and extended to Kealākīpapa Valley. The trail allowed access to the Maunaloa fishpond for Waimānalo inhabitants. This type of trail was used for horse-drawn carts and sources indicate the road may date to sometime between 1825 and the 1850s (Maly and Wong-Smith 1998:23).

Maunaloa was not only known for its fish resources, but was also associated with agriculture. Economic activities of Hawaiian settlements focused on the cultivation of crops that could be exchanged with the foreign sailing vessels, in particular those of the whaling industry, which had

its boom period from 1820-1850 (Jones 1996:20; Takemoto 1975:18). In 1940, Handy described sweet potato cultivation in Maunaloa:

Sweet potatoes were cultivated on Oahu on the coastal plain and in sandy soil... The *kula* lands below the cliffs of Waimanalo also supported sweet potato plantations...

On the south side of the ridge at this end of the island, Maunaloa and Hahaione districts were famous for their sweet potatoes. In this section there are various enclosures and walls which were thrown up around the old plantations before Hawaiians abandoned the land and it was utilized for ranching.

According to the last surviving *kamāzina* (commoner resident) of Maunaloa, sweet potatoes were grown in the small valleys, such as Kamilonui, as well as on the coastal plain. The plain below Kamiloiki and Kealākīpapa was known as Ke-kula-o-Kamua wa. This was the famous potato-planting place from which came the potatoes traded to ships that anchored off Hahaione in whaling days. The village at this place, traces of which may still be seen, was called Wawamalu (Handy 1940:155).

In the early historic period, trade was the source of prosperity for many traditional Hawaiian settlements, including those at Maunaloa. Maunaloa maintained resident populations in areas that would have otherwise become depopulated under the dual effects of epidemics and the relocation of inhabitants to growing towns such as Honolulu. When the trade gave out, settlement in these regions declined. By the early 1850s the zenith of whaling was passing. In 1852, the Hawaiian government passed legislation requiring all foreign vessels to call at Honolulu where they could be taxed. This further reduced the number of ships that anchored at smaller landing sites such as those at Maunaloa (Jones 1996:21; Takemoto 1975:20). "It is clear that Maunaloa lost much of its population and economic independence as an agricultural *ili* with the end of the whaling ships" (Takemoto 1975:25).

The depopulation of Maunaloa by the mid-19th century preceded and facilitated the replacement of traditional Hawaiian land use with ranching and commercial fishing.

2.1.2.2 Mid- to late-1800s

In the mid-1800s, Maunaloa became predominantly ranch land. Land ownership and land use rights were complicated through much of this period by numerous leases, frequent litigation, and the frequent deaths of land holders and/or lease-holders (Takemoto 1975).

Prior to the *Māhele*, the land of Maunaloa was part of the lands held by the premier, Ka'ahumanu had passed the land and title to Kinau, who had in turn passed them on to Victoria Kāmāmalu (Takemoto 1975). On April 7, 1854 Kāmāmalu was granted Land Commission Award 7713, the land title to Maunaloa. No *kuleana* (commoner) land grants were awarded within this overall land award, another indication that population may have declined drastically by the time of the *Māhele*.

In 1856, Victoria Kāmāmalu leased all of Maunaloa, except for Kuapā Fishpond, to William Webster, the government employee and land surveyor who had surveyed the region five years earlier. Webster used the land for ranching, adding it to the other lease hold land he used for

ranching in Waimānalo. When Webster died in 1864, the remainder of his Maunaloa lease was taken over by Manuel Paiko, who was leasing the adjacent lands at Kuli'ou'ou. Maunaloa continued to be used as ranch land.

The fishing rights to the Kuapā Fishpond and Maunaloa's offshore fishing grounds were important resources that were leased out to various parties from the time Victoria Kamāhala obtained the land title to Maunaloa. The Kuapā Fishpond was leased in 1856 at a high yearly sum for the time, indicating the value placed on fishing resources. The offshore fishing rights were leased and sold to various individuals until 1900 when Territorial and United States legislation began deconstructing the legality of the traditional idea of ownership of offshore fishing rights. It is clear from the high lease rates for the time period that the fishing resources of Maunaloa were productive and highly valued (Takemoto 1975:21-27).

Victoria Kamāhala mortgaged her lands in Maunaloa to Charles Bishop in order to pay off accumulated debts. When Kamāhala died in 1866 it fell to her father, Kekuaaoa, to pay off the debts and the mortgage in order to be awarded the title to Maunaloa (Jones 1996; Takemoto 1975). With the death of Kekuaaoa, the land of Maunaloa passed into the hands of Lot Kamehameha V. When Lot died without a will, the probate court decided that his half-sister, Ruth Ke'elikolani, would inherit his entire land holdings. When Ruth died in 1883 Maunaloa was passed down to Bernice Pauahi Bishop. Bernice Pauahi Bishop was the last surviving Kamehameha and as a result inherited all of the Kamehameha lands, becoming the largest landholder in the Kingdom of Hawaii'i. When Bernice Pauahi Bishop died in 1884 her husband Charles Bishop, followed her will and set up the Bishop Estate Trust, of which Maunaloa became a part (Takemoto 1975). Maunaloa continued to be used as ranch land during this period.

An examination of tax records from 1855 to 1880 (Takemoto 1975:24-25) document a steady population decline within Maunaloa. Tax records show that in 1855 there were 38 households with 98 people living in Maunaloa. This fairly large population owned 68 houses as well as horses, mules and dogs. In 1860 Maunaloa had lost over half its population and held only 16 households. By 1870 there were only 6 households and population bottomed out in 1880 with only 4 households. This depopulation is undoubtedly the result, at least in part, of resettlement of inhabitants in more economically viable areas. These decreases in the number of households were accompanied by reductions in the numbers of horses, mules, and dogs--indicating a relatively impoverished population compared to the 1855 inhabitants of Maunaloa. An 1884 Jackson map indicates a very sparsely populated Maunaloa (Figure 9). In 1900 population had risen once again, however it is clear that traditional settlement and land use had been largely, if not entirely, replaced by ranching and commercial fishing activities (Takemoto 1975:24-25).

Maunaloa from 1850 to 1900 witnessed the decline of traditional Hawaiian settlement, land use, and population and the rise of commercial ranching and fishing. Although no *ku'ieana* land commission awards were received within Maunaloa during the *Māhele*, the 1855 tax records indicate that it was populated and appeared to enjoy a degree of prosperity. Maunaloa's prosperity and population drastically declined until 1900, when tax records show an upturn of both, based on commercial fishing and ranching.

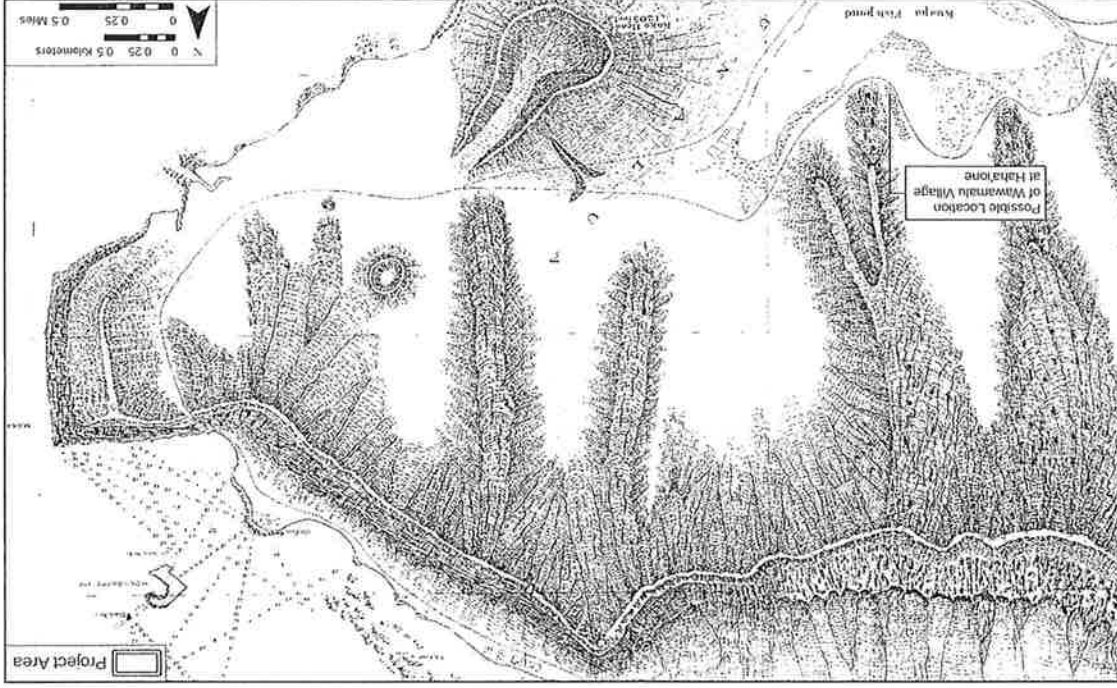


Figure 9. Portion of the 1884 Jackson map of the East Coast of Oahu (Reg. Map 1019), showing the location of the project area

2.1.3 1900s

Maunaloa became more closely tied to the modern world after 1900. In 1906 the luxury steamer *Manchuria* ran aground off Waimānalo. The result of the outcry that followed was the construction, in 1909, of the Makapu'u lighthouse--which then and now contains the largest magnifying lens of all U. S. lighthouses (Dean 1991:Part 14). In 1914, the Marconi Wireless Telegraph Company of America built a receiving station on the slopes of Koko Head on land that was leased from the Bishop Estate for 50 years. The station was built to receive messages 24-hours a day from San Francisco and was billed as the most powerful wireless station in the world. The station linked the Hawaiian Islands with the mainland and Asia on a 24-hour basis. In 1922, the station was taken over by the Radio Corporation of America, who used it as a radio station, and the hotel was converted into a home for elderly Hawaiians by Lunailo Trust (Takemoto 1975: 28).

In 1920, the Maunaloa Ranch Co. leased the Maunaloa lands and sublet portions to tenants, including the Honolulu Honey Company, Ltd. and charcoal makers (Henry 1959:44). Maunaloa Ranch controlled most of the land of Maunaloa outside of the Kuapā Pond. From its inception in 1900 until it closed in 1926 over 1500 cattle made up the ranch's stock (Jones 1996:23). By 1926, the Maunaloa Ranch discontinued cattle grazing itself, and land was rented directly from the Bishop Estate. In 1932, a ranching lease was given to Alan S. Davis, who established Wawamalu Ranch. The Davis home and swimming pool were constructed near the shore at Ka'i'i'ili, while various ranch infrastructure, such as corrals, wall, and water tanks was situated at Kaloko (Kelly et al 1984:56):

The Alan Davis ranch house at Kaloko was the easternmost private residence on O'ahu during the 1930s and 1940s, until its destruction in the 1946 tsunami.

Ranching didn't prove profitable enough, so the subleasing of Maunaloa land for truck and flower farms, chicken farms, and piggeries was expanded. Pig farmers and other were pushed out of the Hawaii Kai area and moved over the hill back of Koko Crater and into Kalama and Wawamalu Valleys. As farmers were evicted from other communities, such as when Wai'ala'e-Kamala, Waiupe, and Niu were urbanized, more of them moved to Maunaloa with short-term leases.

In 1937 and 1938, Alan Davis began subleasing lands mostly for truck farms, flower growing, pig farming, and chicken farms (Kelly 1984:47).

The construction of Kalaniana'ole Highway between Kuli'ou'ou and Waimānalo was begun in the late 1920s and was finally completed in 1932, when the last stretch of road from Waimānalo to Wawamalu was completed. The bridge at Wawamalu was constructed in 1931. The coastal portions of this alignment of Kalaniana'ole Highway from Sandy Beach to Kaloko were washed out by the 1946 tsunami. The highway was reconstructed slightly further inland, with a new bridge at Wawamalu, between 1946 and 1948.

Prior to the completion of Kalaniana'ole Highway through Maunaloa, there were unimproved roads that provided access to the easternmost portion of O'ahu. The 1884 map by George E. Grestley Jackson depicts the unimproved road that encircled Kuapā Pond as extending along the base of Kamehame Ridge (see Figure 9). The roadway is also depicted on the 1927-1928 USGS and 1943 War Department maps, which shows the addition of several roads forking off this main

road (Figure 10 and Figure 11). On the 1943 and 1954 maps, a trail labeled as "Marconi Pass Trail" is shown southwest of the project area, running up Kamilonui Valley.

Between 1932 and 1946, as has been noted earlier, ranching was less and less economically viable at Wawamalu Ranch. Increasingly, ranch land was sublet to truck farmers, who were being displaced by the expansion eastward of Honolulu and its suburbs. This trend continued until 1959 when fewer leases were awarded and old leases were not renewed. A 1954 Army Map Service quadrangle map shows the development of roadways and residences within the valleys of Maunaloa (Figure 12).

In 1959, there were 178 families in the area around Koko Head, producing 60% of the hogs, flowers and lettuce grown on O'ahu. At this time, the Hawaii Kai Development Corporation, a subsidiary of Kaiser Industries, received the development rights for Bishop Estate property in Maunaloa and the development of the planned community of Hawai'i Kai began (Kelly et al 1984:vii). Kuapā Fishpond was dredged to a consistent depth of six feet and dredge material was used to fill the swampy lands on the north side to make a new residential area (Hancock 1983:4). Large portions of former fishpond and ranch land were graded and prepared for construction of housing developments, golf courses, and shopping centers (Figure 13).

2.2 Military Use of the Project Area in the mid- 1900s

2.2.1 History of Project Nike

The current project area is located within a former U.S. Army military installation. The military base was built as part of Project Nike, an anti-aircraft missile system program. Project Nike was initiated by foreign advances in jet aircraft, high-altitude bombers, and long-range rockets developed during the Cold War.

The first anti-aircraft surface-to-air system, the Nike Ajax, was heavily deployed across the U.S. from 1953 to 1958. The Nike Ajax missile was 6.4 meters (m) long, 0.3 m in diameter, with a wingspan of 1.22 by 0.15 m, a defense range between 40 and 48 kilometers (km), speed of 2,702 km/h, and altitude capability of 21 km (Claremont Institute 2011). The missile included three high-explosive warheads.

Each launch site was equipped with two or three launching platforms, each with an underground storage magazine, an elevator, and four missile launchers. The missiles themselves were stored underground on rails and brought to the surface by the elevator. The missiles were guided from a control area located 0.91 km from each launch area. The control area contained the systems's acquisition and tracking radar. In the event of an attack and an intercept launch, target data from the radars would be transferred via an electronic computer to the missile in order to guide it successfully to its target (Claremont Institute 2011, Wikipedia 20011a).

By 1958, the Nike Ajax system was determined to be out-dated and the system was in need of providing greater altitude, speed, and warhead power. However, many rocket technologies and systems created for the Nike Ajax were also utilized in later rocket designs, such as the Nike Hercules missile and NASA's Nike Smoke rocket which was designed for upper-atmosphere research (Wikipedia 2011a).

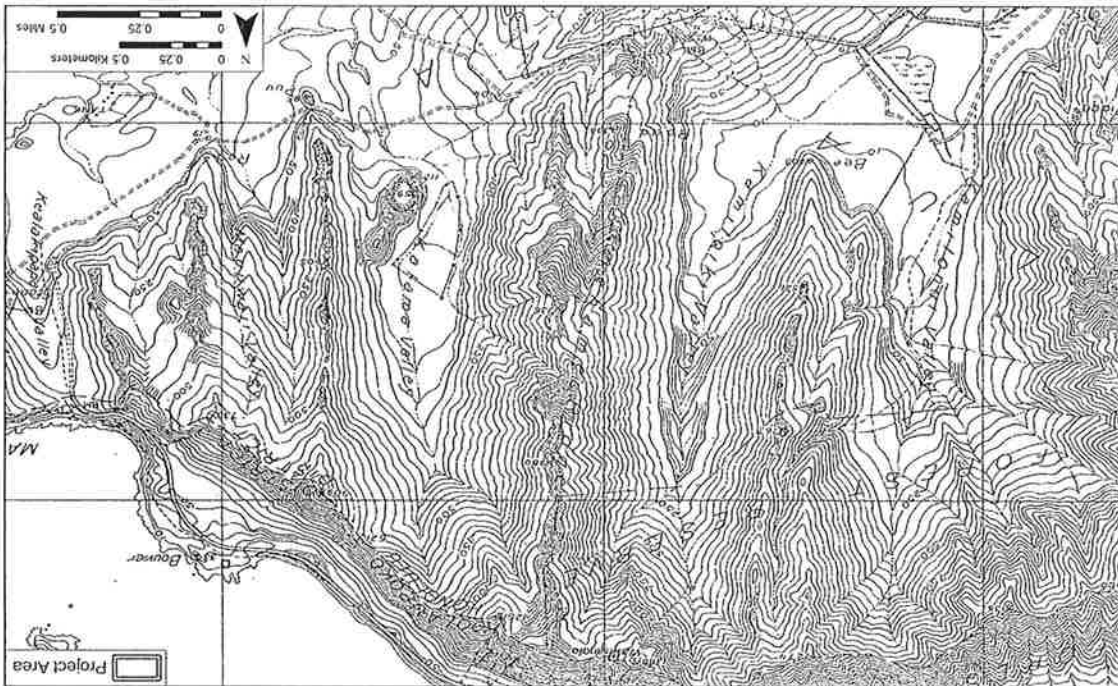


Figure 10. Portion of the 1927-1928 Kokohead U.S. Geological Survey 7.5 minute quadrangle, showing the location of the project area

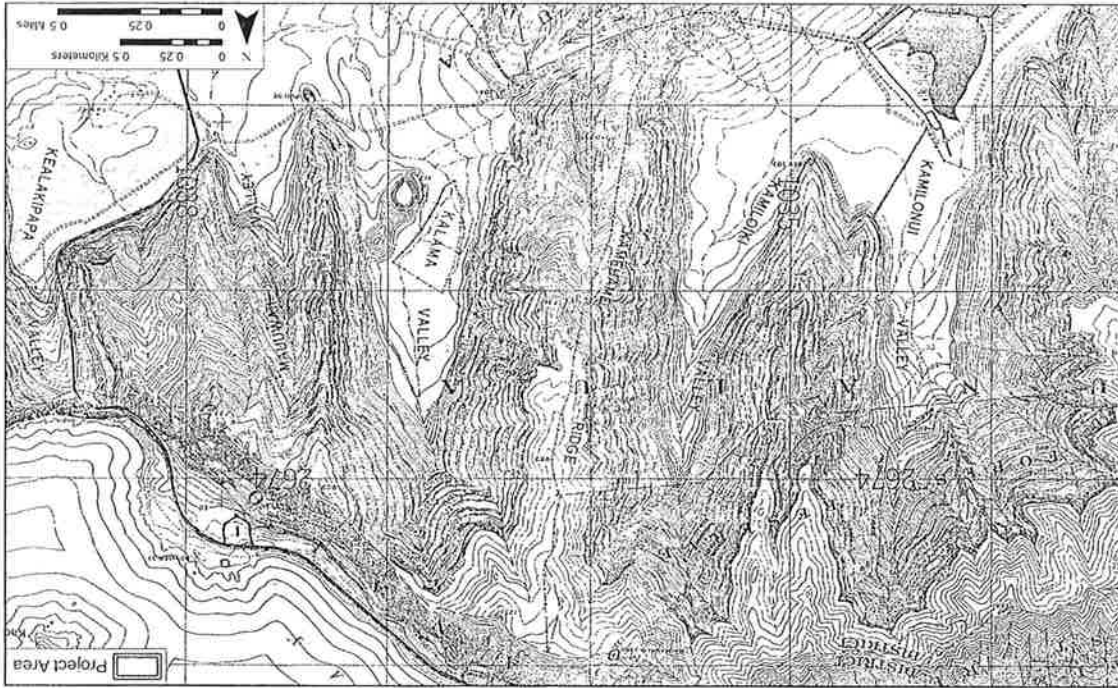


Figure 11. 1943 War Department map showing the location of the project area

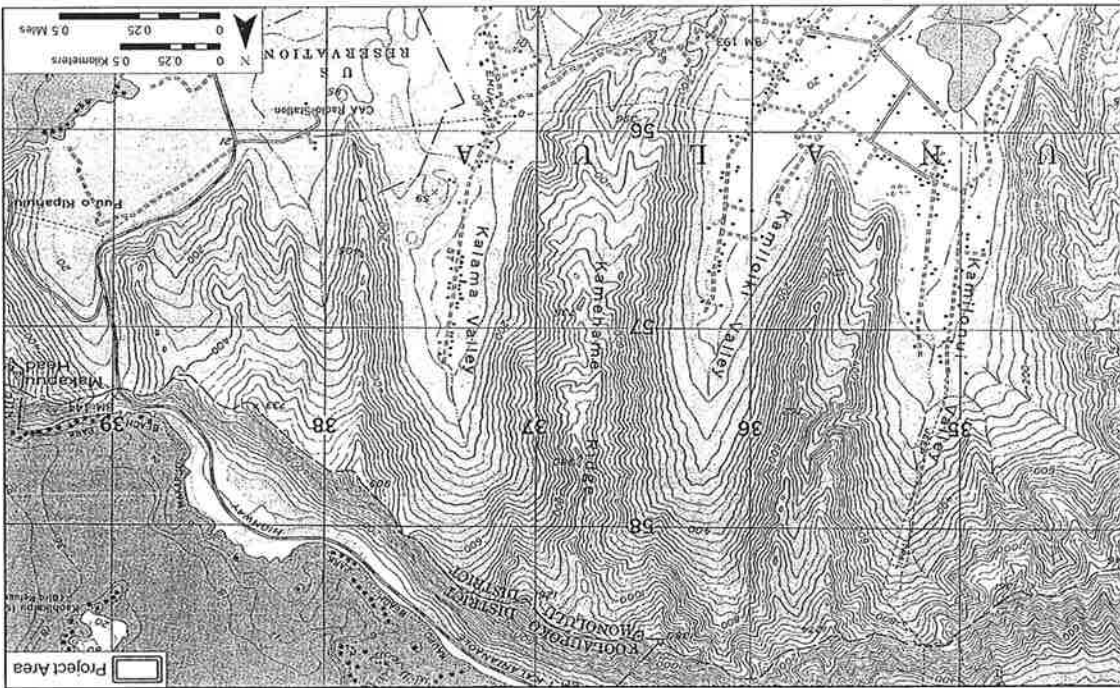


Figure 12. 1954 Army Map Service map showing the location of the project area, notice the development in the valleys of Maunaloa

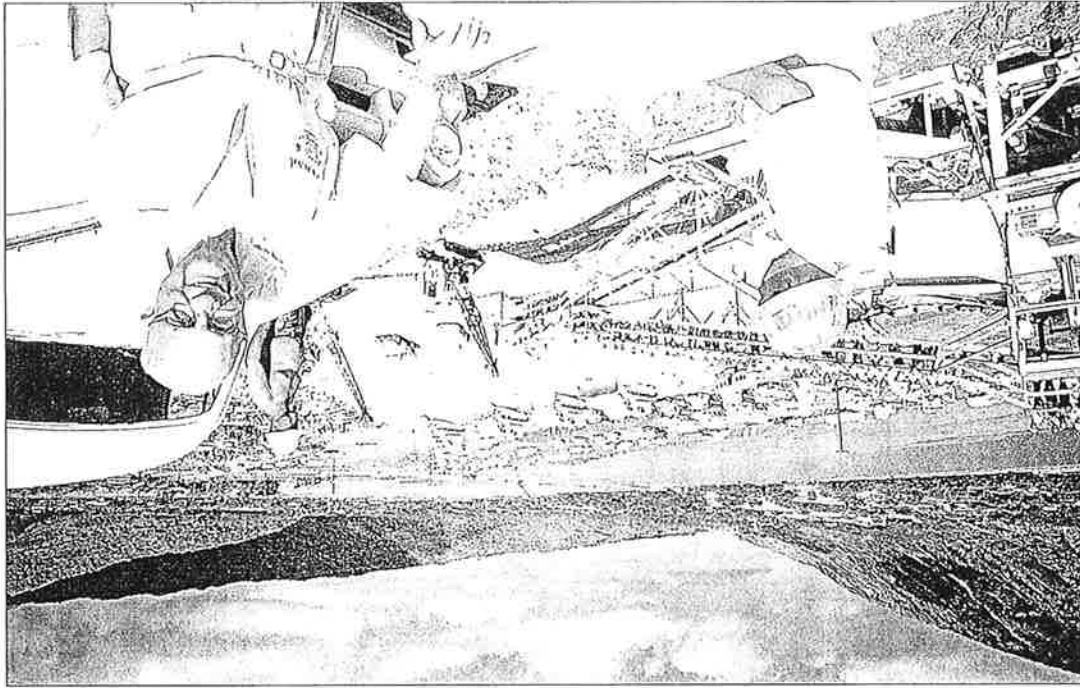


Figure 13. Photograph of Henry J. Kaiser (at right) overseeing the beginning stages of planned development of Flawahi Kai

From 1958 to 1979 the Nike Hercules missile system was widely distributed (Figure 14). The Nike Hercules missile was 12.5 m long, 0.8 m in diameter, with a wingspan of 1.83 by 0.05 m, with a range of 160 km, speed in excess of 4800 km/hr, and altitude of up to 30 km (Claremont Institute 2011). The Nike Hercules had the ability to be equipped with a nuclear warhead in addition to the standard high-explosive warhead. Many Nike Ajax sites were converted to Nike Hercules batteries.

Between 1958 and 1979, the Army deployed 145 Nike-Hercules batteries; 35 built exclusively for the new missile and 110 converted from Nike-Ajax installations. However, the threat changed from bomber attack to ballistic missile attack, the role of the Nike-Hercules diminished. (Claremont Institute 2011)

By the mid 1960s the Army began to reduce the number of Nike batteries. By 1974, nearly all Nike sites in the U.S. were deactivated. "The only exceptions were batteries in Alaska and Florida that remained active until 1979" (Claremont Institute 2011).

Two subsequent Nike missile types, the Nike Zeus and the Nike X, were tested however neither were ever deployed (Claremont Institute 2011).

2.2.2 Project Nike on O'ahu

Cold War concerns led to the advancement of military technologies and infrastructure in Hawaii'i. Hawaii'i was located in a strategic position to be able to globally defend the country from the Soviet Union or any other aggressors. Therefore, in 1958 the U.S. Army Pacific approved certain site locations on O'ahu for the Nike Hercules program.

Oahu Defense Area (OA): Originally, the United States Army Pacific planned to build eight batteries at six sites around the island. Eventually this plan was scaled back to four. The anti-aircraft command post was at Wahiawa and Headquarters facilities were located at Fort Ruger. Unlike many of the stateside sites that housed missiles in the underground magazines, these sites were simply open-air launchers mounted on concrete pads surrounding by earthen berms. The sites were deactivated in 1970. (Wikipedia 2011b)

Nike Hercules missile bases were constructed in four areas on O'ahu including: Bellows Air Force Station (AFS) (OA-32), Barbers Point (OA-63), Dillingham Air Force Base (OA-84), and Kahuku Training Area (OA-17) (Bennett 2009:3) (Figure 15). Bellows AFS and Barbers Point contained two launch sites. Table 1 lists Nike launch sites on O'ahu and their weapon capabilities.

Each Nike base was comprised of separate but closely associated sites: a Launch site and an Integrated Fire Control (IFC) site. This method of separate sites, was used in order to better track and direct missiles to aerial and surface locations.

To direct fire accurately for any one battery it is necessary to have at least two stations from where the target may be sighted, preferably at a considerable distance apart which would give a clear point of intersection on the plotting board. The requirements of these stations usually demand that they be located on high

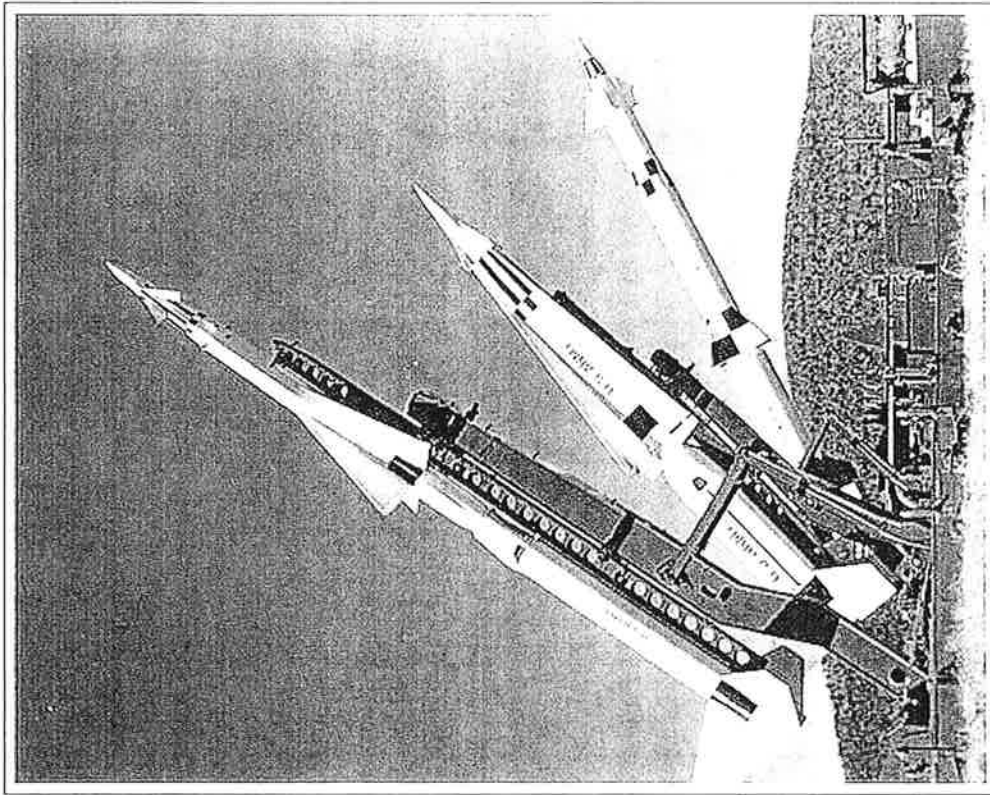


Figure 14. Photo showing the Nike missile family, including Nike Ajax, Nike Hercules, and Nike Zeus (from foreground to background) (Source: Redstone Arsenal Historical Information, accessed at Wikipedia 2011b)

Table 1. Table Listing Nike Missile Launching Sites on O'ahu (Bennett 2009:3)

Site No./ Designator	Location	Missiles	Launchers
1/ OA-84	Dillingham AFB	12	12
2/ OA-17	Kahuku	12	12
3 & 4/ OA-32	Bellows AFS	24	16
5 & 6/ OA-63	Barbers Pt.	24	16

promontories having an uninterrupted view of the field to be covered. (From "Historical Review, Corps of Engineers, Vol. I, Covering Operations During World War II, Pacific Ocean Area AHG, Helmboldt 1990)

The Nike batteries on O'ahu were manned by Hawaii Army National Guard (HIARNG), 298th Air Defense Group (ADA Gp.) (Bennett 2009). As the IFC site and the Launch site were commonly located a mile or more apart, each site contained its own administration buildings, barracks/mess halls, and personnel. "Authorized strength for each battery included four officers, four warrant officers and eighty-nine enlisted men." (Bennett2009:3). The platoons or number of guardsmen assigned to a base was divided between the Launcher site and IFC site, "with a greater portion of guardsmen assigned to the Launcher Platoon" (Bennett 2009:4). The IFC site included a Battery Commander or control officer.

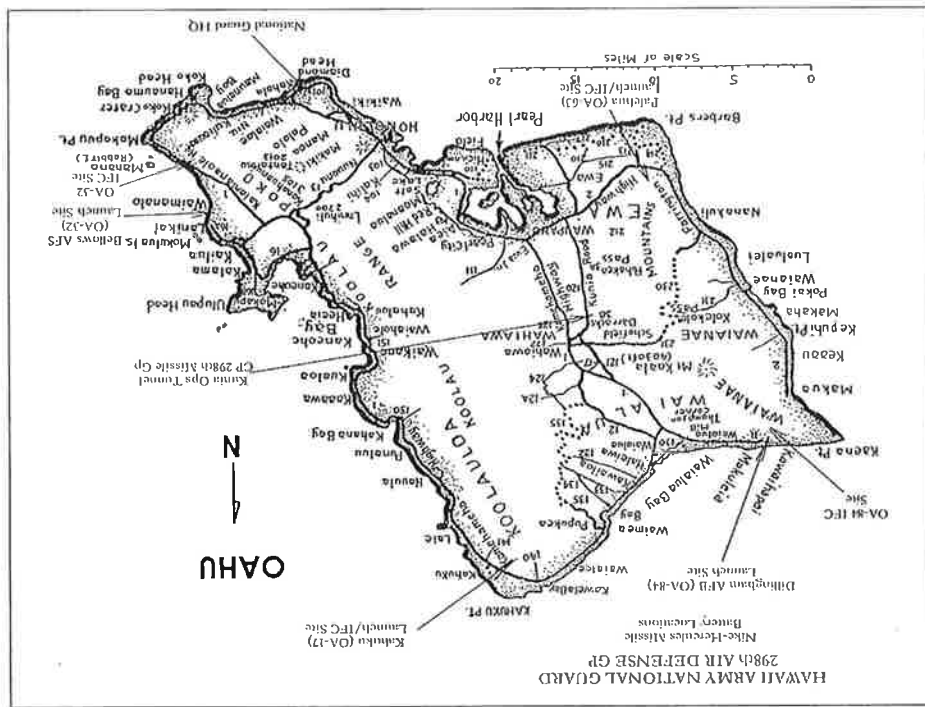
The launch site contained the Nike missiles, warheads, and launch pads. A launcher platoon or crew was responsible for the maintenance, inspection, and preparation of missiles for launching at enemy targets. The purpose of the IFC site was to provide the necessary support for destroying incoming missiles.

The IFC site's function was to detect, acquire and track the target; furnish essential data to the battery control officer for determining when a missile should be fired; track the missile during flight; and issue steering and burst orders to the missile" (Bennett 2009:11).

The IFC site typically included a few to several types of radars including, Acquisition Radar (ACQR), Alternate Acquisition Radar (AAR), Target Tracking Radar (TTR), Target Ranging Radar (TRR), Missile Tracking Radar (MRR), Low Powered Acquisition Radar (LOPAR), and High Powered Acquisition Radar (HIPAR) (Bennett 2009, Slocumb 2004) (Figure 16). To track an incoming enemy target, the Acquisition Radar and Target Tracking Radar were used, while the Missile Tracking Radar tracked the Nike Missile during its flight (Slocumb 2004).

LOPAR and HIPAR acquired the position and direction of incoming targets, and provided support (Slocumb 2004, NHS 2011). HIPAR radars sat on an octagonal radome-support-tripod and required a large equipment storage building in the near proximity to the radar (NHS 2011) (Figure 17). Only two sites, including Kahuku Training Area (OA-17) and Barbers Point (OA-63), are known to have had HIPAR radar (Bennett 2011). However, due to existing foundations observed during the field check associated with the current project, it is possible that OA-32 IFC may have also contained HIPAR radar. The radar layout varied slightly between

Figure 15. Map showing Nike Hercules Missile Battery Locations; notice the location of "OA-32 IFC Site" (Bennett 2009:1)



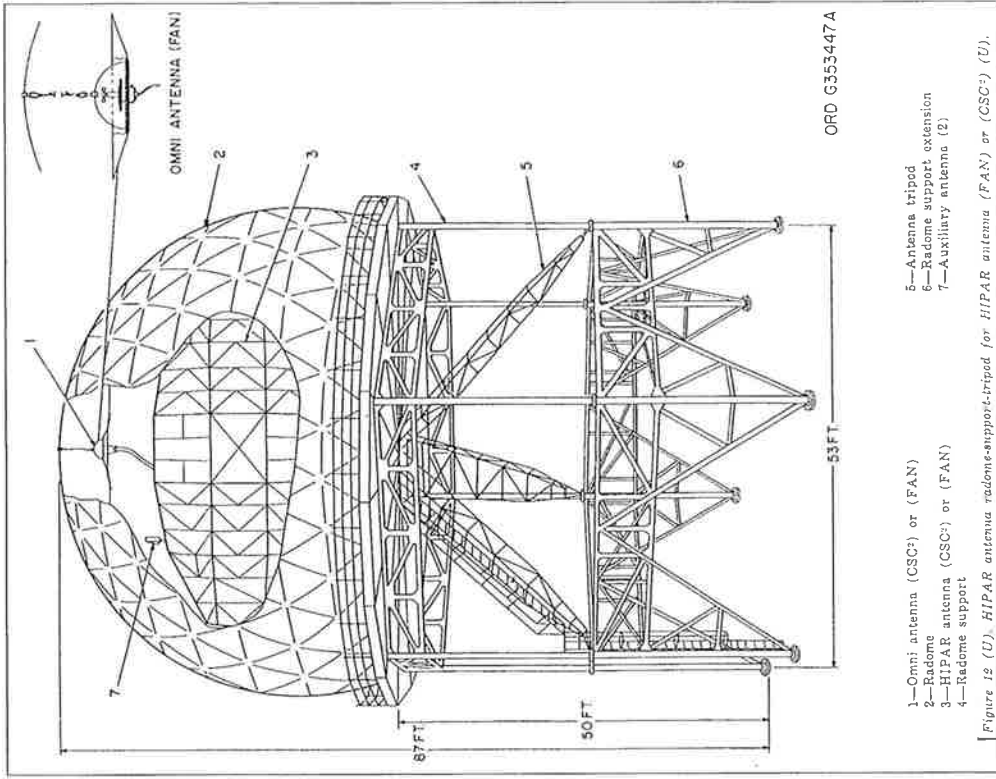
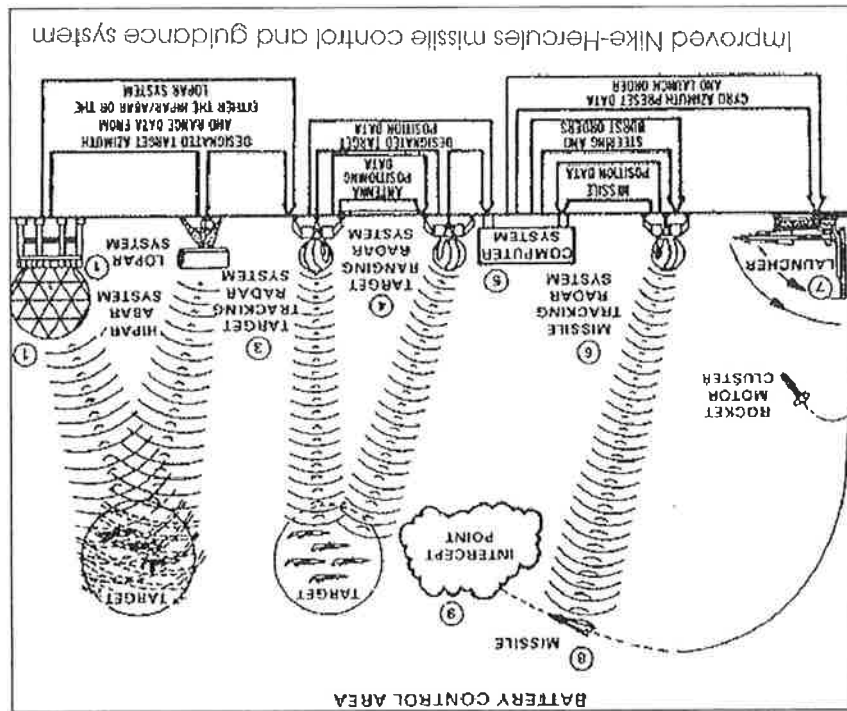


Figure 17. Figure showing a High Powered Acquisition Radar (HIPAR) (NHS 2011)

Figure 16. Figure showing the communication link between the IFC satellites, computer system, and launcher (Bennett 2009:10)



bases. According to the Nike Historical Society website, two general site configurations were used for placement of radars and buildings. The configurations included “inline” consolidated or nonconsolidated sites and “T” layout nonconsolidated sites (NHS 2011) (Figure 18 and Figure 19). The configurations are dependent on space availability and the existing arrangement of buildings prior to the sites conversion to the HIPAR system.

Target position and radar intelligence was transmitted from the IFC’s Battery Commander to a Launcher Control Trailer (LCT) computer system, which was positioned at the associated launcher site.

The Battery Commander (control officer) made the decision as to the type of mission, and warhead to be used (high explosive [HE] or nuclear); supervised selection of the target to be engaged; and issued orders to ready the missile for firing and to fire the missile. After firing, the solid-propellant booster rocket fell back to earth/ ocean after ‘burn out’ (Bennett 2009:11).

2.2.3 Oahu Defense Area OA-32

According to acquired maps and background research, the project area is located within Nike Site 3 & 4, designated as Oahu Defense Area OA-32 IFC (see Table 1 and Figure 15). This Nike base was activated in March 1961 and deactivated in March 1970 (Bennett 2009:3). Nike site OA-32 consists of two launch sites (L) within Bellows AFS and a control (C) or IFC site, containing the current project area, located on the “southeastern portion of the Ko’olau Range at Kamehame Ridge above Waimānalo (Sites 3 & 4)” (Bennett 2009:11). The two sites are located 4,500 yards (approximately 2.5 miles) apart (Bennett 2009:12).

2.2.3.1 Bellows Air Force Station, OA-32L

Bellow Air Force Station (AFS) was established in 1917 as the “Waimanalo Military Reservation,” which was later renamed “Bellow Field” in 1933 (Bellow AFS website 2011). The base spans nearly 1500 acres of the windward side of O’ahu. Prior to the bombing of Pearl Harbor in 1941, Bellows was a training area for new recruits and contained only one runway (THANG 2006). However, the base was soon thereafter transformed into an important aircraft facility. In 1948 the base was placed “on caretaker status” and Bellow Field became Bellows Air Force Base (THANG 2006:112). In 1961, the base was augmented to accommodate the air defense capabilities of a Nike missile site (Figure 20 and Figure 21).

The 112-acre Bellows launch site was built behind the beach at the southern end of Bellows; the permanent dual control site was located on Waimanalo Pali at the north end of Kamehameha Ridge (Farrell, et al 1997). Dedicated on 4 March 1961, this activity continued until December 9, 1969 when HIARANG was relieved of its air defense mission (Adjutant General of Hawaii’s 1970; Stone 1961; von Hoften 1970:108). The O’ahu launch sites were entirely above ground in contrast to the CONUS [Convoys within the continental U.S.] operations that usually supplied underground magazines. (THANG 2006: 112-113)

Bellows AFS was the first site selected in Hawaii for a Nike Hercules battery site (Bennett 2009). The decision to construct the missile site, came with much objection from the former

Figure 18. Plan showing a general “inline” consolidated site configuration of a typical Nike Hercules facility, notice the HIPAR radar (13), nearby buildings, and satellite configuration (NHS 2011)

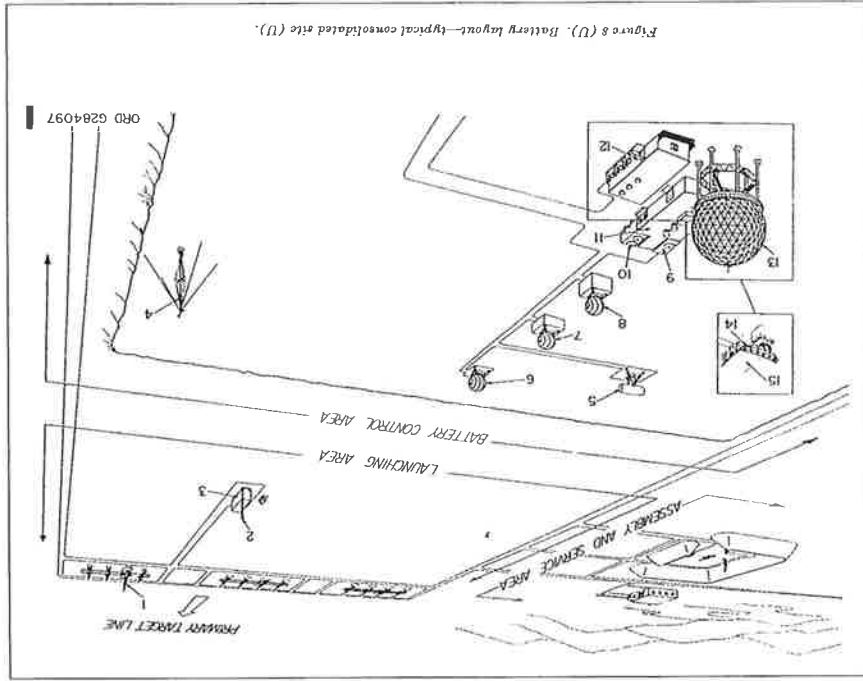


Figure 8 (U). Battery layout—typical consolidated site (U).

Figure 19. Plan showing a general "T" shaped non-consolidated site configuration of a typical facility equipped with the Hercules, notice the HIPAR radar (10), associated HIPAR building (9), and satellite configuration (NHS 2011)

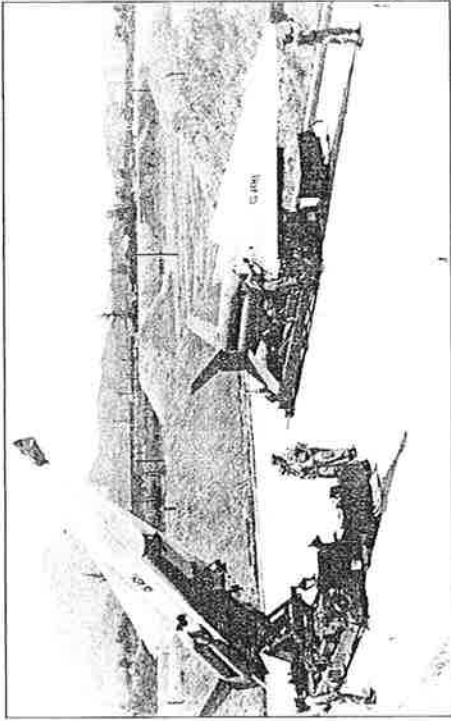
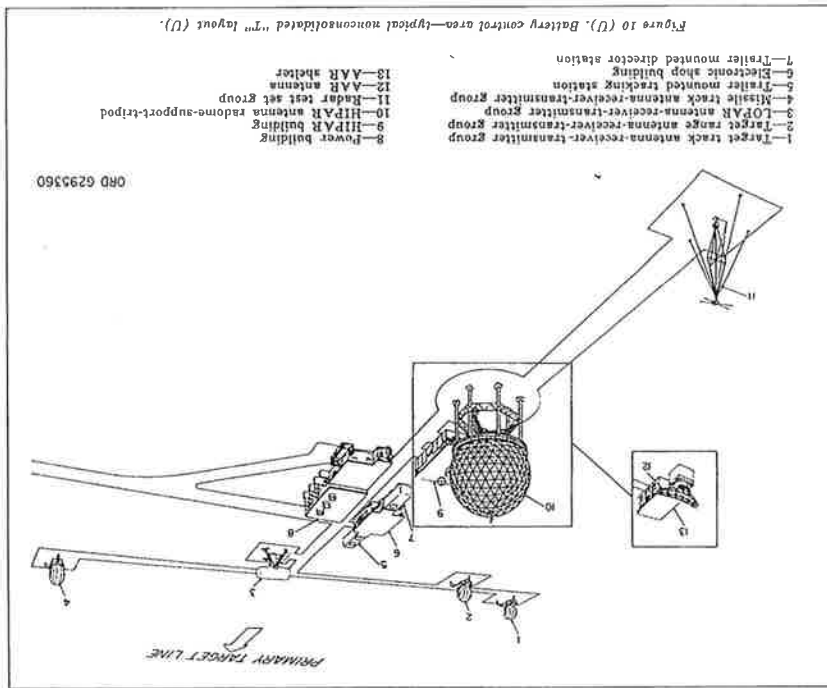


Figure 20. Photo of Nike Hercules missiles at Bellow AFS, notice the raised berms surrounding the launch location (Bennett 2009)

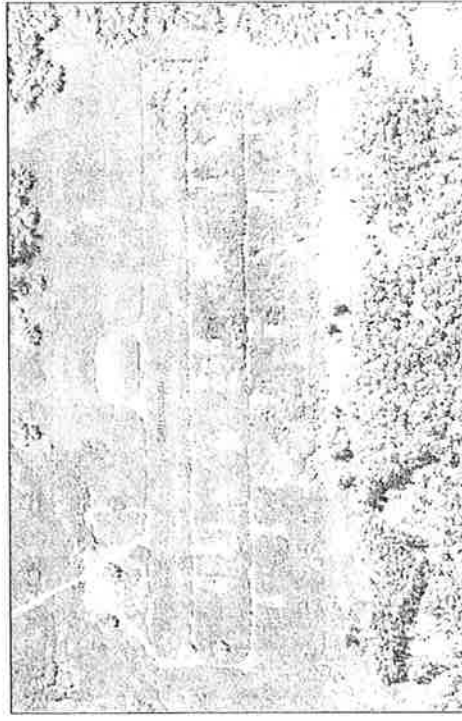


Figure 21. Photo showing a Bellows AFS former Nike Launcher Area (Bennett 2009:24)

governor, William F. Quinn (Slocumb 2004). However, upon completion the battery conducted annual tours of the missile launch site, which was “typically attended by the public” (Slocumb 2004:5).

According to Bennett (2009), Bellows AFS had two Hercules batteries containing a total of 24 Nike Hercules missiles and 16 launchers (see Table 1). Due to the dual launcher sites, some sources refer to the battery as OA-32 and OA-45 (Bennett 2009). Through consultation and meeting with John Bennett, regarding this study, a map was provided showing the project location (Figure 22). Bennett (2009) relates that the launcher sites are currently in an abandoned state, with only two buildings remaining. The structures are thought to have been a Missile Warhead Test building and a generator building.

2.2.3.2 Kamehame Ridge Control Area, OA-32 IFC

The current project area is located within OA-32 IFC, the corresponding Control site for the Launcher Area at Bellows AFS. According to Bennett (2009:12), the OA-32 IFC area utilized two separate areas, including the administration barracks at 1102 ft and IFC radars at 1321 ft elevation. This corresponds with project research and U.S. Geological Survey maps (Figure 23 and see Figure 1).

The OA-32 IFC site is currently owned by Kamehameha Schools. Portions of the site have been leased to the Federal Aviation Administration (FAA), the U.S. Navy, the Honolulu Police Department (HPD), and private commercial communication businesses (Bennett 2009). The area has also been used as the site of “Winners Camp”, a non-profit youth program.

Aerial photographs indicate several buildings, concrete walkways, foundations and platform towers in the vicinity of the project area (see Figure 3). It is likely that at least some of these structures are associated with Project Nike and the OA-32 IFC site. Careful examination of the OA-32 site area, indicates the site configuration may possibly have included a HIPAR antenna and HIPAR building, somewhat similar to that shown in Figure 18 and Figure 19 (NHS 2011). However, little detailed information regarding specific infrastructure at this site has been found.

Background Research

Cultural Surveys Hawaii Job Code: MAUNALUA 9

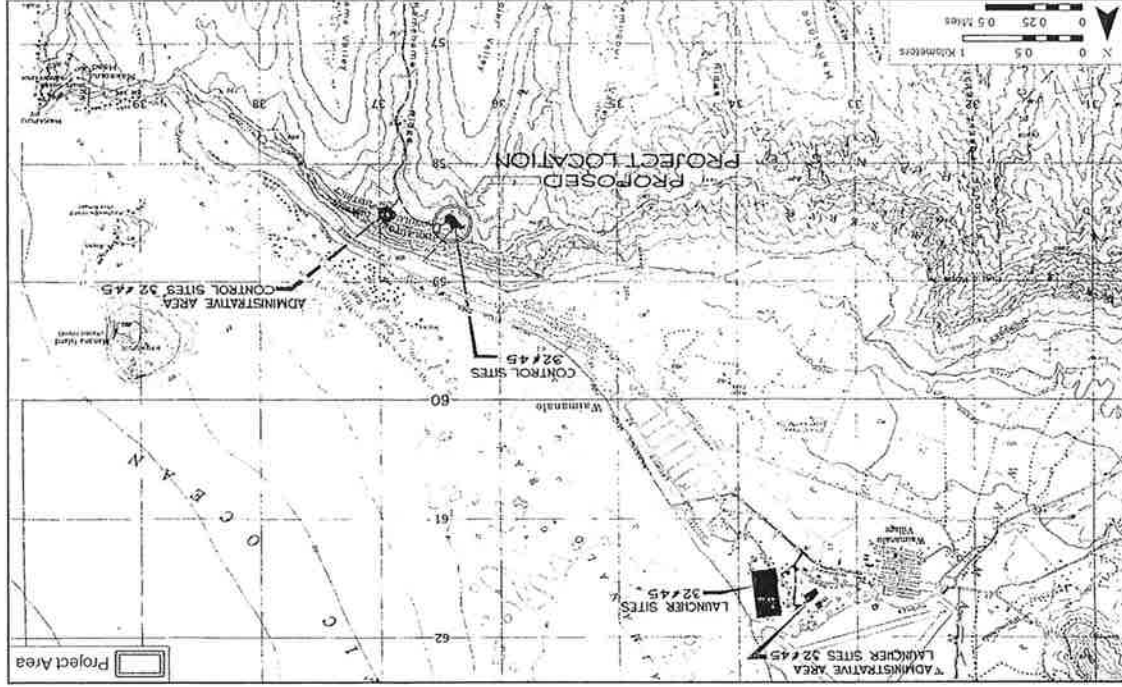


Figure 22. Portion of the 1965 U.S. Army map showing the locations of OA-32 and OA-45 at Bellows AFS and Kamehame Ridge



Figure 23. Photo of the OA-32 IFC site area, showing the Control Area on the right and Administration Building and Barracks Mess Hall to the left (according to Bennett 2009) (GoogleEarth 2011)

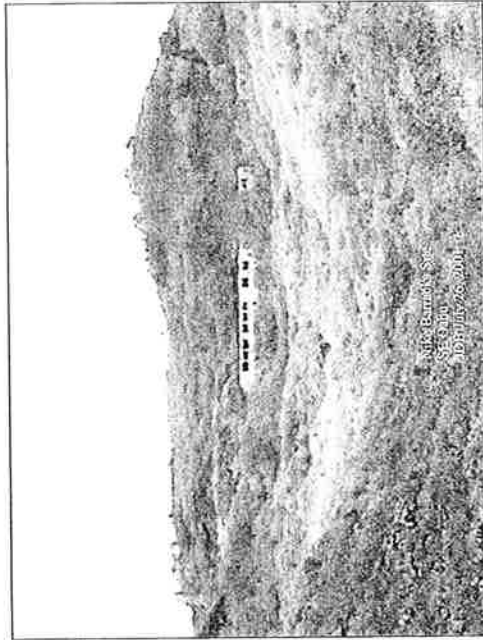


Figure 24. Photo of the OA-32 IFC administration building/ mess hall area (Bennett 2009:24)

2.3 Previous Archaeological Research

Previous archaeological studies conducted in the vicinity of the current project area are shown in Figure 25 and presented in Table 2. The following is a summary of these archaeological studies.

2.3.1 Previous Archaeology in Waimānalo Ahupua'a within the Vicinity of the Project Area

In 1930, J. Gilbert McAllister conducted the first systematic survey of archaeological sites on the island of O'ahu. The fieldwork identified, mapped, and described 384 sites. Site 384, Kaupō Village complex, was documented in the Makapu'u area, east of the current project area. Some of the most important of the sites documented within the village complex included a fishing *ko'a* (shrine), possible *heiau*, lava shelter tube, and probable house site (Sterling and Summers 1978).

Also in the vicinity of the project area is the Pāhōnu Fishpond (McAllister (1933) Site 383-A; SIHP # 50-80-15-1037), listed on the Hawai'i Register of Historic Places in 1978. The following description of the pond was provided by McAllister (1933):

Pāhōnu is said to be the name of a pond 500 feet long and approximately 50 feet wide. A line of stones, submerged a high tide, but visible at low tide, indicates its former extent. Turtles are said to have been kept in the pond for the use of the ali.

[McAllister 1933 in Sterling and Summers 1978: 249]

A compilation of Hawaiian archaeological sites and ethnographic accounts was put together by Sterling and Summers in 1978. The study indicates two sites, Site 21 and Site 22, are located north of the project area, in coastal Waimānalo. Site 22 includes a small fishing shrine. Site 21 includes a large displaced stone known by the name of "Kimi" (Sterling and Summers 1978:249).

The major focus of archaeological research in Waimānalo has been the Bellows Air Force Station area, and to a much lesser extent the Waimānalo State Recreation Area. Beginning in the 1960s, approximately 70 separate reconnaissance, inventory survey, data recovery (excavation), and archaeological monitoring projects have taken place, with most of the studies made in conjunction with construction activity. Human burials, lithic scatters, soil features and/or occupation layers have been found almost everywhere archaeological investigation has taken place. Possibly, the most important finds were discovered in dune deposits adjacent to the mouth of Waimānalo Stream referred to as SIHP # 50-80-15-018. Radiocarbon dates on charcoal from cultural layers within the dune which placed the earliest occupation to around 300-400 C14 years A.D. have been much disputed but these deposits are still considered among the oldest in Hawai'i (Pearson *et al.* 1971, Cordy and Tuggie 1976, and Kirch 1985:71). Much of the research since this discovery of the early Bellows Dune occupation has focused on attempting to connect other archaeological finds in more inland areas of Bellows to this early Polynesian settlement.

Several studies have been conducted in recent years in coastal Waimānalo. The University of Hawai'i Marine Option Program (1999) conducted an underwater survey of the remains of Waimānalo Landing, in the near-shore waters of Waimānalo Beach Park. The remains of the pier, machinery, pilings, loading equipment, and various other material remains were observed, though no SIHP number was assigned to the site.

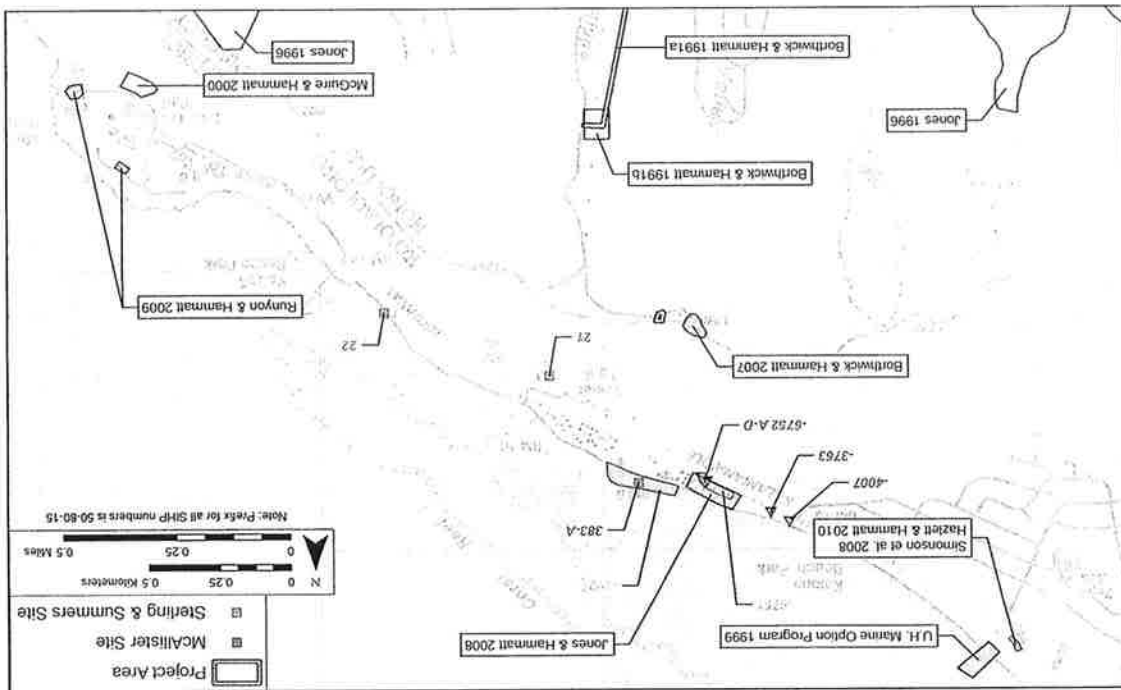
Table 2. Previous Archaeological Studies Located in the Vicinity of the Current Project Area

Reference	Type of Investigation	Location	Results
McAllister 1933	Island-wide Survey	O'ahu Island	Waimānalo- two sites were identified on coast, north of the current project area: 383. Pāhōnu Fishpond 384. Kaupō Village complex Maunaloa- two sites identified at base of ridgelines, south of the current project area: 34. Possible <i>heiau</i> 39. Pāhūa Heiau
Rosendahl 1977a & b	Archaeological Inventory and Evaluation	State-wide	Nike Site 3 & 4, no historic properties inventoried
Sterling and Summers 1978	Island-wide Survey	O'ahu Island	Two sites near coast, north of the project area: Site 21, large stone Site 22, fishing shrine
Shun 1988	Archaeological Survey	Kamehame Ridge	No sites observed
Borthwick and Hammatt 1991a	Archaeological Survey	Na Pali Haweo Transmission Line, Kamehame Ridge	No sites observed
Borthwick and Hammatt 1991b	Archaeological Survey	Unit III Water Reservoir, Kamehame Ridge	No sites observed
Jones 1996	Archaeological Inventory Survey	TMK [1] 3-9-008:013 por. and 3-9-010:001 por.	Eleven sites documented, none near the current project area
Marine Option Program 1999		Waimānalo Landing Underwater Survey	Minimal findings
McGuire and Hammatt 2000	Archaeological Assessment	Sea Life Park, Makapu'u	Minimal findings
Jones and Hammatt 2008	Archaeological Monitoring	Kaiona Beach Park	Two sites on coast, north of project area: SIHP # 50-80-15-6752, four human burials; SIHP # 50-80-15-6751, two cultural layers

Archaeological Literature Review and Field Inspection Report for the DAGS Radio Facilities Project, Kamehame Ridge, O'ahu

TMK: [1] 3-9-009-001 and [1] 4-1-014: 007

Figure 25. Portion of the 1999 Koko Head USGS 7.5-Minute Topographic Quadrangle, showing the location of previous archaeological studies in the vicinity of the current project area



Reference	Type of Investigation	Location	Results
Borthwick and Hammatt 2007	Archaeological Field Inspection	HECO site, Kamehame Ridge	No sites observed
Simonson et al. 2008	Archaeological Inventory Survey	Waimānalo Beach Park	One site near coast, northwest of project area; SIHP # 50-80-15-7042, a pre-contact subsurface cultural layer
Hazlett and Hammatt 2010	Archaeological Monitoring	Waimānalo Beach Park	Minimal finds

An archaeological inventory survey (Simonson et al. 2008) was conducted Waimānalo Beach Park for reconstruction of wastewater system. A pre-contact subsurface cultural layer containing midden (marine shell, sea urchin, faunal bone, coral and mammal bone), fire-cracked rock, charcoal deposits, and lithic debitage (basalt flakes) was identified and designated SIHP # 50-80-15-7042. During archaeological monitoring of the same project area (Hazlett and Hammatt 2010) only sparse cultural material was observed (disarticulated animal bone, a soda bottle, and two pit features).

In addition to the formal archaeological studies conducted in the vicinity of the current project area, inadvertent burial discoveries along the coast have been reported. McMahon (1990) reported on an inadvertent burial discovery (SIHP # 50-80-15-4118) at a house lot in the Waimānalo Beach Lots subdivision. Two human burials were also reported in police and medical examiner's reports to have been eroding from the western portion of Kaiona Beach Park in 1988 (SIHP #s 50-80-15-3763 and -4007).

In 2000, CSH prepared an archaeological assessment for the Sea Life Park chapel, *manūka* of the current project area and just *manūka* of the Kalaniana'ole Highway (McGuire and Hammatt 2000). Kaupō Village extended across the highway from Kaupō Beach Park and Makapu'u Beach Park at one time, however, surface archaeological remains or historic properties were no longer visible in the project area.

In 2004, CSH monitored wastewater system and utilities upgrades at Kaiona Beach Park, north of the current project area (Jones and Hammatt 2008). Two sites (SIHP # 50-80-15-6752 and 50-80-15-6751) were identified with a total of six subsurface cultural deposits during the course of the project. SIHP # 50-80-15-6752, Features A, B, C, and D represent four individual sets of human remains. SIHP # 50-80-15-6751, Features A and B represent two cultural layers; Feature A was dated to a probable age of AD 1300 to AD 1440. Based on stratigraphic position, all four inadvertent burials of Site -6752 postdate the feature. The burials, which were in Jaueas sands, were preserved in place.

The presence of pre-contact cultural activity in the form of subsurface cultural layers and human burials, have been documented in sand deposits along the coastline in Waimānalo. However, very little information has been gained from more inland areas on the steep sided hillsides. This may indicate a lack of use of the steep topography or may be due to the lack of archaeological investigations within those areas.

2.3.2 Previous Archaeology in Maunaloa Ahupua'a within the Vicinity of the Project Area

The first archaeological survey in Maunaloa was conducted by McAllister (1933) in 1930. As part of his nine-month, island-wide, archaeological survey of O'ahu, McAllister located, mapped, and described 49 archaeological sites in the Maunaloa region. Two of these sites, Sites 34 and 39, are located at the base of ridgelines south of the current project area. Site 34 is located in Kalama Valley and consists of a possible *heiau*, approximately 120 feet long by 30 to 40 feet wide (McAllister 1933). Site 39, Pahua Heiau, located "near the end of the ridge dividing Kamiloni and Kamiloiki valleys" (McAllister 1933:264). According to McAllister (1933), Pahua Heiau measured approximately 68 by 40 feet and likely was associated with animal husbandry.

In 1991, Cultural Surveys Hawaii'i (CSH) conducted an archaeological survey for the Na Pali Haweeo electrical transmission line relocation on Kamehame Ridge (Borthwick and Hammatt 1991a). The line ran approximately 8,400 feet, along the west-facing slope of the ridge. No archaeological sites were observed during the survey. In addition, background research specific to Kamehame Ridge (Shun 1988 and 1990) indicated no archaeological sites had been located in the vicinity.

In 1991, CSH conducted an archaeological survey for the 0.1 MG Kamehame Ridge Water Reservoir (Borthwick and Hammatt 1991b). The reservoir was located adjacent to Nike Road at approximately 990 foot elevation, north of Kamehame Ridge Unit III Subdivision. No archaeological sites were observed during the survey.

In 1996, Aki Sinoto Consulting conducted an archaeological inventory survey of nine parcels within Maunaloa Ahupua'a. A total of eleven sites were identified within five of the nine investigated parcels including one in Queen's Rise, two in Mau'uwai, two in Kamilo Ridge, and three in Kamiloni-1, and three in Kamiloni-2 (Jones 1996). Sites included burial and habitation caves, an agricultural complex, and additional isolated features. None of the sites documented during the study are located near the current project area.

2.3.2.1 Previous Archaeology Within and in the Near Vicinity of the Project Area

An archeological inventory and evaluation report project was conducted in the late 1970s by the Department of Anthropology, Bernice P. Bishop Museum, for the U.S. Army Corps of Engineers (Rosendahl 1977a). The project consisted of the inspection of 34 military installations throughout the state (Figure 26). The installation located partially within the current project area, Nike-Hawaii Site 3 & 4 (No. 15637), consisted of 12.8 acres. No sites were designated within the military installation (Rosendahl 1977b).

In 2007, CSH conducted an archaeological field inspection for the Hawaiian Electric Company (HECO) on Waimānalo Ridge, adjacent to the current project area (Borthwick 2007). The study observed the presence of WWII and Cold War Era (1940s-1960s) communication infrastructure and noted the use of many of these structures for modern communication facilities. The study also found the ridgeline had been heavily modified (cut and leveled). A portion of the Ko'olau Summit Ridgeline Trail was observed near the western property boundary.

2.4 Background Summary and Predictive Model

Maunaloa, in which Kamehame Ridge is situated, was probably one of the more marine-rich areas of O'ahu. Kuapa Pond may have covered some 500 acres at one time. The sheltered bay of Hanauma was said to have been a royal fishing retreat. The coastline of Maunaloa includes a wide variety of environmental zones from the rough, rocky shorelines to the shallow reefs of Maunaloa Bay.

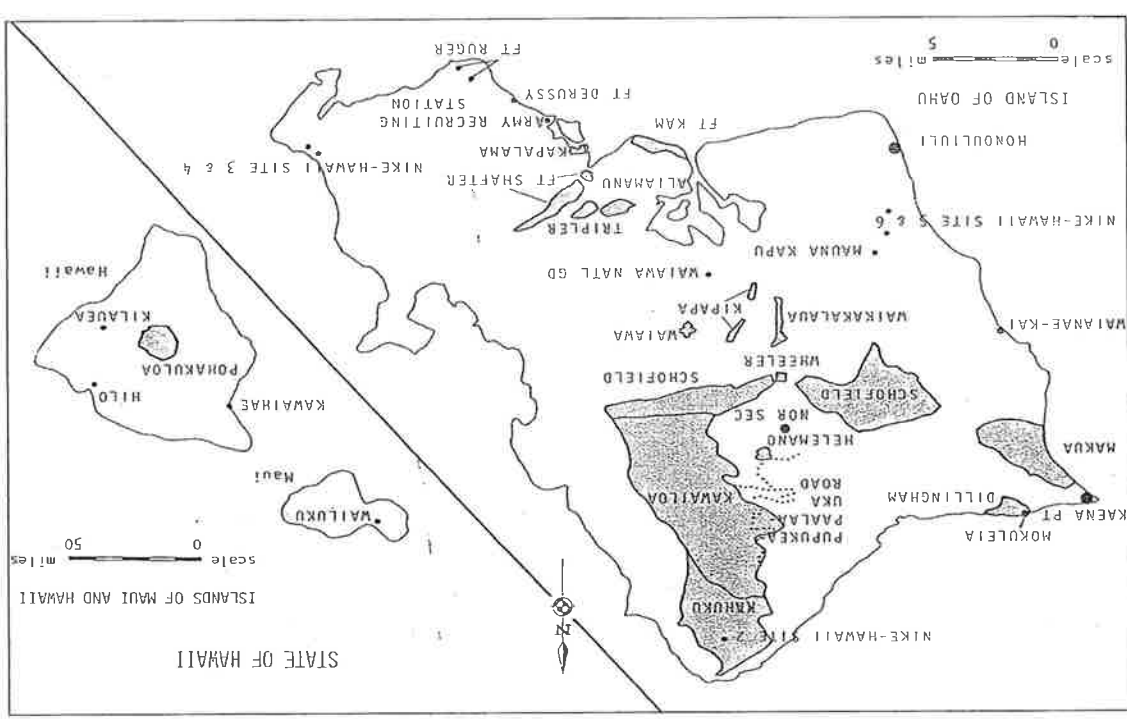
In 1786, the first Europeans landed and traded at Maunaloa and provided the first western account of the area. The landing party came up against a "salt water river" that stopped their progress along the coast. This salt water river is likely the waterway between Kuapa Fish Pond and Maunaloa Bay (Takemoto 1975:13-15). Captain Portlock of the 1786 voyage described the Maunaloa landing site as "being in a high state of cultivation" (Portlock 1968:74 cited in Takemoto 1975:14). Agriculturally, lack of rain or other fresh water resources probably limited plantings to dry land varieties of vegetables, especially sweet potatoes.

After conquering O'ahu in 1795, Kamehameha I himself, worked to help rebuild Kuapā (Maunaloa) Fishpond, and in 1796 gave the land of Maunaloa to Kūhelani, a steward of his, who he also made governor of O'ahu. In 1826, Levi Chamberlain counted 18 houses in the village located on the causeway of Kuapā Pond, which may be interpreted as a population of about 90 to 100 people. In the years that followed a rapid depopulation of the area is documented, which preceded and facilitated the replacement of traditional Hawaiian land use with ranching and commercial fishing.

Absent from historical accounts concerning Maunaloa is mention of any sites associated with the steep-sided upper slopes of the ridges. Ridge associated sites like overhang shelters and burial caves are known to exist (Jones 1996) but are generally at lower elevations and closer to the ocean or the pond. According to previous archaeological research, no overhang shelters or burial caves are known to exist on Kamehame Ridge. It is possible the Ko'olau Summit Ridgeline Trail may have extended through the project area at one time, as a portion of the trail was observed during an adjacent survey in 2007 (Borthwick 2007).

Hawai'i was located in a strategic position to be able to globally defend the country from the Soviet Union or any other Cold War aggressor. Therefore, the mid 1900s saw the construction of several Nike installations on O'ahu. The current project area is situated within O'ahu Defense Site (OA) 32. This site was the Integrated Fire Control (IFC) facility which determined position information on enemy targets and relayed that information to the missile launch site at Bellows AFS. The site was in operation from 1961 to 1970 and consisted of administration and mess hall buildings and radar equipment. The current project area appears to be situated within a former radar equipment area.

Figure 26. Map of O'ahu, showing locations of all U.S. Army installations on the island (Rosendahl 1977a)



Section 3 Results of Fieldwork and Background Research

The fieldwork component of this field inspection was conducted on June 23 and 24, 2011 by David Shideler, M.A. The fieldwork required approximately 4 hours to complete. The archaeologist inspected the project area by walking the proposed areas of project impact and visually inspecting for surface cultural features and materials.

It is our understanding that the project area consists of an 0.15-acre (approximately 6,534 square feet) portion of the summit hilltop of Kamehame Ridge (Figure 27). The area of potential effect (APE) to be disturbed by proposed project construction includes the entire 0.15-acre project area.

As a result of the field inspection, the project area was found to contain an asphalt surface, two concrete foundation remnants, and a metal guardrail and chain link fence surrounding the area (Figure 28). The two foundations (Foundations A and B) were observed within the location of the proposed radio equipment room, tower, and fuel tank. Foundation A consisted of a large rectangular concrete foundation (Figure 29). Foundation B consisted of a partially buried octagonal shaped foundation or short footing outlining the perimeter of a foundation remnant (Figure 30). The two foundations are in close proximity to each other (approximately 5 feet) and are shown on the project construction plan (see Figure 4). The foundations are believed to be associated with the former Nike military facility.

The project area consists of a cut and leveled ridge top (Figure 31 and Figure 32). A portion of the northern perimeter, flanking the steep cliffside, is reinforced with concrete (Figure 33). The southern portion of the project area consists of Kamehame Road and areas of thick vegetation (Figure 34 and Figure 35). As the location of the proposed radio equipment room, tower, and fuel tank has been cut into the ridge, no pre-contact cultural deposits are likely to exist within the project area.

Several buildings, concrete walkways, foundations and radio towers exist within the vicinity of the project area (see Figure 31). Photographs were taken of the area surrounding the project area. To the east, several buildings likely associated with the former Nike site were observed (Figure 36). To the north, Kaiona Beach Park, Pāhōnu Turtle Kraal, and residential housing can be observed (Figure 37).

Results of Consultation

Cultural Surveys Hawaii Job Code: MAUNALUA 9

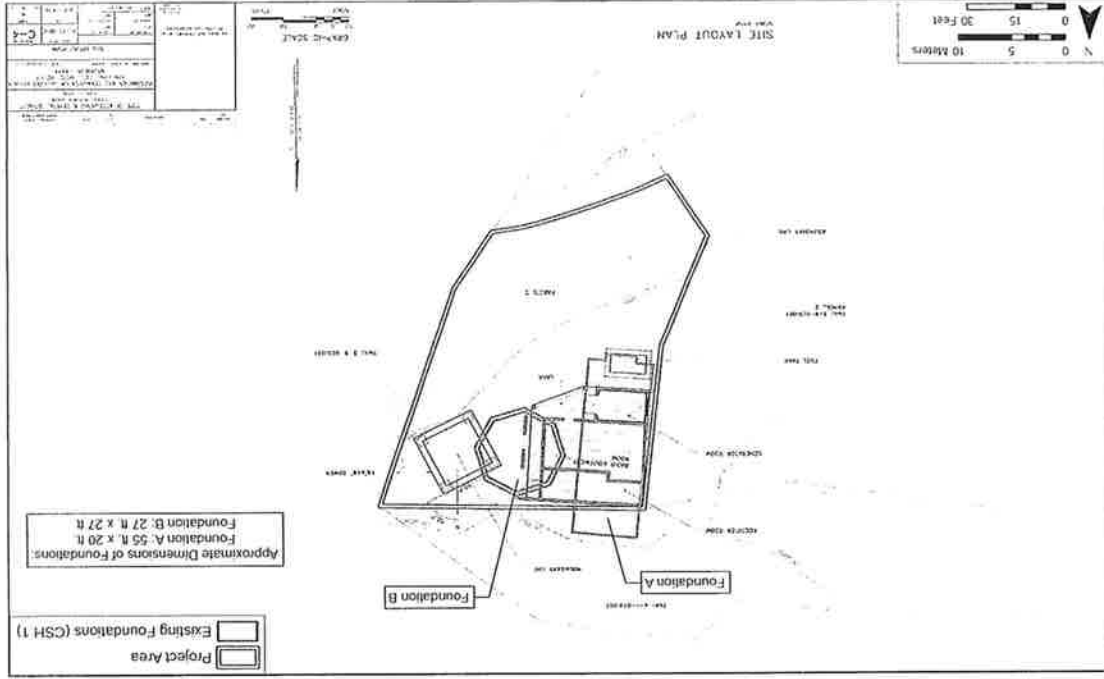


Figure 27. Proposed construction plan showing the current project area (outlined in red), proposed project structures (outlined in black), and existing concrete foundation remnants (outlined in blue)

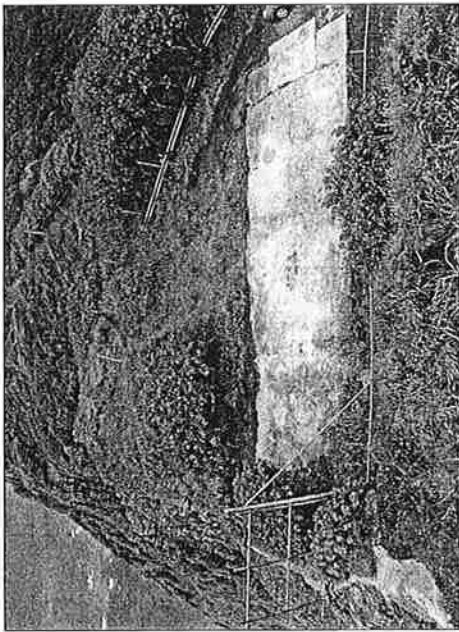


Figure 28. Photo showing an overview of the project area, view to east

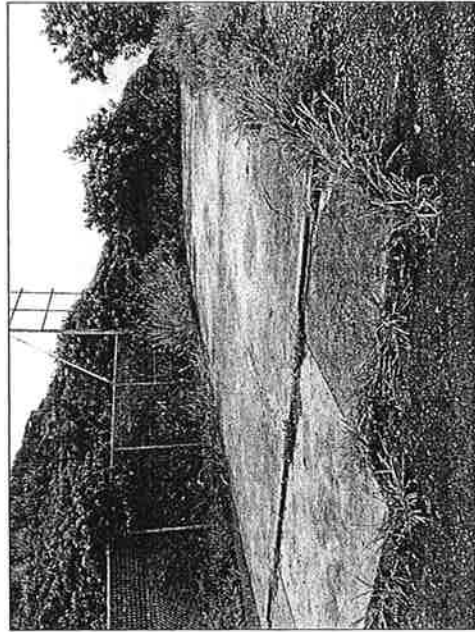


Figure 29. Photo of the large rectangular concrete foundation (Foundation A), view to north



Figure 30. Photo showing a portion of the octagonal foundation (Foundation B), view to northwest

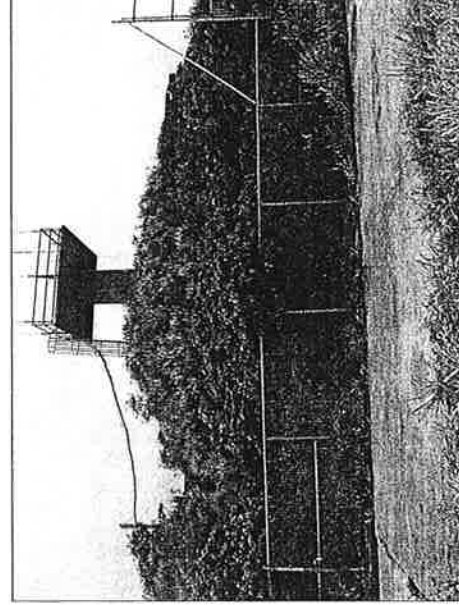


Figure 31. Photo showing a platform tower just west of Foundation A (in foreground), view to west; notice the cut hillside adjacent to the fence line

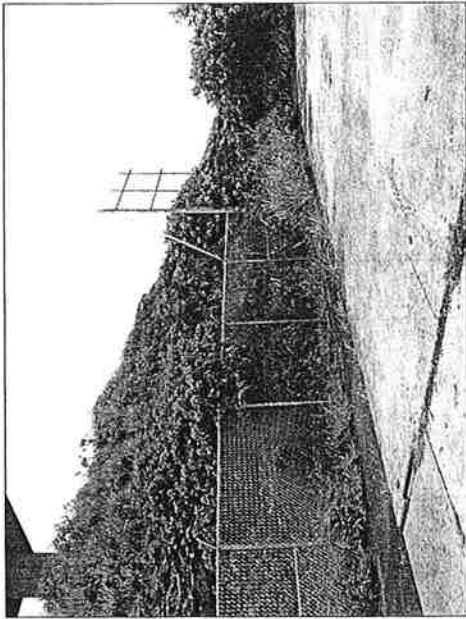


Figure 32. Photo showing the cut hillside adjacent to Foundation A, view to north



Figure 33. Photo showing the cut hillside at the northern edge of the project area, notice the concrete added to the ridge ledge for structural support, view to north

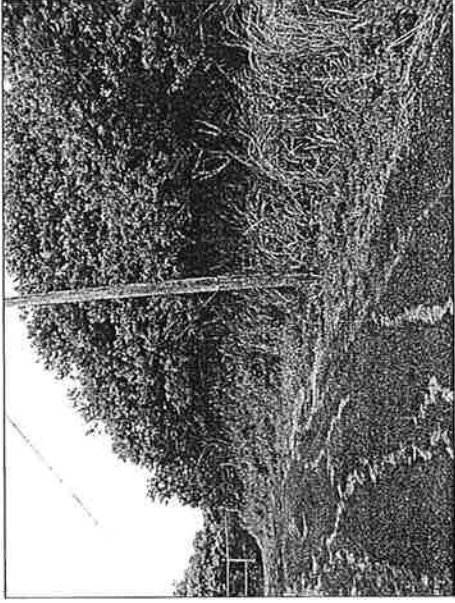


Figure 34. Photo of the project area showing Kanehame Road and an adjacent berm covered in thick vegetation, view to west



Figure 35. Photo of the project area showing a cut hillside within a thickly vegetated area, view to west

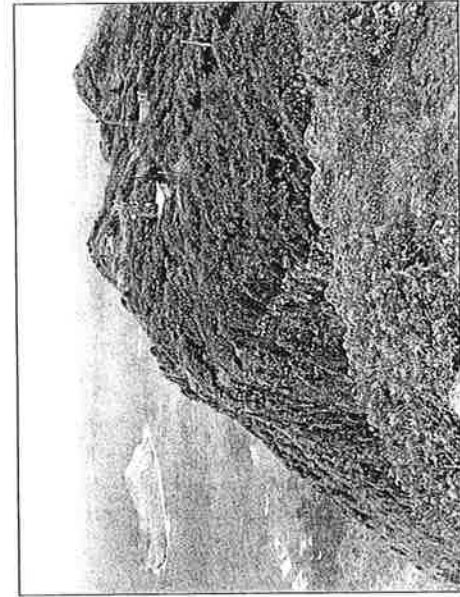


Figure 36. Photo showing existing buildings to the east of the current project area, view to east; notice Manana Island (also referred to as Rabbit Island) in the background

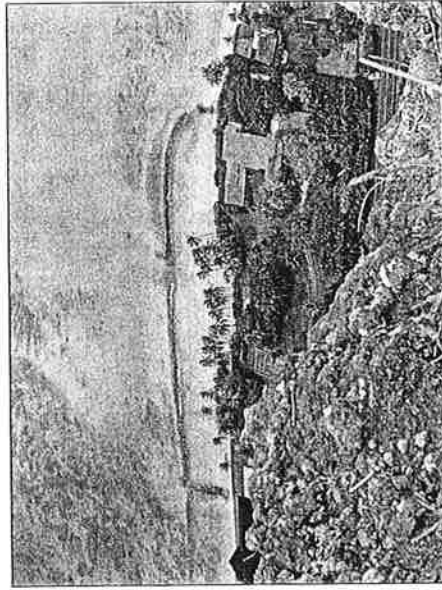


Figure 37. Photo looking down from the project area at Kaiona Beach Park, Pāhōnu Turtle Kraal, and residential housing, view to north

Section 4 Documented Historic Properties

Table 3. SIHP # 50-80-14-7191

FORMAL TYPE:	Concrete Foundations
FUNCTION:	Military Communication Infrastructure
# OF FEATURES:	2
AGE:	Historic (1960s)
DIMENSIONS:	A (16.75 m N/S by 6 m E/W), B (8.2 m diameter)
TAX MAP KEY:	TMK: [1] 3-9-009: 001
LAND JURISDICTION:	Kamehameha Schools

SIHP # 50-80-14-7191 consists of two concrete foundations located within the current project area. The foundations are components of a portion of a former U.S. Army facility which was in operation from 1961 to 1970. This military facility was an Oahu Defense Area (OA) installation associated with Project Nike, an anti-aircraft missile system program. Within the current project area, the military installation was used as an Integrated Fire Control (IFC) facility. This particular military site was referred to as both "Nike Project Site 3 & 4" and "OA-32 IFC" (Rosendahl 1977a and Bennett 2009). The Integrated Fire Control (IFC) facility determined position information on enemy targets and relayed that information to a missile launch site at Bellows AFS.

The two foundations located within the current project area, Foundation A and Foundation B, are in remnant condition. Foundation A consists of a rectangular concrete slab measuring approximately 16.75 meters (m) N/S by 6 m E/W (55 ft N/S by 20 ft E/W). Foundation B consists of a partially buried octagonal shaped footing or foundation which measures approximately 8.2 m (27 ft) in diameter.

Through examining the OA-32 IFC site area and comparing with typical Nike site configuration figures found on the Nike Historical Society (NHS) website, it is possible that the two foundation remnants may have been associated with a High Powered Acquisition Radar (HIPAR) antenna and HIPAR building. The HIPAR antenna was typically supported by a radome-support tripod which would correspond to the octagonal shaped foundation (Foundation B) observed within the project area (see Figure 17 and Figure 27). It was necessary to have a HIPAR equipment building in very close proximity to the HIPAR radar (see Figure 18 and Figure 19), which could account for the function of Foundation B. This information appears to provide detailed functions for the two foundation remnants, however this information is only speculation, as little detailed information regarding specific infrastructure at this Nike facility has been found.

Aerial photographs indicate several buildings, concrete walkways, foundations and platform towers in the vicinity of the project area. It is likely that this site, SIHP # 50-80-14-7191, extends to the east and west to encompass at least some of these existing structures which are associated with Project Nike and the OA-32 IFC site.

Section 5 Summary and Interpretation

At the request of the State of Hawai'i Department of Accounting and General Services (DAGS) and Wilson Okamoto Corporation, Cultural Surveys Hawai'i, Inc. (CSH) has completed an archaeological literature review and field inspection for the DAGS Radio Facilities Project on Kamehame Ridge. The project area is located within a portion of a former U.S. Army facility which was in operation from 1961 to 1970. This military facility was an Oahu Defense Area (OA) installation associated with Project Nike, an anti-aircraft missile system program. The current project area is located within Nike Project Site 3 & 4, an Integrated Fire Control (IFC) facility. This particular military facility has been identified as OA-32 IFC. The octagonal foundation (Foundation B) and adjacent slab (Foundation A) appear consistent with a HIPAR radar facility (see Figure 18 and Figure 19). The site has been designated State Inventory of Historic Properties (SIHP) # 50-80-14-7191.

Background research and a review of previous archaeological studies in the vicinity of the project area indicate that although both Maunaloa Ahupua'a and Waimānalo Ahupua'a contained areas utilized in pre- and post-contact times, no historic properties have been documented in close proximity to the project area. The field inspection provided evidence that the project area is located on a cut and leveled ridgetop. Therefore, CSH's project specific effect recommendation for cultural resource management is "no further work". We believe the build-out of this project will have "no effect" on cultural resources.

Section 6 Significance Assessments

6.1 Significance Assessments

Evaluation of historic properties is based on five broad criteria used by the Hawai'i State Register of Historic Places (HAR 13-284-6). The criteria are the following:

- A Historic property reflects major trends or events in the history of the state or nation.
- B Historic property is associated with the lives of persons significant in our past.
- C Historic property is an excellent example of a site type.
- D Historic property has yielded or may be likely to yield information important in prehistory or history.
- E Historic property has cultural significance to an ethnic group, including, but not limited to, religious structures, burials, and traditional cultural properties.

6.1.1 SIHP # 50-80-14-7191

SIHP # 50-80-14-7191 is recommended eligible to the Hawai'i State Register under criterion A as it relates to the Project Nike anti-aircraft missile system program initiated by foreign advances in jet aircraft, high-altitude bombers, and long-range rockets developed during the Cold War.

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APPENDIX D

Draft for Review

**Cultural Impact Assessment for the Proposed State of Hawai'i
Department of Accounting and General Services (DAGS)
Kamehame Ridge Radio Facility Project, Maunaloa Ahupua'a,
Honolulu (Kona) District, O'ahu Island**

TMK: [1] 3-9-009:001

**Prepared for
State of Hawai'i Department of Accounting and General Services (DAGS)
and
Wilson Okamoto Corporation**

**Prepared by
Joseph H. Genz, Ph.D.,
Simone Weber,
and
Hallett H. Hammatt, Ph.D.**

This is a summary of the Cultural Impact Assessment. The complete document is on file with the State of Hawaii Department of Accounting and General Services, the State Historic Preservation Division, and the Office of Environmental Quality Control.

**Cultural Surveys Hawai'i, Inc.
Kailua, Hawai'i
(Job Code: MAUNALUA 10)**

November 2011

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Prefatory Remarks on Language and Style

A Note about Hawaiian and other non-English Words:

Cultural Surveys Hawai'i (CSH) recognizes that the Hawaiian language is an official language of the State of Hawai'i, it is important to daily life, and using it is essential to conveying a sense of place and identity. In this report, CSH uses italics to identify and highlight all foreign (i.e., non-English and non-Hawaiian) words. Italics are only used for Hawaiian words when citing from a previous document that italicized them. CSH parenthetically translates or defines in the text the non-English words at first mention, and the commonly-used non-English words and their translations are also listed in the *Glossary* (Appendix A) for reference. However, translations of Hawaiian and other non-English words for plants and animals mentioned by community participants are referenced separately (see explanation below).

A Note about Plant and Animal Names:

When community participants mention specific plants and animals by Hawaiian, other non-English or common names, CSH provides their possible scientific names (Genus and species) in the *Common and Scientific Names of Plants and Animals Mentioned by Community Participants* (Appendix B). CSH derives these possible names from authoritative sources, but since the community participants only name the organisms and do not taxonomically identify them, CSH cannot positively ascertain their scientific identifications. CSH does not attempt in this report to verify the possible scientific names of plants and animals in previously published documents; however, citations of previously published works that include both common and scientific names of plants and animals appear as in the original texts.

Abbreviations

AFS	Air Force Station
AMS	Army Mapping Service
APE	Area of Potential Effect
Land Commission	Board of Commissioners to Quiet Land Titles
CIA	Cultural Impact Assessment
CSH	Cultural Surveys Hawai'i
DAGS	State of Hawai'i Department of Accounting and General Services
DNLR	Department of Land and Natural Resources
EIS	Environmental Impact Statement
HAR	Hawai'i Administrative Rules
HRS	Hawai'i Revised Statutes
ICSD	Information and Communications Service Division
IFC	Integrated Fire Control
LCA	Land Commission Award
OEQC	Office of Environmental Quality Control
OHA	Office of Hawaiian Affairs
OIBC	O'ahu Island Burial Council
SHPD	State Historic Preservation Division
SIHP	State Inventory of Historic Properties
TCP	Traditional Cultural Property
TMK	Tax Map Key
USDA	United States Department of Agriculture
USGS	United States Geological Survey

Management Summary

Reference	Cultural Impact Assessment for the State of Hawai'i Department of Accounting and General Services (DAGS) Kamehame Ridge Radio Facility Project, Maunaloa Ahupua'a, Honolulu (Kona) District, O'ahu Island, TMK: [1] 3-9-009:001 (Genz, Weber, and Hammatt 2011)
Date	November 2011
Project Number	Cultural Surveys Hawai'i (CSH) Job Code: MAUNALUA 10
Agencies	State of Hawai'i Department of Health/Office of Environmental Quality Control (DOH/OEQC)
Project Location	The Project area is located on the summit of Kamehame Ridge at approximately 1,280 feet elevation, next to the border of Maunaloa and Waimānalo Ahupua'a, and Honolulu (Kona) and Ko'olaupoko Districts
Land Jurisdiction	Kamehameha Schools
Project Description	<p>The State of Hawai'i Department of Accounting and General Services' (DAGS) Information and Communications Service Division (ICSD) is proposing to construct and operate the Kamehame Ridge Radio Facility in order to house and support the communications systems used by various government agencies, Hawaiian Electric Company, and entities sponsored by the State that are not-for-profit in nature and have a defined role in assisting the government in times of disaster or emergency.</p> <p>The Project site, approximately 6,534 square feet at 1,280 feet above mean sea level, will be constructed and operated under a utility easement license between Hawaiian Electric Company and the landowner, Kamehameha Schools. The Project includes a four-sided self-supported 50-foot tall tower and an approximately 1,000-square foot building that will contain rooms for radio equipment, batteries, and an emergency generator. The Project also includes an above ground diesel fuel tank, security fencing, and a grounding system.</p>
Project Acreage	Approximately 0.15 acres

Area of Potential Effect (APE) and Survey Acreage	For the purposes of this Cultural Impact Assessment (CIA), the APE is defined as the approximately 0.15-acre Project area. While this investigation focused on the Project APE, the study area included the entire ahupua'a (land division usually extending from the uplands to the sea) of Maunalua and Waimānalo, since traditionally Maunalua was an 'ili (land division smaller than the ahupua'a) of Waimānalo, and the summit of Kamehame Ridge is visible from both Maunalua and Waimānalo.
Document Purpose	The Project requires compliance with the State of Hawai'i environmental review process (Hawai'i Revised Statutes [HRS] Chapter 343), which requires consideration of a proposed project's effect on cultural practices and resources. Wilson Okamoto Corporation requested CSH conduct this CIA. Through document research and ongoing cultural consultation efforts, this report provides information pertinent to the assessment of the proposed Project's impacts to cultural practices and resources (per the <i>Office of Environmental Quality Control's Guidelines for Assessing Cultural Impacts</i>) which may include Traditional Cultural Properties of ongoing cultural significance that may be eligible for inclusion on the State Register of Historic Places, in accordance with Hawai'i State Historic Preservation Statute (Chapter 6E) guidelines for significance criteria according to Hawai'i Administrative Rules (HAR) §13-284 under Criterion E. The document is intended to support the Project's environmental review and may also serve to support the Project's historic preservation review under HRS Chapter 6E-42 and HAR Chapter 13-284.
Consultation Effort	Hawaiian organizations, agencies and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the Project area and the vicinity. The organizations consulted included the State Historic Preservation Division, the Office of Hawaiian Affairs, the O'ahu Island Burial Council, Hui Mālama I Nā Kūpuna O Hawai'i Nei, the Maunalua and Waimānalo Hawaiian Civic Club, the Waimānalo and Hawai'i Kai Neighborhood Boards, and community members of Maunalua and Waimānalo.
Results of Background Research	Background research for this Project yielded the following results (presented in approximate chronological order): <ol style="list-style-type: none"> <li data-bbox="565 1665 1442 1806">1. The Project area is located on the summit (1,280 feet) of Kamehame (the hame tree), the easternmost ridge of Maunalua. The wood of the hame tree was used for anvils in the preparation of olonā (a native shrub) fiber used for fishing nets,

	<p>and the grapelike fruit was used to color tapa cloth red (Pukui and Elbert 1986). The ridge of Kamehame divides Waimānalo and Maunaloa, which used to be an 'ili kūpono of Waimānalo.</p> <ol style="list-style-type: none"> 2. Two coastal fishing villages were once located along the southern coast of Waimānalo in proximity to the Project area. Ko'onāpou (Kaupō), located at the area of the present-day Sea Life Park and Kaupō Beach Park, contained a heiau (place of worship), a ko'a (fishing shrine), lava tubes, and many habitation sites (Landgraf 1994:158; Site 384, McAllister 1933:194–195). Another settlement, possibly called Kukui, was located directly east of the Project area at Pāhonu Pond (Chamberlain ms., cited in Sterling and Summers 1978:250; Jackson 1884). In addition, a subsurface cultural layer indicative of cooking and eating activities was uncovered within Jaucas sand deposits at Kaiona Beach Park (State Inventory of Historic Properties [SIHP] 50-80-15-6751, Jones and Hammatt 2005). 3. Several wahi pana (storied places) are located in the coastal area of Waimānalo at the base of the cliffs below the Project area, including two ko'a called Kini (Site 21, Sterling and Summers 1978:249) and Kaluahine (Site 22, Sterling and Summers 1978:251), a pōhaku (stone) called Pa'akikī (Site 23, Sterling and Summers 1978:252), and Pāhonu Pond (McAllister 1933:192). More broadly, eleven caves have been documented on the lower slopes of Kamilo Ridge (to the east of Kamehame Ridge) and in Kealakīpapa Valley (to the west of Kamehame Ridge) with evidence of habitation, lithic workshops, burials, and agriculture (Jones 1996). Two heiau are located in the valleys that flank Kamehame Ridge, including Pahua Heiau (Site 39, McAllister 1933:65) and Hāwea Heiau (Site 42, McAllister 1933:66). A trail (Site 3, McAllister 1933:59) once connected the inhabitants of Waimānalo with Kuapā Fishpond in Maunaloa, winding through the valley of Kealakīpapa toward Makapu'u Point and down into the fishing village of Ko'onāpou. 4. Mo'olelo (oral traditions) describe the journeys of Hi'iakaikapoliopole (Hi'iaka) through Maunaloa and Waimānalo as she encountered various significant beings and places, including Makapu'u, Mālei, and Muliwai'ōlena (Ho'oulumāhiehie 2006), and other mo'olelo describe the formation of Koko Crater through the kohe lele, or traveling vagina, of the goddess Kapo (Beckwith 1970:187). In addition, mo'olelo describe the defense and eventual conquest of O'ahu
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	<p>at such strategic locations as Hanauma and Koko (Maunalua) Bays, and Makapu‘u Point (Kamakau 1992:71).</p> <ol style="list-style-type: none"> 5. Previous archaeological surveys did not locate any cultural sites along the higher elevation slopes of the ridges in Maunalua, including Kamehame Ridge (Borthwick 2007; Borthwick and Hammatt 1991a, 1991b; Shun 1988, 1990), possibly due to the distance from the ocean and fresh water, as well as the topography, which does not contain large overhangs, caves or lava tubes (Shun 1988). 6. The testimony of Charles Alona in 1939 suggests that at least one burial cave may be located in the mountainous section of Waimānalo in the vicinity of the Project area, near the fishing shrine called Kini. He states that “Straight up from here (Castle gate), near the foot of the cliff, is an old burial cave” that included palaoa (whale tooth) ornaments and a canoe (<i>Oahu Place Names</i> ms., cited in Sterling and Summers 1978:250). After observing that these objects and iwi kūpuna (ancestral remains) had been removed from the burial cave, Mr. Alona resolved to not divulge the location of two other burial caves. In addition, several caves in the lower slopes of Maunalua contain human remains (SIHP 50-80-15-4944, -4945, 4947, -4949; Jones 1996). Human remains have also been uncovered below the Project area at Kaiona Beach Park (SIHP 50-80-15-6752, Jones and Hammatt 2005; SIHP 50-80-15-3763 and -4007, Medical Examiner 1988). 7. The middle nineteenth century marked the introduction of private and public land ownership laws to Hawaiian society during the Māhele (division of Hawaiian lands). One kuleana (Native Hawaiian land rights) Land Commission Award (LCA) was located below the current Project area on the coast. Laukeaiku was awarded one ‘āpana (lot) in the ‘ili of Pāhonu, where he cultivated two lo‘i (irrigated taro) and three māla (patches) of sweet potatoes, and harvested one māla of wauke (paper mulberry) (LCA 3265:2, Royal Patent 8344, Waihona ‘Aina 2000). 8. Successive eras of ranching and sugar cultivation greatly modified the landscape of Waimānalo and Maunalua. By the 1850s, the trail of Kealakīpapa was a cobbled road. The subsequent construction of Kalaniana‘ole Highway between Kuli‘ou‘ou and Waimānalo in the early twentieth century paved the way for the dredging of Kuapā Fishpond and residential development in Maunalua.
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	<p>9. Following World War II, Bellows Air Force Station was part of an anti-aircraft surface-to-air Nike Hercules missile system that had a separate Integrated Fire Control (IFC) site, Oahu Defense Area (OA) 32, located at the summit of Kamehame Ridge with administrative barracks and radars. Two concrete foundations associated with OA-32 IFC are located within the Project and have been designated as SIHP 50-80-14-7191 (Runyon et al. 2011).</p> <p>10. The OA-32 IFC site is currently owned by Kamehameha Schools. Portions of the site have been leased to the Federal Aviation Administration, the U.S. Navy, the Honolulu Police Department, and private commercial communication businesses for microwave relay antennae (Bennett 2009:36). The barracks downslope of the Project area have also been used as the site of a youth leadership program called “Winners Camp” (Bennett 2009:36).</p>
Results of Community Consultation	<p>CSH attempted to contact 21 community members and government agency and community organization representatives. Of the five people that responded, three kūpuna (elders) and/or kama‘āina (Native-born) participated in formal interviews for more in-depth contributions to the CIA. This community consultation indicates:</p> <ol style="list-style-type: none"> 1. The mountainous areas of Waimānalo and Maunaloa, including the summit of Kamehame Ridge and the Project area, hold a deep spiritual significance for community participant Weston Correa, who lives below the Project area. Mr. Correa sees the greater Waimānalo region as part of an integrated cultural landscape that begins above the cliffs below the Project area, which he relates as the head of a great mo‘o (lizard) that continues down to the tail in the ocean in Lā‘ie. Mr. Correa summarily states that “The mountain is my contact to God and my ancestors.” He elaborates that the cliff face below the Project area contains Hawaiian faces etched in stone, and marks the origin of the goddess Pele. Mr. Correa also explains that Night Marchers walk through his property and traverse the sheer cliffs up to the summit of Kamehame Ridge. Several burial caves are located below the Project area, according to Mr. Correa and Nickie Hines (the hānai [foster] granddaughter of Charles Alona, see Results of Background Section above), as well as stone walls and enclosures once used to store valuable possessions. 2. The area surrounding Mr. Correa’s property is known as Kala Pueo, which means “the hovering of the owl,” as owls were

	<p>once used for communication between Moloka'i and Waimānalo. This pu'uhonua (place of refuge) contains several culturally significant sites for Mr. Correa and Mrs. Hines, including Pōhaku Pa'akikī, Pāhonu Pond, an ahu (shrine) on the Correa ranch, and a pōhaku on the Correa ranch that may be the documented fishing shrine called Kini.</p> <ol style="list-style-type: none"> 3. Makai resources that continue to be caught by Mr. Correa include kala (surgeonfish, unicornfish), <i>menpachi</i> ('ū'ū or soldierfish), weke (goatfish), and palani (surgeonfish), and Mrs. Hines' family continues to gather sea salt from salt pans that were carved from rocks on Mokuhope Island. 4. Mauka resources planted and harvested by Mr. Correa on his ranch include hau (hibiscus), kukui (candlenut), kou (a tree), and noni (Indian mulberry), which he uses for traditional medicines. Mrs. Hines has also gathered pōpolo (glossy nightshade), the flower of mai'a maoli (a variety of banana), and ha'uōwī (a verbena) in Waimānalo for various medicinal purposes. 5. Mr. Hines (Nickie Hines' husband) shares memories of his military service at the Nike Hercules site at the Project area. Prior to his active duty in Vietnam in 1968, Mr. Hines had trained at an Officers Candidate School (OCS) at the summit of Kamehame Ridge in 1962. He recalls that when he had driven up the ridge trail, no houses had yet been built. He also remembers that the Nike Hercules facility was operational, with a few buildings and personnel. 6. Mr. Correa, and Mr. and Mrs. Hines are supportive of the idea of the proposed radio facilities Project to enhance communication in times of disaster or emergency, but Mr. Correa and Coochie Cayan of SHPD articulate several concerns: <ol style="list-style-type: none"> i. Mr. Correa is concerned that the proposed Project will impact the sanctity of the mountain in two ways. First, a newly constructed tower higher up on the ridge than the Project area is visible from Mr. Correa's property (see Figure 40) and has altered his view of the mountainside and the Hawaiian faces etched in stone. He feels that a second nearby tower fifty feet high, if seen from his property, would add to this visual disturbance. Second, Mr. Correa is concerned that the proposed boring for the mircopile foundations will somehow lead to unanticipated effects, such as the disruption of burial caves that he asserts are below the Project area, and possibly contributing to rockslides that generally occur
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	<p>at least once a year after heavy rainfall.</p> <p>ii. Ms. Cayan notes that proposed Project area is an entryway to hike the ridge, and is concerned that gathering and access rights to cultural and natural resources should not be prevented during the proposed Project. Ms. Cayan notes that many halau hula (hula groups) and other cultural practitioners access the ridge to gather cultural resources and to practice cultural spirituality of the various kino lau (forms) of the Hawaiian deities. In addition, modern cultural practices in the general area may include hunting of wildlife (pigs and birds) and gathering of native woods for cultural implements and tools.</p> <p>7. Mr. Correa recommends that the Project be conducted in a pono (proper) manner, which includes offering a ho'okupu (offering) or other cultural ceremony to honor the mountain and asking the land for acceptance to build upon it. If any cultural sites are uncovered within or in the vicinity of the Project area, Mrs. Hines recommends erecting informational signs and assisting in their preservation.</p>
<p>Impacts and Recommendations</p>	<p>Based on the information gathered for the cultural and historic background and community consultation detailed in this CIA report, the proposed Project may potentially impact Native Hawaiian burials, cultural beliefs and spirituality, and gathering practices. CSH identifies these potential impacts and makes the following recommendations:</p> <ol style="list-style-type: none"> 1. Previous archaeological surveys have not located any cultural sites along the higher elevation slopes of the ridges in Maunalua, including Kamehame Ridge, and the accompanying Archaeological Literature Review and Field Inspection Report has not documented any cultural sites in the Project area except the historic-era OA-32 IFC (SIHP 50-80-14-7191, Runyon et al. 2011). Yet, there is a possibility that land-disturbing activities during construction may uncover presently undetected burials or other cultural finds. Personnel involved in the construction activities of the Project should be informed of the possibility of inadvertent cultural finds, including human remains. Should burials (or other cultural finds) be identified during ground disturbance, the construction contractor should immediately cease all work and the appropriate agencies notified pursuant to applicable law. 2. Community participant Mr. Correa expresses concerns that the Project's 50-foot tower will impact the visual landscape of

	<p>Waimānalo and that the drilling of the micropiles will impact the spiritual quality of the mountain, possibly impact burial caves on the lower slopes, and possibly contribute to rockslides. DAGS should brief and consult with community members and organizations as the Project design and construction progresses in order to inform the community of any changes that could result in unanticipated adverse cultural impacts and to better understand and incorporate the Hawaiian cultural worldview.</p> <p>3. Community participant Ms. Cayan expresses concerns that the construction of the Project may hinder gathering and access rights to cultural and natural resources. Although the private access road to the Project area is restricted, DAGS should implement best management practices to reduce or avoid impacts of the construction on any cultural activities near the summit of Kamehame Ridge.</p>
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