ENVIRONMENTAL ASSESSMENT
U.S. COAST GUARD, RESCUE 21 RFF KALEPA
Potential Tower Strikes to Hawaiian Seabirds Protected by the Endangered Species Act, Section 7
HANAMAULU, KAUAI, HAWAII

August 8, 2013

Proposed RFF Kalepa 68-ft Monopole and Equipment Compound Site

DEPARTMENT OF HOMELAND SECURITY, UNITED STATES COAST GUARD
ACQUISITION DIRECTORATE, RESCUE 21 PROJECT

Hanamaulu, Kauai, Hawaii

ENVIRONMENTAL ASSESSMENT

FOR

U.S. COAST GUARD
RFF KALEPA

CONSTRUCTION

HANAMAULU, KAUAI, HAWAII

This U.S. Coast Guard environmental assessment (EA) was prepared in accordance with Commandant's Manual Instruction M16475.1D and in compliance with the National Environmental Policy Act of 1969 (P.L. 91-190) and the Council on Environmental Quality Regulations dated 29 November 1978 (40 CFR Parts 1500-1508).

This EA serves as a concise public document to briefly provide sufficient evidence and analysis for determining the need to prepare an environmental impact statement or a finding of no significant impact.

This EA concisely describes the proposed action, the need for the proposal, the alternatives, and the environmental impacts of the proposal and alternatives. It also contains a comparative analysis of the action and alternatives, a statement of the environmental significance of the preferred alternative, and a list of the agencies and persons consulted during EA preparation.

31 July 2013 Sherrill Edwards Thompson, Env. Protection Spec.

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Environmental Assessment

A. INTRODUCTION

AUTHORITY - This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321, 4331, 4332), the Council on Environmental Quality regulations implementing NEPA dated 29 November 1978 (40 CFR Parts 1500–1508), Department of Homeland Security (DHS) Management Directive (MD) 023-01, Environmental Planning Program, National Distress and Response System Modernization Project (NDRSMP a.k.a Rescue 21) 1998 Programmatic Environmental Assessment (PEA) and 2002 Supplemental Programmatic Environmental Assessment (SPEA) and the U.S. Coast Guard's policy guidelines for implementing NEPA, COMDTINST M16475.1D, National Environmental Policy Act Implementing Procedures and Policy for Considering Environmental Impacts. EAs serve as concise public documents to briefly provide sufficient evidence and analysis for determining the need to prepare an environmental impact statement or a Finding of No Significant Impact (FONSI) in conjunction with Federal decision making for major actions.

In July of 1998, the Coast Guard prepared a Programmatic Environmental Assessment (PEA) to evaluate the potential environmental impacts of the proposed NDRSMP, a proposed Federal project subject to the NEPA review process (USCG, 1998). Four technology modernization alternatives were selected for analysis: 1) No Action; 2) Rehabilitated or Upgraded System; 3) Dual Mode VHF and/or Ultra High Frequency (UHF) Network; and 4) Multi-Mission Satellite, Cellular, VHF Network. The 1998 PEA evaluated the potential impacts of each alternative on the following environmental resource areas: geology and soils, hydrology and water quality, biological resources, land use, visual resources, hazardous materials and wastes, air quality, cultural resources, noise, transportation and circulation, socioeconomics, and radio waves.

In September of 2002, the Coast Guard prepared a Supplemental PEA (SPEA) because a substantial amount of time had passed since the 1998 PEA was published. In the 2002 SPEA, the Coast Guard considered four alternatives to deploy the NDRSMP: 1) No Action; 2) Deploying New Communications Technology to an Existing Antenna Tower Site that Supports the NDRS; 3) Deploying New Communications Technology to a Leased Commercial Tower Site; and 4) Deploying New Communications Technology to a New Undeveloped Site. The 2002 SPEA updated the potential effects of each of the new alternatives on each of the environmental resource areas that were addressed in the 1998 PEA, and assessed the potential effects to environmental resource areas that were not originally assessed in the 1998 PEA. The 2002 SPEA identified, described, and evaluated the potential environmental impacts that could result from implementation of the NDRSMP, and took into consideration cumulative impacts from other actions (USCG, 2002a). The 1998 PEA and 2002 SPEA are the first level of documents upon which subsequent NEPA analysis and documentation, including this EA, are tiered for individual actions and their site-specific impacts.

B. INTRODUCTION, NEED, PROPOSED ALTERNATIVES, & PURPOSE

1. INTRODUCTION - The current marine communications system, the National Distress and Response System (NDRS) has served the USCG well over the years. Established during the 1970s, the NDRS is a VHF-FM based radio communication system that provides two-way voice communication with commercial and recreational traffic in coastal areas and in navigable inland waterways. It consists of approximately 300 remotely controlled VHF-FM transmit/receive high-level sites (HLS) located throughout the continental United States (including the Great Lakes and all major inland bays and waterways), Alaska, Hawaii, the Caribbean, and Guam. There are currently six NDRS sites in the State of Hawaii that consist of a short-range very high frequency-frequency modulation (VHF-FM) radio system, which forms the backbone of the USCG's Short Range Communication System (SRCS). The NDRS' primary mission is to provide the USCG with a means to monitor the domestic and international VHF-FM distress frequency and to coordinate search and rescue response operations. Its secondary mission is to provide command and control communications for virtually all USCG missions.

2. NEED - The U.S. Coast Guard (USCG) has identified the need for a new maritime search and rescue communications system that will fulfill the nationwide mandate. The new equipment will also fill existing gaps in the VHF-FM marine radio communications system. Marine radio communications are vital for search and rescue, maritime law enforcement, maritime pollution prevention and response, and homeland security. The new system, known as "Rescue 21," will be the maritime equivalent of a "911" communications system, enhancing maritime safety by helping to minimize the time that search and rescue teams spend looking for people in distress. Rescue 21 represents a quantum leap forward in coastal command and control and distress communications.

The Rescue 21 proposed Remote Fixed Facility (RFF) Kalepa monopole and equipment site will enhance homeland security capabilities, as well as other safety and security missions, bringing tremendous benefits to the State of Hawaii. The estimated coverage for Sector Honolulu with the proposed RFF Kalepa is 95.2% voice quality and 91.6% DF, which is the better than all of the proposed alternatives (Figure 1).

3. PROPOSED ACTION AND ALTERNATIVES – The USCG has an established methodology for selecting RFFs. This methodology includes comprehensive analyses of existing RFFs and other candidate tower sites. The site selection process is focused on identifying and developing candidate sites that can achieve technical requirements with affordable costs, appropriate schedule, and minimal implementation risk. The following alternatives were considered and dismissed for USCG Rescue 21 RFF Kalepa search and rescue site within the Sector Honolulu Area of Responsibility (AOR).

The Rescue 21 project is proposing to construct an RFF to provide communications for the Sector Honolulu AOR. A USCG owned RFF is proposed for the Island of Kauai, on a leased portion of TMK (4) 3-8-002:005, in Hanamaulu, Kauai County, Hawaii. The USCG proposes to construct a 68-ft-tall monopole (Figure 2) with a direction finding (DF) antenna mounted on top. The proposed monopole will be located in a new 48-ft x 12-ft compound, that will run along the right side of the entrance to an existing fenced

compound. Associated equipment within the USCG's 15-ft x 24-ft compound (Figures 3 and 4) will include a prefabricated equipment shelter, a 20-kilowatt emergency backup generator 300 gallon diesel belly tank on a concrete slab.

While the USCG was conducting consultation with the U.S. Fish and Wildlife Service (USFWS) the USFWS determined that the construction of a 68-ft monopole at proposed RFF Kalepa, would pose a tower strike potential to three species of Hawaiian seabirds protected by the Endangered Species Act. The Service conducted calculations for anticipated seabirds tower strikes, derived from the use of the Habitat Evaluation Procedure (HEP) equation. The HEP provided a tower strike potential of 6-9 seabirds over the 20-yr life of the proposed RFF Kalepa 68-ft monopole.

The proposed RFF Kalepa is expected to provide coverage for Voice Quality and Direction Finding (DF), the table below was compiled to show the coverage for proposed RFF Kalepa compared to proposed alternatives, the Hawaiian Telcom tower, RFFs Kilohana and Anahola1 (Table 1).

Table 1 – Proposed RFFs Coverage Comparisons

RFF	Voice Quality	DF	Owner
Kalepa	95.2%	91.6%	USCG
Kilohana	94.8%	91.0%	AT&T
Anahola 1	94.8%	90.0%	Sandwich Isles Communications

.

3.1 No Action – Under the no action alternative if the Coast Guard does not proceed with the proposed action or one of its alternatives, then a significant coverage gap will negatively impact search and rescue operations off the East coast of Kauai.

3.2 Co-location on Existing 60-ft Lattice Self-Supported Commercial Tower at Kalepa Ridge, Hawaiian Telecom Owner - The Hawaiian Telecom tower is also located on TMK: (4) 3-8-002:005 and was Rescue 21's first option for co-location but was eliminated. The tower is in very poor condition for co-location and it could not be extended 40 ft for the installation of the direction finder and three antennas. The tower also failed the tower structural analysis that every candidate tower undergoes for co-location. This alternative was not evaluated by the USFWS for seabird tower strike potential because it could not provide the structural and technical requirements for the Rescue 21 mission.

3.3 Co-location on an Existing 150-ft Lattice Self-Supported Commercial Tower, AT&T Owner - Proposed RFF Kilohana, was evaluated as an alternative tower site,

located approximately 4.2 miles from proposed RFF Kalepa. The U.S. Fish and Wildlife Services' calculations for anticipated seabirds tower strikes, derived from the Habitat Evaluation Procedure (HEP) equation, is approximately 40-60 seabirds over the 20-yr life of proposed RFF Kilohana. The USCG analysis indicated that the proposed RFF Kilohana voice quality is 94.8% and the direction finding capability would be approximately 90.9 (Figure 5). This alternative is not a preferable alternative because of decreased radio coverage and the USFWS projected seabird tower strikes, 40-60 seabirds over the 20-yr life of proposed RFF Kilohana which could accelerate the seabird's extinction.

3.4 Co-location on Existing Commercial 120-ft Monopole, Sandwich Isles Communications Owner - Proposed RFF Anahola l was evaluated for a Rescue 21 co-location, the tower site is located approximately 9.8 miles from proposed RFF Kalepa. The U.S. Fish and Wildlife Services' calculations for anticipated seabirds tower strikes, derived from the Habitat Evaluation Procedure (HEP) equation, is approximately 19 birds over the 20-yr life of proposed RFF Anahola 1. The USCG analysis indicated that the proposed RFF Anahola 1 voice quality is 94.8 and the direction finding capability would be approximately 90.9% (Figure 6). This alternative as well is not a preferable alternative because the projected seabird tower strike, 19 seabirds over the 20-yr life of the tower could accelerate the seabirds' extinction.

In conclusion, the USCG could not provide the costly mitigation funding for a conservation effort to prevent the population decline from potential tower strikes by the seabirds protected by the Endangered Species Act at proposed RFFs Kilohana and Anahola 1.

4. PURPOSE – The purpose of RFF Kalepa is to provide optimum Radio Frequency (RF) coverage, voice quality and Direction Finding (DF) capabilities of the Sector Honolulu AOR, which extends out 20 miles along the coastline of the Hawaiian Islands. The Proposed Action involves constructing a RFF to fill the existing communications gap for Sector Honolulu AOR coverage of the Island of Kauai. The proposed RFF Kalepa would be built on USCG leased property from Grove Farms at 2 MI NNE Lihue, Hanamaulu, HI 96766, TMK: (4) 3-8-002:005, Parcel 005, Approximate Lat 22-00-06.0 N, Lon 159-21-28.0 W.

The Proposed Action would serve as the final component to complete Sector Honolulu communications coverage and reduce several existing communications gaps in the current system's coverage. Additionally the implementation of the Proposed Action along with the existing RFF Kokee (Figure 7) would provide optimum coverage on the Island of Kauai and complete the Rescue 21 deployment to the State of Hawaii.

5. EFFECTS OF THE ACTION - The purpose of collocating the proposed RFF Kalepa on the Island of Kauai is to locate and save mariners in distress in an approximate 20-mile radius from the tower location on Kalepa Ridge, Kauai. At this time the East coast of the Island of Kauai does not have any search and rescue coverage.

The proposed project is not located near known or suspected nesting sites for federally endangered and threatened Hawaiian seabirds' species. The 68-ft self-supported monopole and associated equipment will be located within an existing tower farm, thus avoiding loss of habitat. The safety/security light will be down shielded to minimize

potential effects to night-migrating birds. However, as required by the FAA, the monopole will have a steady red burning light to warn aviators of its presence as they approach the Lihue Airport. This light is required to be on 24/7. Red steady burning or pulsing lights have been shown to attract and confuse Hawaiian seabirds causing fall-out from exhaustion.

Modeling conducted by the USFWS has shown that 99 % of the birds flying directly at the 68-ft self-supported monopole will be able to avoid the monopole. However, it is still anticipated that 4-9 seabirds will collide with the 68-ft self-supported monopole over a 20-year period. The estimated annual probability is 0.37 birds per year (personal communication with the USFWS, 2 August 2012).

If the proposed project does not proceed, the threat of fall-out will not occur as a result of the monopole and red light. However, an unknown number of mariners may not be rescued, because the East coast of the Island of Kauai would not have coverage.

6. CUMULATIVE IMPACTS

No additional cumulative impacts on existing activities in the vicinity of the proposed RFF Kalepa have been identified by these analyses. The USCG is actively engaged in other Hawaiian seabird's restoration activities on the Island of Kauai and the Island of Lehua to offset the impacts on Hawaiian seabirds.

On the Island of Kauai the USCG, USFWS, USDA, FAA, NOAA, Hawaii Chapter of Wildlife Society, Division of Forestry and Wildlife, Department of Lands Natural Resources, etc. has partnered in a project called the Kaena Point Ecosystem Restoration Project (KPERP). This project is located on State of Hawaii owned land and encompasses' the Kaena Point Natural Area Reserve (NAR), which hosts the largest Hawaiian seabird colonies in the Hawaiian Islands. The project involves the construction of predator-proof fencing (2 meters tall) to prevent feral predators such as dogs, cats, mongoose and rats from entering into five acres of coastal habitat within the NAR. The exclusion and removal of the predatory animals is expected to result in an increase in the existing population of nesting seabirds, encourage new seabird species to nest at Kaena Point, enhance regeneration of native plants, and benefit monk seals by reducing the risk of disease transmission. The Kaena Point Ecosystem Restoration Project is expected to have primarily positive effects on the resources protected in the NAR.

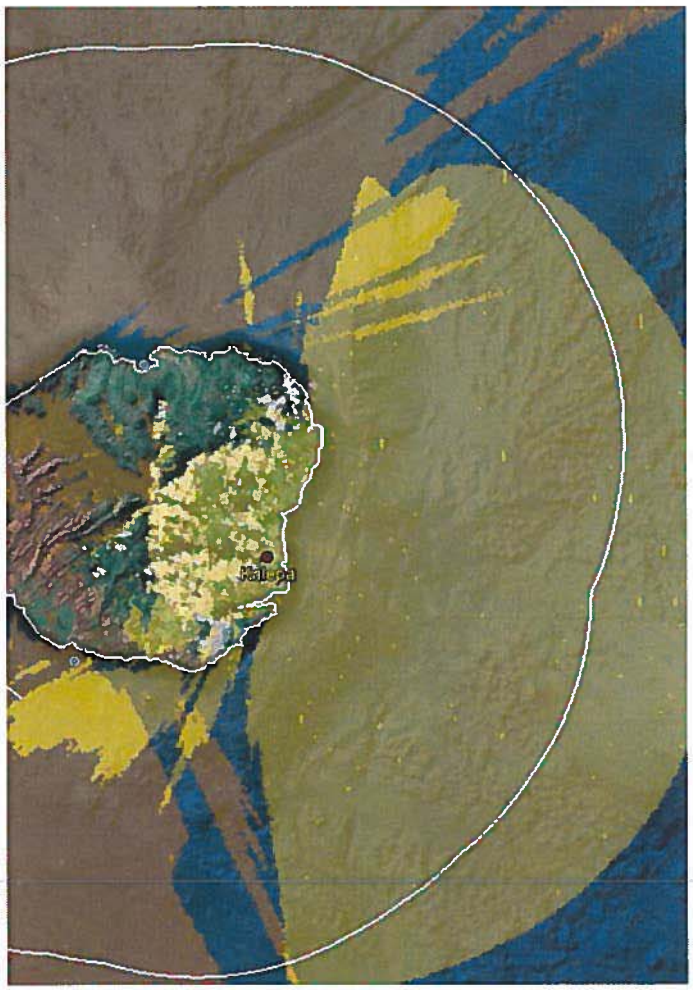
The State of Hawaii Department of Land and Natural Resources operates a Hawaiian seabird sanctuary on USCG owned land on the Island of Lehua, approximately 20 miles west of Kauai. The Island of Lehua is renowned for its diversity of nesting Hawaiian seabirds, specifically the Newell's shearwater petrel and the Hawaiian petrel. Invasive nonnative Polynesian rat species have flourished and preyed upon Hawaiian seabirds on this island. These rats have preyed upon Hawaiian seabirds and eggs over many decades. The nonnative European rabbits have altered the island ecosystem by competing with Hawaiian seabirds for use of burrows and decimating native plant communities. Bait pellets are dispersed December through February by the USDA by aerial broadcasting to remove rats during winter months, when the rats population are lowest on the island. Migratory bird population numbers are also at their lowest in numbers during the winter months. The risk to hatchlings accidentally eating the bait pellets and the helicopter

colliding with flying Hawaiian seabirds is reduced. Another bait pellet broadcasting is conducted in January to ensure an adequate exposure period.

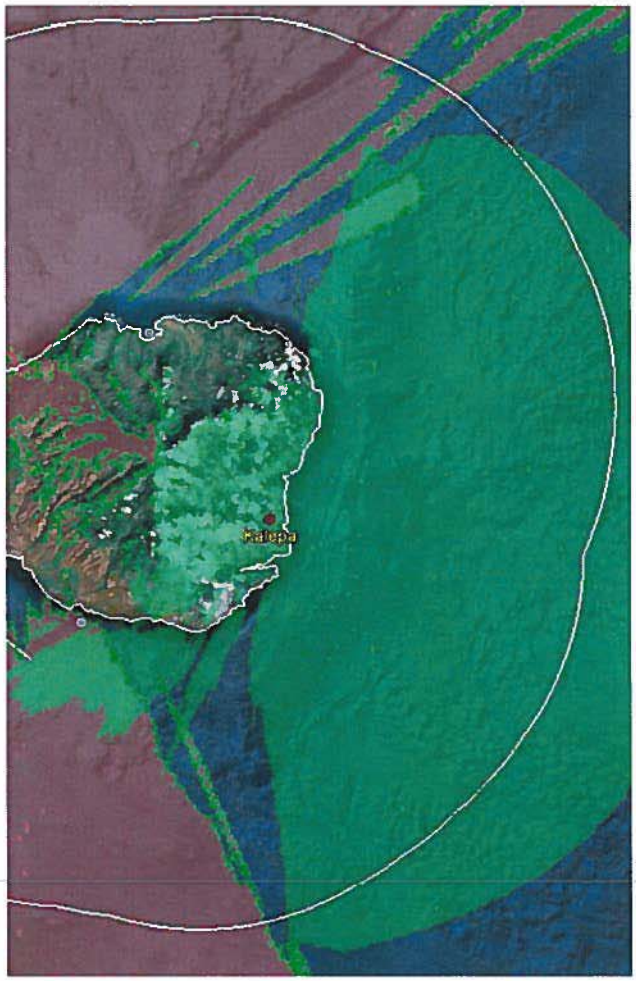
Figure 1

Kalepa HI-209A (Proposed New Build)

VHF



DF



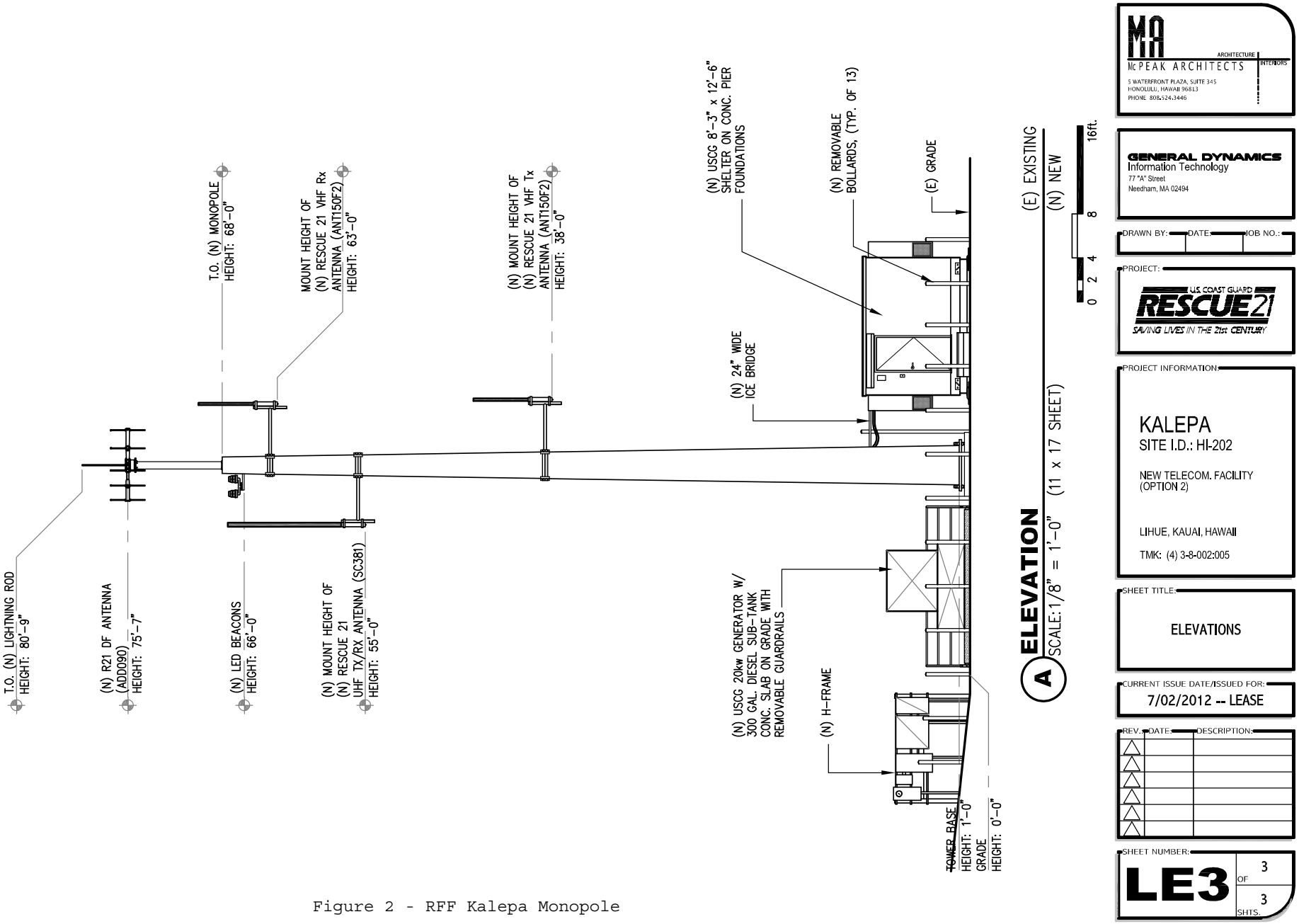
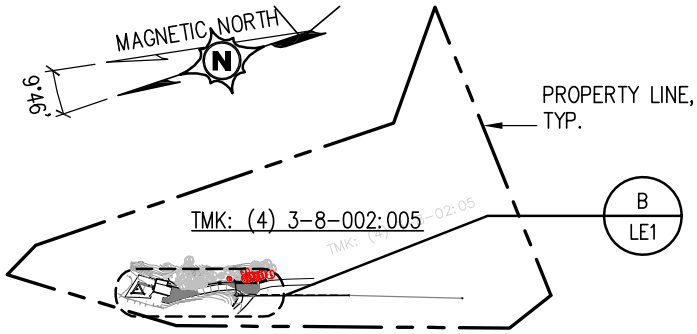


Figure 2 - RFF Kalepa Monopole

LEGEND			
NO.	DESCRIPTION	NO.	DESCRIPTION
1	(N) USCG 8'-3" x 12'-6" SHELTER ON CONC. PIER FDN.	10	(E) CHAINLINK FENCE W/BARBED WIRE TOP
2	(N) USCG 20kw GENERATOR W/ 300 GAL. DIESEL SUB-TANK ON CONC. SLAB ON GRADE	11	(E) ICE BRIDGE & SUPPORTS
		12	(E) HAWAIIAN TELCOM BUILDING
3	(N) ICE BRIDGE & SUPPORTS (+/- 5'-0")	13	(E) HAWAIIAN TELCOM 60'-0" LATTICE TOWER
4	(N) H-FRAME	14	(E) CONCRETE DRIVEWAY
5	(N) REMOVABLE BOLLARDS (TYP. OF 13)	15	(E) RETAINING WALL
6	(N) PULL BOX FOR TELCO AS NEEDED	16	(E) UTILITY POLE
7	(N) U.G. UTILITY CONDUIT	17	(E) UNIMPROVED ACCESS ROAD
8	(N) 68'-0" PRE-ENGINEERED METAL MONOPOLE	18	(E) OVERHEAD UTILITIES
9	(E) PP KED 060-545 11 3400	19	(N) OVERHEAD UTILITIES



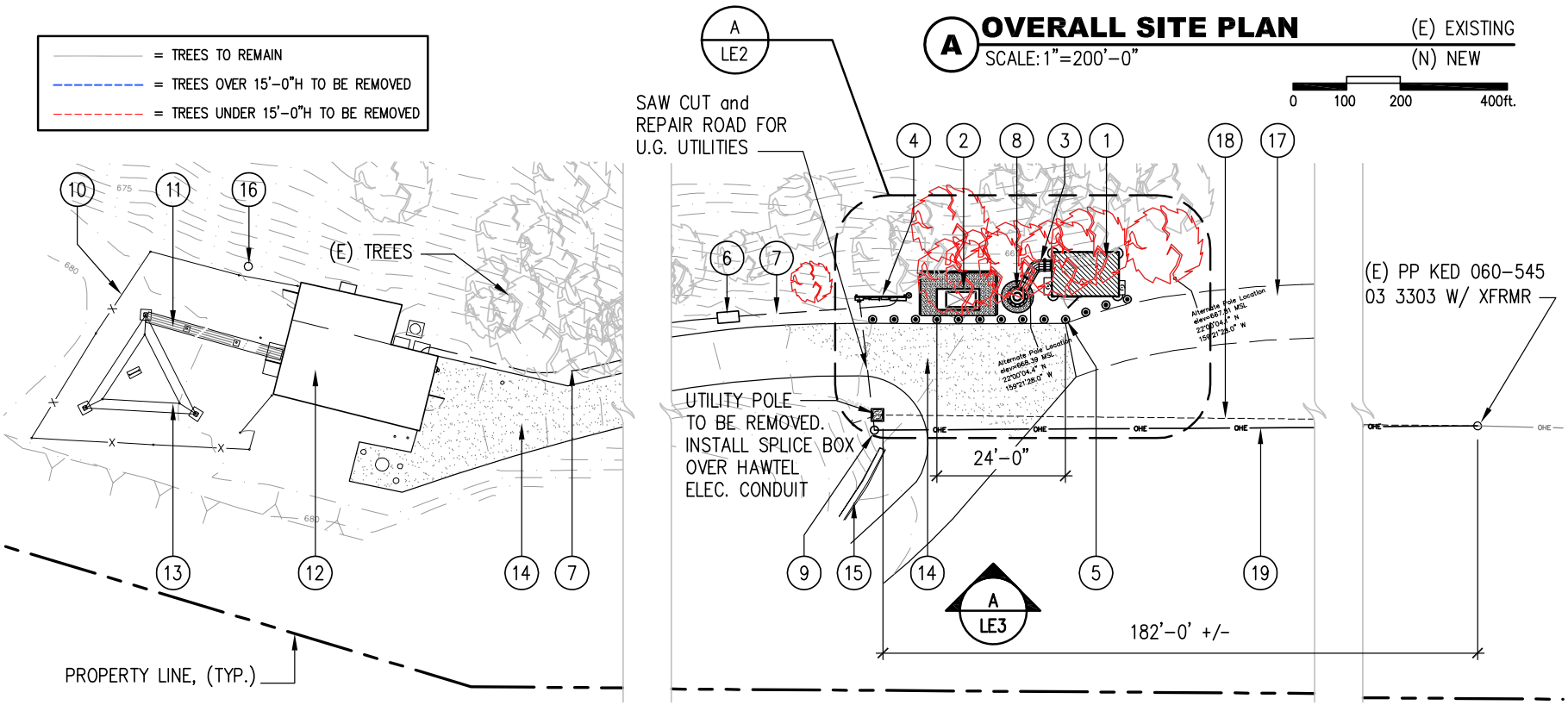
A OVERALL SITE PLAN

SCALE: 1"=200'-0"

(E) EXISTING
(N) NEW

0 100 200 400ft.

= TREES TO REMAIN
= TREES OVER 15'-0"H TO BE REMOVED
= TREES UNDER 15'-0"H TO BE REMOVED



B PARTIAL SITE PLAN

SCALE: 1"=20'-0"

(E) EXISTING
(N) NEW

0 10 20 40ft.

Figure 3 - RFF Kalepa Compound

McPEAK ARCHITECTS
ARCHITECTURE INTERIORS
5 WATERFRONT PLAZA, SUITE 345
HONOLULU, HAWAII 96813
PHONE 808.524.3446

GENERAL DYNAMICS
Information Technology
77 "A" Street
Needham, MA 02494

DRAWN BY: DATE: JOB NO.:

PROJECT:
U.S. COAST GUARD RESCUE21
SAVING LIVES IN THE 21st CENTURY

PROJECT INFORMATION:

KALEPA
SITE ID #: HI-209A

NEW TELECOM. FACILITY (OPTION 2)

LIHUE, KAUAI, HAWAII

TMK: (4) 3-8-002:005

SHEET TITLE:
OVERALL SITE PLAN, PARTIAL SITE PLAN, LEGEND

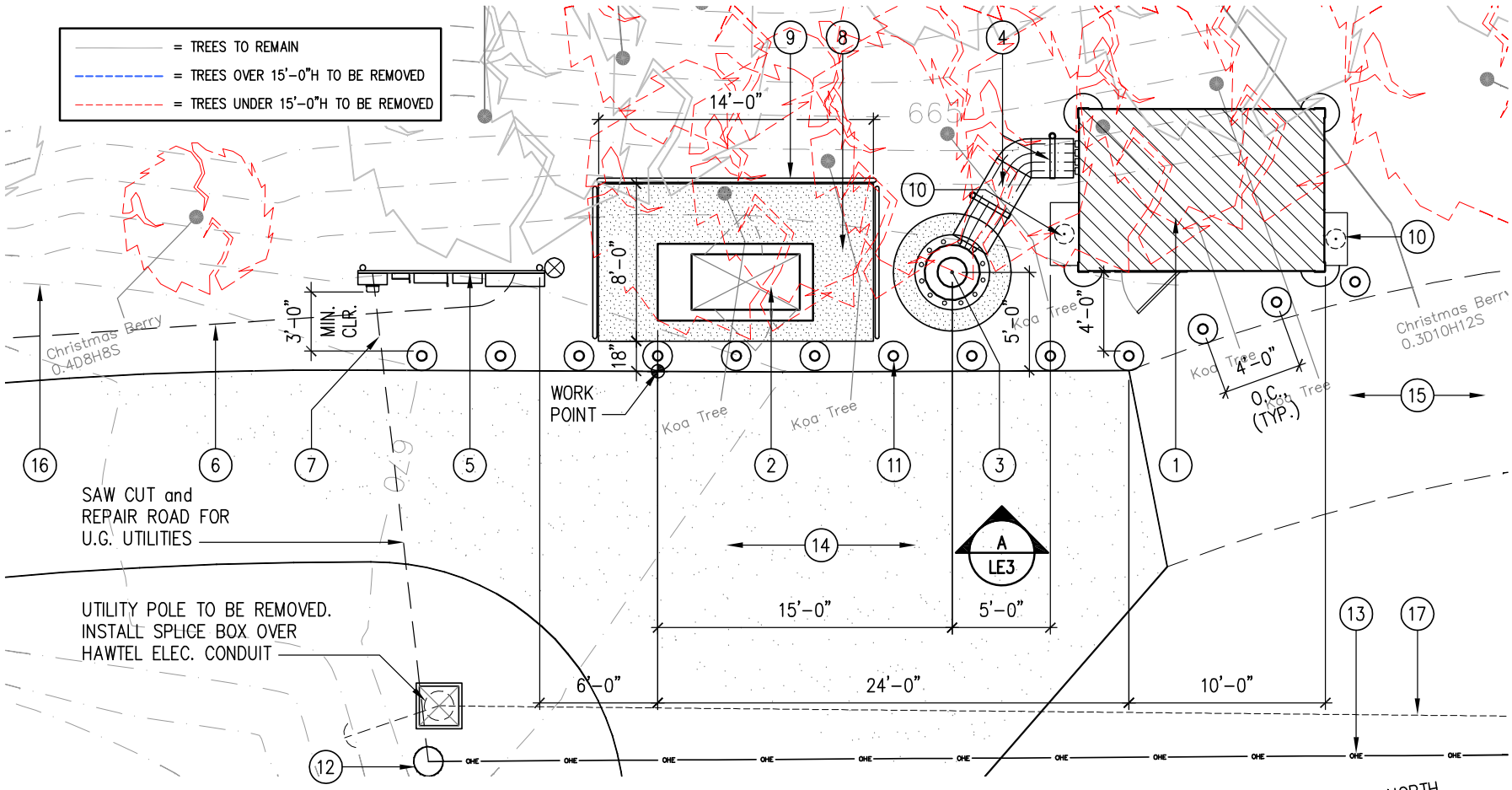
CURRENT ISSUE DATE/ISSUED FOR:
7/02/2012 -- LEASE

REV.	DATE:	DESCRIPTION:

SHEET NUMBER:
LE1 1 OF 3 SHTS.

LEGEND

NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION
1	(N) USCG 8'-3" x 12'-6" SHELTER ON CONC. PIER FOUNDATION	7	(N) U.G. UTILITY CONDUIT RUN	13	(E) OVERHEAD UTILITIES
2	(N) USCG 20kw GENERATOR W/ 300 GAL. DIESEL SUB-TANK	8	(N) CONC. SLAB ON GRADE	14	(E) CONCRETE DRIVEWAY
3	(N) 68'-0" PRE-ENGINEERED METAL MONOPOLE	9	(N) 3'-6"H MTL. GUARDRAIL	15	(E) UNIMPROVED ACCESS ROAD
4	(N) ICE BRIDGE & SUPPORTS (+/- 5'-0")	10	(N) DRYWELL (BELOW)	16	(E) CONTOURS LINES, (TYP.)
5	(N) H-FRAME	11	(N) REMOVABLE BOLLARDS (TYP. OF 13)	17	(E) OVERHEAD UTILITIES TO BE REMOVED
6	(N) U.G. TELCO CONDUIT w/CAT-5E, GEL FILLED	12	(E) PP KED 060-545 11 3400		



A EQUIPMENT YARD PLAN
SCALE: 3/16"=1'-0"

(E) EXISTING
(N) NEW

0 2 4 8ft.

MAGNETIC NORTH
9.46°

Figure 4 - RFF Kalepa Compound

McPEAK ARCHITECTS
ARCHITECTURE INTERIORS
5 WATERFRONT PLAZA, SUITE 345
HONOLULU, HAWAII 96813
PHONE 808.524.3446

GENERAL DYNAMICS
Information Technology
77 "A" Street
Needham, MA 02494

DRAWN BY: DATE: JOB NO.:

PROJECT:
U.S. COAST GUARD RESCUE21
SAVING LIVES IN THE 21st CENTURY

PROJECT INFORMATION:
KALEPA
SITE ID #: HI-209A
NEW TELECOM. FACILITY (OPTION 2)
LIHUE, KAUAI, HAWAII
TMK: (4) 3-8-002:005

SHEET TITLE:
EQUIPMENT YARD PLAN, LEGEND

CURRENT ISSUE DATE/ISSUED FOR:
7/02/2012 -- LEASE

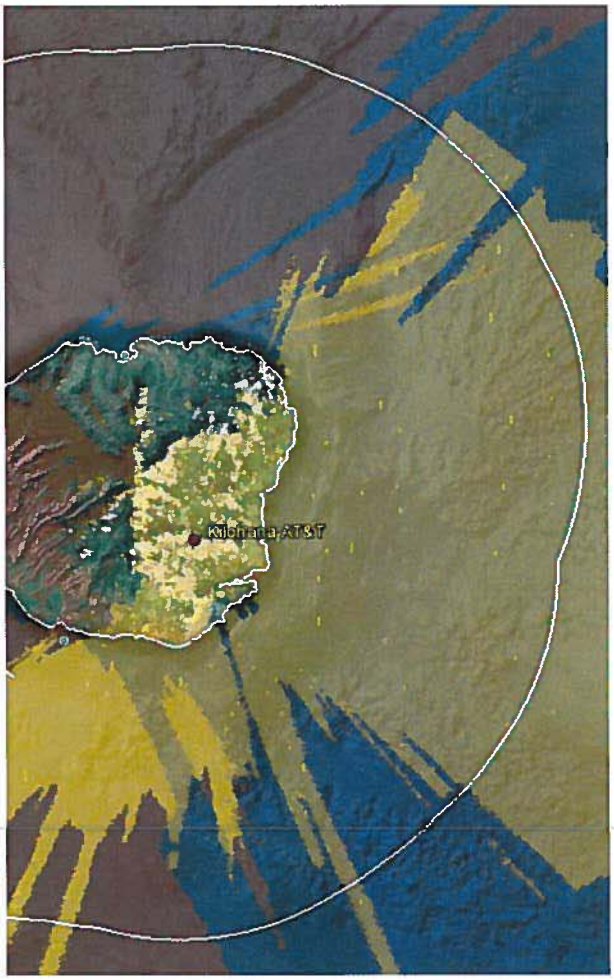
REV.	DATE:	DESCRIPTION:

SHEET NUMBER:
LE2 2 OF 3 SHTS.

Figure 5

Kilohana HI-210 (AT&T Co-Lo)

VHF



DF

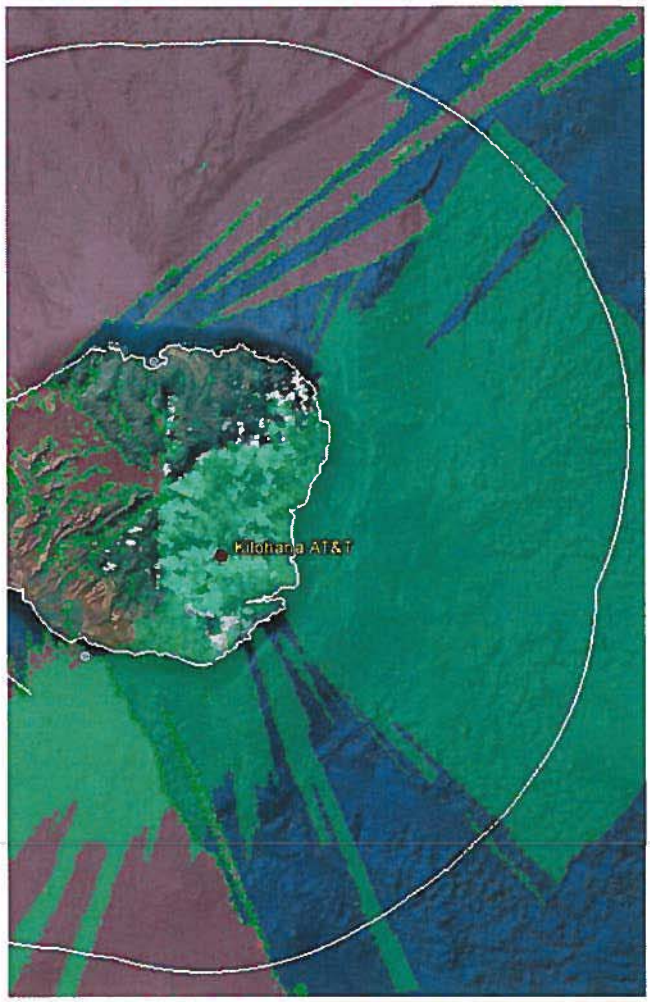
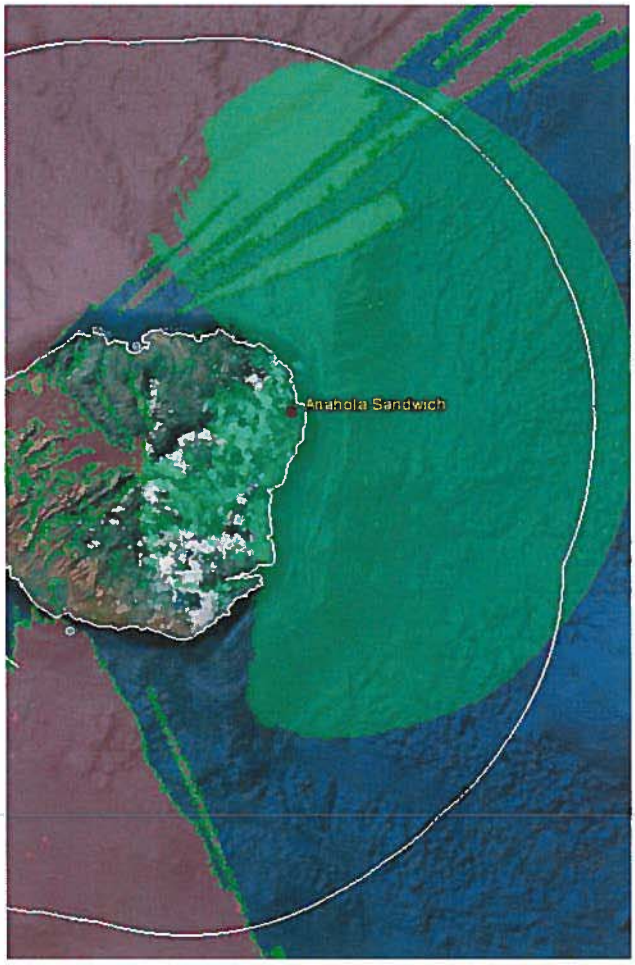


Figure 6

Anahola I HI-207 (Sandwich Isles Co-Lo)

VHF

DF



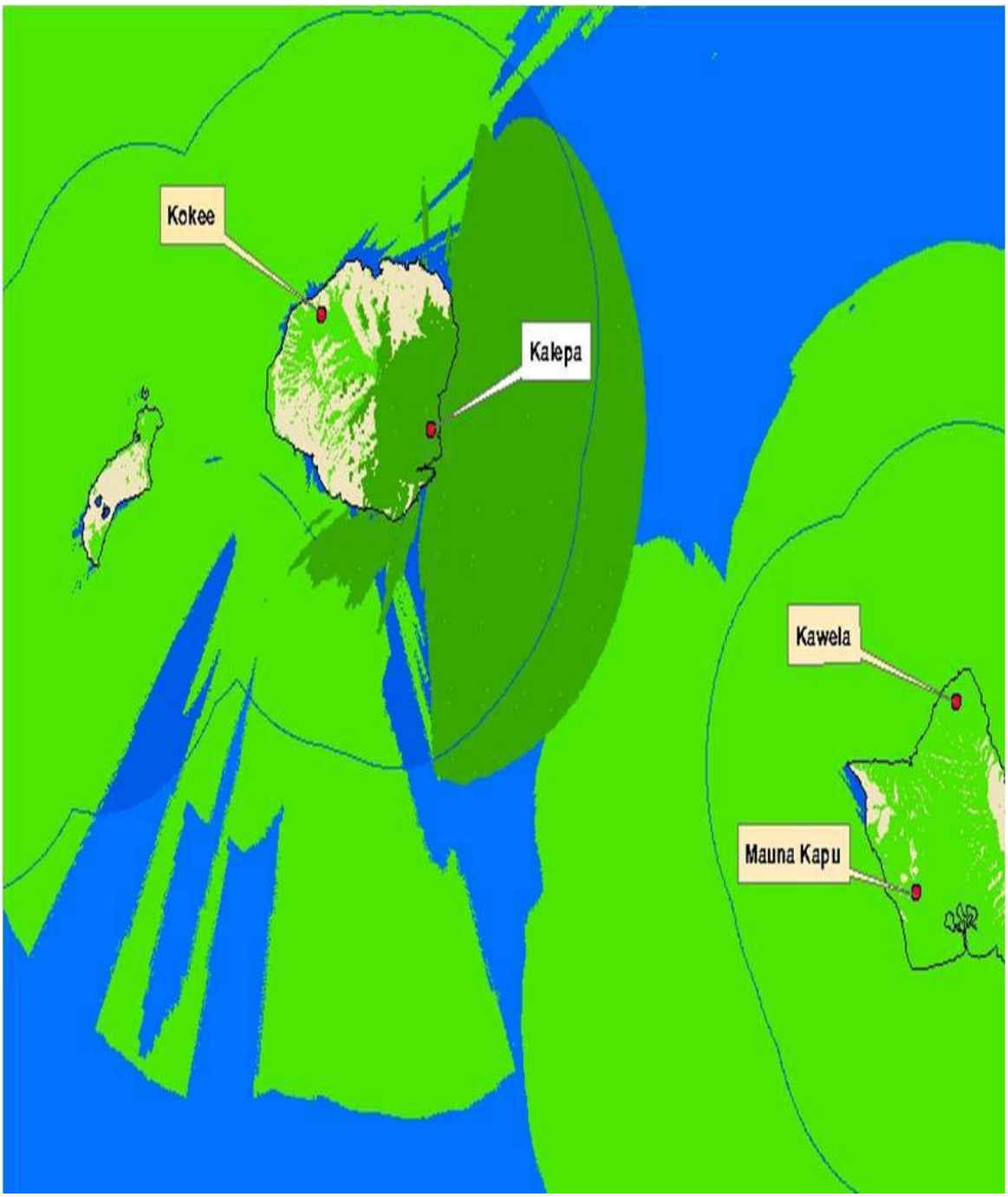


Figure 7
Coverage Plots of RFFs Operability on the Islands of
Kauai and Oahu

C. POTENTIAL IMPACTS TO HAWAIIAN SEABIRD SPECIES PROTECTED BY THE FEDERAL ENDANGERED SPECIES ACT

The following information is intended to discuss the potential impacts of the Rescue 21 Project's proposed RFF Kalepa search and rescue site, on a federally listed Endangered (E), Threatened (T) and Candidate (C) species and their habitat protected under the federal Endangered Species Act (ESA) of 1973.

SPECIES POTENTIALLY IMPACTED BY PROPOSED RFF KALEPA 68-FT MONOPOLE

The UFWS identified three species of Hawaiian seabirds that have the potential of striking the proposed RFF Kalepa 68-ft monopole while in flight. The USFWS's research indicates that Hawaiian seabird strikes to towers, monopoles, power lines, and other obstructions are probable on the Island of Kauai. These Hawaiian seabirds frequent the Island of Kauai during their daily flights, while engaging in activities such as; foraging, resting, perching, preening, breeding and nesting. The Hawaiian seabirds of USFWS concern are listed below.

a) **Hawaiian petrel** *(Pterodroma sandwichensis)* **(E)**
b) **Newell's shearwater** *(Puffinus auricularis newelli)* **(T)**
c) **Band-rumped storm-petrel** *(Oceanodroma astro)* **(C)**

All three species fly between their ocean feeding areas and their nesting sites at night. Red burning lights on towers likely contribute to the attraction and disorientation of the Hawaiian seabirds. Effects from the red burning lights can lead to birds (especially fledglings) flying in circles for hours and falling exhausted to the ground or colliding with power lines, buildings and other structures, this behavior is called fallout. Once grounded, the birds are often struck by vehicles, taken by predators, or die of starvation and dehydration.

The USFWS has not identified nor designated critical habitat for the three Hawaiian seabird species. There is also no record of Hawaiian seabirds nesting on the TMK where the proposed RFF Kalepa 68-ft monopole and equipment compound will be constructed. Although proposed RFF Kalepa will be located on the Island of Kauai, declining species populations on this Island could potentially affect the long-term recovery of these species on the other Hawaiian Islands.

B. HAWAIIAN SEABIRDS CONSERVATION EFFORTS AT PROPOSED RFF KALEPA

The following proposed conservation efforts are taken from the USCG Rescue 21 Biological Assessment, submitted to the Service initially in August 2012; two revisions were required, one in February 2013 and the other in June 2013 (Appendix 1).

1. BIOLOGICAL ASSESSMENT - A Biological Assessment was prepared by the USCG that addresses the proposed action in compliance with Section 7of the ESA. Section 7 assures that, through consultation (or conferencing for proposed species) with the Service, federal actions do not jeopardize the continued existence of any threatened, endangered or proposed species, or result in the destruction or adverse modification of critical habitat.

The USCG was mandated by Congress to update and modernize its search and rescue capabilities on all coasts, the Caribbean and Alaska. This mandate also includes filling in the gaps where no rescue capability exists. The new system known as Rescue 21 will improve reception from 10 to 20 miles from shore and increase the 'searchable' square area. Most of the towers and monopoles are also installed with direction finders, resulting in a more precise location of the distress call and saving hours of search. In order to install these antennas and direction finders, the USCG looks for existing (usually commercial) towers and leases space for the equipment. In rare cases, the USCG must construct its own tower or monopole.

1.1 DOWNED HAWAIIAN SEABIRDS MONITORING AND REPORTING - The monitoring and surveying of downed seabirds at USCG RFF Kalepa, aims to ensure that the data collected is properly recorded and reported to the USFWS. The required reports will serve as proof of the actual numbers of Hawaiian seabirds impacted by tower strikes as a result of the USCG's construction of a 68-ft self-supported monopole at RFF Kalepa. The USFWS estimates that the monopole will take approximately 6-9 Hawaiian seabirds, it is anticipated that this number of Hawaiian seabirds will collide with the monopole over a 20-year period. The annual probability of Hawaiian seabird's tower strikes is 0.37 birds per year according to the USFWS.

The USCG will conduct the required monitoring and reporting for the following federally endangered species: the Hawaiian petrel (*Pterodroma sandwichensis*) **(E)**, Newell's shearwater petrel *(Puffinus auricularis newelli)* **(T)** and the Hawaiian dark-rumped petrel (*Oceanodroma castro)* **(C)**. Newell's shearwater *(Puffinus auricularis newelli)* and the Hawaiian petrel *(Pterodroma sandwichensis)* are of the USFWS's greatest concern. These species are heading towards extinction sooner than the USFWS anticipated and there is serious concern for these Hawaiian seabirds' survival.

The monitoring and reporting period will document the numbers of Hawaiian seabirds that died from tower strikes from the USCG's 68-ft self-supported monopole constructed at RFF Kalepa over a 20-year period. The USCG's searcher(s) will visit the Island of Kauai, to conduct Hawaiian seabirds and downed wildlife monitoring at the USCG's RFF Kalepa site once a month. The searcher(s) will search for carcasses of downed birds in the vicinity of the 68-ft self-supported monopole. The results collected by the USCG's searcher(s) will be recorded and reported to the USFWS annually. The results of downed Hawaiian seabirds and wildlife will be reported to the USCG quarterly, as well as annually using guidance provided by the USFWS (Appendix 2).

1.2 CONSERVATION AND MITIGATION - The Hawaiian seabirds' populations in the State of Hawaii continue to decline, the decline of seabird species is attributed to predation by non-indigenous mammals, feral cats and collisions with manmade structures. Manmade structures that Hawaiian seabirds collide with on the Sandwich Islands of Hawaii are primarily wind turbines, commercial towers and power lines.

According to the USFWS modeling, the USCG 68-ft self-supported monopole take is estimated to be 6-9 Hawaiian seabirds over the 20 year lifespan of the monopole and the annual probability is 0.37 Hawaiian seabirds per year. The Rescue 21 Project is being required by the USFWS to mitigate for the loss of the 6-9 Hawaiian seabirds over the lifespan of the monopole. The USCG will provide funding for a seabird conservation

project to offset the anticipated level of take from the 68-ft self supported monopole.

The USFWS will work with the USCG to develop a conservation project that will enhance the possibility of the Hawaiian seabirds' survival and fit the scope of the anticipated take level of the proposed monopole. The conservation project will consist of a USFWS project designed by the agency or funding will be provided for a project with a wildlife foundation that will benefit the endangered Hawaiian seabirds within the State of Hawaii.

2. OTHER CONSERVATION EFFORTS

To minimize impacts to the listed Hawaiian seabirds, the USCG has undertaken a number of pro-active protective measures:

a) **Lighting control** – The safety/security light will be located under the shed eave and will have a down shield to minimize bird attraction.

b) **Decrease the height of monopole** – Decided not to build a single100-ft self-supported monopole. Changed proposal to a single 68-ft self-supported monopole.

c) **Equipment compound fencing -** The USCG proposes not to fence the equipment compound; therefore not installing lines of barbed wire that would typically be located at the top of a Rescue 21 chain linked compound fence.

d) **Unfenced equipment compound -** The chain linked fence and lines of barbed wires that would usually be located on the top of the chain linked fence enclosing the equipment at an RFF was eliminated.

e) **No co-location on existing tower -**Proposal was modified from an extension of an existing height of a commercially owned 110-ft self-supported lattice tower. Seabird strike studies have shown that lattice towers present a greater seabird strike potential than monopoles.

f) **Optimal tower design -** No guy wires will be necessary for the erection of the monopole

g) **Minimal impact due to location -** The proposed project continues to be located within an existing tower farm.

h) **No addition of utility poles -** No new power (telephone) poles will be constructed. Power lines will be installed on existing poles, and then trenched underground.

i) **Utility pole removal -** One power pole will be removed from the monopole site.

j) **Consideration construction schedule-** All construction, installation and testing will be done during daylight hours; further minimizing impacts to the coastal birds species.

k) In accordance with the USFWS Guidance on the Siting, Construction, Operation and Decommissioning of Communication Towers (February 2010) (Appendix 3), the Rescue 21 Program believes the proposed activities (a-j, above) will minimize impacts on the federally endangered, threatened and candidate Hawaiian seabirds species on the Island of Kauai.

D. USFWS BIOLOGICAL OPINION FOR TWO HAWAIIAN SEABIRDS PROTECTED UNDER THE FEDERAL ENDANGERED SPECIES ACT AT PROPOSED RFF KALEPA

The following information is taken from the USFWS Biological Opinion entitled, "Formal Consultation for the Proposed Kalepa Remote Fixed Facility Tower, Kauai", consultation log number: 2013-F-0334, issued June 27, 2013 pursuant to Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) by Dr. Loyal Mehrhoff, US Fish and Wildlife Service, Field Office Supervisor, Pacific Islands Fish and Wildlife Office, Honolulu, Hawaii (Appendix 4).

1. LIFE HISTORIES, HABITAT DESCRIPTIONS AND THREATS OF TWO HAWAIIAN SEABIRDS

a. Hawaiian petrel *(Pterodroma sandwichensis)* (E)

Life History

Like other procellariiformes, Hawaiian petrels are highly philopatric, returning to the same burrow and mate each year (Simons 1985 pp. 233-234). Beginning in mid-February to early- March, after a winter absence from Hawaii, breeding and non-breeding birds visit their nests regularly at night. After a period of social activity and burrow maintenance they return to sea until late April, when they return to the colony site and egg-laying commences. From mid- March to mid-April, birds visit their burrows briefly at night on several occasions. Then breeding birds return to sea until late April or early May, when they return to lay and incubate their eggs (Simons 1985). Non-breeding birds visit the colony from February until late July (Simons and Hodges I998, pp. I3-14). Information provided by Bailey and Duvall (December 9, 2010), confirmed by Fein's analysis of burrow camera data for the ATST site (Fein, pers. comm. 2009) indicates birds intermittently occupy their burrows during the day during this period as well. Many non-breeders are young birds seeking mates and prospecting for nest sites, but some proportion is thought to be mature adults that will not breed.

Cooper and Day found that Hawaiian petrels flew inland to their nesting areas primarily between sunset and the point of complete darkness. In the morning hours, Hawaiian petrels first move to sea while it was completely dark, starting 60 minutes prior to sunrise, and movement rates increased rapidly until they peaked just after the point of complete darkness had been crossed and movement continued at a decreasing rate until sunrise (Day and Cooper 1995, pp. 32-34). Peak fledging, when young seabirds make their first flight to sea, occurs between September I and December I (Penniman, 20 II pers. comm).

Habitat Description

On Kauai, there is evidence that Hawaiian petrels nest at lower elevations in densely

vegetated rainy environments (Ainley et al. 1997a, p. 24). Hawaiian petrels are colonial and nest in burrows, crevices in lava, or under ferns. Burrows detected on Maui located at Haleakala occur almost exclusively on lava substrates; burrows are located within existing crevasses or excavated in softer material adjacent to rock to bolder-sized lava fragments. Their burrows are generally 3 to 6-ft (1- to 1.8-m) long (from entrance to nest chamber), although some may be as long as 30ft (9.1 m) (Simons and Hodges 1998, p. 14).

Threats

Hawaiian petrels were abundant and at one time, widely distributed; their bones have been found in archaeological sites throughout the archipelago (Olson and James 1982a, p. 32). This species has no natural terrestrial predators other than the Hawaiian short-eared owl, (Asio flammeus sandwichensis). Early Polynesian hunting; predation by introduced mammals such as Polynesian rats (Rattus exulans), dogs, and pigs; and habitat alteration caused initial decline of the Hawaiian petrel population and probably its extirpation from Oahu (Olson and James 1982b, p. 634). The introduction of cats, mongoose, and two additional species of rats (R. rattus and R. norvegiceus) since Euro-American contact along with accelerating habitat loss has led to small relict colonies of Hawaiian petrels in high-elevation, remote locations. The primary reason for the relatively large numbers of petrels and their successful breeding around Haleakala summit today is the fencing and intensive predator control maintained by Haleakala National Park since about 1982. If current elevated levels cat of predation continue, significant declines in even the Park's relatively protected Hawaiian petrel population are likely (Bailey pers. comm., 2011 b). Elsewhere on Maui and in Hawaii, the Hawaiian petrel faces severe threats from non-native predators including rats, cats, mongoose, and introduced barn owls (Tyto alba). Ainley (SWCA 2011, Appendix 25, p. 2) modeled the declining population of 600 breeding pairs of Hawaiian petrels in the West Maui Mountains and predation impacts may render this relatively large population functionally extinct in 27 years (SWCA 2011, Appendix 24, p. 8). Other significant anthropogenic sources of Hawaiian petrel mortality are light attraction and collision with communications towers, power transmission lines and poles, fences, and other structures (Simons and Hodges 1998, pp. 21-22). Fallout of fledglings, making their first flight to the open ocean, is greatest during the week prior to and following the new moon between September 1 and December 1 (Penniman pers. comm. 2011). These problems are likely to be exacerbated by continuing development and urbanization throughout Hawaii. Predator control in key habitat areas, the establishment of bird salvage-aid stations, and light attraction studies have been initiated to help conserve the Hawaiian petrel.

b. Newell's shearwater *(Puffinus auricularis newelli)* (T)

Life History

Most of the life history information for this species is based on studies of the Kauai population; life histories of birds on other Hawaiian islands may differ slightly. During their nine-month breeding season from April through November, Newell's shearwaters live colonially in burrows under ferns on forested mountain slopes. These burrows are used year after year and usually by the same pair of birds. A single egg is laid in late

May or early June (Ainley et al. 1997b, pp. 13-15). Both sexes incubate and this period lasts approximately 45 days. Fledging occurs between October and November. The Newell's shearwater needs an open downhill flight path to become airborne.

Daily flights of breeding adults to and from the colonies occur only at night and just before dawn. On Kauai, Newell's shearwaters were found to exhibit almost no movement until after complete darkness, whereupon they moved inland in a wave that peaked for 30-40 minutes (Day and Cooper 1995, p. I 015). After that peak, the rate of movement decreased steadily until 90 min after complete darkness, after which few birds were seen. In the morning, Newell's shearwaters begin moving to sea in numbers approximately 40 minutes before the first measurable light and movement rates increase rapidly and peak just before dawn (Day and Cooper 1995, p. 1016).

Three age classes of Newell's shearwaters are recognized based on demographic factors and assumptions (from Ainley et al. 2001, p. 115): (I) young-of-year; (2) pre-breeding immature/adult (if recognizable); and (3) breeding adults. Only 46 percent of pairs that actively use a burrow actually breed in a given year on Kauai (Ainley et al. 2001, p. 1 1 7). First breeding occurs at approximately six years of age (Ainley et al. 1997b, p. 17).

A study of reproductive success at one Newell's shearwater colony on Kauai documented an average annual production of 0.66 young per pair (Ainley et al. 2001, p.ll7). No specific data exist on the longevity for this species, but other shearwaters may reach 30 years of age or more.

Habitat Description

On Kauai, Newell's shearwaters breed at elevations between 528 and 3,960 feet. Newell's shearwaters usually nest where the terrain is vegetated by an open canopy of trees with an understory of densely matted uluhe ferns (Dicranopteris linearis). Some Newell's shearwaters nest in other types of habitat such as on the walls of Waimea Canyon, Kauai, where a forest canopy is absent. Burrows used by Newell's shearwaters are most commonly placed at the base of trees, where the substrate may be easier for the birds to excavate.

Threats

The Newell's shearwater was listed as an endangered species in 1975 (Service 1983), pursuant to the Endangered Species Preservation Act of I 966. The Hawaiian Dark-rumped Petrel and Newell's Manx Shearwater Recovery Plan was published in 1983 (Service I 983). A species 5- year review was completed September 27, 2011 pursuant to Section 4(c)(2) of the ESA, the review recommended uplisting to endangered due to precipitous decline in populations on Kauai over the last couple decades. Critical habitat has not been designated for the Newell's shearwater (Service I 983).

During the last 150 years, 75 percent of the forests on the main islands of the Hawaiian archipelago have been converted to agricultural, military, commercial or residential land uses, leading to a depletion of available nesting habitat for this species. The introductions of the mongoose (Herpestes auropunctatus), black rat (Rattus rattus), and Norway rat (Rattus norvegicus) have also played a primary role in the reduction of ground-nesting seabirds. Predation by feral cats (Felis domesticus) and barn owls (Tyto alba) has been

observed. In addition, feral pigs (Sus scrofa) are known to collapse burrows as well as consume or prey upon shearwaters.

Another major threat is the species' attraction to light. Increasing urbanization and the accompanying artificial lights have resulted in substantial problems for fledgling Newell's shearwaters during their first flight to the ocean from their nesting grounds. When attracted to man-made lights, fledglings become confused and may suffer temporary night blindness. They often fly into utility wires, poles, trees, and buildings and fall to the ground. Since 1979 the Kauai District of Hawaii Division of Forestry and Wildlife (DOFAW) has supported the SOS program to collect "downed" Newell's shearwaters and Hawaiian petrels (i.e. birds that have either collided with structures or fallen out, or have been injured or killed due to exhaustion caused by light attraction). According to SOS files, over 33,000 seabirds have been recovered to date (DOFAW 2008). The majority of the birds are Newell's shearwaters, which nest in greater numbers on Kauai than Hawaiian petrels. The lower number of Hawaiian petrels recovered is thought to be a function of their population size on Kauai, not due to differences in behavior or ability to detect structures in the dark.

2. CURRENT AND HISTORIC DISTRIBUTION AND PATTENS OF MOVEMENT OF HAWAII SEABIRDS ON THE ISLAND OF KAUAI AND OTHER HAWAIIAN ISLANDS

1. CURRENT AND HISTORIC DISTRIBUTION

a. Hawaiian petrel *(Pterodroma sandwichensis)* (E)

The Hawaiian petrel was once abundant on all of the main Hawaiian Islands, except Niihau. Today, Hawaiian petrels breed in high-elevation colonies, primarily on east Maui and Mauna Loa on Hawaii Island, on Lanai, and to a lesser extent, on Kauai, and probably Molokai, Lehua, and sea stacks off Kahoolawe (USFWS, 2011).

Based on pelagic observations, the total population including juveniles and subadults is estimated at 19,000 with a breeding population of 4,500 to 5,000 pairs (Spears et. al. 1995, p. 629). At least 1,000 pairs nest in Haleakala National Park, Maui (Bailey, pers. comm.. 2008). The colony on Mauna Loa is estimated to be approximately 75 breeding pairs (Hu, pers. comm... 2008). Kauai populations are difficult to assess, and Cooper and Day (1994, p. iv) estimated there were 1,600 breeding pairs of Hawaiian petrel on Kauai. A breeding colony of the Hawaiian petrel was rediscovered on Lanai in 2006, near the summit of Lanaihale. Although the petrel colony was historically known to occur, its status was unknown and thought to have dramatically declined until surveys were conducted in 2006 (Penniman, pers. Comm.. 2007). The nesting habitat used by the Hawaiian petrel colony on Lanai is delineated by the approximate area of the uluhe fern. Monitoring and research on this population is ongoing, and its size has not been estimated with statistical confidence, but the population appears to be similar in abundance to the Haleakala population, where the largest number of breeding birds is currently known to exist (Penniman, pers. comm.. 2007) (USFWS, 2011).

b. Newell's Shearwater *(Puffinus auricularis newelli)* (T)

Newell's shearwater was once abundant on all of the main Hawaiian Islands. In 1995 the

population estimate, based on at-sea surveys was 84,000 birds (Spear *et al*. 1995, p.624), with approximately 75 % of the population nesting on the Island of Kauai. Newell's shearwater also breeds on several of the other main islands where they nest in mountainous terrain between elevations of 500 and 2,300 feet. This species is known to nest on Hawaii, on Molokai, and may still nest on Oahu. The occurrence on Maui of injured, dead, or grounded adults in the summer, low numbers of radar-detected birds exhibiting Newell's shearwater-like timing of movement, and the presence of juveniles in autumn suggest that this species also nests on Maui (USFWS, 2011).

Population models incorporating best estimates of Newell's shearwater breeding effort and success yielded population decreasing at a rate of 3.2 % annually (Ainley *et al.* 2001, p. 118). When variables describing the anthropogenic mortality suffered by Newell's shearwater (predation, light attraction and collision) were included, these models predicted a population decline of 30 to 60 % over 10 years (Ainley *et. al.* 2001, p.122). Recent ornithological radar surveys, combined with returns of downed birds to the SOS program show an apparent decline of 75 % between 1993 and 2008 (Holmes, pers comm.. 2010), resulting in a current population estimate of 21,000 Newell's shearwaters (USFWS, 2011).

2. Patterns of Movement

Day and Cooper (1995) monitored movements of the Dark-rumped and Newell's shearwater petrels at 8 sites on Kauai. Kalepa Ridge was among the in the sites that were monitored during three seasons. Surveillance radar and night-vision scopes were used to monitor bird movements. The most extensive monitoring was conducted with surveillance radar; night-vision monitoring usually was conducted concurrently with radar sampling. During all monitoring sessions, weather conditions, light condition (daylight, crepuscular, or nocturnal; with or without precipitation), light level (in lux), and moon phase (quarterly phase and whether the moon was absent or present above the horizon) were recorded.

Hours of sampling in a night varied with weather, site, season, and type of monitoring. The mobile laboratory was equipped with a marine radar mounted on a truck camper. The surveillance radar scanned a circular zone around the lab and was used to measure movement rates flight paths, and ground speeds of flying birds. An X-band radar transmitting at 9,410 HMz with a peak power output of 10 kW was used to collect data for the surveillance radar (Day and Cooper, 1995).

Topography often influenced flight patterns at a site and suggested that many, but not all, birds used "flight corridors" for commuting between the sea and inland nesting colonies. Movement rates on the northern half of the Kalepa Ridge site, which was on the southern edge of the Wailua River valley, were much higher (4-7 times as many targets (petrels)) than they were on the southern half of the site, which was considerably farther from the valley. Petrels on the northern half of the site flew into the Wailua valley, whereas most targets on the southern half of the site flew parallel to (i.e. northwesterly and either east or west of the Kalepa Ridge, which is a 200-m-high ridge running slightly obliquely to the coast (Day and Cooper, 1995).

Near the Waailua valley during two seasons, most of the petrels observed during the evening peak movement were headed inland, most of the petrels observed during the

morning peak were headed seaward, and similar percentages of petrels were headed in both directions during the middle of the night. Because nights were shorter in the summer and longer in the fall, there was a slight difference in timing between seasons. Inland movements in summer peaked during 19:00- 19:59 and in fall peaked during 18:30-19:29 during two years. Seaward movements peaked during 04:30-05:29 in both seasons. Geographic variation in mean movement rates on surveillance radar around Kalepa Ridge indicated that an average of 117 petrels were recorded on Kalepa Ridge during all seasons recorded between the hours of 18:00-21:59 (Day and Cooper, 1995).

Table 2 Analysis of Alternatives

RFF	Owner	Type of Tower	Mean Movement Rates (target/hr)	Relative Impact to Hawaiian seabirds
Kalepa	USCG	Monopole self-supported	117	Low
Kilohana	AT&T	Lattice self-supported	241	Moderate
Anahola	Sandwich Isles Communications	Lattice self-supported	293	High

Lattice self-supported towers are known to present more threats to Hawaiian seabirds during flight, than the monopole self-supported design. According to Day and Cooper, (1995) the nighttime mean movement rate for the federally endangered Hawaiian petrel and threatened Newell's shearwater petrel were lower at proposed RFF Kalepa. The potential for the petrels to strike proposed RFF Kalepa monopole appears to be lower.

3. RECOVERY STRATEGIES AND ONGOING CONSERVATION MEASURES IN THE STATE OF HAWAII

The Draft Newell's Shearwater and Hawaiian Petrel Five-year Action Plan describes a recovery strategy that will 1) protect and enhance existing colonies, 2) create new colonies, 3) mitigate new and existing threats by a) implementing prioritized management actions, and b) undertaking research and outreach to support those actions. Actions identified to accomplish this strategy include conducting surveys for existing colonies, controlling threats at the highest priority colonies, and minimizing and monitoring terrestrial threats (light attraction, power line collisions).

a. Hawaiian petrel *(Pterodroma sandwichensis)* (E)

The Kauai Seabird Habitat Conservation Program (KSHCP) plans to address adverse human impacts to seabirds on that island. In addition, DOFAW has been conducting auditory surveys for new areas containing nesting Hawaiian petrels through the Kauai Endangered Species Recovery Program and will use colony ranking criteria to identify areas where recovery actions can be most successful. The State has developed a management plan for the Hono o Na Pali NAR that includes feral ungulate control, but little work has been implemented due to the lack of funding. A 400-ac portion of the privately-owned Upper Limahuli Preserve has been fenced to create an ungulate free area known to contain nesting Hawaiian petrels. Efforts to control feral cats within the Preserve has begun, but the landowner does not have funds to sustain the efforts without continued funding after the conclusion of the KIUC Short-term HCP (2016) (Bogardus, pers. comm. 2011).

Several of these Hawaiian petrel nesting colonies will be protected from predators pursuant to the KIUC Short-term HCP. Efforts to conserve nesting colonies of Newell's shearwater also benefit Hawaiian petrel, but they have been primarily limited to constructing ungulate fencing around remaining areas of relatively intact habitat (Wainiha Valley, Upper Limahuli Valley, etc.). The only active control of cats and/or rats within an area occupied by nesting Hawaiian petrels on Kauai (on private property in Upper Limahuli Valley) started in 2009, but the program has no secure funding source to continue the efforts beyond that which will be available through a the KIUC Short-term HCP.

b. Newell's shearwater *(Puffinus auricularis newelli)* (T)

DOFA W has been conducting auditory surveys for new areas containing nesting Newell's shearwater through their Kauai Endangered Species Recovery Program (KESRP) and is developing colony ranking criteria to identify where the goals of the action plan can be most successful. The minimum conditions necessary to effectively implement colony management that would be expected to achieve a measureable increase in seabird survival and/or reproduction include species presence, access to the areas occupied by breeding seabirds, and landowner authorization and commitment to maintain the managed area in way that is consistent with seabird conservation. To date, only two known nesting colonies occupied by Newell's shearwater (Hono o Na Pali Natural Area Reserve (NAR) and Upper Limahuli Valley) are currently suitable for immediate implementation of management actions focused on increasing seabird survival and reproduction. The State has developed a management plan for the Hono o Na Pali NAR that includes feral ungulate control, but little progress has been made due to the lack of funding. A 400-acre portion of the privately-owned Upper Limahuli Preserve has been fenced to create an ungulate free area known to contain nesting Newell's shearwaters.

While some efforts to protect existing nesting colonies of Newell's shearwater have been implemented on Kauai, they have been limited to constructing ungulate fencing

around remaining areas of relatively intact habitat (Wainiha Valley, Upper Limahuli Valley, etc.). Habitat degradation due to feral ungulates is recognized as the primary threat to native ecosystems in Hawaii and the conservation and restoration of such areas is unsuccessful in the presence of ungulates (Hawaii Conservation Alliance 2005, p. I). The only active control of cats and/or rats within an area occupied by nesting Newell's shearwaters on Kauai (on private property in Upper Limahuli Valley) began in 2009. Funding for the program is currently through the Kauai Island Utility Cooperative (KIUC), and its predecessor Kauai Electric) Short-term Habitat Conservation Plan (HCP) between 2011 and 2016. Efforts to reduce the level of light attraction and power line collisions began in the 1980's when KIUC began replacing unshielded street lights with full-cutoff (shielded) lights across the island as part of its normal maintenance program. All of the over 3,500 streetlights operated by KIUC are now shielded, as are the lights at the facilities it operates. In 2002 KIUC prepared an assessment of the power line segments originally identified by Ainley et al. (1995) as causing the most collisions (David and Day 2002).

In 2007, KIUC began reconfiguring the lines along one of the "hotspot" areas along Kealia Beach by temporarily changing the uppermost electrical circuit from a vertical to a horizontal arrangement which eliminated three of four wire layers in the circuit and reduced the height by about 10 feet. KIUC has been coordinating with the Federal Highways Administration and Hawaii Department of Transportation to plan for the undergrounding of the lines along another hotspot segment near the Wailua River but the implementation has been delayed while issues related to the potential impacts of the project to cultural resources are being resolved (Bogardus pers. comm. 2013).

4. USCG CONSERVATION MEASURES AND MITIGATION

To help offset unavoidable take of listed Hawaiian seabirds, the U.S. Coast Guard will contribute a total of $90,000.00 to the Listed Hawaiian Seabird Conservation Fund, which is developed through the National Fish and Wildlife Foundation (NFWF) and administered by the Service. Funds will be combined with other contributions from Federal agencies, private entities, and partners to achieve a greater conservation benefit for listed Hawaiian seabirds than could be achieved through allocation of U.S. Coast Guard funds alone. Funds will be used to offset the level of take anticipated from the tower through management of seabird breeding colonies. Management may include predator/ungulate removal, invasive plant control, and seabird monitoring at an existing breeding colony on Kauai where current management does not exist or is insufficient to adequately enhance the reproductive success of breeding birds.

Project Schedule Including Implementation of Conservation Measures

- Within 60 days of the establishment of the account, the U.S. Coast Guard will transfer $90,000.00 to the Listed Hawaiian Seabird Conservation Fund.
- Tower and supporting infrastructure construction is anticipated to begin after September 15, 2013 and completed by January I, 2014.

- Downed wildlife searches will commence immediately following tower construction.
- The first annual monitoring report will be provided to the Service by September 30, 2014, and continued annually until September 30, 2033, or such time that the tower is dismantled.

E. UNIQUE CHARTERISTICS OF PROPOSED RFF KALEPA LOCATION – KALEPA RIDGE

The following information is derived from two documents prepared for proposed RFF Kalepa located on Kalepa Ridge, the Archaeological Inventory Survey (Appendix 5) and the Archaeological Monitoring Plan (Appendix 6). Submitted to the USCG by General Dynamics, and written by sub-contractors MWH and Garcia and Associates. The Archaeological Inventory Survey and the Archaeological Monitoring Plan were written in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended and all applicable state and local laws and in formal consultation with the State of Hawaii State Historic Preservation Division.
The Archaeological Inventory Survey was approved on 10 July 2012 (Appendix 7) and the Archaeological Monitoring Plan was accepted on 8 August 2012 (Appendix 8), by the Archaeology Branch Chief and Deputy State Historic Preservation Officer, Historic Preservation Division.

1. CULTURE - Prior to European contact, traditional Hawaiian communities were originally located on the coastal regions of Hanamāʻulu and the surrounding areas. Over time, however, population centers shifted away from the coast and into the valleys where large scale subsistence networks were introduced in response to a rapidly expanding population. Evidence of this geographical and demographic expansion remains today in the loʻi located in the flats of the Niumalu area, the primary and secondary ʻauwai that were used to transport water from the Hulēʻia River inland to taro fields, the ʻAlekoko or Menehune loko Kuapā (walled fishpond), and the two loko wai (fresh water ponds) located east of the proposed RFF Kalepa (Henry et al. 1993:15). Growing socio-political complexity late in Hawaiian pre-history is inferred from the past construction of heiau at Hanamāʻulu, Kalpaki, and Nawiliwili. Thomas G. Thrum (1906:40) documented the remains of these large collective efforts, noting that: Kuhia heiau in Nawiliwili has long been destroyed but is said to have been the largest and most famous in Kauaʻi at that time; only the foundations remain of Ahukini heiau in Kalpaki; Pohakoelele in Kalapaki was completely destroyed, and; Kalauokamanu in Hanamāʻulu, once a large walled heiau, was also completely destroyed around 1855.

By the 1860s, large areas of flat land in the Puna district were cleared for cultivation of sugar cane. The Līhuʻe sugar plantation was formed through a co-partnership under the name of Henry A. Peirce & Co. Throughout the late 1800 and early to mid-1900, plantations became increasingly important for Kauaʻi's economic growth. Sugar cane went into a slow decline after this, with acceleration in the 1970s. After the death of the Līhuʻe plantation manager in 1862, Mr. Isenberg succeeded to the management of the estate. Mr. Isenberg purchased the ahupuaʻa of Hanamāʻulu from Kamamālu, 17,000 acres at $8,500, which enabled the plantation to get the water supply needed to help sustain and increase its economic growth (Walker et al. 1991:B-14). The natural and

cultural landscapes of the project area have been substantially altered by over a century of sugar cultivation. Further landscape transformations have occurred as a result of forest clearing and cattle grazing activities.

Background literature research produced very few traditional, historical, or legendary accounts referencing the immediate project area of Kālepa Ridge, actual location of proposed RFF Kalepa. However, the very notable historical figure Kawelo is associated with Hanamāʻulu Ahupuaʻa. Kawelo and is the central figure in one of the most popular warrior legends of Kauaʻi. There are many versions of the Kawelo story, and while each version varies slightly, they all follow the general formula of a warrior who returns home to Kauaʻi from Oahu to defend his family. Kawelo is sometimes referred to as Kawelo-a-Maihuna-liʻi (son of Maihuna the chief) or Kawelo-lei-makua (Kawelo who cherished his parents) because he defended his parents against their persecutors on Kauaʻi. In the Fornander and Rice versions of the story (Beckwith 1970:407), Maihuna and Malai-a-ka-lani have five children in Hanamāʻulu on Kauaʻi: Kawelo-ma-hamahaia, Kawelo-lei-koʻo, Kawelo-lei-makua (subject of the story), and Kawelo-kamalama, all sons, and Kaena-ku-a-ka-lani, a daughter. It is clear, then that Kawelo was born in Hanamāʻulu, and we can safely surmise that he likely spent a significant part of this youth there as well. There is no other reference to the Hanamāʻulu area until the very end of the epic story, at which point Kawelo retires to his parent's old house at Hanamāʻulu (Beckwith 1970:407).

2. ARCHAEOLOGY – Thomas G. Thrum first documented traditional native Hawaiian sites on the Island of Kauaʻi at the beginning of the twentieth century (Thrum 1906). He listed two heiau in the general vicinity of Hanamā'ulu and though he did not provide the exact locations these sites were later relocated and given numbers by the State Historic Preservation Division. The first, Ahukini Heiau (SHPD 50-30-08-101) he described as a medium-sized heiau that was destroyed and the second, Kauokamanu Heiau (SHPD 50-30-08-102) he described as a large walled heiau that was also destroyed. Wendell Clark Bennett later described Ahukini Heiau as being near Ahukini Point and reported many burials along the shore between Hanamā'ulu and the Wailua River (SHPD 50-30-08-103) (Bennett 1931).

The proposed RFF Kalepa is located on Kalepa Ridge; three archaeological sites have been documented during different archaeological surveys and construction. In 1990, a burial was inadvertently discovered during construction of the existing Hawaiian Telecom tower on the south peak of the ridge (SHPD 50-30-08-1827) (McMahon 1990). This burial was partially disinterred and was associated with historic glass beads and a mound containing other human remains as well as basalt hammer stones and basalt flakes (SHPD 50-30-08-1826) (Esh 2008). In 1994 archaeologists monitoring driveway improvements and construction of a retaining wall discovered human bone fragments associated with a previously identified site (SHPD 50-30- 08-746) (Akana 1994).

The Area of Potential Effect (APE) for the proposed RFF Kalepa undertaking encompasses a .08-acre area which coincides with the existing Hawaiian Telcom facility on Kalepa Ridge. The APE also includes a 110-foot corridor extending downslope along the east side of the Hawaiian Telcom facility access road. A documented burial site is directly adjacent to the proposed RFF Kalepa projects' APE and remnant portions of the

site including disturbed human skeletal remains and lithic artifacts could be present in the project area.

During the construction of proposed RFF Kalepa Archaeological Monitoring will be conducted by a licensed Archaeologist recognized by the State of Hawaii Historic Preservation Division. Archaeological monitoring is intended to mitigate any potential adverse effects to culturally significant properties during this undertaking. The monitor's principle tasks are to: 1) observe all ground-intrusive activities within the area of concern, 2) identify, record, and sample any cultural resources that are inadvertently exposed, and 3) ensure that known historic resources are protected from construction impact. Archaeological testing and site observations indicate that no archaeological sites are to be expected in the previously-tested foundation and footing areas for proposed RFF Kelapa. However, the potential exists for cultural deposits within undisturbed areas, such as the route of the planned utility trench. Archaeological materials in this area may consist of intact burials; human remains redeposited during prior cut and fill road construction, and isolated stone tools and/or lithic debitage. Single-use combustion features are also possible, but less likely given the area's moderate slope.

The proposed RFF Kalepa project received National Historic Preservation Act, Section 6 concurrence from the Deputy State Historic Preservation Officer on 8 August 2012 (Appendix 9).

3. ENVIRONMENTAL JUSTICE – Native Hawaiian are considered a minority population, although they constitute the majority of the population in nearby communities. There will be no disproportionate impacts on minority or low-income populations because of the sites' distances from communities and the potentially positive effect of better emergency communications and search and rescue communications for the island.

4. COASTAL ZONE MANAGEMENT – The State of Hawaii's Coastal Zone Management program is a vibrant planning and management system that guides human activities to assure that land and water uses are designed and carried out in a manner that sustains the resources and their values. There are multiple interests in these precious resources, government and public partnerships can help assure comprehensive and coordinated research, policy development, and public education on ocean and coastal interests toward sustaining a healthy coastal zone (State of Hawaii CZM, 2013).

All of the land area within the State of Hawaii is within the Hawaii Coastal Zone; therefore consistency with the Coastal Zone Management Act (CZMA) must be demonstrated for all federal projects that pose a risk to the environmentally sensitive coastal zone. Federal Consistency was obtained for proposed RFF Kalepa from the State of Hawaii Office of Planning Department of Business, Economic Development and Tourism on 27 November 2012 (Appendix 10). Proposed activities at RFF Kalepa are also in consistency with the State of Hawaii Coastal Zone Management Program.

5. ENDANGERED HAWAIIAN HOARY BAT – The Hawaiian hoary bat is a medium-sized [0.5-0.8 ounces (14-22 grams)], nocturnal, insectivorous bat. The Hawaiian hoary bat is known from the islands of Hawaii, Maui, Oahu, Kauai, and Molokai. Population numbers are not known, but Hawaiian hoary bats are observed regularly only on Hawaii,

Kauai, and Maui. There is a general lack of historic and current data on this subspecies, and its present status is not well understood. Habitat requirements for the Hawaiian hoary bat are also not well known. Bats are most often observed foraging in open areas, near the edges of native forests, or over open water, although this may be due to the ease of detection in these habitats. Hawaiian hoary bats roost solitarily in the foliage of trees.

Threats to the Hawaiian hoary bat include habitat destruction (elimination of roosting sites), direct and indirect effects of pesticides, disease and entanglement on barbed wire fences. In addition, clearing woody vegetation during the bat-birthing and pup-rearing season could harm juveniles left in the roost tree as the female forages. Potential adverse effects from such disturbance can be avoided by not clearing vegetation greater than 15-ft between May and August, the period in which bats are most vulnerable. To minimize potential impacts to Hawaiian hoary bats, the following will be included in the implementation of proposed RFF Kalepa:

- Woody vegetation greater than 15-ft will not be disturbed or cleared from the site; and
- Construction time will be reduced to approximately three months, reducing the potential for disturbance to roosting Hawaiian hoary bats

The USCG Rescue 21 project conducted consultation with the U.S. Fish and Wildlife Service for the federally endangered species the Hawaiian hoary bat; based on the USCG Rescue 21 project agreement to the avoidance and minimization measures above, the USFWS concurred with USCG's Rescue 21 projects' determination that the proposed RFF Kalepa may affect, but is not likely to adversely affect the Hawaiian hoary bat. The USFWS concurrence was received 8 August 2011 (Appendix 11).

F. PUBLIC HEALTH AND SAFETY

There are no current public health resources or issues related to proposed RFF Kalepa. The operation of the search and rescue site will generate no waste or other materials of concern to public safety. Potential health impacts of radio wave transmission will be addressed by meeting Federal Communications Commission exposure standards. The improvement in emergency communications and search and rescue capability will improve public health and safety.

G. ENVIRONMENTAL DUE DILIGENCE

The following information is derived from the Final Phase 1 Environmental Due Diligence Audit [EDDA], Sector Honolulu, RFF Kalepa Site, Hanamaula, Hawaii (2009). Prepared for USCG Rescue 21 by General Dynamics C4 Systems, Scottsdale, Arizona and MWH Americas, Inc.(MWH), Farmington Hills, Michigan in general conformance with the scope and limitations of the American Society of Testing and Materials (ASTM) Standard Practice E 1527-00 (ASTM E 1527-00) (Appendix 12).

The Phase 1 EDDA was conducted for the Rescue 21 Real Property Division and Environmental Division, in compliance with CERCLA and in an attempt to avoid liability. To create the Phase 1 EDDA, MWH researched using EDR NEPA Check® Report, other relevant databases, interviewed adjacent property owners, local resident and

reviewed other available environmental records; a full survey was conducted on-site, along USCG Rescue 21 team members and interviews with county and state officials to identify any "Recognized Environmental Conditions" (RECs) at proposed RFF Kalepa. The Phase 1 EDDA results did not identify any RECs at proposed RFF Kalepa. The details of existing conditions at the time of the site visit at proposed RFF Kalepa and its investigations are summarized below:

1) *Hazardous Substances and Petroleum Products Connection with Identified Uses*

   (a) A diesel-fueled back-up generator was observed within the equipment shelter located at the site. The back-up generator appeared to be in fair condition. A spill kit was observed adjacent to the back-up generator. No staining or leaking was observed in the vicinity of the back-up generator. The back-up generator was not considered a REC;

   (b) *Underground Storage Tanks (UST)* - An UST and associated piping connected to the equipment shelter were observed at the site. One monitoring well was observed adjacent to the UST. The concrete pad for the UST appeared to be in good condition. MWH attempted to gather additional information on the UST from Hawaiian Telcom. No response had been received at the time of this report. The UST was not considered a REC;

   (c) *Other Storage Tank* – An unsecured compressed nitrogen tank was observed within the equipment shelter located at the site. The compressed nitrogen tank was not considered a REC;

   (d) An empty gas can was observed inside the equipment shelter. The gas can was not considered a REC;

   (e) An unsecured compressed nitrogen tank was observed within the equipment shelter located at the site. The compressed nitrogen tank is not considered a REC;

   (f) Batteries within secondary containment were observed inside the equipment shelter located at the site. The batteries appeared in good condition. The batteries are not considered RECs; and

   (g) A battery was observed adjacent to the back-up generator. The battery appeared to be connected to the back-up generator. The battery was not within secondary containment or securely placed. The battery was not considered a REC.

2) *Heating and Cooling* – An air conditioning unit was observed mounted on a concrete pad adjacent to the equipment shelter located at the site. The air conditioning unit appeared to be in good condition. The air conditioning unit was not considered a REC.

3) *Unidentified Substance Containers* – Two white plastic containers were observed adjacent to the back-up generator. The content of the containers was unknown. The plastic containers are not considered RECs.

4) *Drums* – No drums were observed on the site.

5) *Odors* – No unusual odors were detected at the site.

6) *Pools of Liquid* – No pools of liquid were observed on the site.

7) *Polychlorinated Biphenyls (PCBs)* – No PCBs were observed on the site.

8) *Drains and Sumps* – No drains or sumps were observed at the site.

9) *Stained Soil or Pavement* – No stained soil or pavement was observed on the site.

10) *Solid Waste* – No solid waste was observed on the site.

11) *Stains and Corrosion* – No evidence of stains or corrosion was observed on the site.

12) *Stressed Vegetation* – No stressed vegetation was observed on the site.

13) *Other Hazardous Substance and Petroleum Products Containers* – No other hazardous substances or petroleum product containers were observed on the site.

14) *Water Resources*

(a) Potable wells – There were no potable wells identified during the site visit. The EDR Radius Map with GeoCheck® Report identified three state-listed water wells located within a one-mile radius of the site.

(b) Wastewater – There were no wastewater services at the site at the time of the site visit. No wastewater discharges were observed during the site visit.

(c) Wetlands – Nine wetlands were identified within a one-mile radius of the site in the USFWS's National Wetland Inventory (NWI) maps, as shown in the EDR NEPA Check® Report dated 23 January 2009. The site is located in an upland area and the nearest mapped wetland is located ½ mile from the site. During the site on 15 October 2008, wetland vegetation was not observed on the site or in the immediate vicinity of the site. A formal wetland delineation was not conduced by the General Dynamics or MWH Americas, Inc.

(d) Pits, Ponds, or Lagoons – No pits, ponds, or lagoons were observed on the site at the time of the site visit.

H. NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE

1. WHAT DETERMINES A SIGNIFICANT IMPACT?

The NEPA regulations, formulated by the President's Council on Environmental Quality, provide the following criteria for evaluating the significance of an impact. Please note that these criteria are highly subjective and there are no set thresholds. Each of these criteria is discussed in the EA Section above.

The significance of an impact requires consideration of both context and intensity of the impact. First, "the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Thus, significance varies with the setting of the proposed action. Intensity refers to the severity of impact. The following criteria should be considered in evaluating intensity:

- Impacts may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial;
- The degree to which the proposed action affects public health or safety;

- Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical area;
- The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks;
- The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration;
- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts;
- The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places; or may cause loss or destruction of other significant scientific, cultural, or historical resources;
- The degree to which the action may adversely affect an endangered or threatened species or its habitat than has been determined to be critical under the Endangered Species Act of 1973; and
- Whether the action threatens the violation of Federal, State, or local law or requirements imposed for the protection of the environment.

1. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE

The Coast Guard proposes to approve a finding of no significant impact (FONSI) for the proposed action to proceed with the construction of the RFF Kalepa 68-ft monopole and installation of a Direction Finder, three antennas, lighting rod, and a compound with associated equipment.

I . LIST OF PREPARER AND REVIEWERS AND PERSONS CONTACTED DURING THE PREPARATION OF THE EA

1. PREPARER

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2. REVIEWERS

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3. LIST OF INDIVIDUALS, AGENCIES AND ORGAINZATIONS CONTACTED DURING THE PREPARATION OF THE DRAFT ENVIRONMENTAL ASSESSMENT. A COPY OF THE DRAFT ENVIRONMENTAL ASSESSMENT WILL BE PROVIDED FOR THEIR REVIEW AND COMMENTS.

1. Dr. Loyal Mehrhoff, Field Office Supervisor
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3. John Nakagawa
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4. Office of Hawaiian Affairs
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5. Roger H. Imoto, Administrator
Division of Forestry and Wildlife
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1151 Punchbowl Street Room 325
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6. Cindy Y. Young
Department of the Attorney General
State of Hawaii
465 South King Street, Suite 300
Honolulu, Hawaii 96813

a. OTHER INTERESTED PARTIES CONTACTED

Kauai Island Burial Council – Ms Phyllis Cayan - (No response)

Kauai Historic Preservation Commission (Kauai Cultural Resources Commission) – (No response)

Kauai Historic Society – (No response)

Island of Kauai Civic Club (AOHCC Kauai District Council) – Sarah K. Peters, Pelekikena (No response)

b. INTERVIEWS CONDUCTED BY GENERAL DYNAMICS C4 SYSTEMS CONTRACTOR MWH AMERICAS, INC.

MWH attempted to contact the Kauai Fire Department, via email in reference to Phase 1 EDDA research. No response had been received at the time of their report.

MWH attempted to gather additional information on the Site and UST from Hawaiian Telcom. No response had been received at the time of their report.

J . REFERENCES

Day, R.H. and B.A. Cooper 1995. Patterns of dark-rumped petrels and Newell's shearwaters on Kauai. Condor. 97:1011-1027.

U.S. Fish and Wildlife Service. 2011. Formal Consultation for the Proposed Verizon Wireless Communications Facility, Knudsen Gap, Kauai, consultation log number: 2010-F-0431, issued August 10, 2011 pursuant to Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)

Appendix 1
USCG Biological Assessment

BIOLOGICAL ASSESSMENT

UNITED STATES COAST GUARD (USCG)

REMOTE FIXED FACILITY (RFF) KALEPA, KAUI'I, HAWAI'I

USFWS 2011-1-0397

Prepared for:
U.S. Coast Guard
Rescue 21 Project
Commandant
(CG-9331)
U.S. Coast Guard Headquarters
2100 Second Street, S.W.
Washington, DC 20593

Original BA Prepared by:
Joan M. Lang
Environmental Protection Specialist
August 17, 2012

BA Revised by:
Sherrill E. Thompson
Environmental Protection Specialist
February 20 and June 12, 2013

1.0 BACKGROUND/HISTORY

The purpose of this Biological Assessment (BA) is to address the effect of the Remote Fixed Facility (RFF) on Kalepa, Kauai, Hawai'i on listed as endangered or threatened species under the Endangered Species Act (ESA), or their designated critical habitat. The RFF will be constructed by the US Coast Guard (USCG) under the Rescue 21 Program and will enhance the USCG's ability to hear, locate and rescue distressed mariners and property. Search and Rescue (SAR) is one of the eleven (11) Congressional mandated missions for the USCG. In the 1970s this mission was met by the National Defense and Response System; however, by the 1990's this system was obsolete, had limited technology and could not exchange information with federal and other local agencies. As part of this ever-evolving mission, the USCG must continuously update and modernize the equipment used to provide (SAR) capability. Funding for the Rescue 21 Program is part of the USCG's annual budget submission.

This project has the potential to impact the following ESA-listed species (Hawaiian seabirds) that occur in the area:

a) Hawaiian petrel *(Pterodroma sandwichensis)* (E)
b) Newell's shearwater *(Puffinus auricularis newelli)* (T)
c) Band-rumped storm-petrel *(Oceanodroma castro)* (C)

No critical habitat has been identified for these species.

Early coordination and informal consultation with the Service was conducted during a series of letters, e-mails, and phone conversations including:

1. Letter, USCG to USFWS	March 3, 2011
2. Letter, USFWS to USCG	May 3, 2011
3. Letter, USCG to USFWS	June 28, 2011
4. Letter, USFWS to USCG	August 8, 2011
5. Letter, USCG to USFWS	December 13, 2011
6. Email, USCG to USFWS	July 10, 2012
7. Email, USFWS to USCG	July 23, 2012
8. Email, USCG to USFWS	August 2, 2012
9. Email, USFWS to USCG	August 3, 2012
10. Email, USFWS to USCG	August 7, 2012
11. Teleconference with USFWS	August 10, 2012
12. Teleconference with USFWS	October 10, 2012
13. Letter, USFWS to USCG	October 31, 2012
14. Teleconference with USFWS	November 15, 2012

This BA, prepared by the USCG, addresses the proposed action in compliance with Section 7 of the ESA. Section 7 assures that, through consultation (or conferencing for proposed species) with the Service, federal actions do not jeopardize the continued existence of any threatened, endangered or proposed species, or result in the destruction or adverse

modification of critical habitat.

The USCG is mandated by Congress to update and modernize its Search and Rescue capabilities on all coasts, the Caribbean, the Pacific and Alaska. This mandate also includes filling in the gaps where no rescue capability exists. The new system known as Rescue 21 will improve reception from 10 to 20 miles from shore and increase the 'searchable' square area. Most of the towers and monopoles are also installed with direction finders, resulting in a more precise location of the distress call and saving hours of search. In order to install these antennas and direction finders, the USCG looks for existing (usually commercial) towers and leases space for the equipment. In rare cases, the USCG must construct its own tower or monopole.

The specific purpose of this proposed action (monopole and supporting equipment) is to provide prompt response to mariners in distress. The RFF will be able to hear distress calls 20 miles throughout a 180° radius from the monopole, be able to more accurately locate the call with direction finding antenna, and thus respond quickly to the location of the call (vice delays while performing a search grid pattern). At this time there is not any USCG response system in this area.

Actions to establish the RFF include the construction of a 68-ft tall self-supported monopole in Kalepa, Kaua'i, Hawai'i. A small equipment shed, back-up diesel generator and tank, and a telecommunications line will also be constructed. Agreements have been made to share the existing power poles. One existing power pole will be removed. A 110 ft run of electrical conduit will be buried alongside the existing access road to the new shelter. The shed and tower and supporting equipment will be in a fenced compound located within an existing fenced tower farm compound. The USCG will lease the compound space from Grove Farms, Ltd.

2.0 DESCRIPTION OF THE ACTION & ACTION AREA

Construction for the proposed action is anticipated to be 3-4 months. This includes:

1) Construction of an H-frame to hold electrical meters and other measuring devices (usually 3-4 ft tall)
2) Trenching for electrical service from existing telephone poles, across the access road and to the H-frame
3) Construction of an 'ice bridge' to support the telecommunications and power lines to protect them from falling branches and bird/animal contacts
4) Installation of shed (pre-fab) and down-shield light
5) Installation of compound fencing
6) Construction of monopole, attach antennas and install a steady burning red light.
7) Installation of equipment within shed
8) Equipment testing and adjustments

Construction will proceed based on the availability of components. The installation of the H-frame and trenching will occur about the same time to be followed by the construction of the

ice-bridge. All construction, installation and testing will be done during daylight hours, further minimizing impacts to the coastal birds species. Noise will be intermittent, with thetrenching being the longest and most sustained. During similar installations, that phase of the project has taken 5 days or less.

In order to minimize impacts to the listed Hawaiian sea birds, the USCG has undertaken a number of pro-active protective measures:

1) Modified proposal from extension of existing height of a commercially owned 110-ft self-supported lattice tower.
2) Changed proposal to a single100-ft self-supported monopole.
3) Changed proposal to a single 68-ft self-supported monopole. No guy wires will be necessary for the erection of the monopole.
4) The proposed project continues to be located within an existing tower farm.
5) No new power (telephone) poles will be constructed. Power lines will be installed on existing poles, and then trenched underground.
6) One power pole will be removed from the monopole site.
7) The safety/security light will be located under the shed eave and will have a down shield to minimize bird attraction.

In accordance with the USFWS Guidance on the Siting, Construction, Operation and Decommissioning of Communication Towers (February 2010), the Rescue 21 Program believes the proposed activities (1-7, above) will minimize impacts on the threatened and endangered (see list below) seabirds in the area.

Action Area: Based on a review of the literature, there does not seem to be a specific flyway for any of the listed species. The three seabird species fly long distances to their feeding grounds. Since the proposed monopole will be situated between the coastline and nesting sites on Kaua'i, it is reasonable to assume that based on the locations of the fishing grounds, some number of each species might fly over the monopole to their nesting sites. The specific concern for this RFF project is the monopole with a steady burning red light. The light is a requirement of the Federal Aviation Administration (FAA) in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12. For the purposes of this assessment, the defined action area is approximately 1 mile around the fenced compound.

Direct Effects: In general all three species fly between their ocean feeding areas and their nesting sites at night. The steady red burning light is likely to contribute to attraction and disorientation which leads to birds (especially fledglings) flying in circles for hours and falling exhausted to the ground or colliding with power lines, buildings and other structures, i.e.: fallout. Once grounded, the birds are often struck by vehicles, taken by predators, or die of starvation and dehydration.

Indirect Effects: Although the proposed project is to be located on Kaua'i, declining species populations there could potentially affect the long-term recovery of these species both on Kaua'i and on the other Hawaiian Islands.

These species do not appear to breed until they are 3-6 years old (depending on the species) and lay one egg each. An indirect effect could result from the number of birds who will not breed as a result of fallout, tower strikes, leading to fewer eggs, leading to fewer birds.

3.0 LISTED SPECIES & CRITICAL HABITAT IN THE ACTION AREA

The following ESA-listed species occur within the action area, or may be affected by the proposed action:

a) Hawaiian petrel *(Pterodroma sandwichensis)* (Endangered)
b) Newell's shearwater *(Puffinus auricularis newelli)* (Threatened)
c) Band-rumped storm-petrel *(Oceanodroma castro)* (Candidate)

a) Hawaiian petrel *(Pterodroma sandwichensis)* (Endangered)

This species was first listed by the USFWS in March 11, 1967 (FWS.1967). The classification was: Endangered. No revised listings have been issued. No critical habitat was established. No life history has been established.

The Hawaiian Petrel was once considered nonspecific with the Dark-rumped petrel of the Galápagos Islands, but was split from the Galapagos Petrel in 2002 (Bishop Museum). This distinction was based on research that showed the two taxa differed in vocalizations, morphology, breeding seasons and biochemically (Creagrus).

The Haleakala National Park on Maui Island houses the largest known breeding population of 450-650 pairs and Kaua'i is suspected of having as many as 1,600 pairs of breeding birds, perhaps including a colony near the Hono O Na Pail Natural Area Reserve. Small numbers have bred on Hawai'i on both Mauna Loa and Mauna Kea. Colonies may occur at Kumoa Gulch and Lāna'i Hale and small number of calling birds have been heard on Molokai. Recent at-sea surveys estimate the population at approximately 20,000 individuals. These birds may range thousands of kilometers from the nesting colonies, even during breeding season. (Audubon, Hawaiian Petrel)

The marine habitat is very important to the Hawaiian petrel, which only feeds at sea. Foraging in mixed-species flocks of birds over schools of predatory fish, such as tuna drive smaller prey such as squid, fish, and crustaceans close to the surface of the ocean where the petrels can then seize them.

The Hawaiian petrel flies to and from its burrow only at night. Birds arrive in their colonies in March on Kaua'i. After a period of burrow maintenance and social activity, they return to sea for approximately one month, after which they return to their burrows to lay eggs. Petrels do not begin breeding until they are 5 or 6 years old. The petrels fledge between October to December at the Kaua'i, and Lāna'i. A study conducted by the U.S. Geological

Survey found that adult birds fly over 6,000 miles in one trip to collect food for their chick. (Hawaiian Endangered Seabirds: Hawaiian Petrel).

The USFWS *5-Year Review Summary and Evaluation for Hawaiian Dark-rumped Petrel* (USFWS 2011) uses the terms Hawaiian Dark-rumpled Petrel and Hawaiian petrel interchangeably. The evaluation also provides the same information as other sources. The majority of Hawaiian petrels nest on Maui, since the recovery plan was published (USFWS, 1983), more colonies have been located on Kaua'i, Hawai'i, and Lāna'i where there is little protection from predators. The source of fallout (and injury and death) is attraction to and disorientation caused by artificial lights, which leads to birds (especially fledglings), flying in circles for hours and falling exhausted to the ground or colliding with power lines, buildings, and other structure. Once grounded, the birds are often struck by vehicles, taken by predators, or die of starvation and dehydration.

In 2009, the first fencing project on Kaua'i was completed to protect montane nesting habitat for this species. The first pig-proof enclosure of a significant Newell's shearwater and Hawaiian petrel colony in montane Kaua'i was built in 2009, and the pigs have been eradicated from within the fence. Projects including fencing, habitat restoration and feral cat trapping are underway on the other islands, although not all have been fully funded.

The major threat to the Hawaiian petrel is attraction to artificial lights and collision with power lines and other structures. Since the recovery plan was published (USFWS, 1983) economic development has increased significantly on Kaua'i with a concomitant increase in infrastructure and in this threat.

Another key factor in range contraction of this ground-nesting species is predation by non-native predators. Nestlings are extremely vulnerable as they cannot fly for more than 15 weeks after hatching. Predation by non-native mammals (rats, cats and pigs) and non-native barn owls (*Tyto alba*) remains a severe threat which evolved in the absence of such predators. This threat affects nesting colonies even in the most remote habitats.

Nesting habitat has been lost from lowland areas due to urbanization and degraded by feral goats and pigs. Nest burrows trampled by feral goats, sheep and potentially axis dear. In addition, suitable habitat is threatened by invasion of non-native plant species that fundamentally alter the vegetation structure so that petrels cannot excavate burrow or even reach the ground. On Kaua'i, the breeding range appears centralized over the northwest regions, which has the most intact remaining native forest and is furthest from human development.

Numerous knowledge gaps remain for the Hawaiian petrel such as foraging and other at-sea behavior; annual and age-specific survival, especially for non-breeders; and the scope and severity of threats at sea. (USFWS, 5 Year Review Hawaiian Dark-Rumped Petrel).

b) Newell's shearwater *(Puffinus auricularis newelli)* (Threatened)

This species was first listed by the USFWS in April, 21 1975 (FWS.1975.) The classification was: Threatened. No revised listings have been issued. No critical habitat was established. No life history has been established.

The Newell's shearwater was thought to have gone extinct in the early 1900s. It was sighted offshore of Kaua'i in 1947 and a colony was discovered there in 1967. The species breeds only on the Hawaiian Islands with approximately 90 percent breeding only on Kaua'i. Pairs mostly mate for life, and only lay one egg each breeding season. The breeding season runs from April to November, and during the 5-7 months it takes to raise a chick, the parents take turns sitting on the egg and going out to sea to feed. Once the chick is hatched, both parents will go to sea during the day, with one returning at night to feed the chick. During the non-breeding season (December-March) these birds remain at sea.

In the 5-Year Review Summary and Evaluation (USFWS), it was noted that since the recovery plan was published (1983), three of the eight nesting colonies on Kaua'i have been extirpated, probably by a combination of predators and incursion by alien invasive plants that preclude excavation of nest burrows. More colonies have been located in remote areas of the island, but to date only two receive any protection. Kilauea Point National Wildlife Refuge, which harbors roughly four breeding pairs is dog-fenced and predator-controlled and hosts a small social attraction project to augment the colony. Upper Limahuli Valley Preserve (privately owned) which harbors perhaps dozens of pairs over 400 acres, was ungulate- fenced in 2009. Pigs have been removed from the enclosure and predator control has been initiated recently in a part of the preserve.

The 5-Year Review states the species is currently monitored on the island of Kaua'i, where 75 to 90 percent of the population nests, but no comprehensive surveys are conducted on the other islands. Analysis of at-sea data collected from 1984 to 1993 yielded an abundance estimate of 83,379 birds. Since the early 1990's, the Newell's shearwater has experienced a sharp population decline on Kaua'i.

The conventional wisdom is that loss of juvenile animals typically has little population-level impact on long-lived, low fecundity species such as seabirds. However, the chronic loss of fledglings in high numbers over decades has had a demonstrable population-level impact on Newell's shearwaters.

Numerous knowledge gaps remain for Newell's shearwater e.g., foraging and other at-sea behavior; annual and age –specific survival, especially for non-breeders, and the scope and severity of threats at sea. (USFWS)

c) Band-rumped storm-petrel *(Oceanodroma castro)* (Candidate)

This species was first listed by the USFWS in December 10, 2008 (FWS, 2008). The classification was: Candidate. No revised listings have been issued. No critical habitat has been identified. No life history has been established.

In the Federal Register notice, the USFWS stated there are three widely separated breeding populations (Japan, Galapagos, and Hawai'i). The first two populations are comparatively large and number in the thousands, while the Hawaiian birds represent a small, remnant population of possibly only a few hundred pairs. The available information indicates that distinct populations of band-rumped storm petrels are definable and that the Hawaiian population is distinct based on geographic and distributional isolation from other band rumped storm-petrel populations in Japan, the Galapagos, and the Atlantic Ocean.

Loss of the Hawaiian population would cause a significant gap in the distribution of the band-rumped storm-petrel in the Pacific, and could result in the complete isolation of the Galapagos and Japan populations without even occasional genetic exchanges.

The band-rumped storm-petrel is the smallest and rarest seabird that breeds in Hawai'i. The species' breeding biology in Hawai'i is poorly known, but they nest in burrows or natural cavities in a variety of high-elevation, inland habitats. A single egg is laid per season. In Hawai'i eggs are laid between May and June and nestlings fledge in October. They likely do not breed until they are three to seven years old, and likely live for 15 to 20 years. (Hawaii's Comprehensive Wildlife Conservation Strategy)

The USFWS Species Assessment and Listing Priority Assignment Form notes the majority of the breeding colonies are located on State-owned lands on the island of Kaua'i in remote cliff locations. Another breeding colony likely exists on Lehua Islet which is federally – owned by the US Coast Guard. In Hawaii, the nesting season occurs during the summer months, with adults establishing nesting sites in April or May. The incubation period averages 42 days and the young reach fledging stage in 64-70 days. When not at nesting sites, adults spend their time foraging on the open ocean. Food consists mostly of small fish, squid, crustaceans, oily scraps of marine animal carcasses, and garbage remnants.

Kaua'i likely has the largest population of band-rumped storm-petrels in the Hawaiian Islands. Surveys in 2002 reveled what appears to be nesting populations in six locations, including one in Waimea Canyon east of Waimea Canyon lookout, for populations along the Na Pali Coast (Kalalau, Pohakuao, Nuololo Aina, and Nuololo Kai) and one at the eastern rim of Nuololo and Awaawapuhi Valleys. Three other sites were monitored and appear to be areas where the petrels are in transit to nearby nesting area, including Waimea Canyon, Honopu and Kalalau Rim (both at Kokee State Park). At that time, it was estimated there were 171-221 nesting pairs on Kaua'i.

The band-rumped storm-petrel demonstrates high fidelity to nest chambers, suggesting genetic isolation of colonies. The actual degree of genetic isolation of the Hawaiian population is not known. Investigation of the genetic relationships of related species with similarly disjunct breeding populations in the Galapagos and Hawai'i has shown no genetic interchange between the two locations. It has been concluded that if one of the Pacific populations is lost, natural recolonization following from the other population is unlikely.

The band-rumped storm-petrels are under threat from feral goats and the European rabbit. Goats, introduced in 1972, are able to forage in extremely rugged terrain and have a high

reproductive capacity. They may trample band-rumped storm-petrel burrows and/or cause rockslides that bury the burrows.

Other threats include introduced predators: Polynesian rat, the domestic cat, small Indian mongoose, common barn owl, black rat, and Norway rat. The effect of these predators is likely devastating. Evidence from the islands of Hawaii and Maui show the Hawaiian dark-rumped petrel, which nests in some of the same areas as the band-rumped storm-petrel, suffer high losses to introduced predators. The effects of introduced predators on the breeding success of Hawaiian dark-rumped petrels are probably similar to the effects on band-rumped storm-petrel breeding success because these birds are equally vulnerable and nest in the same areas. Population modeling of the Hawaiian dark-rumped petrel indicates that predation levels as low as 10 percent in a single season would require a recovery period of at least seven years. Small ground nesting and burrow nesting seabirds such as storm petrels, as well as their eggs and young in such nests, are highly susceptible to predators.

Another significant impact to this species results from the effects of artificial lights on fledging young and to a lesser degree, adults. Artificial lights both attract and confuse night-flying storm-petrel fledglings and other seabirds resulting in 'fall-out'. The actual extent of such loss and its overall impact on the population is not known because scavengers prevent the majority of fall-outs from being detected, but any loss in such a small population is significant.

A natural environmental disturbance during breeding season could cause reproductive failure and could destroy a significant percentage of the known extant individuals. (USFWS)

4.0 ENVIRONMENTAL BASELINE CONDITIONS

a) Hawaiian petrel *(Pterodroma sandwichensis)* (Endangered)

Sightings of the Hawaiian petrel are rare. Their dwindling habitat has resulted in a drastic population decline for a bird that may have numbered in the thousands. Continued habitat modification, the spread of invasive species and predation by non-native mammals threaten the remaining colonies. Their story is part of the greater biological destruction taking place on the Hawaiian Islands, endangering much of the biodiversity that remains. It appears that like other species of Hawaiian birds, the petrels were driven out of their natural homes and now congregate on the diminishing areas of habitat that remain (Crimitile, 2012). On Kaua'i, that habitat is in high-elevation regions.

It appears that this species began its decline when Polynesians came to the Hawaiian Islands. Specifically, the major threat to the Hawaiian petrel is attraction to artificial lights and collision with power lines and other structures. Since the recovery plan was published (USFWS, 1983) economic development has increased significantly on Kaua'i, with a concomitant increase in infrastructure and in this threat.

Another key factor in range contraction of this ground-nesting species is predation by non-native predators. Predation by non-native mammals (rats, cats and pigs) and non-native barn owls (*Tyto alba*) remains a severe threat which evolved in the absence of such predators. This threat affects nesting colonies even in the most remote habitats.

Nesting habitat has been lost from lowland areas due to urbanization and degraded by feral goats and pigs. Nest burrows trampled by feral goats, sheep and potentially axis deer. In addition, suitable habitat is threatened by invasion of non-native plant species that fundamentally alter the vegetation structure so that petrels cannot excavate, burrow or even reach the ground (USFWS, 2011).

New threats to Hawaiian petrels are from wind farms. Section 7 consultation and Habitat Conservation Plans are approved or being planned and are likely to affect petrels on Oahu, Maui, Moloka'i and Lana'i.

b) Newell's shearwater *(Puffinus auricularis newelli)* (Threatened)

A chief threat to Newell's shearwaters is attraction to artificial lights and collision with power lines and other structures. Since the recovery plan was published, development has increased significantly on Kaua'i, with a concomitant increase in infrastructure and in this threat. Although new lights are shielded, this does not eliminate the treat of fallout or significantly compensate for the effects of increased urbanization. Even with the Save our Shearwaters program (SOS), there is a significant mortality of fledglings with 2 percent to 10 percent or more of fledged shearwaters likely dying due to fallout.

Predation by non-native mammals (rats, cats and pigs) and non-native barn owls remain a severe threat to this ground-nesting seabird, which evolved in the absence of such predators. This threat affects nesting colonies even in the most remote, intact habitats on Kaua'i.

More colonies have been located in remote areas of the Kaua'i, but to date only two receive any protection. Kilauea Point National Wildlife Refuge, which harbors roughly four breeding pairs is dog-fenced and predator-controlled and hosts a small social attraction project to augment the colony. Upper Limahuli Valley Preserve (privately owned) which harbors perhaps dozens of pairs over 400 acres, was ungulate-fenced in 2009. Pigs have been removed from the enclosure, and predator control has recently been initiated in part of the preserve.

Although shielding of lights in recent years has somewhat reduced the exposure of fledglings to this treat, the annual fallout continues. The effectiveness of rehabilitation activities in improving the survival of these birds is unknown. Predator control will also be conducted at Hono o Na Pali Natural Area Reserve as part of the short-term Habitat Conservation Plan (HCP). The two most important factors limiting population growth are low breeding probability and high rates of predation on adults and subadults. (USFWS 2011a)

c) Band-rumped storm-petrel *(Oceanodroma castro)* (Candidate Species)

Historically, the band-rumped storm-petrel probably was common on all the main Hawaiian Islands when aboriginal Polynesians arrived about 1,500 years ago. They were once numerous and nested in sufficiently accessible sites, including coastal areas to be used as a source of food and possibly feathers.

Currently, the scarcity of breeding colonies in Hawaii and their remote inaccessible locations compared to prehistoric population levels, this species was significantly reduced in numbers and range following settlement of the islands by aboriginal Polynesians. This likely was the beginning of the decline in the species population that has continued in low numbers found today in the Hawaiian Islands.

The band-rumped storm-petrels are under threat from feral goats and the European rabbit. Goats, introduced in 1972, are able to forage in extremely rugged terrain and have a high reproductive capacity. They may trample band-rumped storm-petrel burrows and/or cause rockslides that bury the burrows.

Other threats include introduced predators: Polynesian rat, the domestic cat, small Indian mongoose, common barn owl, black rat, and Norway rat. Population modeling of the Hawaiian dark-rumped petrel indicates that predation levels as low as 10 percent in a single season would require a recovery period of at least seven years.

Another significant impact to this species results from the effects of artificial lights on fledging young and to a lesser degree, adults. Artificial lights both attract and confuse night-flying storm-petrel fledglings and other seabirds resulting in 'fall-out'. The actual extent of such loss and its overall impact on the population is not known because scavengers prevent the majority of fall-outs from being detected, but any loss in such a small population is significant.

5.0 DOWNED SEABIRDS MONITORING AND REPORTING

The monitoring and surveying of downed seabirds at USCG RFF Kalepa, aims to ensure that the data collected is properly recorded and reported to the USFWS, the State of Hawaii Department of Land and Natural Resources Division of Forestry (State of Hawaii) and the USCG. The required reports will serve as proof of the actual numbers of seabirds impacted by tower strikes as a result of the USCG's construction of a 68-ft self-supported monopole at RFF Kalepa. The USFWS estimates that the monopole will take approximately 4-8 seabirds, it is anticipated that this number of seabirds will collide with the monopole over a 20-year period. The annual probability is 0.37 birds per year (personal communication, USFWS, August 2, 2012).

The USCG will conduct the required monitoring and reporting for the following federally endangered species: the Hawaiian petrel (*Pterodroma sandwichensis*) (Endangered), Newell's shearwater petrel *(Puffinus auricularis newelli)* (Threatened) and the Hawaiian dark-rumped petrel (*Oceanodroma castro)*(Candidate species). Newell's shearwater *(Puffinus auricularis*

newelli) (Threatened) and the Hawaiian petrel *(Pterodroma sandwichensis)* (Endangered) are of the USFWS's greatest concern. These species are going to extinction sooner than the USFWS anticipated (personal communication, with the USFWS, October 10, 2012).

The monitoring and reporting period will document the numbers of seabirds that died from bird strikes to the USCG's 68-ft self-supported monopole constructed at RFF Kalepa over a 20-year period. The USCG's monitor will visit the Island of Kauai, to conduct seabirds monitoring at the USCG's RFF Kalepa site once a month. The monitor will search for carcasses of downed birds in the vicinity of the 68-ft self-supported monopole. The results collected by the USCG's monitor will be recorded and reported to the USFWS annually. The results of downed seabirds will be reported to the USCG quarterly, as well as annually.

a) Survey Area

An area as wide and long as the tower is tall (68-ft by 68-ft) will be searched in transects approximately 20 ft apart. On an annual basis, no later than September 30 of each year, the State of Hawaii will provide the USCG and the USFWS with a report that includes the date and time of each visit by the monitoring team and whether or not a downed bird or other injured or deceased wildlife was found.

b) Survey Method

If a carcass is found, the monitoring team member(s) will follow the Downed Wildlife Protocol (**Appendix 1**), and carcasses will be left in place until directed by the USFWS to collect the species. Once the species is collected, all carcasses found during the standardized carcass searches will be recorded and identified by a unique number. A copy of the data sheet for each carcass will be kept with the carcass at all times. For each carcass found, searchers will record species, sex and age when possible, date and time collected, location, condition and any comments that may indicate cause of death. Searchers will record the condition of each carcass found, using the following condition categories:

* Intact – a carcass that is completely intact is not badly decomposed and shows no sign of being fed upon by a predator or scavenger.

* Scavenged – an entire carcass that shows signs of being fed upon by a predator or scavenger, or portions of a carcass in one location (e.g., wings, skeletal remains, legs, pieces of skin, etc.).

* Feather Spot – 10 or more feathers at one location indicating predation or scavenging or two or more primary feathers.

Searchers will photograph each carcass as found and establish GPS points, with point accuracy of no less than 50 ft. A detailed map of the search area will then be created showing the location of the tower and associated facilities, the study area, and any carcasses located.

Any injured native birds found on the facility site will be carefully captured and transported to the Kauai Humane Society. All project staff, monitoring team members and consultants will be trained on how to handle any downed wildlife or carcasses found anywhere within the project

area. Furthermore, a Downed Wildlife Incident Report will be completed for any injured or killed bird found on the site (Appendix 1).

c) Reporting

Information from the required monthly downed seabirds monitoring surveys will be combined into a quarterly report that will be submitted to the USCG three times a year.

On an annual basis, no later than September 30 of each year, the USCG will provide the USFWS with an annual downed seabirds monitoring report. The contents of the repost will include the date and time of each visit by the monitor(s) and whether or not a downed bird or other injured or deceased wildlife was found.

6.0 EFFECTS OF THE ACTION

The purpose of the proposed action is to locate and save mariners in distress in an approximate 20-mile radius from the tower location on Kalepa Ridge, Kauai. At this time, the area does not have any coverage.

The proposed project is not located near known or suspected nesting sites for any of the species. The 68-ft self supported monopole and associated equipment will be located within an existing tower farm, thus avoiding loss of habitat. The safety/security light will be down shielded to minimize potential effects to night-migrating birds. However, as required by the FAA, the monopole will have a steady red burning light to warn aviators of its presence as they approach the Lihue Airport. This light is required to be on 24/7. Red steady burning or pulsing lights have been shown to distract birds causing fall-out.

Modeling conducted by the USFWS has shown that 99 percent of the birds flying directly at the 68-ft self-supported monopole will be able to avoid the monopole. However, it is still anticipated that 4-8 seabirds will collide with the 68-ft self-supported monopole over a 20-year period. The annual probability is 0.37 birds per year (personal communication with the USFWS, August 2, 2012).

If the proposed project does not proceed, the threat of fallout will not occur as a result of the monopole and red light. However, an unknown number of mariners might not be rescued.

7.0 MITIGATION AND CONSERVATION PROJECT

The seabirds' populations in the State of Hawaii continue to decline, the decline of seabird species is attributed to predation by non-indigenous mammals, feral cats and collisions with manmade structures. Manmade structures that seabirds collide with on the Sandwich Islands of Hawaii are primarily wind turbines, commercial towers and power lines.

According to the USFWS modeling, the USCG 68-ft self-supported monopole take is estimated to be 4-8 seabirds over the 20 year lifespan of the monopole and the annual probability is 0.37 seabirds per year. The Rescue 21 Project is being required by the USFWS

to mitigate for the loss of the 4-8 seabirds over the lifespan of the monopole. The USCG will provide funding for a seabird conservation project to offset the anticipated level of take from the 68-ft self supported monopole.

The USCG proposes not to fence the equipment compound; therefore not installing lines of barbed wire that would typically be located at the top of a Rescue 21 chain linked compound fence. This modification will be implemented to minimize seabird colliding with the chain linked fence wires and lines of barbed wires that would usually located on the top of the chain linked fence. The USFWS will work with the USCG to develop a conservation project that will enhance the possibility of the seabirds' survival and fit the scope of the anticipated take level of the proposed monopole. The conservation project will consist of a USFWS project designed by the agency. Funding will be provided for a project with a wildlife foundation that will benefit the endangered seabirds within the State of Hawaii.

8.0 CUMULATIVE EFFECTS

The State Highway of Transportation has announced a series of road improvements on Kauai including slope stabilization; repair/replace several bridges and widening several roads. Some of these improvements appear to be associated with Waimea Canyon, where at least one nesting population of the band-rumped storm-petrel is located (DOT).

A review of the Kauai General Plan identified a projected population growth from 56,420 in 1997 to 65,260 to 74, 320 in 2020. This is an increase of 15.7% - 31.7% from the 1997 baseline. (Kauai Appendix B1).

Also the Kauai General Plan listed a number of proposed resorts hotels and condominium projects and extensions of existing resorts/condominiums. These numbers total 2, 335 multifamily units with an additional 5 proposed resort area projects not currently identified on the General Plan Map. If these resorts were constructed to maximum capability, an excess of 275 acres would be taken out of open/agricultural land. (Kauai Appendix C).

While it is uncertain as to how many of these proposed units and projects would be constructed, it is also uncertain as to how many of these projects would minimize night lighting and therefore how many birds would be victims of fall-out.

9.0 CONCLUSIONS

In conclusion, we have determined that the proposed action will likely to adversely affect the three listed species. At this time, it is unknown which species will be affected by the red burning light, as it appears that one or more will fly over the 68-ft self-supported lighted monopole. The LLA determination is based on USFWS estimation of 4-8 seabirds (listed species) will collide with 68-ft self-supported monopole during the next 20 years. An incidental take statement is requested from the USFWS for proposed RFF Kalepa.

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Appendix 2
Downed Hawaiian Seabirds

USCG RFF Kalepa Downed Hawaiian Seabirds
Appendix 2

1.0 STANDARDIZED CARCASS SEARCHES

Carcass searches will be conducted to estimate the number of Hawaiian seabirds' fatalities or injuries attributable to the USCG's 68-ft self-supported monopole at RFF Kalepa.

1.1 METHODS

The USCG searcher(s) will search for carcasses of downed Hawaiian seabirds once a month. A USCG Downed Wildlife Protocol (including downed seabirds) will be developed by the USCG in cooperation with the USFWS. The USCG Downed Wildlife Protocol will be approved by the USFWS.

In general, boundaries of square plots will be delineated from the base of the tower. A strip transect design is appropriate for this study, providing almost 100 percent coverage of the search area. The topography of the project site is such that searcher(s) should be able to stay on transect lines, with good visibility for detecting downed Hawaiian seabirds. USFWS will provide the USCG searcher(s) with guidelines to plan the search pattern and boundaries. A map of RFF Kalepa is attached as **Attachment 1 (Lease Exhibit)**.

Important factors to be considered in developing the downed Hawaiian seabirds' protocol include the monopole dimensions, target species size, flight patterns and vegetation structure. The subject monopole is a 68-ft self-supported monopole with no guy wires; the probability of take is reduced due to the absence of guy wires.

A Global Positioning System (GPS) will be used to document locations of the search plot corners that will be included in the initial data collection, the searcher(s) will also provide GPS coordinates for other data collection locations during the duration of the monitoring. The measurements for the required transects and the rate that the searcher(s) will walk along each transect, will be determined in the downed Hawaiian seabirds' protocol. Search area and speed may be adjusted by habitat type or if other needs are identified, upon approval by the USFWS. USCG contact information will be provided in the Downed Wildlife Protocol plan.

1.2 HANDLING CARCASSES

If a carcass or carcasses of a listed species is found, searcher(s) will follow the Downed Wildlife Protocol (**Attachment 2, USFWS will provide)**, and carcasses will be left in place then moved only if directed by the USFWS. If the USFWS directs the USCG

searcher(s) to move the carcasses, they will also be instructed where to send the carcasses.

All collected carcasses will be placed in a plastic bag, and placed in a refrigerator (preferred) or freezer within 24 hours. Included in the bag with the carcass should be a piece of paper with the date and time of collection and location the carcass was found. Copies of the Downed Wildlife Incident Report (**Attachment 3, USFWS will provide**) will be available on site, and personnel will enter fields to the best of their ability. The USFWS will be contacted for further instruction regarding transfer or transport of the carcass.

1.3 MONITORING AND REPORTING

The monitoring and reporting period will document the numbers of Hawaiian seabirds that died from tower strikes from the USCG's 68-ft self-supported monopole constructed at RFF Kalepa over a 20-year period. The USCG's searcher(s) will visit the Island of Kauai, to conduct Hawaiian seabirds and downed wildlife monitoring at the USCG's RFF Kalepa site once a month. The searcher(s) will search for carcasses of downed birds in the vicinity of the 68-ft self-supported monopole. The results collected by the USCG's searcher(s) will be recorded and reported to the USFWS annually. The results of downed Hawaiian seabirds and wildlife will be reported to the USCG quarterly, as well as annually.

2.0 TRAINING

Searcher(s) training will be conducted by the USFWS at a location of the USFWS's choice. Sufficient amount of time should be allocated to attend the training session, the USFWS will determine the duration of the training session. If a searcher(s) is replaced or a new searcher is added, each searcher must be trained by the USFWS before a search is conducted.

2.1 SAMPLING INTENSITY AND DURATION

Searches are not required between approximately November 30 and February 14, when the Hawaiian seabirds are not expected to be on the island. Carcass searches will occur when the USCG visits RFF Kalepa once a month, which would be: during the second half of February, March, April, and so forth through November of each year.

Appendix 3
USFWS Interim Guidelines for Recommendations on Communications Tower Siting, Construction, Operation, and Decommissioning

Service Interim Guidelines For Recommendations On Communications Tower Siting, Construction, Operation, and Decommissioning

1. Any company/applicant/licensee proposing to construct a new communications tower should be strongly encouraged to collocate the communications equipment on an existing communication tower or other structure (e.g., billboard, water tower, or building mount). Depending on tower load factors, from 6 to 10 providers may collocate on an existing tower.

2. If collocation is not feasible and a new tower or towers are to be constructed, communications service providers should be strongly encouraged to construct towers no more than 199 feet above ground level, using construction techniques which do not require guy wires (e.g., use a lattice structure, monopole, etc.). Such towers should be unlighted if Federal Aviation Administration regulations permit.

3. If constructing multiple towers, providers should consider the cumulative impacts of all of those towers to migratory birds and threatened and endangered species as well as the impacts of each individual tower.

4. If at all possible, new towers should be sited within existing "antenna farms" (clusters of towers). Towers should not be sited in or near wetlands, other known bird concentration areas (e.g., State or Federal refuges, staging areas, rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. Towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.

5. If taller (>199 feet AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white (preferable) or red strobe lights should be used at night, and these should be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. The use of solid red or pulsating red warning lights at night should be avoided. Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied.

6. Tower designs using guy wires for support which are proposed to be located in known raptor or waterbird concentration areas or daily movement routes, or in major diurnal migratory bird movement routes or stopover sites, should have daytime visual markers on the wires to prevent collisions by these diurnally moving species. (For guidance on markers, see *Avian Power Line Interaction Committee (APLIC). 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994. Edison Electric Institute, Washington, D.C., 78 pp*, and *Avian Power Line Interaction Committee (APLIC). 1996. Suggested Practices for Raptor Protection on Power Lines. Edison Electric Institute/Raptor Research Foundation, Washington, D.C., 128 pp.* Copies can be obtained via the Internet at http://www.eei.org/resources/pubcat/enviro/, or by calling 1-800/334-5453).

7. Towers and appendant facilities should be sited, designed and constructed so as to avoid or minimize habitat loss within and adjacent to the tower "footprint." However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance, and to reduce above ground obstacles to birds in flight.

8. If significant numbers of breeding, feeding, or roosting birds are known to habitually use the proposed tower construction area, relocation to an alternate site should be recommended. If this is not an option, seasonal restrictions on construction may be advisable in order to avoid disturbance during periods of high bird activity.

9. In order to reduce the number of towers needed in the future, providers should be encouraged to design new towers structurally and electrically to accommodate the applicant/licensee's antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower.

10. Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.

11. If a tower is constructed or proposed for construction, Service personnel or researchers from the Communication Tower Working Group should be allowed access to the site to evaluate bird use, conduct dead-bird searches, to place net catchments below the towers but above the ground, and to place radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.

12. Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.

In order to obtain information on the extent to which these guidelines are being implemented, and to identify any recurring problems with their implementation which may necessitate modifications, letters provided in response to requests for evaluation of proposed towers should contain the following request:

"In order to obtain information on the usefulness of these guidelines in preventing bird strikes, and to identify any recurring problems with their implementation which may necessitate modifications, please advise us of the final location and specifications of the proposed tower, and which of the measures recommended for the protection of migratory birds were implemented. If any of the recommended measures can not be implemented, please explain why they were not feasible."

Appendix 4
USFWS Biological Opinion

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
2013-F-0334

JUN 2 7 2013

Ms. Sherrill E. Thompson
Commandant (CG 9-331)
U.S. Coast Guard Headquarters
2100 Second Street, SW STOP 7701
Washington, DC 20593-7701

Subject: Formal Consultation for the Proposed Kalepa Remote Fixed Facility Tower, Kauai

Dear Ms. Thompson:

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion on the proposed construction and operation of a 68-foot (ft) monopole and associated infrastructure located in Kalepa, Kauai. Based on early coordination with our office, the U.S. Coast Guard has determined the Remote Fixed Facility Kalepa may adversely affect the endangered Hawaiian petrel (*Pterodroma sandwichensis*) and the threatened Newell's shearwater (*Puffinus auricularis newelli*), pursuant to section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C 1531 et seq.). Formal consultation was initiated on May 13, 2013, when final project details were provided to our office.

This biological opinion is based upon: (1) information contained in the U.S. Coast Guard's letter requesting consultation; (2) survey and radar data collected by the Kauai Endangered Seabird Recovery Project (KESRP); (3) email and verbal communication between our staff and Ms. Sherrill Thompson, Mr. David K. Wilson and Ms. Joan Lang of the U.S. Coast Guard; (4) Hawaiian Dark-rumped Petrel and Newell's Manx Shearwater Recovery Plan (USFWS 1983); (5) other biological literature (see Literature Cited at the end of the document); and, (6) information contained in our files. Our log number for this consultation is 2013-F-0334. Copies of pertinent materials and documentation are maintained in an administrative record in the Service's Pacific Islands Fish and Wildlife Office in Honolulu, Hawaii.

TAKE PRIDE IN AMERICA

CONSULTATION HISTORY

April 4, 2011: The Service received a letter from the U.S. Coast Guard requesting a species list and evaluation of potential impacts to threatened and endangered species from the proposed project.

May 3, 2011: The Service sent a letter (Service File 2011-TA-0236) informing the U.S. Coast Guard of the presence of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the project vicinity. We also noted that the endangered Hawaiian petrel, threatened Newell's shearwater, and a candidate for listing, the band-rumped storm-petrel (Oceanodroma castro) (collectively referred to as Hawaiian seabirds) fly over the project area when traversing between the ocean and mountainous breeding colonies. Based on existing data on the seabird transit rates over Kalepa and the proposed project description, we informed you of the potential for transiting seabirds to collide with the tower.

July 08, 2011: The Service received a letter from the U.S. Coast Guard requesting concurrence that the proposed project was not likely to adversely affect the Hawaiian hoary bat or listed seabirds, pursuant to section 7 of the ESA, based on the inclusion of avoidance and minimization measures.

August 8, 2011: The Service sent a letter (Service File 2011-I-0397) concurring that the proposed project was not likely to adversely affect the Hawaiian hoary bat. However, the Service did not provide concurrence for Hawaiian seabirds as the proposed conservation measures did not adequately avoid the potential for take to occur. Based on the potential for listed Hawaiian seabirds to collide with the proposed tower, we recommended initiation of formal consultation.

September 10, 2012: The Service received a letter from the U.S. Coast Guard requesting initiation of formal consultation for potential project impacts to listed Hawaiian seabirds.

October 16, 2012: The Service hosted a meeting between Mr. David K. Wilson, Mr. Chuck Kozlowski, and Mr. John Bancroft, of the U.S. Coast Guard, and Ms. Michelle Bogardus, of our office, to discuss project details. In particular, we requested additional project information, including the development of a "Monitoring and Reporting Plan" and the details of a conservation project, prior to initiating formal consultation. In addition, we recommended further coordination with the Hawaii Division of Forestry and Wildlife (DOFAW) regarding State Endangered Species Regulations.

October 31, 2012: The Service sent a letter (Service File 2012-F-0031) formally requesting additional project details prior to initiation of formal consultation, pursuant to the meeting held on October 16, 2012.

February 20, 2013: The Service received a letter containing a revised Biological Assessment for the project.

March 28, 2013: The U.S. Coast Guard received information from DOFAW regarding compliance of the proposed project under State regulations and the State's ability to conduct monitoring surveys for downed seabirds. Formal consultation was put on hold until project details could be further revised.

May 13, 2013: The U.S. Coast Guard submitted final monitoring details to the Service via electronic mail. Work on the formal consultation began again.

DESCRIPTION OF THE PROPOSED ACTION

The U.S. Coast Guard proposes the construction and operation of a 68-foot (ft) monopole communications tower and associated infrastructure, including an equipment shed, back-up generator, telecommunications line, and fence. The tower will be located within an existing tower communications compound located on land owned by Grove Farms in Kalepa, on the island of Kauai. The tower is being proposed under the U.S. Coast Guard's Rescue 21 Program to enhance the ability to hear, locate and rescue distressed mariners and property at sea. The proposed location will improve reception from 10 to 20 miles from shore and allowing more precise locations of distress calls. Currently, there is no existing U.S. Coast Guard response system in this area of Kauai.

Action Area

The proposed Kalepa Remote Fixed Facility Tower is located on the east side of Kauai, approximately 1.5 miles northeast of Lihue Airport near the community of Hanamaulu. The proposed tower site is an approximately 550 square-ft lease area, located in the northeastern portion of property owned by Grove Farms Company Inc. (Parcel#5 TMK: (4) 3-8-002:005). The site is at the end of a gated, paved road (Hulei Road) off Kuhio Highway (State Route 56) and is surrounded by undeveloped, forest land on all sides, with Hawaiian Telecom facility located adjacent to the site to the northeast.

Conservation Measures

The U.S. Coast Guard has worked with the Service to alter the project description to minimize the potential tower impact to listed species. These minimization measures included the alteration of project plans from a 150-ft lattice tower to the current 68-ft self-supporting monopole. The Service greatly appreciates the U.S. Coast Guard's coordination and willingness to revise project plans.

The following conservation measures were developed to avoid or minimize effects to listed seabird species reviewed in this consultation and are considered part of the project description. Any changes to, modifications of, or failure to implement these conservation measures may result in the need to reinitiate this consultation.

Construction Timing

All construction will occur during day-light hours only.

Tower Lighting

Tower lighting is a requirement of the Federal Aviation Administration (FAA) in accordance with FAA Advisory circular 70/7460-I K Change 2, "Obstruction Marking and Lighting." The Kalepa Remote Fixed Facility Tower will be topped with a steady burning red light, which is thought to be less attractive to federally listed Hawaiian seabirds than a steady burning or blinking white light.

Compound Lighting
The U.S. Coast Guard compound will be lighted for safety and security. The compound light will be fully shielded and meet standard recommendations for minimizing attraction of listed Hawaiian seabirds.

Communications and Power Lines
No new power or telephone poles will be installed as part of the proposed project. New telecommunications lines will be trenched underground from existing poles.

Carcass Searches
U.S. Coast Guard personnel, or designee, will search for carcasses of downed birds a minimum of once per month. An area as wide and long as the tower is tall (68-ft by 68-ft) will be searched in transects approximately 20-ft apart. On an annual basis, no later than September 30 of each year, the U.S Coast Guard will provide the Service with a report that includes the date and time of each visit by searching personnel, or designees, and whether or not a downed bird or other injured or deceased wildlife was found. The U.S. Coast Guard may choose to provide such information on a more frequent basis (i.e. quarterly).

If a carcass is found, searchers will follow the Downed Wildlife Protocol (Appendix 1), and carcasses will be left in place until directed by the Service. Once collected, all carcasses found during the standardized carcass searches will be recorded and identified by a unique number. A copy of the data sheet for each carcass will be kept with the carcass at all times. For each carcass found, searchers will record species, sex and age when possible, date and time collected, location, condition and any comments that may indicate cause of death. Searchers will record the condition of each carcass found, using the following condition categories:

- Intact – a carcass that is completely intact, is not badly decomposed and shows no sign of being fed upon by a predator or scavenger.
- Scavenged – an entire carcass that shows signs of being fed upon by a predator or scavenger, or portions of a carcass in one location (e.g., wings, skeletal remains, legs, pieces of skin, etc.).
- Feather Spot – 10 or more feathers at one location indicating predation or scavenging or two or more primary feathers.

Searchers will photograph each carcass as found and establish GPS points, with point accuracy of no less than 50 ft. A detailed map of the search area will then be created showing the location of the tower and associated facilities, the study area, and any carcasses located.

Any injured native birds found on the facility site will be carefully captured and transported to the Kauai Humane Society for assessment and rehabilitation. All project staff will be trained on how to handle any downed wildlife or carcasses found anywhere within the project area. Furthermore, a Downed Wildlife Incident Report will be completed for any injured or killed bird or bat found on the site (Appendix 1). Depending on the condition of the carcass, the Service may request that carcasses be shipped to Honolulu for necropsy and species confirmation.

Listed Hawaiian Seabird Conservation Project
To help offset unavoidable take of listed Hawaiian seabirds, the U.S. Coast Guard will contribute a total of $90,000.00 to the Listed Hawaiian Seabird Conservation Fund, which is developed through the National Fish and Wildlife Foundation (NFWF) and administered by the Service. Funds will be combined with other contributions from Federal agencies, private entities, and partners to achieve a greater conservation benefit for listed Hawaiian seabirds than could be achieved through allocation of U.S. Coast Guard funds alone. Funds will be used to offset the level of take anticipated from the tower through management of seabird breeding colonies. Management may include predator/ungulate removal, invasive plant control, and seabird monitoring at an existing breeding colony on Kauai where current management does not exist or is insufficient to adequately enhance the reproductive success of breeding birds.

Project Schedule Including Implementation of Conservation Measures

- Within 60 days of the establishment of the account, the U.S. Coast Guard will transfer $90,000.00 to the Listed Hawaiian Seabird Conservation Fund.
- Tower and supporting infrastructure construction is anticipated to begin after September 15, 2013 and completed by January 1, 2014.
- Downed wildlife searches will commence immediately following tower construction.
- The first annual monitoring report will be provided to the Service by September 30, 2014, and continued annually until September 30, 2033, or such time that the tower is dismantled.

STATUS OF THE SPECIES

Newell's Shearwater

Taxonomy and Species Description
The Newell's shearwater is a member of the genus *Puffinus* and utilizes open tropical seas and offshore waters near its island breeding grounds on forested mountain slopes. The Newell's shearwater is approximately 12 to 14 inches long, with a wingspan of 30 to 35 inches, and weighs approximately 14 ounces. Its plumage is glossy black above, and white below. It has a black bill that is sharply hooked at the tip. Its claws are well adapted for burrow excavation and climbing.

Historic and Current Distribution
Newell's shearwaters were once abundant on all of the main Hawaiian Islands. In 1995 the population estimate, based on at-sea surveys was 84,000 birds (Spear et al. 1995, p. 624), with approximately 90 percent of the population nesting on the island of Kauai. Newell's shearwaters also breed on several other of the main Hawaiian islands where they nest in mountainous terrain between elevations of 500 and 2,300 feet. This species is known to nest on Hawaii, on Molokai, and may still nest on Oahu. The occurrence on Maui of injured, dead, or grounded adults in the summer, low numbers of radar-detected birds exhibiting Newell's shearwater-like timing of movement, and the presence of juveniles in autumn suggest that this species also nests on Maui.

Recent ornithological radar surveys, combined with returns of downed birds to the Save Our Shearwaters program (SOS), show an apparent decline of 75 percent in Newell's shearwater between 1993 and 2009 (Day et al. 2003, Holmes et al. 2009), resulting in a current population estimate of 21,000, with 18,900 on Kauai. Significant range reductions as well as an overall decline in distribution are documented, and at least three colonies documented as being active between 1980 and 1994 are now abandoned (Holmes et al. 2009). As with other long-lived species with low reproductive rates, population modeling has documented that the survival rate of breeding age adults has the biggest impact on the population (Griesemer and Holmes 2010).

Population models incorporating best estimates of Newell's shearwater breeding effort and success yielded a population decreasing at a rate of 3.2 percent annually (Ainley et al. 2001, p. 118). When variables describing the anthropogenic mortality suffered by Newell's shearwater (predation, light attraction and collision) were included, these models predicted a population decline of 30 to 60 percent over 10 years (Ainley et al. 2001, p. 122).

Life History

Most of the life history information for this species is based on studies of the Kauai population; life histories of birds on other Hawaiian islands may differ slightly. During their nine-month breeding season from April through November, Newell's shearwaters live colonially in burrows under ferns on forested mountain slopes. These burrows are used year after year and usually by the same pair of birds. A single egg is laid in late May or early June (Ainley et al. 1997b, pp. 13-15). Both sexes incubate and this period lasts approximately 45 days. Fledging occurs between October and November. The Newell's shearwater needs an open downhill flight path to become airborne.

Daily flights of breeding adults to and from the colonies occur only at night and just before dawn. On Kauai, Newell's shearwaters were found to exhibit almost no movement until after complete darkness, whereupon they moved inland in a wave that peaked for 30-40 minutes (Day and Cooper 1995, p. 1015). After that peak, the rate of movement decreased steadily until 90 min after complete darkness, after which few birds were seen. In the morning, Newell's shearwaters begin moving to sea in numbers approximately 40 minutes before the first measurable light and movement rates increase rapidly and peak just before dawn (Day and Cooper 1995, p. 1016).

Three age classes of Newell's shearwaters are recognized based on demographic factors and assumptions (from Ainley et al. 2001, p. 115): (1) young-of-year; (2) pre-breeding immature/adult (if recognizable); and (3) breeding adults. Only 46 percent of pairs that actively use a burrow actually breed in a given year on Kauai (Ainley et al. 2001, p. 117). First breeding occurs at approximately six years of age (Ainley et al. 1997b, p. 17).

A study of reproductive success at one Newell's shearwater colony on Kauai documented an average annual production of 0.66 young per pair (Ainley et al. 2001, p.117). No specific data exist on the longevity for this species, but other shearwaters may reach 30 years of age or more.

Habitat Description
On Kauai, Newell's shearwaters breed at elevations between 528 and 3,960 feet. Newell's shearwaters usually nest where the terrain is vegetated by an open canopy of trees with an understory of densely matted uluhe ferns (*Dicranopteris linearis*). Some Newell's shearwaters nest in other types of habitat such as on the walls of Waimea Canyon, Kauai, where a forest canopy is absent. Burrows used by Newell's shearwaters are most commonly placed at the base of trees, where the substrate may be easier for the birds to excavate.

Threats, Recovery Strategy, and Ongoing Conservation Measures
The Newell's shearwater was listed as an endangered species in 1975 (Service 1983), pursuant to the Endangered Species Preservation Act of 1966. *The Hawaiian Dark-rumped Petrel and Newell's Manx Shearwater Recovery Plan* was published in 1983 (Service 1983). A species 5-year review was completed September 27, 2011 pursuant to Section 4(c)(2) of the ESA, the review recommended uplisting to endangered due to precipitous decline in populations on Kauai over the last couple decades. Critical habitat has not been designated for the Newell's shearwater (Service 1983).

During the last 150 years, 75 percent of the forests on the main islands of the Hawaiian archipelago have been converted to agricultural, military, commercial or residential land uses, leading to a depletion of available nesting habitat for this species. The introductions of the mongoose (*Herpestes auropunctatus*), black rat (*Rattus rattus*), and Norway rat (*Rattus norvegicus*) have also played a primary role in the reduction of ground-nesting seabirds. Predation by feral cats (*Felis domesticus*) and barn owls (*Tyto alba*) has been observed. In addition, feral pigs (*Sus scrofa)* are known to collapse burrows as well as consume or prey upon shearwaters.

Another major threat is the species' attraction to light. Increasing urbanization and the accompanying artificial lights have resulted in substantial problems for fledgling Newell's shearwaters during their first flight to the ocean from their nesting grounds. When attracted to man-made lights, fledglings become confused and may suffer temporary night blindness. They often fly into utility wires, poles, trees, and buildings and fall to the ground. Since 1979 the Kauai District of DOFAW has supported the SOS program to collect "downed" Newell's shearwaters and Hawaiian petrels (i.e. birds that have either collided with structures or fallen out, or have been injured or killed due to exhaustion caused by light attraction). According to SOS files, over 33,000 seabirds have been recovered to date (DOFAW 2008). The majority of the birds are Newell's shearwaters, which nest in greater numbers on Kauai than Hawaiian petrels. The lower number of Hawaiian petrels recovered is thought to be a function of their population size on Kauai, not due to differences in behavior or ability to detect structures in the dark.

The Draft Newell's Shearwater and Hawaiian Petrel Five-year Action Plan describes a recovery strategy that will 1) protect and enhance existing colonies, 2) create new colonies, 3) mitigate new and existing threats by a) implementing prioritized management actions, and b) undertaking research and outreach to support those actions. Actions identified to accomplish this strategy include conducting surveys for existing colonies, controlling threats at the highest priority colonies, and minimizing and monitoring terrestrial threats (light attraction, power line collisions).

DOFAW has been conducting auditory surveys for new areas containing nesting Newell's shearwater through their Kauai Endangered Species Recovery Program (KESRP) and is developing colony ranking criteria to identify where the goals of the action plan can be most successful. The minimum conditions necessary to effectively implement colony management that would be expected to achieve a measureable increase in seabird survival and/or reproduction include species presence, access to the areas occupied by breeding seabirds, and landowner authorization and commitment to maintain the managed area in way that is consistent with seabird conservation. To date, only two known nesting colonies occupied by Newell's shearwater (Hono o Na Pali Natural Area Reserve (NAR) and Upper Limahuli Valley) are currently suitable for immediate implementation of management actions focused on increasing seabird survival and reproduction. The State has developed a management plan for the Hono o Na Pali NAR that includes feral ungulate control, but little progress has been made due to the lack of funding. A 400-acre portion of the privately-owned Upper Limahuli Preserve has been fenced to create an ungulate free area known to contain nesting Newell's shearwaters.

While some efforts to protect existing nesting colonies of Newell's shearwater have been implemented on Kauai, they have been limited to constructing ungulate fencing around remaining areas of relatively intact habitat (Wainiha Valley, Upper Limahuli Valley, etc.). Habitat degradation due to feral ungulates is recognized as the primary threat to native ecosystems in Hawaii and the conservation and restoration of such areas is unsuccessful in the presence of ungulates (Hawaii Conservation Alliance 2005, p. 1). The only active control of cats and/or rats within an area occupied by nesting Newell's shearwaters on Kauai (on private property in Upper Limahuli Valley) began in 2009. Funding for the program is currently through the Kauai Island Utility Cooperative (KIUC, and its predecessor Kauai Electric) Short-term Habitat Conservation Plan (HCP) between 2011 and 2016.

Efforts to reduce the level of light attraction and power line collisions began in the 1980's when KIUC began replacing unshielded street lights with full-cutoff (shielded) lights across the island as part of its normal maintenance program. All of the over 3,500 streetlights operated by KIUC are now shielded, as are the lights at the facilities it operates. In 2002 KIUC prepared an assessment of the power line segments originally identified by Ainley et al. (1995) as causing the most collisions (David and Day 2002). In 2007, KIUC began reconfiguring the lines along one of the "hotspot" areas along Kealia Beach by temporarily changing the uppermost electrical circuit from a vertical to a horizontal arrangement which eliminated three of four wire layers in the circuit and reduced the height by about 10 feet. KIUC has been coordinating with the Federal Highways Administration and Hawaii Department of Transportation to plan for the undergrounding of the lines along another hotspot segment near the Wailua River but the implementation has been delayed while issues related to the potential impacts of the project to cultural resources are being resolved (Bogardus pers. comm. 2013).

DOFAW, in conjunction with the Service, is currently developing an island-wide HCP, known as the Kauai Seabird Habitat Conservation Program (KSHCP). This HCP will provide non-federal entities the opportunity to apply for incidental take of listed seabirds. KSHCP is developing a framework to assist landowners in avoiding, minimizing, and monitoring on-going take at their facilities. To offset take that cannot be avoided, applicants will combine funds to conduct effective recovery actions as seabird colonies. KSHCP is designed to accept multiple applicants

in order to mitigate for the island-wide level of take; however, it is anticipated that not all entities that have on-going take will apply for take authorization. Therefore, some proportion of the current take on Kauai is likely to continue even after the completion of the KSHCP. The KSHCP is currently anticipated to be complete by Fall of 2014.

Hawaiian Petrel

Taxonomy and Species Description
The Hawaiian petrel is a medium-sized seabird in the family Procellariidae (shearwaters, petrels, and fulmars). The Hawaiian petrel is a large petrel; it is approximately 16 inches long (40 cm) and has a wing span of about 3 ft (90 cm). It has a dark gray head, wings, and tail, and a white forehead and belly. The Hawaiian petrel has a stout grayish-black bill that is hooked at the tip, and feet that are pink and black. The Hawaiian petrel was formerly treated as a subspecies of *P. phaeopygia*, and was commonly known as the dark-rumped petrel (Service 1983, pp.1-2). The Hawaiian petrel was reclassified as a full species in 1993 because of differences in morphology and vocalization. In 1997 the evolutionary split was confirmed by genetic analyses.

Historic and Current Distribution
The Hawaiian petrel was once abundant on all of the main Hawaiian Islands, except Niihau. Today, Hawaiian petrels breed in high-elevation colonies, primarily on east Maui and Mauna Loa on Hawaii Island, on Lanai, and to a lesser extent, on Kauai, and probably Molokai, Lehua, and sea stacks off Kahoolawe.

Based on pelagic observations, the total population including juveniles and sub-adults was estimated at 20,000 with a breeding population of 4,500 to 5,000 pairs in 1995 (Spear et al. 1995, p. 629). There have been no total population estimates made since then. Approximately 1,430 breeding pairs are known to occur in the mountains of east Maui. Approximately 1,000 Hawaiian petrel burrows have been found in Haleakala National Park, Maui (Bailey, pers. comm. 2011b) and an additional 600 breeding pairs are thought to occupy unsurveyed areas of the Haleakala Crater Rim (SWCA 2011). In addition, approximately 55 breeding pairs occupy the ATST mitigation site (ATST 2010) and the Auwahi project detected an additional 33 active burrows at Kahikinui (Tetra Tech 2012). Ainley (SWCA 2011, Appendix 25, p. 2) estimates there is a declining population of 600 breeding pairs of Hawaiian petrels nesting in the West Maui Mountains. The colony on Mauna Loa is estimated to be approximately 75 breeding pairs (Hu, pers. comm. 2008). Kauai populations are difficult to assess, and Cooper and Day (1995, p. iv) estimated there were between 1,400 and 7,000 individuals on that island in 1993. Ainley et al. (1997a, p. 28) estimated that there were 1,600 breeding pairs of Hawaiian petrel on Kauai. A breeding colony of the Hawaiian petrel was rediscovered on Lanai in 2006, near the summit of Lanaihale. Although the petrel colony was historically known to occur, its status was unknown and thought to have dramatically declined until surveys were conducted in 2006 (Penniman, pers. comm. 2007). The nesting habitat used by the Hawaiian petrel colony on Lanai is delineated by the approximate area of the uluhe ferns (*Dicranopteris linearis*). Monitoring and research on this population is ongoing, and its size has not been estimated with statistical confidence, but the population appears to be similar in abundance to the Haleakala population, where the largest number of breeding birds is currently known to exist (Penniman, pers. comm. 2011).

Life History
Seabirds nest on land and spend much of their time at sea where they are known to feed on squid, small fish, and crustaceans displaced to the surface by schools of tuna (Simons 1985). Hawaiian petrels have been tracked taking single trips exceeding 6,200 mi (10,000 km) circumnavigating the north Pacific during the nestling stage. Hawaiian petrels have been recorded in the Gulf of Alaska. Annual survival rates for Hawaiian petrels range from 0.93 (in years with no predation to approximately 0.85 (estimated survival under moderate predation at Haleakala (Simons 1984 p. 1070).

Like other procellariiformes, Hawaiian petrels are highly philopatric, returning to the same burrow and mate each year (Simons 1985 pp. 233-234). Beginning in mid-February to early-March, after a winter absence from Hawaii, breeding and non-breeding birds visit their nests regularly at night. After a period of social activity and burrow maintenance they return to sea until late April, when they return to the colony site and egg-laying commences. From mid-March to mid-April, birds visit their burrows briefly at night on several occasions. Then breeding birds return to sea until late April or early May, when they return to lay and incubate their eggs (Simons 1985). Non-breeding birds visit the colony from February until late July (Simons and Hodges 1998, pp. 13-14). Information provided by Bailey and Duvall (December 9, 2010), confirmed by Fein's analysis of burrow camera data for the ATST site (Fein, pers. comm. 2009) indicates birds intermittently occupy their burrows during the day during this period as well. Many non-breeders are young birds seeking mates and prospecting for nest sites, but some proportion is thought to be mature adults that will not breed.

The mean date of egg-laying recorded on Haleakala in 1980 and 1981 was May 8 (Simons 1985 p. 234). The percentage of years in which adult females laid eggs was estimated to be 89 percent (Simons 1985 p. 234). Fecundity (fledglings produced per egg laid) appears to be primarily dependent on rate of predation. Moderate predation is likely to depress fecundity to 0.49 (Simons 1985 p. 237). Although Hawaiian petrel nests may fail when they abandon and crush eggs during incubation, higher fecundity (0.72 (Simons 1984 p. 1068)) occurs when predators are absent. Annual survival for juveniles at sea is 0.834 (Simons 1984 p. 1070).

Cooper and Day found that Hawaiian petrels flew inland to their nesting areas primarily between sunset and the point of complete darkness. In the morning hours, Hawaiian petrels first move to sea while it was completely dark, starting 60 minutes prior to sunrise, and movement rates increased rapidly until they peaked just after the point of complete darkness had been crossed and movement continued at a decreasing rate until sunrise (Day and Cooper 1995, pp. 32-34). Peak fledging, when young seabirds make their first flight to sea, occurs between September 1 and December 1 (Penniman, 2011 pers. comm).

Habitat Description
On Hawaii and Maui, Hawaiian petrels nest in the cold, xeric environment above 8,000 ft primarily in national parks. On Kauai, there is evidence that Hawaiian petrels nest at lower elevations in densely vegetated rainy environments (Ainley et al. 1997a, p. 24). Hawaiian petrels are colonial and nest in burrows, crevices in lava, or under ferns. Burrows detected on Haleakala occur almost exclusively on lava substrates; burrows are located within existing crevasses or excavated in softer material adjacent to rock to boulder-sized lava fragments. Their burrows are

generally 3- to 6-ft (1- to 1.8-m) long (from entrance to nest chamber), although some may be as long as 30 ft (9.1 m) (Simons and Hodges 1998, p. 14).

Threats, Recovery Strategies, and Ongoing Conservation Measures
Hawaiian petrels were abundant and at one time, widely distributed; their bones have been found in archaeological sites throughout the archipelago (Olson and James 1982a, p. 32). This species has no natural terrestrial predators other than the Hawaiian short-eared owl, (*Asio flammeus sandwichensis*). Early Polynesian hunting; predation by introduced mammals such as Polynesian rats (*Rattus exulans*), dogs, and pigs; and habitat alteration caused initial decline of the Hawaiian petrel population and probably its extirpation from Oahu (Olson and James 1982b, p. 634). The introduction of cats, mongoose, and two additional species of rats (*R. rattus* and *R. norvegiceus*) since Euro-American contact along with accelerating habitat loss has led to small relict colonies of Hawaiian petrels in high-elevation, remote locations. The primary reason for the relatively large numbers of petrels and their successful breeding around Haleakala summit today is the fencing and intensive predator control maintained by Haleakala National Park since about 1982. If current elevated levels cat of predation continue, significant declines in even the Park's relatively protected Hawaiian petrel population are likely (Bailey pers. comm., 2011b). Elsewhere on Maui and in Hawaii, the Hawaiian petrel faces severe threats from non-native predators including rats, cats, mongoose, and introduced barn owls (*Tyto alba*). Ainley (SWCA 2011, Appendix 25, p. 2) modeled the declining population of 600 breeding pairs of Hawaiian petrels in the West Maui Mountains and predation impacts may render this relatively large population functionally extinct in 27 years (SWCA 2011, Appendix 24, p. 8). Other significant anthropogenic sources of Hawaiian petrel mortality are light attraction and collision with communications towers, power transmission lines and poles, fences, and other structures (Simons and Hodges 1998, pp. 21-22). Fallout of fledglings, making their first flight to the open ocean, is greatest during the week prior to and following the new moon between September 1 and December 1 (Penniman pers. comm. 2011). These problems are likely to be exacerbated by continuing development and urbanization throughout Hawaii. Predator control in key habitat areas, the establishment of bird salvage-aid stations, and light attraction studies have been initiated to help conserve the Hawaiian petrel.

The recovery goals for the Hawaiian petrel include: 1) protect and enhance existing colonies; 2) create new colonies; 3) mitigate new and existing threats by a) implementing prioritized management actions, and b) undertaking research and outreach to support those actions. Actions identified to accomplish these goals for Hawaiian petrel include conducting surveys for existing colonies, controlling threats at the highest priority colonies, and minimizing and monitoring terrestrial threats away from the colonies (light attraction, power line collisions).

The KSHCP is being prepared to address adverse human impacts to seabirds on that island. In addition, DOFAW has been conducting auditory surveys for new areas containing nesting Hawaiian petrels through the Kauai Endangered Species Recovery Program and will use colony ranking criteria to identify areas where recovery actions can be most successful. The State has developed a management plan for the Hono o Na Pali NAR that includes feral ungulate control, but little work has been implemented due to the lack of funding. A 400-ac portion of the privately-owned Upper Limahuli Preserve has been fenced to create an ungulate free area known to contain nesting Hawaiian petrels. Efforts to control feral cats within the Preserve has begun,

but the landowner does not have funds to sustain the efforts without continued funding after the conclusion of the KIUC Short-term HCP (2016) (Bogardus, pers. comm. 2011).

Several of these Hawaiian petrel nesting colonies will be protected from predators pursuant to the KIUC Short-term HCP. Efforts to conserve nesting colonies of Newell's shearwater also benefit Hawaiian petrel, but they have been primarily limited to constructing ungulate fencing around remaining areas of relatively intact habitat (Wainiha Valley, Upper Limahuli Valley, etc.). The only active control of cats and/or rats within an area occupied by nesting Hawaiian petrels on Kauai (on private property in Upper Limahuli Valley) started in 2009, but the program has no secure funding source to continue the efforts beyond that which will be available through a the KIUC Short-term HCP.

Efforts to recover and release downed, but still living, seabirds through the SOS program also apply to Hawaiian petrels. Efforts underway to reduce the level of light attraction and power line collisions described for Newell's shearwater also reduce these threats to Hawaiian petrel. The development of the KSHCP, described above, also pertain to Hawaiian petrels.

ENVIRONMENTAL BASELINE

The environmental baseline describes the status of the species and factors affecting the environment of the species or critical habitat in the proposed action area during the consultation process. The baseline usually includes State, local, and private actions that affect a species at the time the consultation begins. Unrelated Federal actions that have already undergone formal or informal consultation are also a part of the environmental baseline. Federal actions within the action area that may benefit listed species or critical habitat are also included in the environmental baseline. The environmental baseline describes the species' health at a specified point in time, and it does not include the effects of the action under review in this consultation. The action area of a project is defined by regulation as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR §402.02). As indicated in the Project Description, the action area for this project includes the tower site at Kalepa, Kauai.

Newell's Shearwater and Hawaiian Petrel

An estimated 75 percent of the Newell's shearwater population is thought to nest on Kauai (Spear *et al.* 1995, p. 613). Adult Newell's shearwaters do not nest in the action area, but do use the area to transit between the ocean to their high elevation nest sites in the mountains. Fledgling Newell's shearwaters also fly through the area on their first trip to the sea.

Spear *et al.* (1995) estimated from at-sea densities that the world population of Hawaiian petrels was 19,000 with at least 1,600 pairs nesting on Kauai (Ainely *et al.* 1997a, p. 28). Adult Hawaiian petrels do not nest at in the action area, and their use of the area is likely less than that of Newell's shearwaters because most Hawaiian petrels are thought to nest in the northwest region of Kauai. A small number of fledgling Hawaiian petrels might also fly through the area on their first trip to the sea.

Surveys using ornithological radar were conducted in 2008 in the vicinity of the proposed project and detected an average of 115.2 birds per hour (KESRP 2008). Species cannot be identified using this technique, so the proportion of each of the species observed in the vicinity of the project is unknown. Nonetheless, the observed passage rate amounts to approximately 372,500 seabird passes each year.

Previous Consultations in the Project Area

In April of 2011, the Service issued a non-jeopardy biological opinion for the Kauai Island Utility Cooperative Final Short-term Seabird Habitat Conservation Plan and Incidental Take Permit (Service File 2011-F-0113, Permit No. TE234201-0) that addressed the effects of operating and maintaining existing and new electric utility facilities on Newell's shearwater and Hawaiian petrel until 2016 on the island of Kauai. The biological opinion authorized the take of up to 162 adult, sub-adult, or fledgling Newell's shearwaters annually over the permit term as a result of attraction to, or collision with, KIUC facilities, as well as the take of up to 18 eggs and/or chicks as a result of the mortality of breeding adults. The annual take of up to two adult, subadult, or fledgling Hawaiian petrels was also authorized. Because of the minimization and mitigation measures implemented through the HCP, anticipated reduction in ongoing take from these measures, and implementation of conservation projects to offset unavoidable take (i.e. predator control within existing seabird breeding colonies), the Service concluded that the issuance of the incidental take permit was not likely to jeopardize the Newell's shearwater or Hawaiian petrel.

EFFECTS OF THE ACTION

Newell's shearwater and Hawaiian petrel

The Service used a fatality estimation analysis model to evaluate the potential impacts of the proposed tower. Factors in the model include: (1) the rate of seabirds passing through the project site per night, (2) the probability of listed Hawaiian seabirds intercepting the location (or X-Y coordinates) of the tower; and (3) the expected number of years the tower will be present at the site. Recent surveys using vertical radar to estimate flight altitude show site-specific variation in altitude, and calibration between human-made visual observations and automated vertical radar detections of birds indicates large discrepancies in flight altitude estimation (David, pers. comm. 2008). Likewise, Day and Cooper (2004, p. 3) have stated there is considerable among-site variation in flight altitudes. For these reasons, we did not include this variable in our calculation of estimated take, as it has not been determined for this site. Using these variables, we estimated up to six listed seabirds may be taken by the proposed project over the expected 20 year life of the tower.

The collision of an adult Hawaiian petrel or Newell's shearwater may involve an adult caring for an egg or chick, an adult without an egg or chick, or a newly fledged bird on its first flight to the sea. In the case of an adult with an egg or chick, potential indirect loss of an egg or a chick is likely. For both species, both adults provide food and care to dependent young; thus, the potential for successful rearing of a chick to a fledging is expected to decrease upon loss of a parent, and would probably be zero during the period from egg-laying through the first several weeks after hatching (Ainley *et al.* 1997a, p. 17). Later in the chick-rearing period parental feeding and care may drop off dramatically, and the loss of an adult may or may not affect

survival of the chick. For purposes of fully evaluating the potential effects of the proposed action, we assumed that half of the birds that could collide with the proposed tower will also result in the loss of an egg or chick. That is, the indirect take of up to three eggs or chicks may occur.

Because the species composition of the birds detected during surveys at the proposed project site is not known, but since higher densities of Hawaiian petrels are known from the north and northwestern regions of Kauai, we estimate that a greater percentage of anticipated take will be Newell's shearwaters, until results from further studies reveal otherwise. Monitoring for downed birds will help to identify the species of bird flying through the area, further evaluate the accuracy of the model for this project and future similar projects, and will ensure that reinitiation of consultation is prior to authorized take being exceeded.

Benefits to listed seabirds as a result of the proposed action are expected from the contribution of funds into the Listed Hawaiian Seabird Conservation Account. As described above, funds from this project will be combined with contributions from other Federal agencies, private entities, and conservation partners to conduct management and monitoring within existing breeding colonies on Kauai. Allocation of these combined funds will be determined by the Service, in coordination with the Newell's Shearwater Recovery Group. Priority for allocation will be given to projects that will conduct predator and ungulate control, invasive vegetation management, and seabird monitoring in colonies that currently do not have active management, or where currently management is inadequate to adequately protect breeding seabirds. Priority will also be given to projects in the north-east portion of Kauai, where it is less likely that birds fledging from the colony will be subject to impacts from artificial lighting and collisions with utility structures. Funds from this account may also be used to assist in specific elements of a large-scope project (i.e. construction of a predator-proof enclosure) so long as the goals of the project are consistent with the above. The contribution and allocation of funds for this purpose is anticipated to increase the survival rates and reproductive success of listed Hawaiian seabirds.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, local or private actions that are reasonably certain to occur within the area of action subject to consultation. Future Federal actions will be subject to the consultation requirements established in section 7 of the ESA and, therefore, are not considered cumulative for the proposed action.

Although there are no proposed development projects, it is reasonable to assume that development on Kauai will continue to increase. Increased development may increase the density of mammalian predators adversely affecting listed Hawaiian seabirds. Development may also increase lighting levels and transmission/communication lines in the area, resulting in additional impacts to seabird species. Pursuant to the ESA, these impacts would be assessed in biological opinions and mitigated to the maximum extent practicable via development and implementation of Habitat Conservation Plans.

CONCLUSION

After reviewing the current status of the Newell's shearwater and the Hawaiian petrel, the environmental baseline of these species in the proposed project sites, and the effects of the proposed action, including cumulative effects, it is the Service's Biological Opinion that the proposed construction, registration, and operation of a wireless telecommunications facility consisting of 68-ft tall monopine and supporting infrastructure in Kalepa, Kauai, may adversely affect the Newell's shearwater and the Hawaiian petrel, but will not jeopardize their survival and recovery in the wild. No critical habitat has been designated for these species therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered or threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including, breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the U.S. Coast Guard so that they become binding conditions for the exemption in section 7(a)(2) to apply. If the U.S. Coast Guard (1) fails to assume and implement the terms and conditions, or (2) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(a)(2) may lapse. In order to monitor the impact of incidental take, the U.S. Coast Guard must report the progress of the action and its impact on the species to the Service as specified in this incidental take statement and reporting requirements below [50 CFR 402.14(i)(3)].

Amount or Extent of Take Anticipated

Incidental take is expected to occur for as long as the communications tower exists at the lease site, estimated at 20 years (2013-2033). The Service anticipates that as many as (2) two adult Hawaiian petrels and (4) four adult Newell's shearwaters during the 20-year term of this Biological Opinion could be taken in the form of injury or death as a result of collision with the tower. Up to (2) two eggs and/or dependent Newell's shearwaters chicks and up to (1) one Hawaiian petrel egg and/or dependent chick may also be incidentally taken indirectly as a result of the injury or mortality of breeding adults.

The Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 USC 703-712), prohibits the take of migratory birds. The MBTA provides no process for authorizing incidental take of MBTA-protected birds. The Hawaiian petrel and Newell's shearwater are protected under the MBTA. The Service will not refer the incidental take of these species for prosecution under the MBTA, if such take is in compliance with the terms and conditions (including amount and/or number) specified in the Incidental Take Statement.

Effect of the Take
The Service determines that this level of anticipated take is not likely to jeopardize the survival or recovery of the Newell's shearwater or the Hawaiian petrel. No critical habitat has been established for these species, so none will be affected.

Reasonable and Prudent Measures
The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize impacts to Newell's shearwaters and Hawaiian petrels.

Minimize impacts of the construction and operation of the Kalepa Remote Fixed Facility tower on Newell's shearwaters and Hawaiian petrels.

Terms and Conditions
To be exempt from the prohibitions of section 9 of the ESA, the U.S. Coast Guard must comply with the following terms and conditions, which implement the reasonable and prudent measure, described above and specified reporting requirements. These terms and conditions are nondiscretionary. To implement the reasonable and prudent measure above, the U.S. Coast Guard will monitor incidental take resulting from collision with the tower, as described in Appendix 1.

1. The Service will be notified by telephone within 24 hours by the U.S. Coast Guard upon the discovery of injured and/or dead wildlife. The U.S. Coast Guard will provide the Service a written notification, summarizing the event, within 30 days.

2. The U.S. Coast Guard will contact the Service within 24 hours upon the take of three Newell's shearwaters or upon the take of one Hawaiian petrel during the life of the tower so that the Service may reevaluate project impacts prior to reaching the authorized take limit.

3. Access to the tower site will be provided by the U.S. Coast Guard to the Service and Hawaii DOFAW personnel with same-day notification so that they may independently monitor for downed seabirds and retrieve reported carcasses.

4. Should take of either species occur, the Service may request that the carcass be shipped to Honolulu for necropsy and species verification. Otherwise, the depository designated to receive specimens is the B.P. Bishop Museum, 1525 Bernice Street, Honolulu, Hawaii, 96817 (telephone: 808/847-3511). If the B.P. Bishop Museum does not wish to accession the specimens, contact the Service's Office of Law Enforcement in Honolulu, Hawaii (telephone: 808/861-8525; fax: 808/861-8515) for instructions on disposition.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service recommends that the U.S. Coast Guard undertake the following conservation measures:

1. Continue to work with the Hawaii Department of Land and Natural Resources, Division of Forestry and Wildlife, to ensure the project's compliance with State regulations, including chapter 195-D of the Hawaii Revised Statutes.

2. Assist with island- and State-wide efforts to assess and minimize the effects of communications towers, power transmission lines, lighting, and other threats to listed seabirds posed by infrastructure.

REINITIATION STATEMENT

This concludes formal section 7 consultation on this action. As required in 50 CFR § 402.16, reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by this action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. We appreciate your efforts to conserve protected species. If you have any questions concerning this biological opinion, please contact Michelle Bogardus of this office at (808) 792-9400.

Sincerely,

Loyal Mehrhoff
Field Supervisor

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Appendix 5
Archaeological Inventory Survey

Archaeological Inventory Survey for the United States Coast Guard Rescue 21 Communications Site, RFF Kalepa, Hanamāʻulu Ahupuaʻa, Kauaʻi, Hawaiʻi

TMK (4) 3-8-002:004 and (4) 3-8-002:005

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MANAGEMENT SUMMARY

At the request of MWH Americas, Inc., Garcia and Associates has completed archaeological inventory survey of the United States Coast Guard Rescue 21 Communications Site, Sector Honolulu, Remote Fixed Facility Kalepa. Archaeological inventory survey of the .08-acre study area included pedestrian survey and subsurface testing at the locations of anticipated ground disturbing activities. This included excavation for six equipment shelter footings, six bollards, 11 ice bridge support footings, and a 110-foot electrical trench route. All test excavations extended to culturally sterile, undisturbed soil strata, with the exception of three archaeological shovel test pits which were halted when buried electrical lines were encountered.

No archaeological remains were identified during pedestrian survey or in any of the test excavations. Modern debris, such as plastic sheeting and hardware, apparently discarded during recent maintenance of the existing communication tower, were found on the surface and in the upper, disturbed soil strata. Stratigraphic profiles indicate that the much of the project area has been graded down to culturally sterile subsoil. Cut sediments were then redeposited along the eastern slope of the site area and along the eastern side of the access road.

Although test excavation produced no evidence of archaeological resources, a previously-identified traditional Hawaiian burial (SHPD Site 50-30-08-746) is present immediately west of the proposed electrical trench terminus. It is therefore recommended that archaeological monitoring be conducted during excavation of the electrical trench.

CONTENTS

Management Summary i
List of Figures iii
List of Tables iii

1.0 INTRODUCTION 1
1.1 Area of Potential Effect 1
1.2 Field Work 1

2.0 BACKGROUND 1
2.1 Vegetation and Climate 1
2.2 Soils 1
2.3 Hawaiian Cultural Context 1
2.3.1 Place Names 1
2.3.2 *Mo'olelo* 2
2.3.3 *'Ōlelo No'eau* 3
2.3.4 Traditional Wind Names 3
2.4 Subsistence and Land-Use 3
2.4.1 Land Tenure 4
2.5 Previous Archaeology 7

3.0 FIELD METHODS 11

4.0 ARCHAEOLOGICAL TESTING AND RESULTS 11
4.1 Test Units 11
4.2 Test Pits 14

5.0 SUMMARY AND CONCLUSIONS 14
5.1 Recommendations 20

6.0 REFERENCES 20

FIGURES

Figure 1. Project area location. 2
Figure 2.Undertaking APE. 3
Figure 3. Project area soils. 1
Figure 4. Original text of LCA 7713, Victoria Kamamalu. 7
Figure 5. Archaeological sites in the project area. 9
Figure 6. Project area access road with Hawaii Telecom building in background. 10
Figure 7. Locations of archaeological excavations. 12
Figure 8. Screening sediment at TP 07. 13
Figure 9. Stratigraphic profile recording at TU 02. 13
Figure 10. Soil profiles for 1 x 1 m test units (horizontal scale minimized). 15
Figure 11. Soil profiles for .5 x .5 m test pits (horizontal scale minimized). 16
Figure 12. North wall of Test Unit 1. 17
Figure 13. North wall of Test Unit 2. 17
Figure 14. West wall of Test Unit 3. 18
Figure 15. West wall of Test Unit 4. 18
Figure 16. West wall of Test Unit 5. 19
Figure 17. South wall of Test Unit 6. 19

TABLES

Table 1. Land Commission Awards in Hanamāʻulu 5
Table 2. Previous Archeological Investigations in the Project Area Vicinity 8
Table 3. Area Stratigraphy 14

1.0 INTRODUCTION

At the request of MWH Americas, Inc., Garcia and Associates has completed archaeological inventory survey of the United States Coast Guard Rescue 21 Communications Site, Sector Honolulu, Remote Fixed Facility (RFF) Kalepa. The proposed RFF Kalepa communications site is located on Kalepa Ridge in Hanamāʻulu Ahupua_a, Līhu_e District, Island of Kauaʻi, Hawaiʻi (Figure 1).

Archaeological inventory survey included pedestrian survey of the .08-acre study area and subsurface testing at the locations of anticipated ground disturbing activity. Anticipated ground disturbing activities associated with the undertaking include excavation for six equipment shelter footings, six bollards, 11 ice bridge support footings, and a 110-foot electrical trench route. A total of six 1 x 1 m test units and 23 .5 x .5 m archaeological shovel test pits were completed at these locations.

All archaeological survey and documentation was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, the Secretary of Interiorʻs Standards and Guidelines for Archaeology and Historic Preservation, and Chapter 6E, Hawaii Revised Statutes.

1.1 Area of Potential Effect

The Area of Potential Effect (APE) for the RFF Kalepa undertaking encompasses a .08-acre area which coincides with the existing Hawaiian Telcom facility on Kalepa Ridge. The APE also includes a 110-foot corridor extending downslope along the east side of the Hawaiian Telcom facility access road.

1.2 Field Work

Fieldwork was conducted between 26 and 30 September, 2011 by a four-person field crew under the direction supervision of Principal Investigator Joshua Toney, MA. Mr. Toney meets the Secretary of the Interiorʻs Professional Qualifications Standards for archaeology and historic preservation (36 CFR Part 61) and is permitted to conduct archaeological investigations in the State of Hawai_i under State Historic Preservation Division (SHPD) Permit No. 11-23.

2.0 BACKGROUND

This section presents environmental, historical, and archaeological background information as well as an overview of previous archaeological research and findings in and around the project area.

2.1 Vegetation and Climate

Vegetation in the project area consists of guava (Myrtaceae Psidium), lantana (*Verbenaceae latana*), sensitiveplant (*MimosapPiduca*), pilipiliula (*Chrysopogon aciculatus*), ohia (*Metrosideros polymorpha*), Japanese tea (*Camillia sinensis*), and ferns (*pteridophyte*) (Foote et al. 1972:55). Moderate amounts of koa-haole (*Leucaena leucocephala*) and Christmas berry (*Schinus terebinthifolius* Raddi) are also present.

Figure 1. Project area location.

USCG Rescue 21
Communications Site
Sector Honolulu RFF
Kalepa, Kauai

Archaeological
Monitoring

Legend

Undertaking APE

1:200

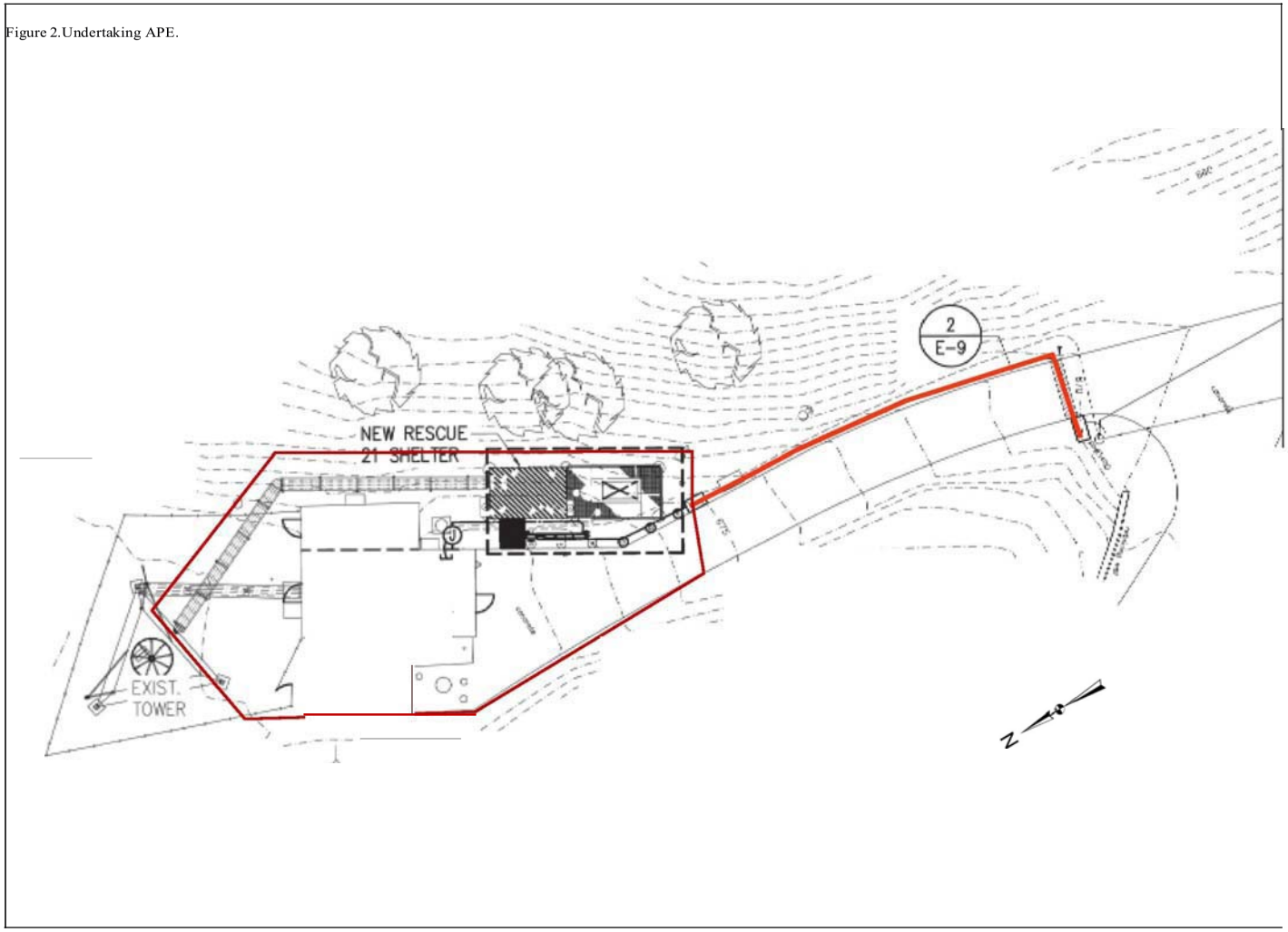
2.5 10
Meters

10 20
Feet

McPeak Architects Plan Map
(Revised)

fill
CANDA

Figure 2. Undertaking APE.



Mean annual precipitation in the project area ranges between 40 and 50 inches, and annual temperatures range between 70 and 75 degrees Fahrenheit (Armstrong 1983:63).

2.2 Soils

Project area soils consist mainly of Kalapa silty clay, 40 to 70 percent slopes (KdF) (Figure 3). These well-drained soils are located in the upland regions and at the base of slopes and range from moderate to very steeply sloped with elevations ranging from 200 to 1,200 feet. The Kalapa series are well-drained soils that are developed in weathered material from basic igneous rocks and colluviums and they are geographically associated with Hihimanu and Hanamā̱ulu soils (Foote et al. 1972:55).

Kalapa silty clay is strongly acidic and a typical profile consists of 0 to 10 inches of dark reddish-brown silty clay overlaying approximately 10 to 50 inches of dark-red to reddish-brown silty clay and clay with sub-angular blocky structure. Below these two layers is a dark-brown, dusky-red, and dark-red silty clay and soft, highly weathered rock. Soil permeability is moderately rapid, runoff is rapid, and erosion hazard is severe to very severe (Foote et al. 1972:55–56).

2.3 Hawaiian Cultural Context

The following is a review of significant Hawaiian place names, myths, legends, and proverbs that are potentially significant to the project area and individuals with historic connections to the area. They provide a cultural context within which the significance of monitoring findings may be interpreted.

Prior to European contact, traditional Hawaiian communities were originally located on the coastal regions of Hanamā̱ulu and the surrounding areas. Over time, however, population centers shifted away from the coast and into the valleys where large scale subsistence networks were introduced in response to a rapidly expanding population. Evidence of this geographical and demographic expansion remains today in the *lo‘i* located in the flats of the Niumalu area, the primary and secondary *‘auwai* that were used to transport water from the Hulē‘ia River inland to taro fields, the *‘Alekoko* or *Menehune loko Kuapā* (walled fishpond), and the two *loko wai* (fresh water ponds) located east of the project area (Henry et al. 1993:15). Growing socio-political complexity late in Hawaiian pre-history is inferred from the past construction of *heiau* at Hanamā̱ulu, Kalpaki, and Nawiliwili. Thomas G. Thrum (1906:40) documented the remains of these large collective efforts, noting that: Kuhia *heiau* in Nawiliwili has long been destroyed but is said to have been the largest and most famous in Kaua‘i at that time; only the foundations remain of Ahukini *heiau* in Kalpaki; Pohakoelele in Kalapaki was completely destroyed, and; Kalauokamanu in Hanamā‘ulu, once a large walled *heiau*, was also completely destroyed around 1855.

2.3.1 Place Names

A compilation of place names in the general vicinity of the project area is presented below. Place name meanings and their historical associations can provide important contextual information for the project area and may contribute to significance evaluations for any archaeological sites discovered during survey and testing. Place names include physiographic landscape features such as streams, valleys, ridges, and mountains, as well as geo-

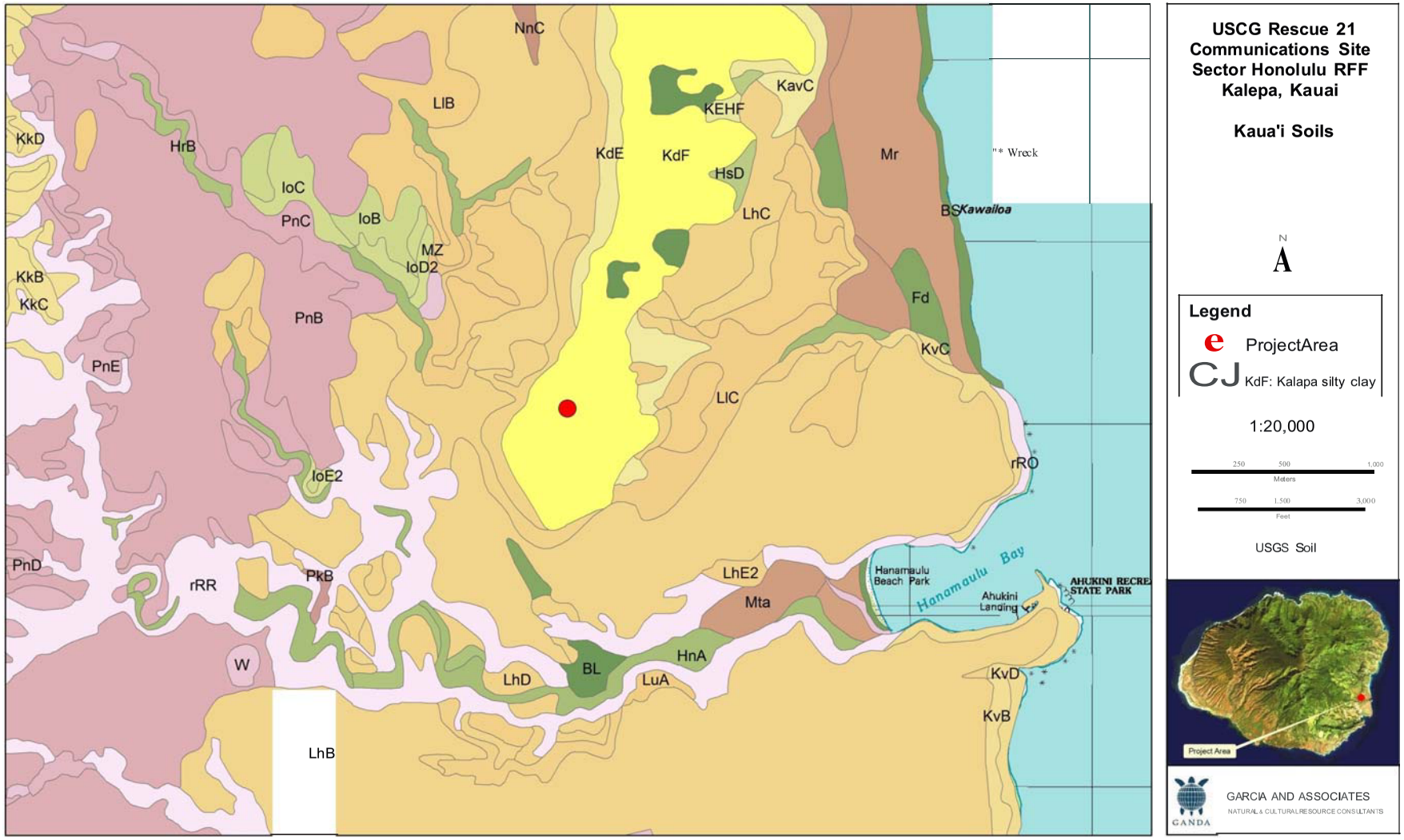


Figure 3. Project area soils.

political units such as land sections, towns, and villages. The most important of the place names are Kālepa, for which the immediate project area and ridge-line is named, and Hanamā_ulu, the *ahupua'a* within which the project area is located.

- **„A„ahoake**: Hill, a *kīpuka*, Līhu_e district, Kaua_i (Pukui et al. 1974:5)
- **Ka-ho„olei-nā-pe„a**: Land division near Kō-loa, Kaua_i. Literal meaning, the flying [of] the kites (the kite of the Kaua_i hero, Kawelo, was entangled here with his rival cousin (Pukui et al. 1974:66).
- **Kalapakī**: Beach, Līhu_e district, Kaua_i (Pukui et al. 1974:75).
- **Kālepa**: Ridge, forest reserve, and trail, Līhu_e, Kaua_i. (Pukui et al. 1974:76)
- **Kawailoa**: Boundary point, the boundary between Hanamā_ulu and Wailua commences at the ―south bankof the stream called Kawailoa at the sea beach. Literal meaning, long water Literal (Pukui et al. 1974:98).
- **Kilohana**: Peak and crater, Līhu_e district, Kaua_i. A boy, Lahi, and his uncle, while hunting _uwa_u birds on the summit, lured a giant into a hole and killed him; warriors came to catch the bird hunters, but Lahi hid at a pass and threw the men one at a time over the cliff. Literal meaning, lookout point or outer tapa, or best, superior (Pukui et al. 1974:111–12).
- **Hanamā„ulu**: Landing, land section, village, bay, ditch, river, beach park, and birthplace of the hero Ka-welo, Līhu_e district, Kaua_i. Literal meaning, tired (as from walking) bay (Pukui et al. 1974:41).
- **Līhu„e**: City and district, Kaua_i. Literal meaning, cold chill (Pukui et al. 1974:132)
- **Nā-wiliwili**: Village, land division, port, stream, bay, and small boat harbor, Līhu_e district, Kaua_i. Literal meaning, the *wiliwili* trees (Pukui et al. 1974:164).
- **Pu„u-pilo**: Hill inland of Wailua; it is a *kīpuka*. Literal meaning, hill of the swampy odor, or pilo plant hill (Pukui et al. 1974:205).
- **Wailua**: State park, land division, river, falls, valley, town, and golf course, Līhu_e, Kaua_i. Literal meaning, two waters (Pukui et al. 1974:224).

2.3.2 *Mo'olelo*[1]

Background literature research produced very few traditional, historical, or legendary accounts referencing the immediate project area of Kālepa Ridge. More broadly, however, the very notable historical figure Kawelo is associated with Hanamā_ulu Ahupua_a. Kawelo is the central figure in one of the most popular warrior legends of Kaua_i. There are many versions of the Kawelo story, and while each version varies slightly, they all follow the general formula of a warrior who returns home to Kaua_i from Oahu to defend his family. Kawelo is sometimes referred to as Kawelo-a-Maihuna-li_i (son of Maihuna the chief) or Kawelo-lei-makua (Kawelo who cherished his parents) because he defended his parents against their persecutors on Kaua_i. In the Fornander and Rice versions of the story (Beckwith 1970:407), Maihuna and Malai-a-ka-lani have five children in Hanamā_ulu on Kaua_i: Kawelo-ma-hamahaia, Kawelo-lei-ko_o, Kawelo-lei-

[1] *Mo'olelo* means –Story, tale, myth, history, tradition, literature, legend . . . – (Pukui and Elbert 1986:254).

makua (subject of the story), and Kawelo-kamalama, all sons, and Kaena-ku-a-ka-lani, a daughter. It is clear, then that Kawelo was born in Hanamā_ulu, and we can safely surmise that he likely spent a significant part of this youth there as well. There is no other reference to the Hanamā_ulu area until the very end of the epic story, at which point Kawelo retires to his parent‘s old house at Hanamā_ulu (Beckwith 1970:407).

2.3.3 *‘Ōlelo No‘eau*

Only one *‘ōlelo no‘eau*, or traditional proverb, was found for the area. This proverb implies that the people of Hanamā_ulu, Kaua_i were less than generous to guests, a considerable slight given the traditional Hawaiian ethic of hospitality to visitors. The complete proverb and explanation is as follows:

> *No Hanamā‘ulu ka ipu puehu*. The quickly emptied container belongs to Hanamā_ulu.
>
> Said of the stingy people of Hanamā_ulu, Kaua_i—no hospitality there. At one time, food containers would be hidden away and the people of Hanamā_ulu would apologize for having so little for their guests
>
> (Pukui 1983:252).

2.3.4 Traditional Wind Names

In traditional Hawaiian culture, winds are given names which are often associated with a legend, chant, or proverb. There are many different winds and information regarding them provides further cultural context for the study area.

In *The Epic Tale of Hi‘akaikapoliopele* (Ho_oulumāhiehie 2006), a story of Pele‘s younger sister, Pele mentions the winds of Kālepa and Hanamā‘ulu. In this account, chief Lohi_auipo of Kaua_i requested a dance from Pele who responded with a chant pertaining to the winds from Nihoa to Kaua_i (Ho_oulumāhiehie 2006:17–18):

> *The wind of Kapaia is Kuli‘āhiu*
>
> *The wind of Hanamā‘ulu is a Ho‘oluako‘inehe The*
>
> *wide-ranging wind of Kahalapala is a Kā‘ao The*
>
> *wind of Kawailoa is an ‘Āhiuhiuka‘aopu‘ulena The*
>
> *wind of Ali‘o is a Pu‘uone*
>
> *The wind of Kahulu‘u is an‘Āhiuwainui*
>
> *The wind of Kālepa is an ‘Ōlapa*[2]

2.4 Subsistence and Land-Use

Kālepa ridge, on which the project site sits, runs roughly north to south between the traditional *ahupua‘a* of Wailua and Hanamā_ulu. Wailua, immediately north of the project area,

[2] *‘Ōlapa* means –To flash, as in lightning; to blaze suddenly, flare up; to rumble uneasily, as in a queasy stomach.‖ (Pukui and Elbert 1986:283).

was the seat of the ruling *ali‘i* of the island when Captain Cook arrived and clearly one of the most important areas on Kaua‗i (Handy and Handy 1991:425). Wailua‘s importance is evidenced by the presence of six major *heiau,* all documented by Wendell Clark Bennett in the early 1900s (1931:125–128). There was likely an abundance of coconut and breadfruit trees grown along Wailua River in pre-Contact times (Handy and Handy 1991:425). Hanamā‗ulu Stream flows south of Wailua through a broad gulch in which there were many terraces that begin about two and a half miles upstream.

According to Handy and Handy (1972:426–427), farmers in the Hanamā‘ulu area raised taro, sweet potatoes, breadfruit, and coconuts. In the past, the gulch in which the Hanamā‘ulu stream flows through was extensively terraced up to 2.5 miles above the delta. The large delta area which formed where Hanamā‗ulu Stream flows into the bay was probably covered with taro *lo‘i* until the advent of sugar cane. Much of the higher-elevation land, recently planted with sugar cane, is believed to have been used for growing sweet potatoes (Handy and Handy 1991:426). Additionally, the upland slopes would have been well suited for sweet potato cultivation. In Handy‘s (1940:59) description of traditional agricultural activities and land use on Kaua‘i he notes that in the Puna district coconut was planted near sea level and in the valley bottoms in Hanamā‘ulu, Nawiliwili, and Huleia.

By the 1860s, large areas of flat land in the Puna district were cleared for cultivation of sugar cane. The Līhu‗e sugar plantation was formed through a co-partnership under the name of Henry A. Peirce & Co. Throughout the late 1800 and early to mid-1900, plantations became increasingly important for Kaua‘i‘s economic growth. Sugar cane went into a slow decline after this, with acceleration in the 1970s. After the death of the Līhu‗e plantation manager in 1862, Mr. Isenberg succeeded to the management of the estate. Mr. Isenberg purchased the *ahupua‘a* of Hanamā‗ulu from Kamamālu, 17,000 acres at $8,500, which enabled the plantation to get the water supply needed to help sustain and increase its economic growth (Walker et al. 1991:B-14). The natural and cultural landscapes of the project area have been substantially altered by over a century of sugar cultivation. Further landscape transformations have occurred as a result of forest clearing and cattle grazing activities.

2.4.1 Land Tenure

During the Māhele, the Hawaiian chiefs and *konohiki* were required to present their claims to The Land Commission and receive awards for the land quit-claimed to them by Kamehameha III. Until an award for these lands were issued the title remained with the government. Awards issued within the first few years of the Land Commissions inception defined the boundaries of the lands confirmed. An LCA gave complete title to the lands confirmed with the exception of the government‘s right to commutation. Upon satisfaction of the commutation, which could be settled either in cash payment or the exchange of land of equal value, a Royal Patent (RP) was issued upon the award by the minister of the interior. A RP issued upon the LCA neither conferred nor confirmed the title, it quitclaimed the government‘s interest in the land. In essence, it was documentation that the government‘s right to commutation no longer existed. The Act of August 10 1854, provided for the dissolution of the Land Commission so that the LCA recipient was still protected in the lands confirmed in the absence of a RP (Chinen 1958:13–14). This act, obtained from Chinen (1958:14), stated that –a Land Commission Award shall furnish as good and sufficient a ground upon which to maintain an action for trespass, ejectment, and other real action,

against any person or persons, whatsoever, as if the claimant, his heirs or assigns, had received a Royal Patent for the same.‖

Ethno-historic records indicate that the *ahupuaʻa* of Hanamāʻulu as well as Wailua, Kalapaki, Nawiliwili, and Niumalu retain the same boundaries today as in the pre-historic period (Neller and Palama 1973:6). Table 1 presents basic information for the Land Commission Awards (LCAs) for the lands of Hanamāʻulu (1929). The current project is located within a large parcel awarded to Victoria Kamāmaulu (LCA 7713), the high chiefess at the time, and sister of Alexander Lihiliho (King Kamehameha IV), Lot Kamehameha (King Kamehameha V), Moses Kekūāiwa, and half-sister of Ruth Keʻelikolani (Indices 1929:3). Her award included the entire *ahupuaʻa* of Hanamāʻulu. When an entire *ahupuaʻa* was procured by the *aliʻi* they were obligated to respect the rights of the *hoaʻāina*, the existing native tenants. The *hoaʻāina* were allowed to continue to cultivate the land and live on their parcels if they filed a claim to the Board of Commissioners to quiet land titles.

Table 1. Land Commission Awards in Hanamāʻulu

LCA	Awardee	Acreage
3648	Kala	1.25 Acs 30 rods
3650	Kaluhiwaha	3 roods, 35 rods
3649	Kamalo	1.75 Acs 20 rods
7713	V. Kamamalu	9,177 Acs (Ap 2) ahp
3644	Kaualupa	1.25 Acs 23 rods
3558	Keke	3 roods 1 rod
3600	Keolanui	1.75 Acs 30 rods
3653	Kolu	1 Ac 37 rods
5089	Kuhaimoana	3 roods17 rods
3640	Kumakahaohao	1 Ac 1 rood 12 rods
3271	Lalahilimoku, Leimoku	1 Ac 1 rood 21 rods
3657	Niho	1 Ac 1 rood 13 rods
3423	Paka	1.50 Acs 33 rods
3426	Pelekane	1 Ac 17 rods
3371	Naehu	1.25 Ac 19 rods (Kapaia)
3647	Kapuohi	4 Acs 32 rods (Moala)
3647	Kapuohi	38 rods (Papuaa)

In the case of Hanamāʻulu all the claims by native tenants were along the river valley flats and near the ocean. No LCAs other than Kamāmaluʻs are near the project area. Princess Kamāmalu died in 1866 and her lands were inherited by her father, Mataio Kekūanāoʻa. After his death in 1868, Princess Ruth Keʻelikolani inherited Kamāmaluʻs lands.

Provided below is the original Royal Patent (Book 18 Page 429) and Land Commission Award 7713 (Figure 4). The Royal Patent has been transcribed, however the Land Commission Award has not be translated.

Royal Patent (Book 18 Page 429):

Certification:	Plants/Trees: No
Lele:	Wall/Fence: No
Ili/Area:	Fishing Rights: No
Ahupua_a: Hanamā_ulu	Road Trail: No
District: Puna	Cultivating Grounds/Taro: No
Island: Kaua_i	Structure(s): No
Ownership: Dominis, John	Kama_aina Testimony: No
Bird catcher/canoe maker: No	Misc: No Survey
Burial Grave: No	Year: 1891?
Cave: No	

Hanamā„ulu Ahupua„a Boundaries, Interior Department, Land Numbered Docs331-340, Doc. 336 "Found in Papers of John Dominis"

Found in the Land File State Archives with papers of Governor John Dominis governor of Oahu, A.D. 1891.

Document 336 of State Survey Office, Describing Boundaries of Hanamā_ulu.

Commencing upon the sea, at the mouth of a small stream called Kawailoa, and upon the southerly bank of the said stream running from thence South 74° West 90 chains to the top of the hill called Kailiiliahinale bounded by the land called Wailua, belonging to His Majesty the King, from thence North 82° West 494 chains, passing over the plains to the top of the mountain range called Waialeale, thence South 76° East 204 chains following along the top of said mountain called Waialeale to a certain peak, standing upon the northwesterly corner of land called Haiku from thence North 86° [?] East 166 chains to the top of the hill called Momakuhana bounded by the land Haiku, thence South 84° East 114 chain crossing the mountain road leading to Kilauhana, passing down the range of hills on the makai side of Kilauhana, and through a small ravine to a certain koa tree, a short distance south of the Hanamā_ulu river, thence South 82° East 126 chains crossing the plantation of H.A. Peirce & Co, to a certain kukui tree, standing alone on the plains makai of the above plantation of H.A. Peirce & Co., marked K, bounded North 75° 45' East 102 chain passing over the plains to the point of rock, upon the sea called Opoi, which forms the northeasterly corner called Kalapaki, from thence following the sea to the point of commencement.

Comprising an area of 9,177 Acres.

Note: Hanamā_ulu claimed but not awarded to P. Kanoa, Land Claim 2659

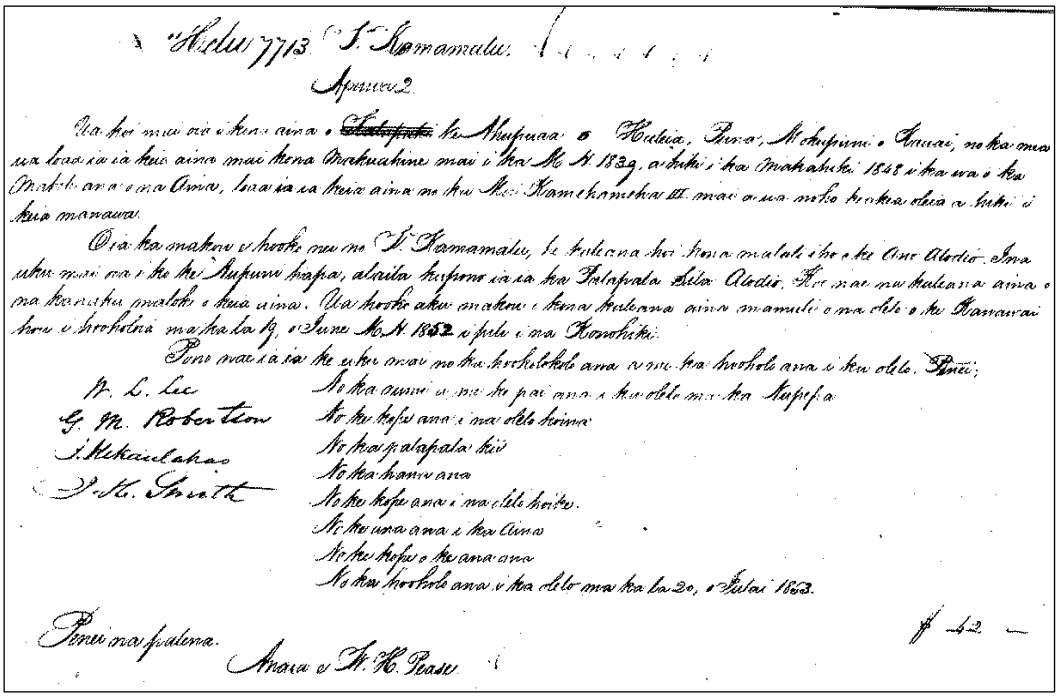


Figure 4. Original text of LCA 7713, Victoria Kamamalu.

2.5 Previous Archaeology

Background research for this project produced 13 previous archaeological studies within the general vicinity of the APE (Table 2). This previous work produced eight archaeological sites, only three of which (SHPD 50-30-08-746, -1826, -1827) are of concern for this project (Figure 5).

As stated previously, Thomas G. Thrum first documented traditional native Hawaiian sites on the Island of Kaua_i at beginning of the twentieth century (Thrum 1906). He listed two *heiau* in the general vicinity of Hanamāʻulu and though he did not provide the exact locations these sites were later relocated and given numbers by the State Historic Preservation Division. The first, Ahukini Heiau (SHPD 50-30-08-101) he described as a medium-sized *heiau* that was destroyed and the second, Kauokamanu Heiau (SHPD 50-30-08-102) he described as a large walled *heiau* that was also destroyed. Wendell Clark Bennett later described Ahukini Heiau as being near Ahukini Point and reported many burials along the shore between Hanamāʻulu and the Wailua River (SHPD 50-30-08-103) (Bennett 1931).

Though Bennett and Thrums early work was extensive and their archaeological survey covered Hanamāʻulu Ahupua_a and all of Kaua_i, it was not until the late 1980s and early 1990s that further significant studies took place.

Table 2. Previous Archeological Investigations in the Project Area Vicinity

Year	Reference	Report Type	SHPD Sites Recorded
1906	Thrum	Survey	50-30-08-101, 50-30-08-102
1931	Bennett	Survey	50-30-08-103
1988	Rosendahl	Archaeological Inventory Survey	50-30-08-1800, 50-30-08-1801
1990	Rosendahl	Archaeological Field Inspection	50-30-08-1827
1990	Walker and Rosendahl	Archaeological Inventory Survey	No new sites reported
1990	Kalima	Osteological Analysis of Human Skeletal Remains	50-30-08-1827
1990	McMahon	Field check on Inadvertent Burial	50-30-08-1827 and 50-30-08-1826
1991	Walker et al.	Archaeological Inventory Survey	50-30-08-1840, 50-30-08-1841, 50-30-08-1843, 50-30-08-1845, 50-30-08-1846, 50-30-08-1842, 50-30-08-1844, 50-30-08-1838, 50-30-08-1839, 50-30-08-1847
1994	Franklin and Walker	Archaeological Inventory Survey	50-30-08-1842
2001	Corbin et al.	Archaeological Inventory Survey	50-30-08-2066, 50-30-08-2067, 50-30-08-2068
2004	Bushnell et al.	Cultural Impact Assessment	No new sites reported
2006	Dye and Jourdane	Archaeological Assessment	No new sites reported
2008	Esh	Archaeological Literature Review	No new sites reported

In 1989 an archaeological inventory survey conducted for the proposed Hanamāʻulu Affordable housing project, just .5 miles from the RFF Kalepa project area, resulted in no cultural findings (Walker and Rosendahl 1990).

In 1990, an archaeological survey for the Lihue/Puhi/Hanamāʻulu Master Plan recorded ten sites within Hanamāʻulu covering various time periods (Walker et al 1991). Five sites were identified as historic period transportation sites related to the sugar industry (SHPD 50-30-08-1840, -1841, -1843, -1845, and -1846), one wall site that may have created a border between the cane fields and the nearby gulch (SHPD 50-30-08-1842), one historic Japanese/Filipino cemetery (SHPD 50-30-08-1844), two precontact habitation sites (SHPD 50-30-08-1838 and -1839), and one precontact agricultural site (50-30-08-1847). The only one of these sites that is not located within the coastal flats is the cemetery site which lies at the base of the Kalepa ridge less than .5 miles from the RFF Kalepa project area.

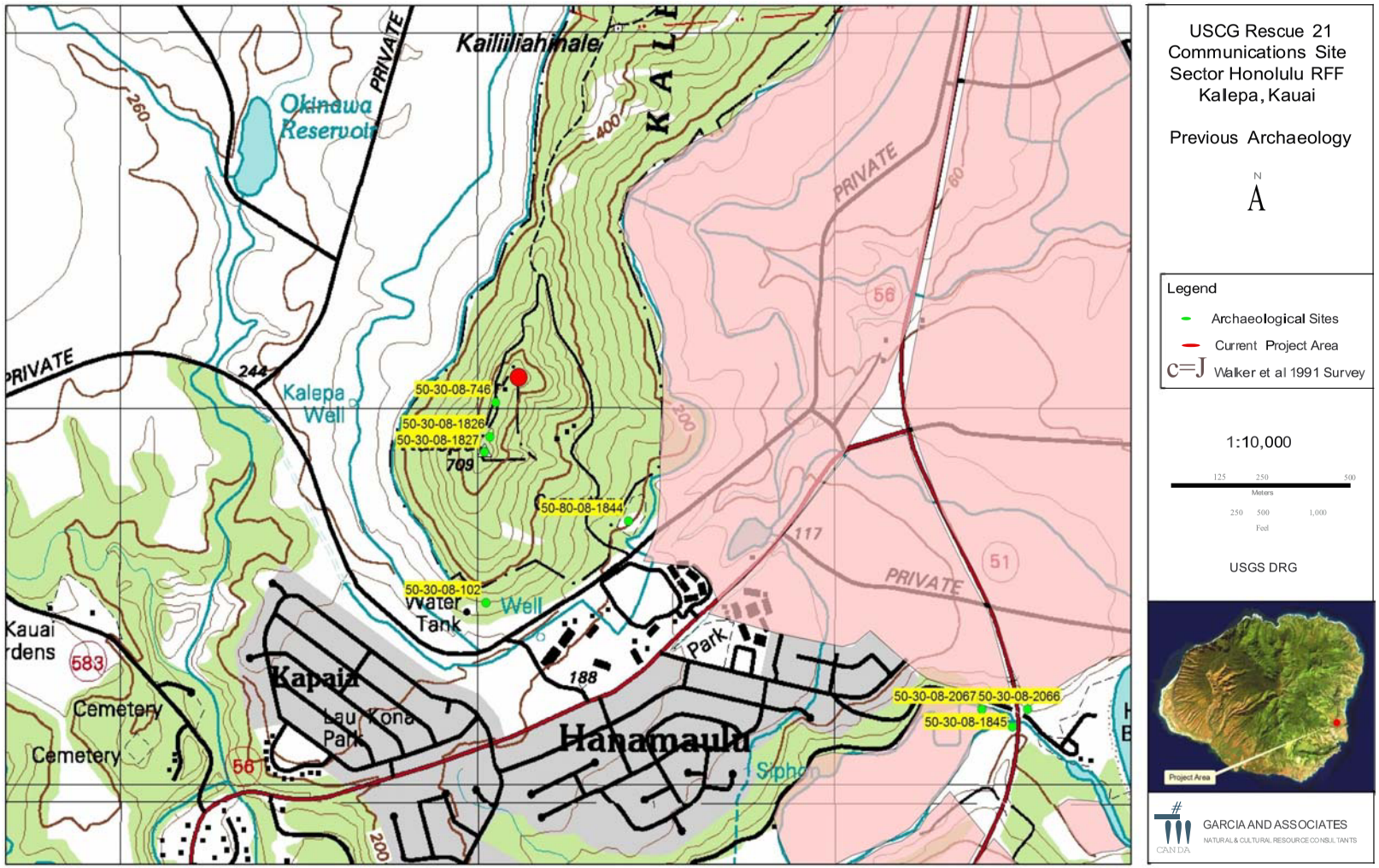


Figure 5. Archaeological sites in the project area.

In 2001, a study to update the previously mentioned Lihue/Puhi/Hanamāʻulu Master Plan identified three new historic sites including another cemetery (SHPD 50-30-08-2067), a house foundation and cane field related road (SHPD 50-30-08-2066), and an historic dump site (SHPD 50-30-08-2068). Each of these sites is less than 2 miles from the RFF Kalepa project area on the lowlands east of the ridge (Corbin et al 2002).

Closer to the project area, and on the Kalepa Ridge itself, three archaeological sites have been documented during different episodes of survey and construction. In 1990, a burial was inadvertently discovered during construction of a Hawaiian Telecom tower on the south peak of the ridge (SHPD 50-30-08-1827) (McMahon 1990). This burial was partially disinterred and was associated with historic glass beads and a mound containing other human remains as well as basalt hammer stones and basalt flakes (SHPD 50-30-08-1826) (Esh 2008).

In 1994 archaeologists monitoring driveway improvements and construction of a retaining wall discovered human bone fragments associated with a previously identified site (SHPD 50-30-08-746) (Figure 6) (Akana 1994). This site is directly adjacent to the project APE and remnant portions of the site including disturbed human skeletal remains and lithic artifacts could be present in the project area.

Figure 6. Project area access road with Hawaii Telecom building in background. SHPD Site 50-30-08-746 is above the retaining wall on the far left.

3.0 FIELD METHODS

Archaeological testing was conducted in all locations where construction plans called for subsurface components and therefore excavation. This includes a utility trench along the east side of the existing cement driveway, six bollards planned for the north-end of the driveway, six large concrete footings for a new structure, and 11 ice bridge support posts extending around the east side of the existing building and into the existing communication tower (Figure 7). Six 1 x 1 meter test units (TUs) were excavated at the equipment shelter footing locations. A total of 23 .5 x .5 meter shovel test pits (TPs) were excavated at the locations of the bollards, ice bridge supports, and at five meter intervals along the utility trench route.

All excavations were conducted in ten centimeter levels within natural soil layers. Excavation extended into culturally sterile subsoil in almost all units. In two cases, excavation was terminated when buried electrical lines were encountered. All sediment was screened through ¼-inch mesh screen (Figure 8).

All excavated TUs and TPs were photographed and soil profiles recorded according to Natural Resource Conservation Service soil description standards (Figure 9).

4.0 ARCHAEOLOGICAL TESTING AND RESULTS

As noted above TUs and TPs were placed in areas planned for subsurface construction (Figure 7). Stratigraphy was quite consistent across the project area, consisting of a basic three-layer profile. Technical descriptions for project area strata are presented in Table 1.

Test excavations across the project area revealed extensive subsurface disturbance likely related to the construction of the current driveway and communications structures. A layer of fill (Layer I) consisting of various soil types mixed with crushed coral and construction debris is found across the site in varying depths ranging from less than 10 cm to almost 50 cm below the current ground surface. This layer covers a natural soil horizon (Layer IIa–b) that also varies in depth and in many places was scraped away in an apparent cut and fill operation to extend the flat area of the north peak of Mount Kalepa. Underneath these two layers is the natural subsoil (Layer III) which in some areas is quite close to the surface because of extensive scraping, this is the most apparent directly underneath the existing communications tower. In most areas, the project area exhibits a disturbed upper soil horizon of silty clay mixed with historic debris and crushed coral underlain by a culturally sterile C-horizon substratum of compact silty clay (Figure 11 and 8).

4.1 Test Units

A total of six 1 x 1 meter test units were excavated at the north end of the concrete driveway and on the east side of the project area. The locations of the test units coincide with the location of the footings for the planned equipment shelter. Soil profiles for the six units revealed that the deepest portion of intact upper soil is on the down-slope side of the driveway (). Each test unit had either a layer of fill overlaying a mixed layer of fill and natural Kalapa silty clay upper horizon soils intact culturally sterile Kalapa silty clay subsoil. Each test unit was excavated at least ten centimeters into the intact culturally sterile subsoil. Test units TU01 and TU03 exposed a buried wire that runs downslope from the existing Hawaii Telecom building.

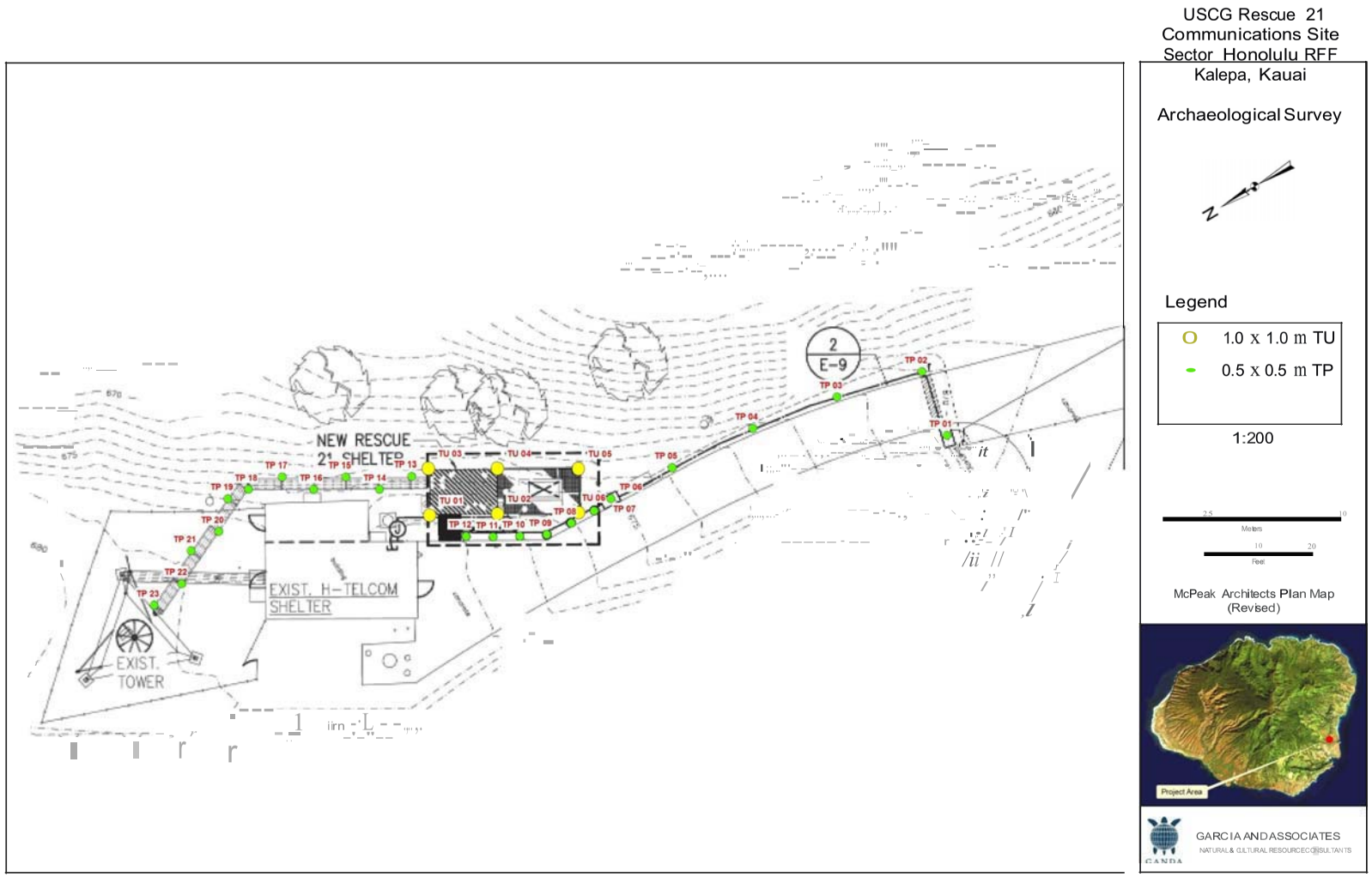


Figure 7. Locations of archaeological excavations.

Figure 8. Screening sediment at TP 07.

Figure 9. Stratigraphic profile recording at TU 02.

Table 3. Area Stratigraphy

Layer	Munsell Soil Color	Description	Interpretation
I	7.5 YR 3/4, dark brown	Crushed coral and gravel with some silty clay; small and medium roots throughout; abrupt lower boundary.	Imported Fill Layer
II	7.5 YR 3/4, dark brown	Silty clay mixed with fill; abundant roots; clear lower boundary.	Highly disturbed, redeposited solum mixed with fill.
IIIa	2.5 YR 3/4, dark reddish brown	Silty clay; compact; abundant roots; clear lower boundary.	Intact, truncated solum; remnant A/B-horizon.
IIIb	5 YR 4/6, yellowish red	Silty clay; compact; very dry, clay and saprolite inclusions, some roots.	Intact C-horizon subsoil.

The six test units produced no evidence of traditional Hawaiian or early historic cultural deposition.

4.2 Test Pits

A total of 23 .5 x .5 meter shovel test pits were excavated at the future locations of bollards, ice bridge support footings, and along the route of a proposed electrical trench on the east side of the concrete driveway.

As with the test units discussed above, soil profiles for the shovel test pits along the concrete driveway and along the east side of the existing building indicate that the area has been heavily disturbed. The original upper soil layers have been scraped off across most of the project area and pushed over the eastern hill-slope. Test pit profiles exhibit only a very thin to non-existent intact Kalapa silty clay A/B horizon. In most areas, the profile consists of highly disturbed, redeposited Kalapa silty clay and fill overlying intact culturally sterile subsoil. Three shovel test pits (TP06, TP17, and TP 19) encountered live buried wires, at which point these pits were terminated.

The 23 test pits produced no evidence of traditional Hawaiian or early historic cultural deposition.

5.0 Summary and Conclusions

Archaeological inventory survey was completed in anticipation of new construction at the United States Coast Guard Rescue 21 Communications Site, Sector Honolulu, RFF Kalepa. Based on previous findings in the vicinity of the project APE, the United States Coast Guard determined that excavation activities associated with the proposed undertaking had the potential to affect buried historic resources. Archaeological investigation therefore consisted of a series of test

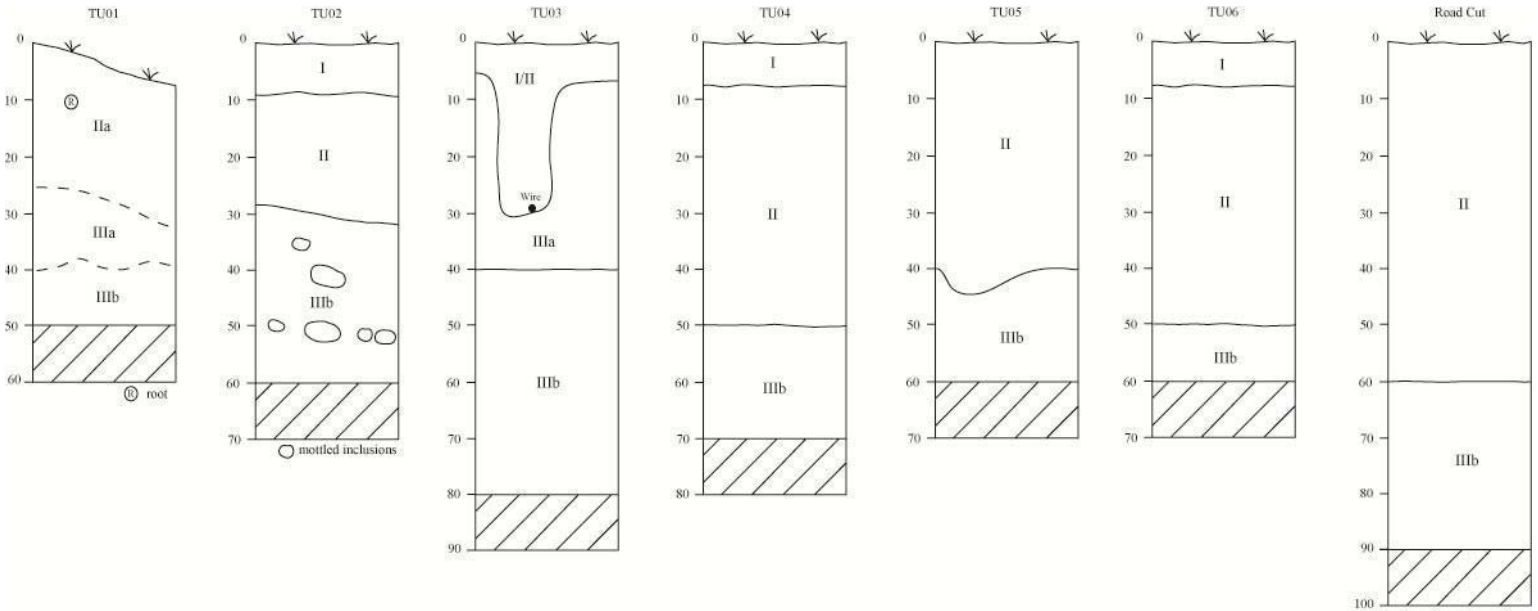


Figure 10. Soil profiles for 1 x 1 m test units (horizontal scale minimized).

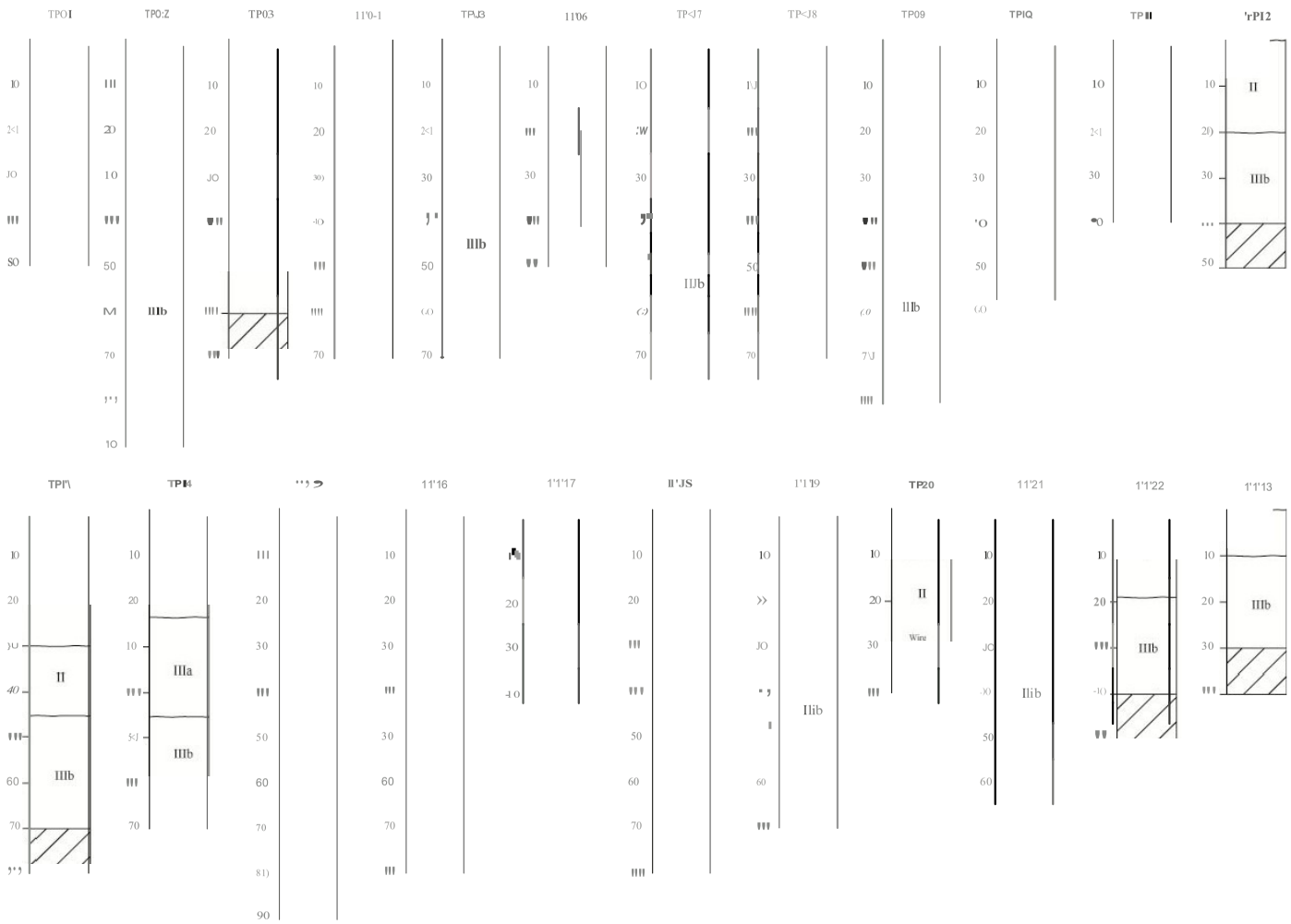


Figure 11. Soil profiles for .5 x .5 m test pits (horizontal scale minimized).

Figure 12. North wall of Test Unit 1.

Figure 13. North wall of Test Unit 2.

Figure 14. West wall of Test Unit 3.

Figure 15. West wall of Test Unit 4.

Figure 16. West wall of Test Unit 5.

Figure 17. South wall of Test Unit 6.

excavations at the locations of proposed ground disturbing activities including 6 equipment shelter footings, 6 bollards, 11 ice bridge supports, and 6 loci along a proposed electrical trench. Archaeological testing included excavation of 6 Test Units (1 x 1 m) and 23 shovel Test Pits (.5 x .5 m). All excavations extended into culturally sterile soil, which was identified as geologically intact C horizon subsoil.

Based on the archaeological testing results, as well as field observations along a road-cut profile on the west side of the access road, it is clear that construction of existing facilitates has heavily impacted the site area. Most of the original, intact soils appear to have been cut away and then pushed over the eastern slope. Typical stratigraphic profiles for the area exhibit a layer of highly disturbed sediment (a mix of A/B horizon soil, crushed coral, and construction debris) overlying undisturbed C horizon substratum. Intact soils were present just down-slope from the concrete roadway, along the electrical trench route.

No traditional Hawaiian or early historic archaeological deposits were found in any of the excavations. Limited modern debris, such as plastic sheeting and hardware, apparently discarded during recent maintenance of the existing communication tower, were found on the surface and in the upper, disturbed levels of soil.

5.1 Recommendations

Although test excavation results produced no evidence of archaeological resources, it is important to take into account the presence of former-identified traditional Hawaiian burials both on the south peak of the Kalepa ridge (~200 m away) and immediately downslope from the proposed electrical trench (~3 m away). The later, SHPD Site 50-30-08-746, is particularly worrisome given its location about three meters from the western terminus of the electrical trench. If SHPD Site 50-30-08-746 had originally extended to the east, even by only a few meters, it would likely have been cut away during grading of the access road and then redeposited along the eastern downslope side. It is therefore possible that cultural material, perhaps human remains, may be present in the redeposited fill sediments along the east side of the access road, in the location of the proposed electrical trench. Since test pit excavation along the electrical trench route was spaced at five meter intervals, and cultural remains such as human burials can be small targets, it is recommended that archaeological monitoring be conducted during excavation of the electrical trench.

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Appendix 6
Archaeological Monitoring Plan

Archaeological Monitoring Plan

United States Coast Guard Rescue 21 Communications Site, Sector Honolulu, RFF Kālepa, Hanamāʻulu Ahupuaʻa, Līhuʻe District, Kauaʻi, Hawaiʻi

TMK (4) 3-8-002:004 and (4) 3-8-002:005

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GANDA Report No. 2218-2

November 2011

MANAGEMENT SUMMARY

At the request of MWH Americas, Inc., Garcia and Associates has prepared this archaeological monitoring plan for ground disturbing activities associated with new construction at the United States Coast Guard Rescue 21 Communications Site, Sector Honolulu, Remote Fixed Facility (RFF) Kalepa. The proposed RFF Kalepa communications site is located on Kalepa Ridge in Hanamā'ulu Ahupuaʻa, Līhuʻe District, Island of Kaua'i, Hawai'i. This monitoring plan contains background information and a methodological framework to guide field monitoring, site documentation, and post-field analysis and reporting. The plan also contains a burial discovery and notification plan.

Garcia and Associates performed an archaeological inventory survey of an approximately .8-acre study area on September 26-30, 2011. The survey included a pedestrian survey and subsurface testing at the locations of anticipated ground disturbing activities at RFF Kalepa. This included excavation for six equipment shelter footings, six bollards, 11 ice bridge support footings and a 110-foot electrical trench. Garcia and Associates excavated all foundation and footing elements to culturally sterile subsoil and did not uncover any evidence of subsurface archaeological resources. These previously excavated areas do not require archaeological monitoring.

Intact soil deposits were, however, documented along the 110-foot electrical trench route. The planned trench route is therefore the principal area of concern for this AMP. Garcia and Associates will provide full-time archaeological monitoring during the overall utility backhaul trenching effort and backfill of the 110–foot utility trench along the access road to the Kalepa RFF site.

CONTENTS

Management Summary i
List of Figures iv
List of Tables iv

1.0 INTRODUCTION 1
1.1 Project Area 1
1.2 The Undertaking 1
1.3 Area of Potential Effect 2

2.0 BACKGROUND 2
2.1 Vegetation and Climate 2
2.2 Soils 2
2.3 Hawaiian Cultural Context 2
2.3.1 Place Names 7
2.3.2 *Mo'olelo* 8
2.3.3 *'Ōlelo No'eau* 8
2.3.4 Traditional Wind Names 9
2.4 Subsistence and Land-Use 9
2.4.1 Land Tenure 10
2.5 Previous Archaeology 13
2.6 Archaeological Expectations 17

3.0 ARCHAEOLOGICAL MONITORING 17
3.1 Project Personnel 17
3.2 Pre-Construction Briefing ..... **Error! Bookmark not defined.**
3.3 Field Methods ..... **Error! Bookmark not defined.**
3.3.1 Documentation of Monitoring Activities ..... **Error! Bookmark not defined.**
3.3.2 Site Discovery and Treatment ..... **Error! Bookmark not defined.**
3.3.3 Stratigraphic Documentation ..... **Error! Bookmark not defined.**
3.3.4 Feature Sampling 22

4.0 BURIAL DISCOVERY NOTIFICATION PLAN 22

5.0 POST FIELD ANALYSIS 22
5.1 Laboratory Analysis 22
5.2 Flotation 23
5.3 Radiocarbon Samples 23
5.4 Faunal Analysis 23
5.5 Formal Artifacts 23
5.6 Lithic Analysis 23
5.7 Geochemical Sourcing 24
5.8 GIS Data 24

Contents

6.0 CURATION 24
7.0 REPORTING 24
8.0 REFERENCES 24

FIGURES

Figure 1. Project area location. 3
Figure 2.Undertaking APE. 4
Figure 3. Project area soils. 5
Figure 4. Original text of LCA 7713, Victoria Kamamalu. 12
Figure 5. Archaeological sites in the project area. 15
Figure 6. Inventory survey excavations. 16
Figure 7. Trench route; the area of concern for archaeological monitoring. 19

TABLES

Table 1. Land Commission Awards in Hanamāʻulu 11
Table 2. Previous Archeological Investigations in the Project Area Vicinity 13

1.0 INTRODUCTION

At the request of MWH Americas, Inc., Garcia and Associates has prepared this archaeological monitoring plan (AMP) for ground disturbing activities associated with new construction at the United States Coast Guard Rescue 21 Communications Site, Sector Honolulu, Remote Fixed Facility (RFF) Kalepa. The proposed RFF Kalepa communications site is located on Kalepa Ridge in Hanamā'ulu Ahupuaʻa, Līhuʻe District, Island of Kaua'i, Hawai'i (Figure 1). This AMP is designed to direct the identification, recordation, sampling, analysis, and curation of any prehistoric or historic properties that might be exposed during the undertaking. The AMP contains cultural and historical background information, a review of previous archaeological work in the project area, archaeological expectations, field and laboratory methods, requirements for project deliverables, and a burial discovery and notification plan.

This Archaeological Monitoring Plan is written in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and all applicable state and local laws.

1.1 Project Area

The project area is located on the east side of the Island of Kaua'i, in the *ahupuaʻa* of Hanamā'ulu, Kaua'i County, Hawai'i (Figure 1). The RFF site is located primarily on a 4.711-acre parcel encompassing TMK (4) 3-8-002:005, but also extends onto the larger TMK (4) 3-8-002:004 parcel. The property is owned by Grove Farms Company, Inc. and leased to Hawaiian Telcom. The project area contains an existing telecommunications tower and associated ground support structures and is accessed via a paved road at the end of Hulei Road, off Kuhio Highway (State Route 56). It is surrounded by undeveloped forested land on all sides, with farmed land and residences beyond the forestland at lower elevations. The site is within the State of Hawai'i Conservation District ("Limited" Subzone) and is at the southern end of the Kālepa Mountain Forest Reserve and Kālepa Ridge.

Hanamāʻulu Cemetery, which was used for burial of plantation workers prior to the 1960s, is located at the base of Kālepa Ridge, approximately 1,500 feet southeast of the site. Agricultural land occupies lower elevations east and west of both the project site and residential housing development Hanamā'ulu, 0.5 mile to the southeast. The Kalepa residential area is approximately 0.5 mile to the southwest. Project area elevation is approximately 679 feet above mean sea level.

1.2 The Undertaking

The RFF Kālepa undertaking consists of ground disturbing activities associated with installation of: 1) pier foundations to support an elevated equipment shelter, 2) bollards, 3) footings for an elevated antenna cable tray running from the tower to the equipment shelter, and 4) 110 feet of trench for electrical and telephone lines. The locations of the pier foundations, bollards, and cable tray footings were fully excavated during a previous phase of archaeological investigation (Toney 2011). Archaeological shovel testing was also conducted at five-meter intervals along the planned electrical trench. Testing at these various locations produced no evidence of subsurface archaeological resources.

1.3 Area of Potential Effect

The Area of Potential Effect (APE) for direct (physical) effects covers the approximately .8-acre area where pier foundations and footings will be excavated, as well as along the 110-foot route for the utility cable trench (Figure 2). As mentioned above, prior archaeological testing within the APE indicates that there is almost no potential for adverse effect at the foundation and footing locations since these areas have already been fully excavated during the archaeological inventory survey. Intact soil deposits were, however, documented along the 110-foot electrical trench route. The planned trench route is therefore the principal area of concern for this AMP.

2.0 BACKGROUND

This section presents environmental, archaeological, and historical background information for the project area as well as an overview of previous archaeological research performed in and around the project area. It concludes with an assessment of anticipated archaeological findings in the project area.

2.1 Vegetation and Climate

Vegetation in the project area consists of guava (Myrtaceae Psidium), lantana (*Verbenaceae latana*), sensitiveplant (*Mimosap pudica*), pilipiliula (*Chrysopogon aciculatus*), ohia (*Metrosideros polymorpha*), Japanese tea (*Camillia sinensis*), and ferns (*pteridophyte*) (Foote et al. 1972:55). Moderate amounts of koa-haole (*Leucaena leucocephala*) and Christmas berry (*Schinus terebinthifolius* Raddi) are also present.

Mean annual precipitation in the project area ranges between 40 and 50 inches, and annual temperatures range between 70 and 75 degrees Fahrenheit (Armstrong 1983:63).

2.2 Soils

Project area soils consist mainly of Kalapa silty clay, 40 to 70 percent slopes (KdF) (Figure 3). These well-drained soils are located in the upland regions and at the base of slopes and range from moderate to very steeply sloped with elevations ranging from 200 to 1,200 feet. The Kalapa series are well-drained soils that are developed in weathered material from basic igneous rocks and in colluviums and are geographically associated with Hihimanu and Hanamāʻulu soils (Foote et al. 1972:55).

Kalapa silty clay is strongly acidic and a typical profile consists of 0 to 10 inches of dark reddish-brown silty clay, then approximately 10 to 50 inches of dark-red to reddish-brown silty clay and clay with sub-angular blocky structure. Below this is a dark-brown, dusky-red, and dark-red silty clay and soft, highly weathered rock. Soil permeability is moderately rapid, runoff is rapid, and erosion hazard is severe to very severe (Foote et al. 1972:55–56).

2.3 Hawaiian Cultural Context

The following is a review of significant Hawaiian place names, myths, legends, and proverbs that are potentially significant to the project area and individuals with historic connections to the.

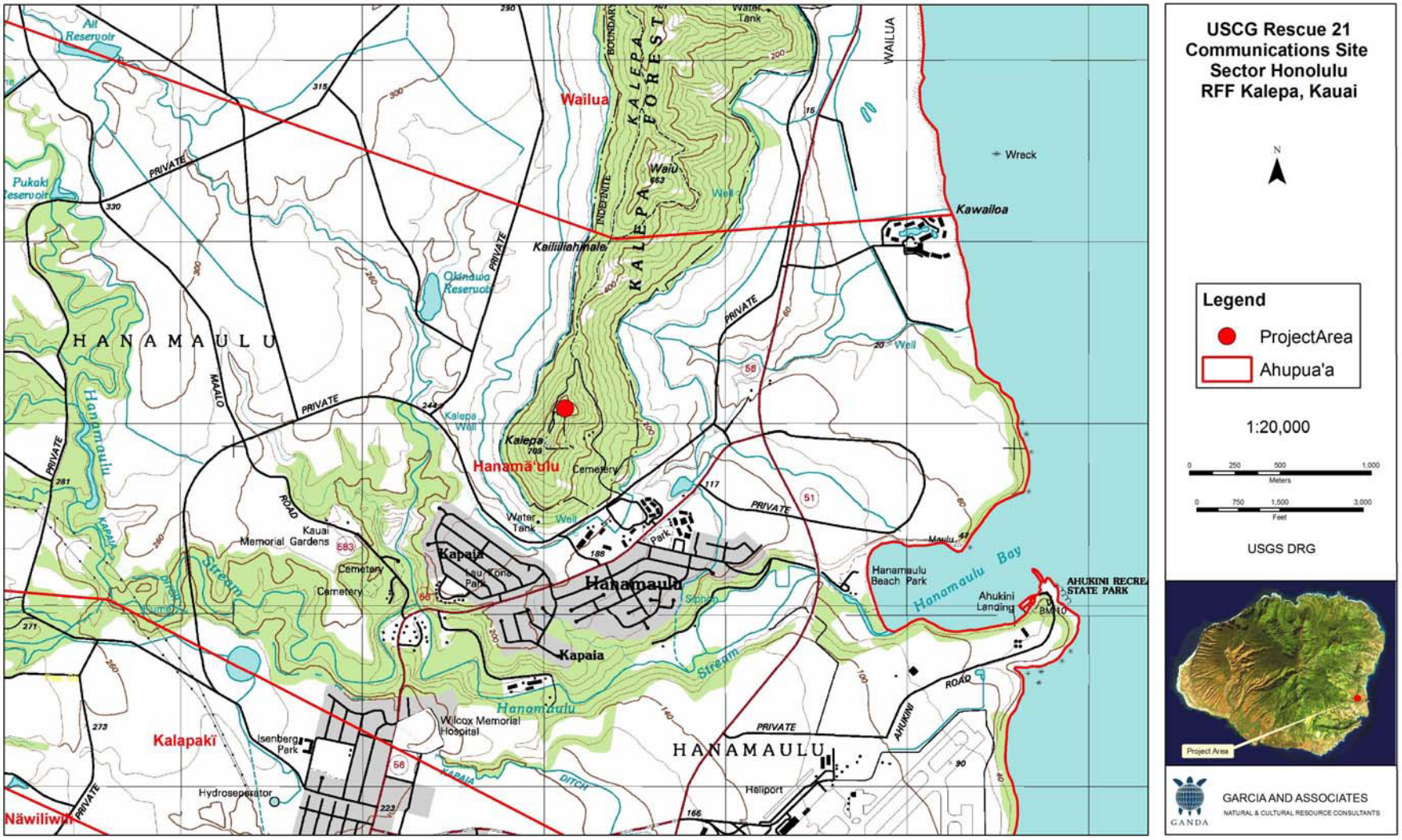

Figure 1. Project area location.

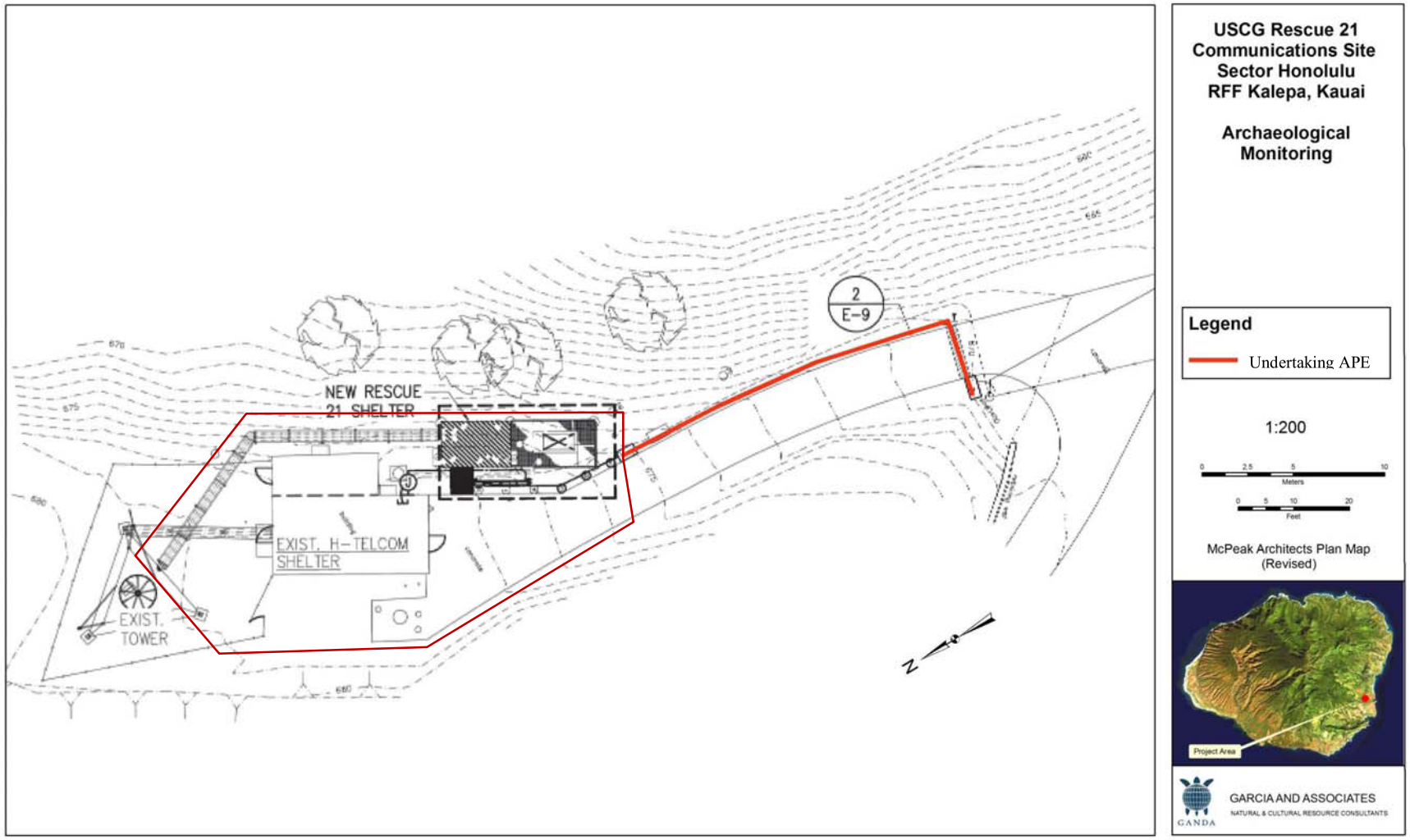

Figure 2. Undertaking APE.

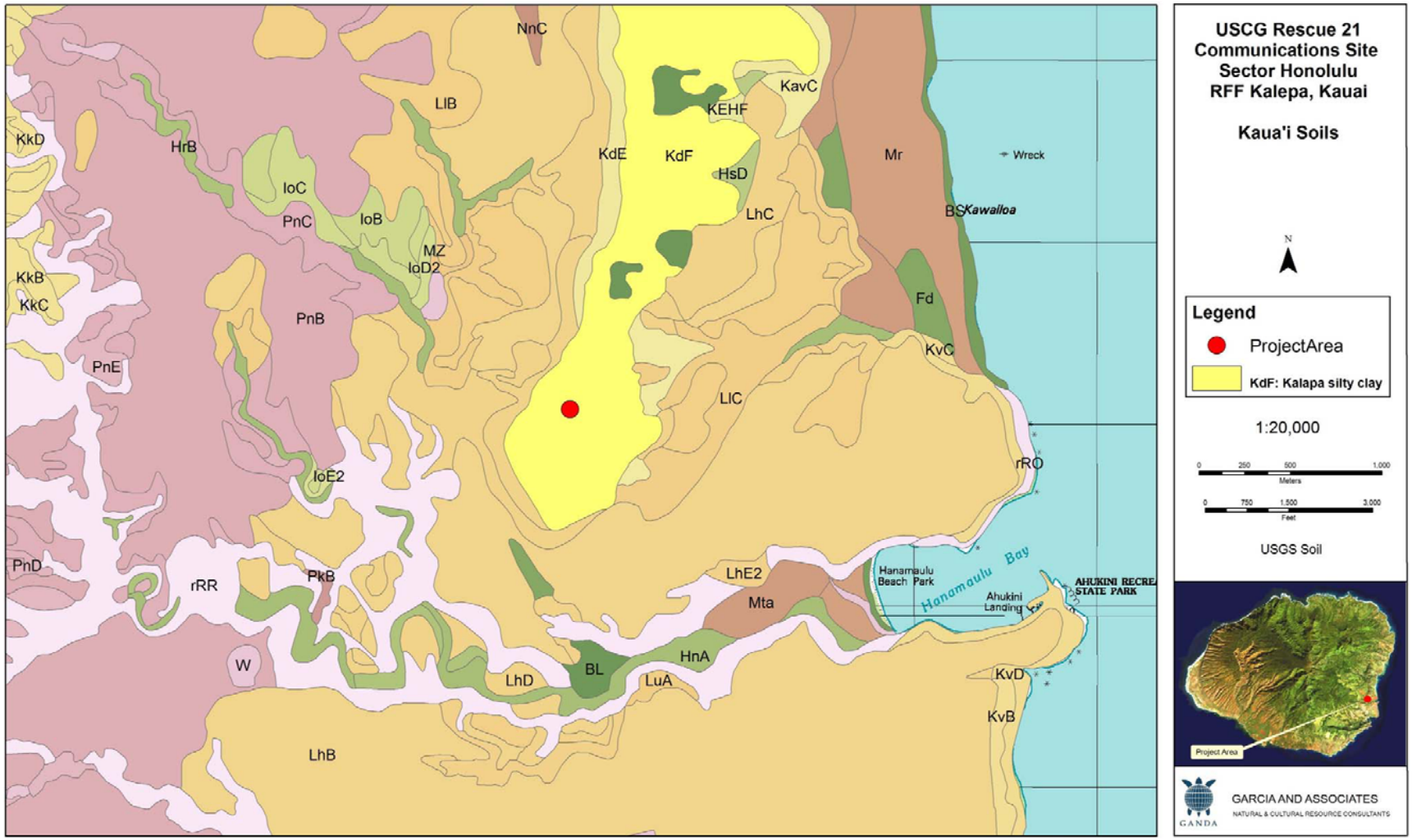

Figure 3. Project area soils.

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area. They provide a cultural context within which the significance of monitoring findings may be interpreted.

Prior to European contact, traditional Hawaiian communities were originally located on the coastal regions of Hanamāʻulu and the surrounding areas. Over time, however, population centers shifted away from the coast and into the valleys where large scale subsistence networks were introduced in response to a rapidly expanding population. Evidence of this geographical and demographic expansion remains today in the *loʻi* located in the flats of the Niumalu area, the primary and secondary *ʻauwai* that were used to transport water from the Hulēʻia River inland to taro fields, the *ʻAlekoko* or *Menehune loko Kuapā* (walled fishpond), and the two *loko wai* (fresh water ponds) located east of the project area (Henry et al. 1993:15). Growing socio-political complexity late in Hawaiian pre-history is inferred from the past construction of *heiau* at Hanamāʻulu, Kalpaki, and Nawiliwili. Thomas G. Thrum (1906:40) documented the remains of these large collective efforts, noting that: Kuhia *heiau* in Nawiliwili has long been destroyed but is said to have been the largest and most famous in Kauaʻi at that time; only the foundations remain of Ahukini *heiau* in Kalpaki; Pohakoelele in Kalapaki was completely destroyed, and; Kalauokamanu in Hanamāʻulu, once a large walled *heiau*, was also completely destroyed around 1855.

2.3.1 Place Names

A compilation of place names in the general vicinity of the project area is presented below. Place name meanings and their historical associations can provide important contextual information for the project area and may contribute to significance evaluations for any archaeological sites discovered during survey and testing. Place names include physiographic landscape features such as streams, valleys, ridges, and mountains, as well as geo-political units such as land sections, towns, and villages. The most important of the place names are Kālepa, for which the immediate project area and ridge-line is named, and Hanamāʻulu, the *ahupuaʻa* within which the project area is located.

- **ʻAʻahoake**: Hill, a *kīpuka*, Līhuʻe district, Kauaʻi (Pukui et al. 1974:5)
- **Ka-hoʻolei-nā-peʻa**: Land division near Kō-loa, Kauaʻi. Literal meaning, the flying [of] the kites (the kite of the Kauaʻi hero, Kawelo, was entangled here with his rival cousin (Pukui et al. 1974:66).
- **Kalapakī**: Beach, Līhuʻe district, Kauaʻi (Pukui et al. 1974:75).
- **Kālepa**: Ridge, forest reserve, and trail, Līhuʻe, Kauaʻi. (Pukui et al. 1974:76)
- **Kawailoa**: Boundary point, the boundary between Hanamāʻulu and Wailua commences at the "south bankof the stream called Kawailoa at the sea beach. Literal meaning, long water Literal (Pukui et al. 1974:98).
- **Kilohana**: Peak and crater, Līhuʻe district, Kauaʻi. A boy, Lahi, and his uncle, while hunting ʻuwaʻu birds on the summit, lured a giant into a hole and killed him; warriors came to catch the bird hunters, but Lahi hid at a pass and threw the men one at a time over the cliff. Literal meaning, lookout point or outer tapa, or best, superior (Pukui et al. 1974:111–12).

- **Hanamāʻulu**: Landing, land section, village, bay, ditch, river, beach park, and birthplace of the hero Ka-welo, Līhuʻe district, Kauaʻi. Literal meaning, tired (as from walking) bay (Pukui et al. 1974:41).
- **Līhuʻe**: City and district, Kauaʻi. Literal meaning, cold chill (Pukui et al. 1974:132)
- **Nā-wiliwili**: Village, land division, port, stream, bay, and small boat harbor, Līhuʻe district, Kauaʻi. Literal meaning, the *wiliwili* trees (Pukui et al. 1974:164).
- **Puʻu-pilo**: Hill inland of Wailua; it is a *kīpuka*. Literal meaning, hill of the swampy odor, or pilo plant hill (Pukui et al. 1974:205).
- **Wailua**: State park, land division, river, falls, valley, town, and golf course, Līhuʻe, Kauaʻi. Literal meaning, two waters (Pukui et al. 1974:224).

2.3.2 *Moʻolelo*[1]

Background literature research produced very few traditional, historical, or legendary accounts referencing the immediate project area of Kālepa Ridge. More broadly, however, the very notable historical figure Kawelo is associated with Hanamāʻulu Ahupuaʻa. Kawelo is the central figure in one of the most popular warrior legends of Kauaʻi. There are many versions of the Kawelo story, and while each version varies slightly, they all follow the general formula of a warrior who returns home to Kauaʻi from Oahu to defend his family. Kawelo is sometimes referred to as Kawelo-a-Maihuna-liʻi (son of Maihuna the chief) or Kawelo-lei-makua (Kawelo who cherished his parents) because he defended his parents against their persecutors on Kauaʻi. In the Fornander and Rice versions of the story (Beckwith 1970:407), Maihuna and Malai-a-ka-lani have five children in Hanamāʻulu on Kauaʻi: Kawelo-ma-hamahaia, Kawelo-lei-koʻo, Kawelo-lei-makua (subject of the story), and Kawelo-kamalama, all sons, and Kaena-ku-a-ka-lani, a daughter. It is clear, then that Kawelo was born in Hanamāʻulu, and we can safely surmise that he likely spent a significant part of this youth there as well. There is no other reference to the Hanamāʻulu area until the very end of the epic story, at which point Kawelo retires to his parent's old house at Hanamāʻulu (Beckwith 1970:407).

2.3.3 *ʻŌlelo Noʻeau*

Only one *ʻōlelo noʻeau*, or traditional proverb, was found for the area. This proverb implies that the people of Hanamāʻulu, Kauaʻi were less than generous to guests, a considerable slight given the traditional Hawaiian ethic of hospitality to visitors. The complete proverb and explanation is as follows:

> *No Hanamāʻulu ka ipu puehu*. The quickly emptied container belongs to Hanamāʻulu.
>
> Said of the stingy people of Hanamāʻulu, Kauaʻi—no hospitality there. At one time, food containers would be hidden away and the people of Hanamāʻulu would apologize for having so little for their guests
>
> (Pukui 1983:252).

[1] *Moʻolelo* means "Story, tale, myth, history, tradition, literature, legend . . . " (Pukui and Elbert 1986:254).

2.3.4 Traditional Wind Names

In traditional Hawaiian culture, winds are given names which are often associated with a legend, chant, or proverb. There are many different winds and information regarding them provides further cultural context for the study area.

In *The Epic Tale of Hi'akaikapoliopele* (Ho'oulumāhiehie 2006), a story of Pele's younger sister, Pele mentions the winds of Kālepa and Hanamā'ulu. In this account, chief Lohi'auipo of Kaua'i requested a dance from Pele who responded with a chant pertaining to the winds from Nihoa to Kaua'i (Ho'oulumāhiehie 2006:17–18):

The wind of Kapaia is Kuli'āhiu

The wind of Hanamā'ulu is a Ho'oluako'inehe

The wide-ranging wind of Kahalapala is a Kā'ao

The wind of Kawailoa is an 'Āhiuhiuka'aopu'ulena

The wind of Ali'o is a Pu'uone

The wind of Kahulu'u is an'Āhiuwainui

The wind of Kālepa is an 'Ōlapa[2]

2.4 Subsistence and Land-Use

Kālepa ridge, on which the project site sits, runs roughly north to south between the traditional *ahupua'a* of Wailua and Hanamā'ulu. Wailua, roughly 5 km (3.1 miles) to the north of the project area, was the seat of the ruling *ali'i* of the island when Captain Cook arrived and clearly one of the most important areas on Kaua'i (Handy and Handy 1991:425). Wailua's importance is evidenced by the presence of six major *heiau,* all documented by Wendell Clark Bennett in the early 1900s (1931:125–128). There was likely an abundance of coconut and breadfruit trees grown along Wailua River in pre-Contact times (Handy and Handy 1991:425). Hanamā'ulu Stream flows south of Wailua through a broad gulch in which there were many terraces that begin about two and a half miles upstream.

According to Handy and Handy (1972:426–427), farmers in the Hanamā'ulu area raised taro, sweet potatoes, breadfruit, and coconuts. In the past, the gulch in which the Hanamā'ulu stream flows through was extensively terraced up to 2.5 miles above the delta. The large delta area which formed where Hanamā'ulu Stream flows into the bay was probably covered with taro *lo'i* until the advent of sugar cane. Much of the higher-elevation land, recently planted with sugar cane, is believed to have been used for growing sweet potatoes (Handy and Handy 1991:426). Additionally, the upland slopes would have been well suited for sweet potato cultivation. In Handy's (1940:59) description of traditional agricultural activities and land use on Kaua'i he notes that in the Puna district coconut was planted near sea level and in the valley bottoms in Hanamā'ulu, Nawiliwili, and Huleia.

[2] *'Ōlapa* means "To flash, as in lightning; to blaze suddenly, flare up; to rumble uneasily, as in a queasy stomach." (Pukui and Elbert 1986:283).

By the 1860s, large areas of flat land in the Puna district were cleared for cultivation of sugar cane. The Līhuʻe sugar plantation was formed through a co-partnership under the name of Henry A. Peirce & Co. Throughout the late 1800 and early to mid-1900, plantations became increasingly important for Kauaʻi's economic growth. Sugar cane went into a slow decline after this, with acceleration in the 1970s. After the death of the Līhuʻe plantation manager in 1862, Mr. Isenberg succeeded to the management of the estate. Mr. Isenberg purchased the *ahupuaʻa* of Hanamāʻulu from Kamamālu, 17,000 acres at $8,500, which enabled the plantation to get the water supply needed to help sustain and increase its economic growth (Walker et al. 1991:B-14). The natural and cultural landscapes of the project area have been substantially altered by over a century of sugar cultivation. Further landscape transformations have occurred as a result of forest clearing and cattle grazing activities.

2.4.1 Land Tenure

During the Māhele, the Hawaiian chiefs and *konohiki* were required to present their claims to The Land Commission and receive awards for the land quit-claimed to them by Kamehameha III. Until an award for these lands was issued, the title remained with the government. Land Commission Awards (LCAs) issued within the first few years of the Land Commission's inception defined the boundaries of the lands confirmed. An LCA gave complete title to the lands confirmed with the exception of the government's right to commutation. Upon satisfaction of the commutation, which could be settled either in cash payment or the exchange of land of equal value, a Royal Patent (RP) was issued upon the award by the minister of the interior. A RP issued upon the LCA neither conferred nor confirmed the title, it quitclaimed the government's interest in the land. In essence, it was documentation that the government's right to commutation no longer existed. The Act of August 10 1854, provided for the dissolution of the Land Commission so that the LCA recipient was still protected in the lands confirmed in the absence of a RP (Chinen 1958:13–14). This act, obtained from Chinen (1958:14), stated that "a Land Commission Award shall furnish as good and sufficient a ground upon which to maintain an action for trespass, ejectment, and other real action, against any person or persons, whatsoever, as if the claimant, his heirs or assigns, had received a Royal Patent for the same."

Ethno-historic records indicate that the *ahupuaʻa* of Hanamāʻulu as well as Wailua, Kalapaki, Nawiliwili, and Niumalu retain the same boundaries today as in the pre-historic period (Neller and Palama 1973:6). Table 1 presents basic information for the Land Commission Awards (LCAs) for the lands of Hanamāʻulu (1929). The current project is located within a large parcel awarded to Victoria Kamāmaulu (LCA 7713), the high chiefess at the time, and sister of Alexander Lihiliho (King Kamehameha IV), Lot Kamehameha (King Kamehameha V), Moses Kekūāiwa, and half-sister of Ruth Keʻelikolani (Indices 1929:3). Her award included the entire *ahupuaʻa* of Hanamāʻulu. When an entire *ahupuaʻa* was procured by the *aliʻi* they were obligated to respect the rights of the *hoaʻāina*, the existing native tenants. The *hoaʻāina* were allowed to continue to cultivate the land and live on their parcels if they filed a claim to the Board of Commissioners to quiet land titles.

In the case of Hanamāʻulu all the claims by native tenants were along the river valley flats and near the ocean. No LCAs other than Kamāmalu's are near the project area. Princess Kamāmalu died in 1866 and her lands were inherited by her father, Mataio Kekūanāoʻa. After his death in 1868, Princess Ruth Keʻelikolani inherited Kamāmalu's lands.

Table 1. Land Commission Awards in Hanamāʻulu

LCA	Awardee	Acreage
3648	Kala	1.25 Acs 30 rods
3650	Kaluhiwaha	3 roods, 35 rods
3649	Kamalo	1.75 Acs 20 rods
7713	V. Kamamalu	9,177 Acs (Ap 2) ahp
3644	Kaualupa	1.25 Acs 23 rods
3558	Keke	3 roods 1 rod
3600	Keolanui	1.75 Acs 30 rods
3653	Kolu	1 Ac 37 rods
5089	Kuhaimoana	3 roods17 rods
3640	Kumakahaohao	1 Ac 1 rood 12 rods
3271	Lalahilimoku, Leimoku	1 Ac 1 rood 21 rods
3657	Niho	1 Ac 1 rood 13 rods
3423	Paka	1.50 Acs 33 rods
3426	Pelekane	1 Ac 17 rods
3371	Naehu	1.25 Ac 19 rods (Kapaia)
3647	Kapuohi	4 Acs 32 rods (Moala)
3647	Kapuohi	38 rods (Papuaa)

The original Royal Patent (Book 18 Page 429) and Land Commission Award 7713 are provided below (Figure 4). The Royal Patent has been transcribed, however the Land Commission Award has not be translated.

Royal Patent (Book 18 Page 429):

Certification:	Plants/Trees: No
Lele:	Wall/Fence: No
Ili/Area:	Fishing Rights: No
Ahupuaʻa: Hanamāʻulu	Road Trail: No
District: Puna	Cultivating Grounds/Taro: No
Island: Kauaʻi	Structure(s): No
Ownership: Dominis, John	Kamaʻaina Testimony: No
Bird catcher/canoe maker: No	Misc: No Survey
Burial Grave: No	Year: 1891?
Cave: No	

Hanamāʻulu Ahupuaʻa Boundaries, Interior Department, Land Numbered Docs331-340, Doc. 336 "Found in Papers of John Dominis"

Found in the Land File State Archives with papers of Governor John Dominis governor of Oahu, A.D. 1891.

Document 336 of State Survey Office, Describing Boundaries of Hanamāʻulu.

Commencing upon the sea, at the mouth of a small stream called Kawailoa, and upon the southerly bank of the said stream running from thence South 74° West 90 chains to the top of the hill called Kailiiliahinale bounded by the land called Wailua, belonging to His Majesty the King, from thence North 82° West 494 chains, passing over the plains to the top of the mountain range called Waialeale, thence South 76° East 204 chains following along the top of said mountain called Waialeale to a certain peak, standing upon the northwesterly corner of land called Haiku from thence North 86° [?] East 166 chains to the top of the hill called Momakuhana bounded by the land Haiku, thence South 84° East 114 chain crossing the mountain road leading to Kilauhana, passing down the range of hills on the makai side of Kilauhana, and through a small ravine to a certain koa tree, a short distance south of the Hanamāʻulu river, thence South 82° East 126 chains crossing the plantation of H.A. Peirce & Co, to a certain kukui tree, standing alone on the plains makai of the above plantation of H.A. Peirce & Co., marked K, bounded North 75° 45' East 102 chain passing over the plains to the point of rock, upon the sea called Opoi, which forms the northeasterly corner called Kalapaki, from thence following the sea to the point of commencement.

Comprising an area of 9,177 Acres.

Note: Hanamāʻulu claimed but not awarded to P. Kanoa, Land Claim 2659

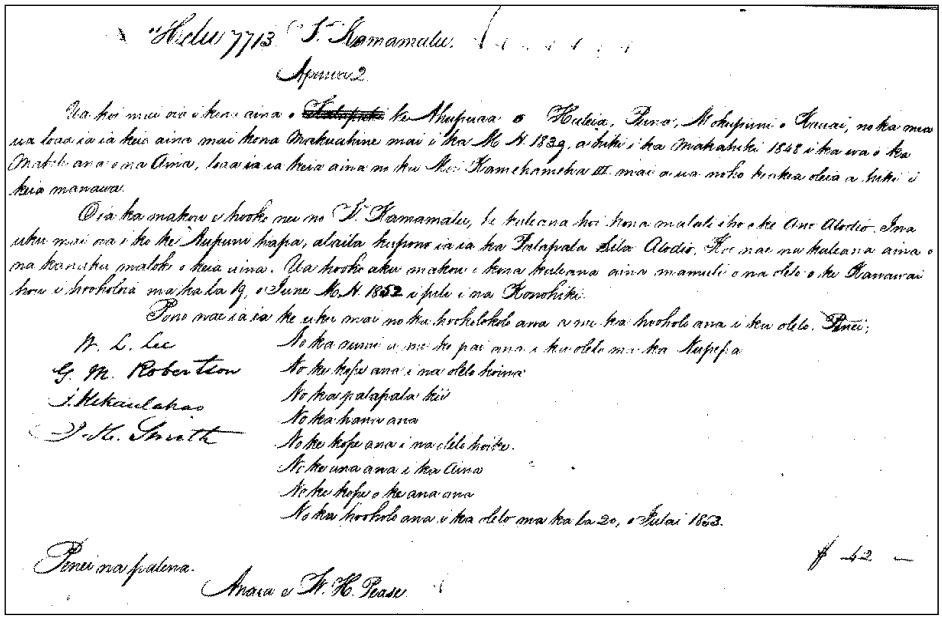

Figure 4. Original Hawaiian language text of LCA 7713, Victoria Kamamalu.

2.5 Previous Archaeology

Background research for this project produced 13 previous archaeological studies within the general vicinity of the APE (Table 2). This previous work produced eight archaeological sites, only three of which (SHPD 50-30-08-746, -1826, -1827) are of concern for this project (Figure 5).

As stated previously, Thomas G. Thrum first documented traditional native Hawaiian sites on the Island of Kaua‘i at beginning of the twentieth century (Thrum 1906). He listed two *heiau* in the general vicinity of Hanamā’ulu and though he did not provide the exact locations these sites were later relocated and given numbers by the State Historic Preservation Division. The first, Ahukini Heiau (SHPD 50-30-08-101) he described as a medium-sized *heiau* that was destroyed and the second, Kauokamanu Heiau (SHPD 50-30-08-102) he described as a large walled *heiau* that was also destroyed. Wendell Clark Bennett later described Ahukini Heiau as being near Ahukini Point and reported many burials along the shore between Hanamā’ulu and the Wailua River (SHPD 50-30-08-103) (Bennett 1931).

Table 2. Previous Archeological Investigations in the Project Area Vicinity

Year	Reference	Report Type	SHPD Sites Recorded
1906	Thrum	Survey	50-30-08-101, 50-30-08-102
1931	Bennett	Survey	50-30-08-103
1988	Rosendahl	Archaeological Inventory Survey	50-30-08-1800, 50-30-08-1801
1990	Rosendahl	Archaeological Field Inspection	50-30-08-1827
1990	Walker and Rosendahl	Archaeological Inventory Survey	No new sites reported
1990	Kalima	Osteological Analysis of Human Skeletal Remains	50-30-08-1827
1990	McMahon	Field check on Inadvertent Burial	50-30-08-1827 and 50-30-08-1826
1991	Walker et al.	Archaeological Inventory Survey	50-30-08-1840, 50-30-08-1841, 50-30-08-1843, 50-30-08-1845, 50-30-08-1846, 50-30-08-1842, 50-30-08-1844, 50-30-08-1838, 50-30-08-1839, 50-30-08-1847
1994	Franklin and Walker	Archaeological Inventory Survey	50-30-08-1842
2001	Corbin et al.	Archaeological Inventory Survey	50-30-08-2066, 50-30-08-2067, 50-30-08-2068
2004	Bushnell et al.	Cultural Impact Assessment	No new sites reported
2006	Dye and Jourdane	Archaeological Assessment	No new sites reported
2008	Esh	Archaeological Literature Review	No new sites reported

Though Bennett and Thrums early work was extensive and their archaeological survey covered Hanamā'ulu Ahupua'a and all of Kaua'i, it was not until the late 1980s and early 1990s that further significant studies took place.

In 1989 an archaeological inventory survey conducted for the proposed Hanamā'ulu Affordable housing project, just .5 miles from the RFF Kalepa project area, resulted in no cultural findings (Walker and Rosendahl 1990).

In 1990, an archaeological survey for the Lihue/Puhi/Hanamā'ulu Master Plan recorded ten sites within Hanamā'ulu covering various time periods (Walker et al 1991). Five sites were identified as historic period transportation sites related to the sugar industry (SHPD 50-30-08-1840, -1841, -1843, -1845, and -1846), one wall site that may have created a border between the cane fields and the nearby gulch (SHPD 50-30-08-1842), one historic Japanese/Filipino cemetery (SHPD 50-30-08-1844), two precontact habitation sites (SHPD 50-30-08-1838 and -1839), and one precontact agricultural site (50-30-08-1847). The only one of these sites that is not located within the coastal flats is the cemetery site which lies at the base of the Kalepa ridge less than .5 miles from the RFF Kalepa project area.

In 2001, a study to update the previously mentioned Lihue/Puhi/Hanamā'ulu Master Plan identified three new historic sites including another cemetery (SHPD 50-30-08-2067), a house foundation and cane field related road (SHPD 50-30-08-2066), and an historic dump site (SHPD 50-30-08-2068). Each of these sites is less than 2 miles from the RFF Kalepa project area on the lowlands east of the ridge (Corbin et al 2002).

Closer to the project area, and on the Kalepa Ridge itself, three archaeological sites have been documented during different episodes of survey and construction. In 1990, a burial was inadvertently discovered during construction of a Hawaiian Telecom tower on the south peak of the ridge (SHPD 50-30-08-1827) (McMahon 1990). This burial was partially disinterred and was associated with historic glass beads and a mound containing other human remains as well as basalt hammer stones and basalt flakes (SHPD 50-30-08-1826) (Esh 2008).

In 1994 archaeologists monitoring driveway improvements and construction of a retaining wall discovered human bone fragments associated with a previously identified site (SHPD 50-30-08-746) (Akana 1994). This site is directly adjacent to the project APE and remnant portions of the site including disturbed human skeletal remains and lithic artifacts could be present in the project area.

Between September 26 and September 30, 2011, GANDA completed an archaeological inventory survey of the subject parcel which included a pedestrian survey as well as subsurface testing at the locations of anticipated ground disturbing activity (Figure 6). The project area was determined to be heavily disturbed from the construction of previous existing facilities and no archaeological remains were found in any of the excavations.

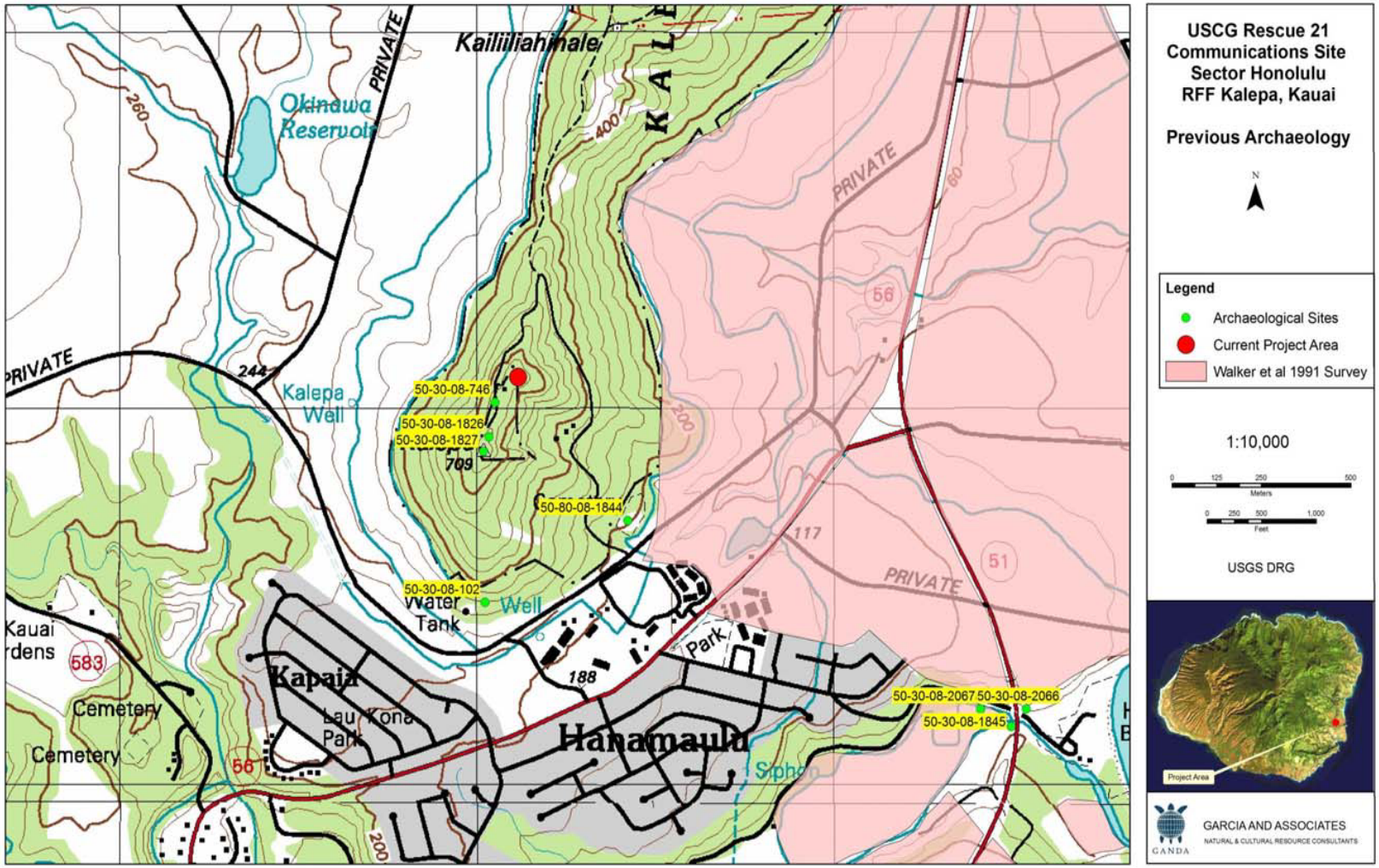

Figure 5. Archaeological sites in the project area.

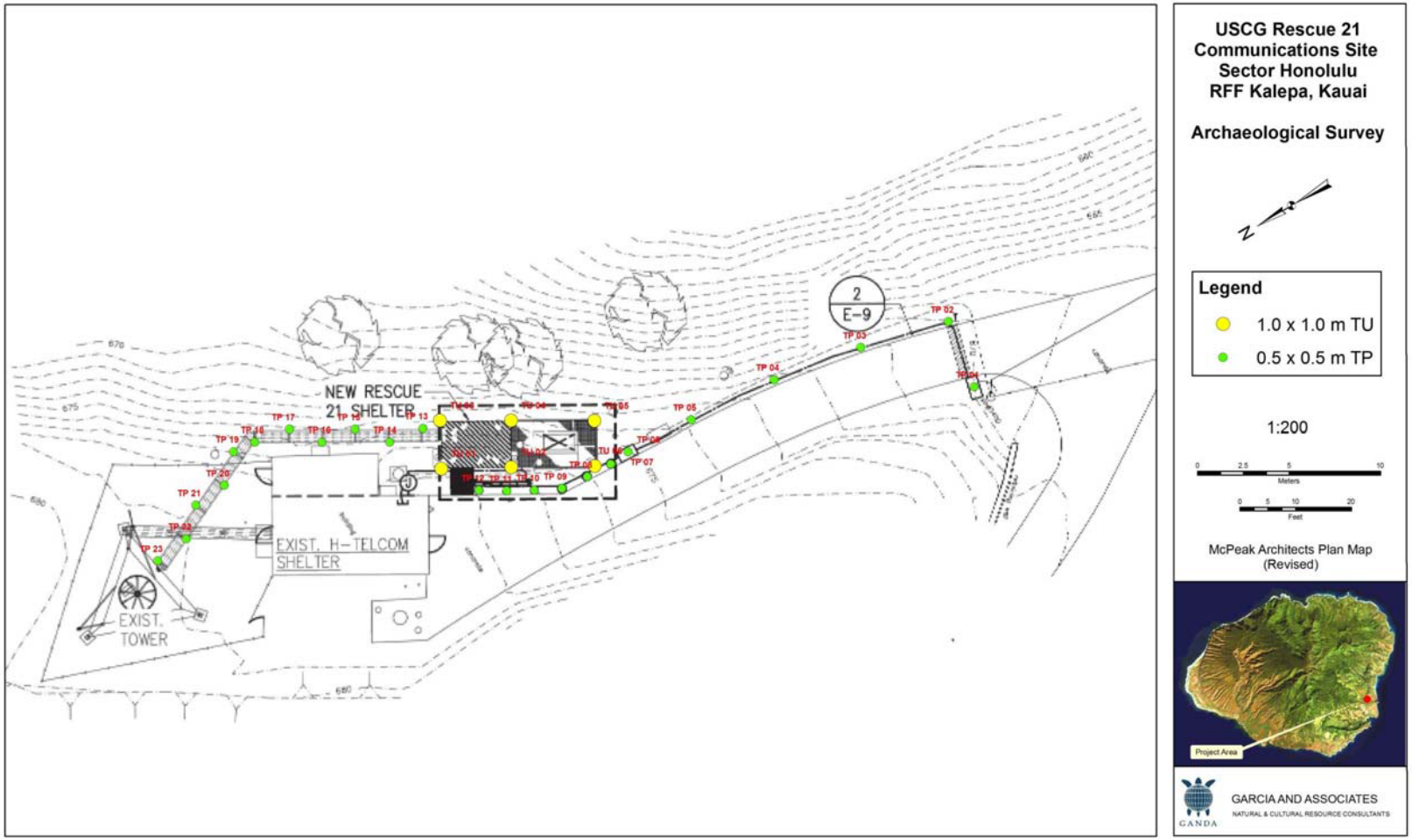

Figure 6. Inventory survey excavations

2.6 Archaeological Expectations

Archaeological expectations concerning potential pre-Contact and historic findings are based on previous archaeological work, historical documents, and current site conditions. Background research and on-site interviews with Hawaii Telcom personnel indicate that previously-discovered human skeletal remains are located on the south peak of Mount Kālepa roughly 200 meters away, as well as at a location about three meters west of the access road at the terminus of the planned utility trench.

Test excavations across the project site revealed extensive subsurface disturbance likely related to the current driveway and communications structures. A layer of fill consisting of various soil types mixed with crushed coral and construction debris is found across the site in varying depths ranging from less than 10 cm to almost 50 cm below the current ground surface. This layer covers a natural C-horizon that is undisturbed and culturally sterile in all areas tested.

Archaeological testing and site observations indicate that no archaeological sites are to be expected in the previously-tested foundation and footing areas. However, the potential exists for cultural deposits within undisturbed areas, such as the route of the planned utility trench. Archaeological materials in this area may consist of intact burials, human remains redeposited during prior cut and fill road construction, and isolated stone tools and/or lithic debitage. Single-use combustion features are also possible, but less likely given the area's moderate slope.

3.0 ARCHAEOLOGICAL MONITORING

This section details the specific methodology and protocols that will be employed during the current undertaking. Procedures for dealing with specific contingencies such as inadvertent finds, the discovery of human remains, and post-field actions are discussed.

As noted previously, all foundation and footing areas of the APE have been surveyed and pre-excavated to culturally sterile subsoil. Testing data did indicate, however, that intact soils are present just down-slope from the concrete roadway, along the electrical trench. The trench route is also in close proximity to Hawaiian burial Site 50-30-08-746. Full-time archaeological monitoring will therefore be conducted for the 110-foot trench excavation (Figure 7). The other foundation and footing excavations do not require archaeological monitoring.

Archaeological monitoring is intended to mitigate any potential adverse effects to culturally significant properties during this undertaking. The monitor's principle tasks are to: 1) observe all ground-intrusive activities within the area of concern, 2) identify, record, and sample any cultural resources that are inadvertently exposed, and 3) ensure that known historic resources are protected from construction impact.

3.1 Project Personnel

A senior archaeologist will serve as principal investigator for the project. The principal investigator will have an MA in Anthropology and will be responsible for overall project organization and management and will ensure high standards for field sampling and laboratory analyses. The principal investigator will conduct field visits and directly supervise field personnel

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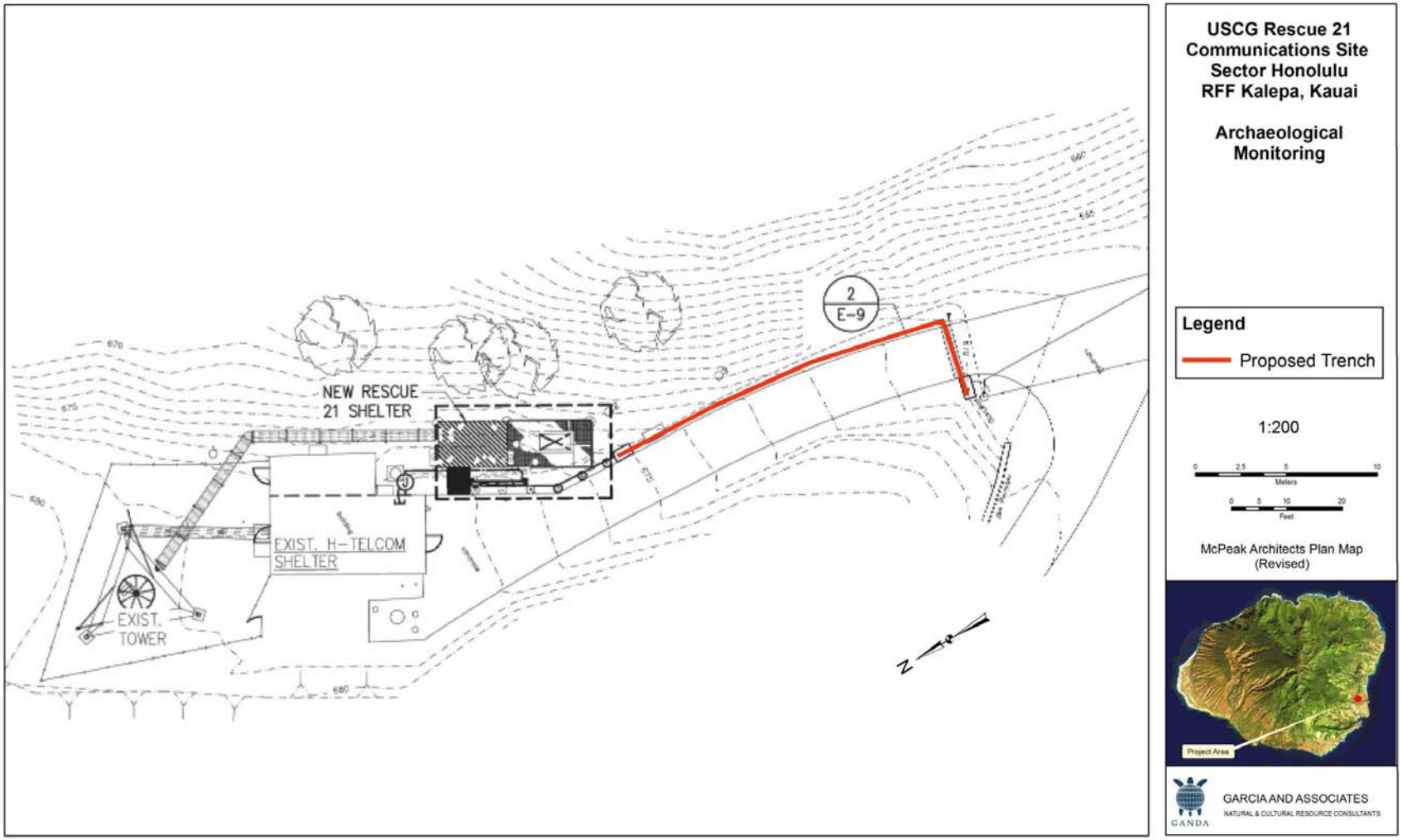

Figure 7. Trench route; the area of concern for archaeological monitoring.

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as appropriate and will review the content of the monitoring report. The field monitor will have a B.A. in Anthropology and a minimum of two years experience working in Hawaiian archaeology.

3.2 Pre-Construction Briefing

Prior to fieldwork, the archaeological monitor will meet with the construction team. The archaeologist will explain the purpose of the AMP and its stipulations, and inform the crew of the monitor's authority to halt construction activity as needed. The exact nature and location of construction activities will be discussed in order to organize and coordinate fieldwork.

3.3 Field Methods

Archaeological monitoring will be conducted for all ground disturbing activities within the 110-foot electrical-utility trench. It is the responsibility of the archaeological monitor to survey potential impact areas prior to disturbance, monitor ground disturbing activities, identify the presence of nearby sites, and inspect excavation trenches and backdirt piles for cultural deposits and remains.

3.3.1 Documentation of Monitoring Activities

All monitoring activities will be fully documented by the project archaeologist in daily log and photographic form. Recording and sampling will be conducted in a manner that produces the highest quality data available on the nature, location, and age of extant cultural deposits and other cultural features. The archaeologist will document the time spent monitoring, sampling, and testing; the amount of sediment removed and its location, including trench dimensions, orientation, and location (using sub-meter-accurate Trimble GPS); and the presence or absence of cultural remains and/or significant soil strata. All identified cultural remains and features will be fully and systematically described, documented, and sampled. Standards of documentation, recording, and analysis will be in accordance with the Secretary of Interior's Standards and Guidelines for Archaeological Documentation.

3.3.2 Site Discovery and Treatment

If surface or subsurface archaeological features, deposits, or materials are encountered during monitoring, they will be immediately secured. The field monitors shall have the authority to immediately suspend construction activities in the event that archaeological resources are at risk of destruction. The archaeological monitor shall communicate directly with the equipment operator, who will immediately notify his or her supervisor. In the case of this kind of discovery, the archaeologist will also contact the USCG Environmental Protection Specialist.

3.3.3 Stratigraphic Documentation

Stratigraphic profiles will be recorded at locations where samples have been taken, in areas where there is a sedimentary change or unconformity that, in the professional opinion of the archaeologist, contains information pertinent to past human or geological events. Stratigraphic profiles will include the appropriate technical information in accordance with the U.S. Soil Conservation Service standards and Munsell Color Notation conventions (Schoenberger et al. 1998; Munsell 1992), as well as field-based interpretation of depositional history and anthropogenic features, if any. The archaeologist will take notes on the nature of subsurface deposits that are not drawn by recording general color, texture, and any other contents such as

roots, rocks, or modern debris that may exist within the deposits. Map locations of archaeological sites, features, deposits, artifacts, and stratigraphic profiles will be recorded using sub-meter accurate Trimble GPS.

3.3.4 Feature Sampling

Excavation of discrete, single-event features will be recorded on separate field forms and artifacts placed in separate bags from materials originating from the surrounding matrix. Features will be bisected and one half excavated, unless mitigation requires full feature excavation. All feature fill will be collected as one bulk sample. Detailed analysis of feature contents will occur in the laboratory (see Section 5.0).

4.0 BURIAL DISCOVERY NOTIFICATION PLAN

In the unlikely event that human remains are discovered during monitoring, all ground disturbing activities will stop. The project archaeologist will report the findings to the SHPO, the U.S Coast Guard, MWH Americas, Inc., and to GDC4S. The remains will be covered with a tarp and secured from further impact with a 50 ft buffer. The remains will be shaded from exposure to the elements and will not be photographed. Observable data will be recorded only on exposed and/or disturbed deposits and will not involve additional excavation.

Backdirt from the area of the find will be examined and screened for additional bone or other associated cultural items. This material will be bagged separately and placed with the in-situ remains. The project archaeologist will make notations regarding the location, depth, and stratigraphic position of the cultural items as well as the nature of the surrounding soil, an estimated age of said items (e.g., historic or prehistoric), the estimated age of the deposit or matrix it originated from, and whether the deposit appears disturbed or reflects a contrary age from the cultural items it contains.

5.0 POST FIELD ANALYSIS

The nature and scope of post-field actions will vary according to the results of the fieldwork. Laboratory analysis of archaeological materials and samples will be reported according to the standards set forth in the State of Hawaii Administrative Rules, the Society of Professional Archaeologists and Department of the Interior standards.

All collected cultural materials and sediments will be subjected to full quantitative and qualitative laboratory analysis. When possible, statistical summaries of large-assemblage attributes will be calculated in order to facilitate comparisons with other collections.

5.1 Laboratory Analysis

Transportation of samples from the field to the laboratory will minimally include proper labeling of samples and boxes, minimization of handling, storage comparable to original site conditions, isolation of specific samples in appropriate storage containers, ensuring an adequately arid environment for radiocarbon and soil samples, and compilation of a packing list for all boxes.

All artifacts and midden samples will be thoroughly cleaned prior to analysis. Artifacts will subsequently be photographed, sketched, and identified. All metric attributes, including weight, will be recorded and presented in tabular form in the final report. Midden samples will be identified to the lowest taxonomic level possible.

5.2 Flotation

If archaeological features are encountered, samples will be collected and submitted for flotation analysis. Flotation techniques are used to increase the quantity of cultural remains recovered. This will help to provide a more complete picture of plant and animal use by Traditional Hawaiians. Soil from features will be collected and poured into a sieve and submerged into a container of water. The sieve will be agitated in the water, allowing fine grained matter to escape while lighter organic materials float to the top; these particles will then be gathered with a fine mesh. Materials collected will be submitted for faunal and botanical analyses.

5.3 Radiocarbon Samples

If in situ archaeological features such as hearths or cooking pits are encountered, carbonized remains will be collected and submitted for radiocarbon dating. Prior to submission, all samples will be submitted for species identification. Only short-lived species will be submitted for dating. In selecting radiocarbon dating options, Garcia and Associates will critically consider the full range of methodologies and technologies available.

5.4 Faunal Analysis

If vertebrate or marine invertebrate material is collected, it will be weighed, counted, and taxonomically identified to the highest level of detail possible. Faunal and marine shell analysis will be conducted using a comparative collection and the archaeological monitoring technical report (see Section 7.0) will include a discussion of analytical methods, laboratory results, and descriptions of identified species and their relationship to their environment and archaeological context.

5.5 Formal Artifacts

Artifacts will be measured, weighed, sketched or photographed, and functionally classified as appropriate. If possible, artifact typologies will be used according to currently accepted standards for pre-Contact and historic artifacts. The archaeological monitoring technical report will include a discussion of these artifacts in relation to their archaeological context and inferred use.

5.6 Lithic Analysis

In addition to formal artifact analyses, stone tools will be analyzed by form and inferred function. Typological affiliation will conform to currently accepted typologies for traditional and historic stone tools in the Hawaiian Islands. Waste material from the manufacturing process will be measured using metric and non-metric attributes. These attributes generally include material type, flake condition, termination, platform, cortex, dorsal scar, length, width, platform length, platform thickness, weight, and attrition. When possible, statistical calculations will be made to summarize and describe the assemblage, as well as to compare data to other collections.

5.7 Geochemical Sourcing

If the potential for further investigation arises, basalt artifacts may be submitted to the Geoarchaeology Laboratory at the University of Hawaii (UH), Hilo for geochemical characterization. This procedure is done to ascertain how many basalt sources are used, and if possible, to match artifacts to a known source location. The UH Hilo laboratory utilizes a non-destructive Energy Dispersal X-ray fluorescence spectrometry (EDXRF).

5.8 GIS Data

GANDA will submit two copies of all interim GIS data in ESRI's shapefile format with the end-of-field letter report to MWH Americas, Inc.. Two copies of all final GIS data in ESRI's shapefile format will be submitted with the Final Report along with a report of the field collection methodology. The ESRI shapefiles will be presented in a geodatabase and will be reported following the guidelines established in §13-278-4.

6.0 CURATION

All artifacts, samples, and other project materials will be temporarily stored at the Garcia and Associates regional laboratory facility. Following completion of analysis and reporting, all archaeological materials will be delivered to the client.

7.0 REPORTING

Upon completion of the utility trench work, the archaeologist shall prepare a written post-construction monitoring end-of-field letter report summarizing the work performed, in compliance with State of Hawaii Administrative Rules. The archaeologist shall document in the end-of-field report if any archaeological resources were found, and their nature, or indicate that no resources were uncovered. The letter report will include photographs, a locator map, photographs of trench walls, and stratigraphic descriptions.

If significant cultural resources are encountered during excavation, a draft technical report will be prepared and will be submitted to the client within 60 days of the completion of fieldwork. Any review comments from the client or SHPD will be addressed and a final report produced and submitted within 15 days of receipt of comments.

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Appendix 7
SHPD Archaeological Survey acceptance letter

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
INTERIM CHAIRPERSON
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 10, 2012

Joan Lang
Environmental Protection Specialist
US Coast Guard
2100 2nd Street, SW STOP 7701
Washington, DC 20593-7701

LOG NO: 2012.1753
DOC NO: 1206NN01

Dear Ms. Lang:

Subject: **National Historic Preservation Act (NHPA) Section 106 Review – Archaeological Inventory Survey for U.S. Coast Guard Remote Fixed Facility in Kalepa Hanamaulu Ahupua'a, Lihue District, Island of Kaua'i**
TMK: (4) 3-8-002:004 and 005

Thank you for the opportunity to review this report titled *Archaeological Inventory Survey for the Unites States Coast Guard Rescue 21 Communication Site, RFF Kalepa, Hanamā'ulu Ahupua'a, Kaua'i, Hawai'i,* by J. Toney, M. Hawkins, and M. Desilets (November 2011), which our office received on June 19, 2012. This report was prepared by Garcia and Associates for MWH Americas, Inc on behalf of United States Coast Guard.

We previously commented on this project (*Log No 2011.0322/Doc No 1102MD13*) and we indicated that burials were encountered (and eventually relocated) during the initial construction of the radio tower. Our office recommended that additional consultation occur with Native Hawaiian Organizations and that for a 'no effect' determination, the project scope and/or the project location needed be revised as appropriate upon completion of the consultation. On June 13, 2011, SHPD Archaeologist Morgan Davis and Ms. Joan Lang held a teleconference regarding the scope of this archaeological inventory project.

The archaeological inventory survey included a pedestrian survey and subsurface testing (23 test pits) at locations of anticipated ground disturbing activities. All test excavations extended to culturally sterile, undisturbed soils strata, with the exception of three archaeological shovel test pits which were halted when buried electrical lines were encountered. No evidence of traditional Hawaiian or early historic cultural disposition was encountered during the survey. Modern debris, such as plastic sheeting and hardware that were discarded during recent maintenance of the existing communication tower were found on the surface and in the upper disturbed soil strata. As indicated in our prior letter, a previously identified traditional Hawaii burial (SHIP Site 50-30-08-746) is present immediately west of the proposed electrical trench terminus. The report recommends that archaeological monitoring be conducted during the excavation of the electrical trench. SHPD concurs with this recommendation.

This report meets the requirements of HAR 13-276 and *The Secretary of Interior's Standards for Identification and Evaluation*, and is accepted by SHPD. Please send one hardcopy of the document, clearly marked **FINAL**, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office. Please contact Deona Naboa at (808) 692-8015 or Deona.Naboa@Hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Theresa K. Donham, Archaeology Branch Chief and
Deputy State Historic Preservation Officer, Historic Preservation Division

Appendix 8
SHPD Archaeological Monitoring Plan acceptance letter

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 8, 2012

Joan Lang, Environmental Protection Specialist
US Coast Guard
2100 2nd Street, SW STOP 7701
Washington, DC 20593-7701

LOG NO: 2012.2312
DOC NO: 1208NN05
Archaeology

Dear Ms. Lang:

Subject: **National Historic Preservation Act (NHPA) Section 106 Review – Archaeological Monitoring Plan, U.S. Coast Guard Remote Fixed Facility in Kalepa Hanamaulu Ahupua'a, Lihue District, Island of Kaua'i**
TMK: (4) 3-8-002:004, :005

Thank you for the opportunity to review this plan titled *Archaeological Monitoring Plan for the Unites States Coast Guard Rescue 21 Communication Site, RFF Kalepa, Hanamā'ulu Ahupua'a. Kaua'i. Hawai'i.* by M. Hawkins (November 2011), which our office received on July 27, 2012 (via email to SHPO Archaeologist Deona Naboa). This report was prepared by Garcia and Associates for MWH Americas, Inc on behalf of United States Coast Guard.

We previously commented on this project during the initial consultation of the radio tower (*Log 2011.0322, Doc. 1102MD13*). On June 13, 2011, SHPD Archaeologist Morgan Davis and Ms. Joan Lang held a teleconference regarding the scope of an archaeological inventory project. The archaeological inventory survey was reviewed and approved by our office (*Log 2012.1753, Doc. 1206NN01*), and we recommended an archaeological monitoring program be implemented due to the proximity of a previously identified traditional Hawaiian burial west of the proposed electrical trench terminus (SHIP Site 50-30-08-746). The Archaeological Monitoring Plan was received by our office on June 19, 2012 (*Log 2012.1754*), but SHPD identified issues and concerns that were in need of revisions prior to its acceptance. On July 25, 2012 in a telephone communication between SHPD Archaeologist D. Naboa and Joan Lang of the US Coast Guard Rescue 21 Communications Unit, Ms. Naboa requested that a temporary protective barrier consisting of cones and caution tape that will make up the 50 foot buffer zone be implemented around a known burial located adjacent to the APE, and SHPD be included in the order of notification in the case of an inadvertent discovery. These provisions were added into the current monitoring plan.

According to the plan, an archaeologist will be on-site for all ground disturbance associated with this project. The archaeologist will have the authority to halt excavation in the event that cultural materials are identified. Consultation with SHPD will occur in this event to determine acceptable course of action. If human burials are identified, work will cease, and SHPD will be notified and compliance and procedures outlined in HRS 6.E-43 will be followed. Coordination meetings with the construction crew will be held prior to project initiation. Any departure from these provisions will be in consultation with and written concurrence from SHPD. This monitoring plan is accepted by SHPD, pursuant to the *Secretary of the Interior's Standards for Archaeological Identification* and Hawaii Administrative Rule §13-279-4. Please send one hardcopy of the document, clearly marked FINAL, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office, attention SHPD Library. Please contact Deona Naboa at Deona.Naboa@hawaii.gov if you have any questions regarding this letter.

Aloha,

Theresa K. Donham, Deputy State Historic Preservation Officer
Historic Preservation Divisio

Appendix 9
Deputy SHPO RFF Kalepa concurrence letter

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 8, 2012

Joan Lang, Environmental Protection Specialist
US Coast Guard
2100 2nd Street, SW STOP 7701
Washington, DC 20593-7701

LOG NO: 2012.2313
DOC NO: 1208NN06

Dear Ms. Lang:

Subject: **National Historic Preservation Act (NHPA) Section 106 Consultation – Proposed U.S. Coast Guard Remote Fixed Facility in Kalepa Hanamaulu Ahupua'a, Lihue District, Island of Kaua'i TMK: (4) 3-8-002:004 and 005**

This is in response to your letter dated July 27, 2012 requesting continued consultation in connection with the proposed project to construct a tower extension to an existing Hawaiian Telcom Communications tower and equipment co-location. The site is called RFF Kalepa and is located on the island of Kaua`i at approximately Lat. 22-00-06.0 N, Long. 159-21-28.0 W. According to your documents, the tower extension was part of the Coast Guard's plans to modernize and replace its antiquated marine search and rescue communications systems in Hawaii as part of a nationwide initiative known as Rescue 21. The chosen location is critical in order to provide adequate coverage to locate people and vessels in distress off this part of the coast.

We previously commented on this project during the initial consultation of the radio tower (*Log 2011.0322, Doc. 1102MD13*). On June 13, 2011, SHPD Archaeologist Morgan Davis and Ms. Joan Lang held a teleconference regarding the scope of an archaeological inventory project. The archaeological inventory survey was reviewed and approved by our office *(Log No: 2012.1753/ Doc No: 1206NN01)*, and a revised archaeological monitoring plan has been accepted *(Log 2012.231, Doc. 1208NN05)*.

As noted in the original survey, the area of potential effect(APE) encompasses a 0.8 acre area and includes a 100 foot corridor extending down slope along the east side of the existing Hawaiian Telecom facility access road. We agree with your recommendation that an archaeological monitor should be present during all ground disturbing activity. We concur with your determination that **no historic properties will be adversely affected** by this undertaking, with the understanding that a qualified archaeological monitor will be present during all ground altering activities. Please contact Deona Naboa at (808) 692-8029 if you have any questions regarding this letter.

Aloha,

Theresa K. Donham
Deputy State Historic Preservation Officer
Historic Preservation Division

Appendix 10
CZMA Federal Consistency letter

NEIL ABERCROMBIE
GOVERNOR
RICHARD C. LIM
DIRECTOR
MARY ALICE EVANS
DEPUTY DIRECTOR
JESSE K. SOUKI
DIRECTOR
OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

OFFICE OF PLANNING
235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824

Ref. No. P-13795

November 27, 2012

Ms. Sherrill Edwards Thompson (JR07-0905)
Commandant (CG-9331)
U.S. Coast Guard Headquarters
2100 Second Street, SW STOP 7701
Washington, D.C. 20593-7701

Dear Ms. Thompson:

Subject: Coastal Zone Management Act (CZMA) Federal Consistency Review for Remote Fixed Facility at Kalepa, Kauai, Hawaii; TMK (4) 3-8-2: 5

The Hawaii CZM Program has completed the CZMA federal consistency review of the U.S. Coast Guard proposal to construct a communications tower site, or Remote Fixed Facility (RFF), at Kalepa, Kauai, on land owned by Grove Farms and which is an existing telecommunications facility site. We concur with your determination that the activity is consistent to the maximum extent practicable with the enforceable policies of the Hawaii CZM Program.

CZM consistency concurrence is not an endorsement of the project nor does it convey approval with any other regulations administered by any State or County agency. Thank you for your cooperation in complying with the Hawaii CZM Program. If you have any questions, please call John Nakagawa of our CZM Program at (808) 587-2878.

Sincerely,

Jesse K. Souki
Director

c: CWO3 David Wilson, USCG
Dr. Dennis Mead, USCG Honolulu
Department of Planning, County of Kauai

Appendix 11
USFWS Hawaiian hoary bat concurrence letter

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
2011-I-0397

AUG 0 8 2011

Ms. Joan M. Lang
Commandant (CG-938)
U.S. Coast Guard Headquarters
2100 Second Street, S.W.
Washington, DC 20593

Subject: Informal Section 7 Consultation for the Proposed Kalepa Remote Fixed Facility Tower, Kauai

Dear Ms. Lang:

The U.S. Fish and Wildlife Service (Service) is in receipt of your letter, dated June 28, 2011, requesting our concurrence with your determination that the proposed Kalepa Remote Fixed Facility Tower is not likely to adversely affect federally listed species. The proposed project will modify an existing 60-foot (ft) Hawaiian Telcom self-supported lattice communications tower with a 40-ft extension, three antennas, a direction finder, and a lightning rod, bringing the total tower height to 112-ft. We provided technical assistance for this project in a letter, dated May 3, 2011 (Service File 2011-TA-0236). Our letter informed you of the presence of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), endangered Hawaiian petrel (*Pterodroma sandwichensis*), threatened Newell's shearwater (*Puffinus auricularis newelli*), and a candidate for listing, the band-rumped storm-petrel (*Oceanodroma castro)* (collectively referred to Hawaiian seabirds) in the project's action area. This response is in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq*.).

Hawaiian hoary bat
The Hawaiian hoary bat is a medium-sized [0.5-0.8 ounces (14-22 grams)], nocturnal, insectivorous bat. The Hawaiian hoary bat is known from the islands of Hawaii, Maui, Oahu, Kauai, and Molokai. Population numbers are not known, but Hawaiian hoary bats are observed regularly only on Hawaii, Kauai, and Maui. There is a general lack of historic and current data on this subspecies, and its present status is not well understood. Habitat requirements for the Hawaiian hoary bat are also not well known. Bats are most often observed foraging in open areas, near the edges of native forests, or over open water, although this may be due to the ease of detection in these habitats. Hawaiian hoary bats roost solitarily in the foliage of trees.

Threats to the Hawaiian hoary bat include habitat destruction (elimination of roosting sites), direct and indirect effects of pesticides, disease and entanglement on barbed wire fences. In addition, clearing woody vegetation during the bat-birthing and pup-rearing season could harm

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juveniles left in the roost tree as the female forages. Potential adverse effects from such disturbance can be avoided by not clearing vegetation greater than 15-ft between May and August, the period in which bats are most vulnerable.

To minimize potential impacts to Hawaiian hoary bats, the following will be included in the implementation of this project:

- Woody vegetation greater than 15-ft will not be disturbed or cleared from the site;
- Construction time will be reduced to approximately three months, reducing the potential for disturbance to roosting Hawaiian hoary bats

Therefore, based on the above avoidance and minimization measures, the Service concurs with your determination this proposed project may affect, but is not likely to adversely affect the Hawaiian hoary bat. Should project plans change, or if additional information on the presence of Hawaiian hoary bats within the action area becomes available, we recommend you contact our office so that we may assist you in re-assessing project impacts.

Hawaiian seabirds

Seabirds fly at night and are attracted to artificially-lighted areas that can result in disorientation and subsequent fallout due to exhaustion or collision. Seabirds are also susceptible to collision with objects that protrude above the vegetation layer when traversing between the ocean and their mountainous breeding areas, such as utility lines, guy-wires, and communication towers. Additionally, once grounded, they are vulnerable to predators and are often struck by vehicles along roadways. In our previous letter, we informed you that increase in the use of nighttime lighting, particularly during each year's peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality. Additionally, we recommended that all proposed power lines should be undergrounded to avoid the potential for collisions with seabirds and efforts should be made to increase the visibility of the lattice tower with the use of reflectors.

To minimize potential impacts to Hawaiian seabirds, the following will be included in the implementation of this project:

- The 190-ft new power cable will be hung on existing Hawaii Telcom poles, eliminating the need for additional poles;
- A portion of the new power cable (approximately 110-ft) will be undergrounded; and
- The painting scheme for the proposed tower addition will remain similar to the existing tower, thereby making the tower visible to seabirds.

We acknowledge and appreciate these additions to the project in order to minimize impacts to Hawaiian seabird species. In particular, the undergrounding of the new power cable greatly reduces the potential for collisions between seabirds and wires. However, the minimization measures outlined above do not eliminate the potential for adverse impacts to Hawaiian seabirds. We used the project information to model the projected take estimate for the tower. With the information you provided, in conjunction with seabird radar data from a nearby location (less than two miles away), we determined there will be take associated with the modification of the tower. Based on this information, we do not concur with your determination that the proposed project may affect, but is not likely to adversely affect Hawaiian seabirds.

This action will require formal consultation, pursuant to section 7(a)(2) of the ESA to address impacts of the proposed tower to federally protected seabirds. Please contact our office so we can coordinate and develop measures to avoid, minimize, and offset the impacts to Hawaiian seabirds.

We appreciate your efforts to conserve endangered species. Please contact Michelle Bogardus, Fish and Wildlife Biologist (phone: 808-792-9473; fax: 808-792-9581).

Sincerely,

for Loyal Mehrhoff
Field Supervisor

rec'd 8/17/2011
JR

Appendix 12
Phase I Environmental Due Diligence Audit

U.S. Coast Guard Communications
RFF Kalepa Site
Hanamā'ulu, Hawai'i

Final Phase I Environmental Due Diligence Audit

February 2009

MWH

Final
Environmental Due Diligence Audit
Sector Honolulu
RFF Kalepa Site
February 2009

GENERAL DYNAMICS C4 SYSTEMS
UNITED STATES COAST GUARD COMMUNICATIONS
RFF KALEPA SITE

AT

Hulei Road
Hanamā'ulu, Hawai'i

Prepared For:

GENERAL DYNAMICS C4 SYSTEMS
Scottsdale, Arizona

Prepared By:

MWH Americas, Inc.
Farmington Hills, Michigan

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY 1

2 INTRODUCTION 3
2.1 Purpose 3
2.2 Detailed Scope 3
2.2.1 Records Review 3
2.2.2 Site Reconnaissance 4
2.2.3 Interviews 4
2.2.4 Wetlands 4
2.2.5 Report 4

3 SITE DESCRIPTION 5
3.1 Location and Legal Description 5
3.2 Site and Vicinity Characteristics 5
3.3 Current Use of the Site 5
3.4 Descriptions of Structures, Roads, and other Site Improvements 5
3.4.1 Structures and Buildings 5
3.4.2 Roads 5
3.4.3 Water and Sewer System 5
3.4.4 Hazardous Substances and Petroleum Products in Connection with Identified Uses 6
3.4.5 Storage Tanks 6
3.4.6 Odors 6
3.4.7 Pools of Liquid 7
3.4.8 Drums 7
3.4.9 Other Hazardous Substance and Petroleum Products Containers 7
3.4.10 Unidentified Substance Containers 7
3.4.11 Polychlorinated Biphenyls (PCBs) 7
3.4.12 Stains and Corrosion 7
3.4.13 Heating and Cooling 7
3.4.14 Drains and Sumps 7
3.4.15 Pits, Ponds, or Lagoons 7
3.4.16 Stained Soil or Pavement 7
3.4.17 Stressed Vegetation 7
3.4.18 Solid Waste 7
3.4.19 Wastewater 8
3.4.20 Wells 8
3.4.21 Wetlands 8
3.5 Current Uses of Adjoining Properties 8

4 USER-PROVIDED INFORMATION 9
4.1 Specialized Knowledge 9
4.2 Valuation Reduction for Environmental Issues 9
4.3 Reason for Performing Phase I 9

TABLE OF CONTENTS (Continued)

5 RECORDS REVIEW 10

5.1 Standard Environmental Record Sources 10

5.1.1 National Priorities List (NPL) Site List 11
5.1.2 Proposed NPL Site List 12
5.1.3 Delisted NPL List 12
5.1.4 Federal Superfund Liens (NPL LIENS) List 12
5.1.5 Federal Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) List 12
5.1.6 Federal CERCLIS No Further Remedial Action Planned (NFRAP) (CERC-NFRAP) Site List 12
5.1.7 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Lien Information (LIENS 2) List 12
5.1.8 Corrective Action Report (CORRACTS) Facilities List 12
5.1.9 Federal Resource Conservation and Recovery Act (RCRA) Transport, Storage and Disposal Facilities (TSDF) List 12
5.1.10 Federal RCRA Large Quantity Generator (LQG), RCRA Small Quantity Generator (SQG), and RCRA Conditionally Exempt Small Quantity Generator (CESQG) 12
5.1.11 Federal RCRA Non Generators (NonGen) Generators List 12
5.1.12 US Engineering Controls (US ENG CONTROLS) List 13
5.1.13 US Sites with Institutional Controls (US INST CONTROL) 13
5.1.14 Federal Emergency Response Notification System (ERNS) 13
5.1.15 Hazardous Materials Information Reporting System (HMIRS) List 13
5.1.16 Incident and Accident Data (DOT OPS) List 13
5.1.17 US Clandestine Drug Labs (CDL) List 13
5.1.18 US BROWNFIELDS List 13
5.1.19 Department of Defense (DOD) Sites 13
5.1.20 Formerly Used Defense Sites (FUDS) 13
5.1.21 Land Use Control Information System (LUCIS) List 13
5.1.22 Superfund Consent Decrees (CONSENT) 13
5.1.23 Records of Decision (ROD) List 13
5.1.24 Uranium Mill Tailings (UMTRA) Sites 13
5.1.25 Torres Martinez Reservation Illegal Dump Site Locations (DEBRIS REGION 9) 14
5.1.26 Open Dump Inventory (ODI) 14
5.1.27 Mines Master Index File (MINES) List 14
5.1.28 Toxic Chemical Release Inventory System (TRIS) 14
5.1.29 Toxic Substances Control Act (TSCA) 14
5.1.30 Federal Insecticide, Fungicide, Rodenticide Act (FIFRA)/TSCA Tracking System (FTTS) List 14
5.1.31 FIFRA/TSCA Tracking System Administrative Case Listing (HIST FTTS) List 14
5.1.32 Section 7 Tracking System (SSTS) List 14
5.1.33 Integrated Compliance Information System (ICIS) List 14

TABLE OF CONTENTS (Continued)

5.1.34 PCB Activity Database System (PADS) List 14
5.1.35 Materials Licensing Tracking System (MLTS) List 14
5.1.36 Radiations Information Database (RADINFO) List 14
5.1.37 Facility Index System (FINDS) List 15
5.1.38 RCRA Administrative Action Tracking System (RAATS) List 15
5.1.39 State Coalition for Remediation of Drycleaners (SCRD DRYCLEANERS) Listing 15
5.1.40 Contaminated Sites (SHWS) List 15
5.1.41 State Landfill List 15
5.1.42 Leaking Underground Storage Tank Sites (LUST) 15
5.1.43 Underground Storage Tank Facility List (UST) 15
5.1.44 SPILLS Database 15
5.1.45 State INST CONTROL 15
5.1.46 Voluntary Response Program Sites (VCP) 15
5.1.47 Drycleaning Sites (DRYCLEANERS) List 15
5.1.48 State BROWNFIELDS 15
5.1.49 Emissions Inventory Data (AIRS) 16
5.1.50 Indian Reservations (INDIAN RESERV) List 16
5.1.51 Reports on Status of Open Dumps on Indian Land (INDIAN ODI) Sites 16
5.1.52 Leaking Underground Storage Tanks on Indian Land (INDIAN LUST) Sites 16
5.1.53 Underground Storage Tanks on Indian Land (INDIAN UST) Sites 16
5.1.54 INDIAN Responsible Party Voluntary Action Sites (VCP) Sites 16
5.1.55 Manufactured Gas Plants Sites 16
5.2 Additional Environmental Record Sources 16
5.2.1 NEPA Check 16
5.2.2 Site and Surrounding Areas 17
5.2.3 Threatened and Endangered Species 18
5.3 Physical Setting Sources 19
5.3.1 USGS 7.5-Minute Topographic Maps 19
5.3.2 Fire Insurance/Sanborn® Maps 19
5.3.3 Historical Aerial Photos 19

6 SITE RECONNAISSANCE 21
6.1 Methodology and Limiting Conditions 21
6.2 General Site Setting 21
6.2.1 Area Geology and Soil Types 21
6.2.2 Area Hydrology and Hydrogeology 21
6.3 Exterior Observations 22
6.4 Interior Observations 22

7 INTERVIEWS 23
7.1 Owner/Site Manager 23
7.2 Local Government Officials 23

TABLE OF CONTENTS (Continued)

8 FINDINGS 24

9 OPINION 26

10 CONCLUSIONS 27

11 LIMITATIONS 28

12 DEVIATIONS 29

13 REFERENCES 30

14 SIGNATURE OF PREPARER 31

15 QUALIFICATIONS OF PREPARER 32

Tables

Table 1 – EDR Environmental Records Report Summary
Table 2 – EDR NEPA Check® Report Summary

Figures

Figure 1 – Site Location

Appendices

Appendix A – EDR Radius Map with GeoCheck®
Appendix B – EDR NEPA Check®
Appendix C – EDR Historical Topographic Map Report
Appendix D – EDR Sanborn® Map Report – No Coverage
Appendix E – EDR Aerial Photo Decade Package
Appendix F – RFF Kalepa Photo Log

1 Executive Summary

A Phase I Environmental Due Diligence Audit (EDDA) was conducted at the Remote Fixed Facility (RFF) Kalepa Site (Site) located off of Hulei Road, Hanamā'ulu, Kaua'i County, Hawai'i, in general conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) Standard Practice E 1527-00 (ASTM E 1527-00). For the purposes of this report, the Site is defined as the immediate vicinity of the proposed compound area designated at the time of the site visit. The proposed compound area will consist of an existing self-support tower, tower equipment building, diesel tank, back-up generator, and other related equipment. At the time of the site visit, the tower was owned by Hawaiian Telcom, who leases the property from the landowner, Grove Farms Company, Inc.

The results of this Phase I EDDA will be used to support the proposed lease of real estate to support placement of antennas and appurtenant structures for the United States Coast Guard's (USCG's) Rescue 21 program.

The scope for the Phase I EDDA consisted of the following tasks:

- A record review to obtain and review records that will help identify recognized environmental conditions (RECs) in connection with the Site.
- A site reconnaissance to visually inspect the Site to obtain information indicating the likelihood of identifying RECs in connection with the Site.
- Interviews with the current owner/manager and the local fire department to obtain information indicating the presence of RECs in connection with the Site.
- Preparation of this report to summarize all of the activities undertaken to complete the Phase I EDDA and present findings, conclusions, and other information as required by ASTM E 1527-00.

Although not part of the scope of a Phase I EDDA as defined by ASTM E 1527-00, the following tasks also were conducted:

- A preliminary screening for wetlands was completed on the Site to identify potential permitting requirements and development constraints.

The following RECs were identified at the Site:

- No RECs associated with the Site were identified during the preparation of this Phase I EDDA.

Additional findings for the Site are summarized below:

- A diesel-fueled back-up generator was observed within the Hawaiian Telecom equipment shelter located at the Site. The back-up generator appeared to be in fair condition. A spill kit was observed adjacent to the back-up generator. No staining or leaking was observed in the vicinity of the back-up generator. The back-up generator is not considered a REC.

- An underground storage tank (UST) and associated piping connected to the equipment shelter were observed at the Site. One monitoring well was observed adjacent to the UST. The concrete pad for the UST appeared to be in good condition. MWH Americas, Inc. (MWH) attempted to gather additional information on the UST from Hawaiian Telcom. No response had been received at the time of this report. The UST is not considered a REC.

- An empty gas can was observed inside the equipment shelter. The gas can is not considered a REC.

- Potential asbestos-containing materials (ACM) were observed in the equipment shelter located at the Site. These materials consisted of 9-inch by 9-inch floor tiles.

- An unsecured compressed nitrogen tank was observed within the equipment shelter located at the Site. The compressed nitrogen tank is not considered a REC.

- The exterior paint on the tower appeared weathered and paint chips were observed on the ground surface adjacent to the tower. The lead content of the paint is not known.

- Batteries within secondary containment were observed inside the equipment shelter located at the Site. The batteries appeared to be in good condition. The batteries are not considered RECs.

- A battery was observed adjacent to the back-up generator. The battery appeared to be connected to the back-up generator. The battery was not within secondary containment or securely placed. The battery is not considered a REC.

- An air conditioning unit was observed mounted on a concrete pad adjacent to the equipment shelter located at the Site. The air conditioning unit appeared to be in good condition. The air conditioning unit is not considered a REC.

- Two white plastic containers were observed adjacent to the back-up generator. The content of the containers was unknown. The plastic containers are not considered RECs.

This assessment has revealed no RECs in connection with the property. The reader is encouraged to read the entire report and review the appendices for additional details.

2 Introduction

2.1 *Purpose*

This Phase I Environmental Due Diligence Audit (EDDA) was completed following the general requirements of the American Society for Testing and Materials (ASTM) Standard Practice E 1527-00 (ASTM E 1527-00), which involves a review of available environmental records, a site visit, and interviews with site personnel to identify any "recognized environmental conditions" (RECs) at the Site. RECs are defined by ASTM as *"The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property."* The term includes hazardous substances or petroleum products even under conditions in compliance with laws.

The purpose of this Phase I EDDA is to identify, to the extent feasible pursuant to the processes described in ASTM E 1527-00, RECs in connection with the Remote Fixed Facility (RFF) Kalepa Site (Site) located off of Hulei Road, Hanamā'ulu, Kaua'i County, Hawai'i. For the purposes of this report, the Site is defined as the immediate vicinity of the proposed compound area designated at the time of the site visit. The proposed compound area will consist of an existing self-support tower, tower equipment building, diesel tank, back-up generator, and other related equipment. At the time of the site visit, tower was owned by Hawaiian Telcom, who leases the property from the landowner, Grove Farms Company, Inc. This report was prepared for General Dynamics C4 Systems to support the United States Coast Guard's (USCG's) Rescue 21 program.

2.2 *Detailed Scope*

The scope to complete this Phase I EDDA included the following elements.

2.2.1 Records Review

The records examined as part of this task were limited to publicly available documents that could be practically reviewed.

An environmental database search was ordered from Environmental Data Resources, Inc. (EDR). This report is included as **Appendix A**. The EDR database search used the minimum search distances required by ASTM E 1527-00. Physical setting source review included United States Geological Survey (USGS) 7.5-minute topographic maps. An EDR National Environmental Policy Act (NEPA) Check® Report, dated January 23, 2009, also was reviewed and is included as **Appendix B**.

Historical use information was obtained from historical USGS 7.5-minute topographic maps. Sanborn® fire insurance maps were not available through EDR. The EDR

Historical Topographic Map Report is included as **Appendix C**. The Sanborn® Map Report (no coverage) is included as **Appendix D.** The EDR Aerial Photo Decade Package is included as **Appendix E**.

2.2.2 Site Reconnaissance

The purpose of the site reconnaissance was to gather information relative to the presence of RECs at the Site. The site reconnaissance was completed in accordance with the requirements of ASTM E 1527-00. The site reconnaissance is documented in the Photo Log included as **Appendix F**.

2.2.3 Interviews

The purpose of the interviews was to obtain information indicating RECs in connection with the Site. MWH Americas, Inc. (MWH) attempted to gather additional information on the Site and underground storage tank (UST) from Hawaiian Telcom. No response had been received at the time of this report. MWH attempted to contact the Kaua'i Fire Department, via email. No response had been received at the time of this report.

2.2.4 Wetlands

Observations were made during the site visit on October 15, 2008, to assess whether wetlands exist on the Site and in the vicinity. Wetland vegetation was not observed on the Site or in the immediate vicinity of the Site at the time of the site visit. A formal wetland delineation was not conducted.

2.2.5 Report

This report was prepared in general accordance with ASTM E 1527-00.

3 Site Description

3.1 *Location and Legal Description*

The Site is located off of Hulei Road, Hanamā'ulu, Kaua'i County, Hawai'i **(Figure 1)**. The latitude and longitude of the Site is 22º 00' 06.08" N; 159º 21' 28.0" W (NAD 83). At the time of the site visit, tower was owned by Hawaiian Telcom, who leases the property from the landowner, Grove Farms Company, Inc.

3.2 *Site and Vicinity Characteristics*

The Site is a telecommunications compound containing a 60-foot self-support tower, a back-up generator within an equipment shelter, a UST, an air conditioning unit and associated equipment. The existing Site was surrounded by fencing.

The Site is located in Kaua'i County on the Island of Kaua'i. The Site is immediately surrounded by undeveloped vegetated land. Access to the Site was by a paved driveway connected to Hulei Road at the time of the site visit.

3.3 *Current Use of the Site*

The Site is a telecommunications compound containing a 60-foot self-support tower and a back-up generator within an equipment shelter. The existing Site was surrounded by fencing. No additional uses of the Site were identified at the time of the site visit.

3.4 *Descriptions of Structures, Roads, and other Site Improvements*

Site improvements are described below.

3.4.1 Structures and Buildings

The Site is a telecommunications compound containing a 60-foot self-support tower and a back-up generator within an equipment shelter. The existing Site was surrounded by fencing. The equipment shelter contained communications equipment, a back-up generator, and batteries at the time of the site visit.

3.4.2 Roads

Access to the Site was by a paved driveway connected to Hulei Road at the time of the site visit.

3.4.3 Water and Sewer System

There were no water services at the Site at the time of the site visit.

3.4.4 Hazardous Substances and Petroleum Products in Connection with Identified Uses

A diesel-fueled back-up generator was observed within the equipment shelter located at the Site. The back-up generator appeared to be in fair condition. A spill kit was observed adjacent to the back-up generator. No staining or leaking was observed in the vicinity of the back-up generator. The back-up generator is not considered a REC.

A UST and associated piping connected to the equipment shelter were observed at the Site. One monitoring well was observed adjacent to the UST. The concrete pad for the UST appeared to be in good condition. MWH attempted to gather additional information on the UST from Hawaiian Telcom. No response had been received at the time of this report. The UST is not considered a REC.

An empty gas can was observed inside the equipment shelter. The gas can is not considered a REC.

Potential asbestos-containing materials (ACM) were observed in the equipment shelter located at the Site. These materials consisted of 9-inch by 9-inch floor tiles.

An unsecured compressed nitrogen tank was observed within the equipment shelter located at the Site. The compressed nitrogen tank is not considered a REC.

The exterior paint on the tower appeared weathered and paint chips were observed on the ground surface adjacent to the tower. The lead content of the paint is not known.

Batteries within secondary containment were observed inside the equipment shelter located at the Site. The batteries appeared to be in good condition. The batteries are not considered RECs.

A battery was observed adjacent to the back-up generator. The battery appeared to be connected to the back-up generator. The battery was not within secondary containment or securely placed. The battery is not considered a REC.

3.4.5 Storage Tanks

UST and associated piping connected to the equipment shelter were observed at the Site. One monitoring well was observed adjacent to the UST. The concrete pad for the UST appeared to be in good condition. MWH attempted to gather additional information on the UST from Hawaiian Telcom. No response had been received at the time of this report. The UST is not considered a REC.

An unsecured compressed nitrogen tank was observed within the equipment shelter located at the Site. The compressed nitrogen tank is not considered a REC.

3.4.6 Odors

No unusual odors were detected at the Site during the site visit.

3.4.7 Pools of Liquid

No pools of liquid were observed on the Site during the site visit.

3.4.8 Drums

No drums were observed on the Site during the site visit.

3.4.9 Other Hazardous Substance and Petroleum Products Containers

No other hazardous substances or petroleum product containers were observed on the Site during the site visit.

3.4.10 Unidentified Substance Containers

Two white plastic containers were observed adjacent to the back-up generator. The content of the containers was unknown. The plastic containers are not considered RECs.

3.4.11 Polychlorinated Biphenyls (PCBs)

No PCBs were observed on the Site during the site visit.

3.4.12 Stains and Corrosion

No evidence of stains or corrosion was observed on the Site at the time of the site visit.

3.4.13 Heating and Cooling

An air conditioning unit was observed mounted on a concrete pad adjacent to the equipment shelter located at the Site. The air conditioning unit appeared to be in good condition. The air conditioning unit is not considered a REC.

3.4.14 Drains and Sumps

No drains or sumps were observed at the Site during the site visit.

3.4.15 Pits, Ponds, or Lagoons

No pits, ponds, or lagoons were observed on the Site at the time of the site visit.

3.4.16 Stained Soil or Pavement

No stained soil or pavement was observed on the Site at the time of the site visit.

3.4.17 Stressed Vegetation

No stressed vegetation was observed on the Site at the time of the site visit.

3.4.18 Solid Waste

No solid waste was observed on the Site during the site visit.

3.4.19 Wastewater

There was no wastewater service at the Site at the time of the site visit. No wastewater discharges were observed during the site visit.

3.4.20 Wells

No potable wells were identified during the site visit. The EDR Radius Map with GeoCheck® Report identified three state-listed water wells located within a one-mile radius of the Site. The EDR Radius Map with GeoCheck® Report is included as **Appendix A.**

3.4.21 Wetlands

Nine wetlands were identified within a one-mile radius of the Site in the United States Fish and Wildlife Service's (USFWS's) National Wetland Inventory (NWI) maps, as shown in the EDR NEPA Check® Report, dated January 23, 2009, included as **Appendix B**. The Site is located in an upland area and the nearest mapped wetland is located ½ mile from the Site. During the site visit on October 15, 2008, wetland vegetation was not observed on the Site or in the immediate vicinity of the Site. A formal wetland delineation was not conducted by MWH.

3.5 *Current Uses of Adjoining Properties*

The Site is located in Kaua'i County on the Island of Kaua'i. The Site is immediately surrounded by undeveloped vegetated land. Access to the Site was by a paved driveway connected to Hulei Road at the time of the site visit.

4 User-Provided Information

4.1 *Specialized Knowledge*

No specialized knowledge about the Site was provided to MWH.

4.2 *Valuation Reduction for Environmental Issues*

No valuation reduction for environmental issues was provided to MWH.

4.3 *Reason for Performing Phase I*

This Phase I EDDA was performed in preparation for the USCG to lease a portion of the Site to place communications antennas on an existing self-support tower and appurtenant structures (equipment shelter, back-up generator, and propane tank) within the tower compound as part of the Rescue 21 program.

5 Records Review

5.1 *Standard Environmental Record Sources*

The Site was not identified in the databases searched by EDR.

Surrounding or adjoining properties identified by the EDR database search are either considered *plotted* sites (those sites that could be located by the given address and are identified on the EDR Report Overview Map) or *orphan* sites (sites with insufficient address information such that they could not be accurately mapped by EDR). The proximity of the plotted and orphan sites to the Site, along with the geologic characteristics of the area, could have implications relative to potential environmental impacts at the Site. A summary of the radius search is presented in **Table 1**.

The EDR search located 14 *orpha*n sites. However, based on database listed and distance from the Site, the orphan sites are not considered RECs with respect to the Site. See the attached EDR Radius Map Report (**Appendix A**) for additional information.

Table 1. EDR Environmental Records Report Summary

Database Reference	EDR Search Radius (miles)	Subject Site	Surrounding/ Adjoining Properties
NPL	1.000	Not Listed	0 Listed
Proposed NPL	1.000	Not Listed	0 Listed
Delisted NPL	1.000	Not Listed	0 Listed
NPL LIENS	TP	Not Listed	NA
CERCLIS	0.500	Not Listed	0 Listed
CERC-NFRAP	0.500	Not Listed	0 Listed
LIENS 2	TP	Not Listed	NA
CORRACTS	1.000	Not Listed	0 Listed
RCRA TSDF	0.500	Not Listed	0 Listed
RCRA LQG	0.250	Not Listed	0 Listed
RCRA SQG	0.250	Not Listed	0 Listed
RCRA CESQG	0.250	Not Listed	0 Listed
RCRA NonGen	0.250	Not Listed	0 Listed
US ENG CONTROLS	0.500	Not Listed	0 Listed
US INST CONTROL	0.500	Not Listed	0 Listed
ERNS	TP	Not Listed	NA
HMIRS	TP	Not Listed	NA
DOT OPS	TP	Not Listed	NA
US CDL	TP	Not Listed	NA
US BROWNFIELDS	0.500	Not Listed	0 Listed
DOD	1.000	Not Listed	0 Listed
FUDS	1.000	Not Listed	0 Listed
LUCIS	0.500	Not Listed	0 Listed
CONSENT	1.000	Not Listed	0 Listed
ROD	1.000	Not Listed	0 Listed
UMTRA	0.500	Not Listed	0 Listed
DEBRIS REGION 9	0.500	Not Listed	0 Listed
ODI	0.500	Not Listed	0 Listed
MINES	0.250	Not Listed	0 Listed

Database Reference	EDR Search Radius (miles)	Subject Site	Surrounding/ Adjoining Properties
TRIS	TP	Not Listed	NA
TSCA	TP	Not Listed	NA
FTTS	TP	Not Listed	NA
HIST FTTS	TP	Not Listed	NA
SSTS	TP	Not Listed	NA
ICIS	TP	Not Listed	NA
PADS	TP	Not Listed	NA
MLTS	TP	Not Listed	NA
RADINFO	TP	Not Listed	NA
FINDS	TP	Not Listed	NA
RAATS	TP	Not Listed	NA
SCRD Drycleaners	0.500	Not Listed	0 Listed
SHWS	1.000	Not Listed	**2 Listed**
State Landfill	0.500	Not Listed	0 Listed
LUST	0.500	Not Listed	0 Listed
UST	0.250	Not Listed	0 Listed
SPILLS	TP	Not Listed	NA
INST CONTROL	0.500	Not Listed	0 Listed
VCP	0.500	Not Listed	0 Listed
DRYCLEANERS	0.250	Not Listed	0 Listed
BROWNFIELDS	0.500	Not Listed	0 Listed
AIRS	TP	Not Listed	NA
INDIAN RESERV	1.000	Not Listed	0 Listed
INDIAN ODI	0.500	Not Listed	0 Listed
INDIAN LUST	0.500	Not Listed	0 Listed
INDIAN UST	0.250	Not Listed	0 Listed
INDIAN VCP	0.500	Not Listed	0 Listed
Manufactured Gas Plants	1.000	Not Listed	0 Listed

Notes:

BROWNFIELDS = Brownfields Sites
CDL = Clandestine Drug Labs
CERCLIS = Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP = CERCLIS No Further Remedial Action Planned
CESQG – Conditionally Exempt Small Quantity Generator
CORRACTS = Corrective Action Report
DEBRIS REGION 9 = Torres Martinez Reservation Illegal Dump Site Locations
DOD = Department of Defense Sites
DOT OPS = Incident and Accident Data
DRYCLEANERS = Drycleaning Sites
ENG CONTROLS = Engineering Controls Sites List
ERNS = Emergency Response Notification System
FIFRA = Federal Insecticide, Fungicide, and Rodenticide Act
FINDS = Facility Index System
FTTS = FIFRA/ TSCA Tracking System
FUDS = Formerly Used Defense Sites
HMIRS = Hazardous Materials Information Reporting System
ICIS = Integrated Compliance Information System
LQG = Large Quantity Generator
LIENS = Environmental Liens Listing
LUCIS = Land Use Control Information System
LUST = Leaking UST Database
MINES = Mines Master Index File
MLTS = Materials Licensing Tracking System
NA = Not applicable. No surrounding properties were searched.
NonGen = Non Generators
NPL = National Priorities List
NonGen = Non Generators
ODI = Open Dump Inventory
PCB = polychlorinated biphenyls
RADINFO = Radiation Information Database
RAATS = RCRA Administrative Action Tracking System
RCRA = Resource Conservation and Recovery Act
ROD = Records of Decision
SCRD = State Coalition for Remediation
SHWS = Contaminated Sites
SQG = Small Quantity Generator
SSTS = Section 7 Tracking System
TP = Target Property
TRIS = Toxic Chemical Release Inventory System
TSCA = Toxic Substances Control Act
TSDF = Transport, Storage and Disposal Facility
UMTRA = Uranium Mill Tailings
UST = Underground Storage Tank
VCP = Responsible Party Voluntary Action Sites

5.1.1 National Priorities List (NPL) Site List

No NPL sites were identified within one mile of the Site.

5.1.2 Proposed NPL Site List

No Proposed NPL sites were identified within one mile of the Site.

5.1.3 Delisted NPL List

No Delisted NPL sites were identified within one mile of the Site.

5.1.4 Federal Superfund Liens (NPL LIENS) List

The Site was not identified in the NPL LIENS List.

5.1.5 Federal Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) List

No Federal CERCLIS sites were identified within ½ mile of the Site.

5.1.6 Federal CERCLIS No Further Remedial Action Planned (NFRAP) (CERC-NFRAP) Site List

No Federal CERC-NFRAP sites were identified within ½ mile of the Site.

5.1.7 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Lien Information (LIENS 2) List

The Site was not identified in LIENS 2.

5.1.8 Corrective Action Report (CORRACTS) Facilities List

No CORRACTS sites were identified within one mile of the Site.

5.1.9 Federal Resource Conservation and Recovery Act (RCRA) Transport, Storage and Disposal Facilities (TSDF) List

No Federal RCRA TSDF sites were identified within ½ mile of the Site.

5.1.10 Federal RCRA Large Quantity Generator (LQG), RCRA Small Quantity Generator (SQG), and RCRA Conditionally Exempt Small Quantity Generator (CESQG)

No Federal RCRA LQG, RCRA SQG or RCRA CESQG sites were identified within ¼ mile of the Site.

5.1.11 Federal RCRA Non Generators (NonGen) Generators List

No RCRA NonGen sites were identified within ¼ mile of the Site.

5.1.12 US Engineering Controls (US ENG CONTROLS) List

No US ENG CONTROLS sites were identified within ½ mile of the Site.

5.1.13 US Sites with Institutional Controls (US INST CONTROL)

No US INST CONTROL sites were identified within ½ mile of the Site.

5.1.14 Federal Emergency Response Notification System (ERNS)

The Site was not identified in ERNS.

5.1.15 Hazardous Materials Information Reporting System (HMIRS) List

The Site was not identified in HMIRS.

5.1.16 Incident and Accident Data (DOT OPS) List

The Site was not identified in DOT OPS.

5.1.17 US Clandestine Drug Labs (CDL) List

The Site was not identified in the US CDL List.

5.1.18 US BROWNFIELDS List

No US BROWNFIELDS sites were identified within ½ mile of the Site.

5.1.19 Department of Defense (DOD) Sites

No DOD sites were identified within one mile of the Site.

5.1.20 Formerly Used Defense Sites (FUDS)

No FUDS sites were identified within one mile of the Site.

5.1.21 Land Use Control Information System (LUCIS) List

No LUCIS sites were identified within ½ mile of the Site.

5.1.22 Superfund Consent Decrees (CONSENT)

No CONSENT sites were identified within one mile of the Site.

5.1.23 Records of Decision (ROD) List

No ROD sites were identified within one mile of the Site.

5.1.24 Uranium Mill Tailings (UMTRA) Sites

No UMTRA sites were identified within ½ mile of the Site.

5.1.25 Torres Martinez Reservation Illegal Dump Site Locations (DEBRIS REGION 9)

No DEBRIS REGION 9 sites were identified within ½ mile of the Site.

5.1.26 Open Dump Inventory (ODI)

No ODI sites were identified within ½ mile of the Site.

5.1.27 Mines Master Index File (MINES) List

No MINES sites were identified within ¼ mile of the Site.

5.1.28 Toxic Chemical Release Inventory System (TRIS)

The Site was not identified in TRIS.

5.1.29 Toxic Substances Control Act (TSCA)

The Site was not identified in TSCA.

5.1.30 Federal Insecticide, Fungicide, Rodenticide Act (FIFRA)/TSCA Tracking System (FTTS) List

The Site was not identified in FTTS.

5.1.31 FIFRA/TSCA Tracking System Administrative Case Listing (HIST FTTS) List

The Site was not identified in HIST FTTS.

5.1.32 Section 7 Tracking System (SSTS) List

The Site was not identified in SSTS.

5.1.33 Integrated Compliance Information System (ICIS) List

The Site was not identified in ICIS.

5.1.34 PCB Activity Database System (PADS) List

The Site was not identified in PADS.

5.1.35 Materials Licensing Tracking System (MLTS) List

The Site was not identified in MLTS.

5.1.36 Radiations Information Database (RADINFO) List

The Site was not identified in RADINFO.

5.1.37 Facility Index System (FINDS) List

The Site was not identified in FINDS.

5.1.38 RCRA Administrative Action Tracking System (RAATS) List

The Site was not identified in RAATS.

5.1.39 State Coalition for Remediation of Drycleaners (SCRD DRYCLEANERS) Listing

No SCRD DRYCLEANERS sites were identified within ½ mile of the Site.

5.1.40 Contaminated Sites (SHWS) List

Two SHWS sites were identified within one mile of the Site. Both sites are more than ½ mile from the Site and are at a lower elevation. The SHWS sites are not considered RECs.

5.1.41 State Landfill List

No State Landfill sites were identified within ½ mile of the Site.

5.1.42 Leaking Underground Storage Tank Sites (LUST)

No LUST sites were identified within ½ mile of the Site.

5.1.43 Underground Storage Tank Facility List (UST)

No UST sites were identified within ¼ mile of the Site.

5.1.44 SPILLS Database

The Site was not identified in SPILLS.

5.1.45 State INST CONTROL

No INST CONTROL sites were identified within ½ mile of the Site.

5.1.46 Voluntary Response Program Sites (VCP)

No VCP sites were identified within ½ mile of the Site.

5.1.47 Drycleaning Sites (DRYCLEANERS) List

No DRYCLEANERS sites were identified within ¼ mile of the Site.

5.1.48 State BROWNFIELDS

No State BROWNFIELDS sites were identified within ½ mile of the Site.

5.1.49 Emissions Inventory Data (AIRS)

The Site was not identified in AIRS.

5.1.50 Indian Reservations (INDIAN RESERV) List

No INDIAN RESERV sites were identified within one mile of the Site.

5.1.51 Reports on Status of Open Dumps on Indian Land (INDIAN ODI) Sites

No INDIAN ODI sites were identified within ½ mile of the Site.

5.1.52 Leaking Underground Storage Tanks on Indian Land (INDIAN LUST) Sites

No INDIAN LUST sites were identified within ½ mile of the Site.

5.1.53 Underground Storage Tanks on Indian Land (INDIAN UST) Sites

No INDIAN UST sites were identified within ¼ mile of the Site.

5.1.54 INDIAN Responsible Party Voluntary Action Sites (VCP) Sites

No INDIAN VCP sites were identified within ½ mile of the Site.

5.1.55 Manufactured Gas Plants Sites

No Manufactured Gas Plant sites were identified within one mile of the Site.

5.2 *Additional Environmental Record Sources*

5.2.1 NEPA Check

Various NEPA databases were reviewed to assess any sensitive environmental areas surrounding the Site. **Table 2** summarizes the information provided in the EDR NEPA Check® Report for the Site. The EDR NEPA Check® Report is provided in **Appendix B**.

Table 2. EDR NEPA Check® Report Summary

Database Reference	EDR Search Radius (miles)	Within Search	Within 1/8 of a Mile
Federal Lands	1.00	Not Listed	Not Listed
HI Managed Areas	1.00	**Listed**	**Listed**
HI Game Management	1.00	**Listed**	**Listed**
County Endangered Species	County	**Listed**	N/A
National Register Hist. Places	1.00	**Listed**	Not Listed
Indian Reservation	1.00	Not Listed	Not Listed
FLOODPLAIN	1.00	**Listed**	Not Listed
NWI	1.00	**Listed**	Not Listed
HI Coastal Zone	20.00	**Listed**	**Listed**
FCC Cellular	1.00	Not Listed	Not Listed
FCC Antenna	1.00	**Listed**	**Listed**
FCC Tower	1.00	**Listed**	**Listed**
FCC AM Tower	1.00	Not Listed	Not Listed
FAA DOF	1.00	**Listed**	**Listed**
Airports	1.00	Not Listed	Not Listed
Power Lines	1.00	Not Listed	Not Listed

Notes:
DOF = Digital Obstacle File
FAA = Federal Aviation Administration
FCC = Federal Communications Commission
HI = Hawai'i
N/A = Not applicable
NWI = National Wetlands Inventory

5.2.2 Site and Surrounding Areas

Natural Areas

According to the EDR NEPA Check® Report, the Site is not located within one mile of Federal Lands. Federal Lands include: officially designated wilderness areas, officially designated wildlife preserves, sanctuaries and refuges, and wild and scenic rivers.

Hawai'i Managed Areas

According to the EDR NEPA Check® Report, the Site is located within ⅛ mile of Hawai'i Managed Areas. The Kalepa Mountain Forest Reserve is located approximately ¾ mile northeast of the Site.

Hawai'i Game Management

According to the EDR NEPA Check® Report, the Site is located within ⅛ mile of Hawai'i Game Management Areas.

County Endangered Species

According to the EDR NEPA Check® Report, the Site is located within a county listed as having the potential for federally threatened or endangered species.

National Register Historic Places

According to the EDR NEPA Check® Report, there is one mapped National Register Historic Place within one mile of the Site. The Lihue Hongwanji Mission is located approximately ¾ mile southwest of the Site.

Indian Reservation

The EDR NEPA Check® Report indicated that the Site is not located within one mile of an Indian Reservation.

Hawai'i Coastal Zone

The EDR NEPA Check® Report indicated that the Site is located within ⅛ mile of the Hawai'i Coastal Zone (all land area in the State of Hawai'i is within the Hawai'i Coastal Zone).

FLOODPLAIN

According to the EDR NEPA Check® Report, the Site is not located within the 100-year or 500-year flood plain. However, the 100-year floodplain is located within one mile of the Site.

NWI

Nine wetlands were identified within a one-mile radius of the Site in the USFWS's NWI maps, as shown in the EDR NEPA Check® Report, dated January 23, 2009, included as **Appendix B**. The Site is located in an upland area and the nearest mapped wetland is located ½ mile from the Site. During the site visit on October 15, 2008, wetland vegetation was not observed on the Site or in the immediate vicinity of the Site. A formal wetland delineation was not conducted by MWH.

Federal Communications Commission (FCC) and Federal Aviation Administration (FAA)

According to the EDR NEPA Check® Report, one antenna and two tower sites, one with multiple licenses are located within one mile of the Site. One of the sites listed appears to refer to the target property and is listed as a digital obstacle file (DOF).

5.2.3 Threatened and Endangered Species

The EDR NEPA Check® Report identified 104 federally listed species as having potential to occur in Kaua'i County. During the site visit on October 15, 2008, MWH did not observe any federally listed or state-listed plant or wildlife species at the Site.

5.3 *Physical Setting Sources*

5.3.1 USGS 7.5-Minute Topographic Maps

Three historical topographic maps of the Site and surrounding area were obtained from EDR, dated 1963, 1983, and 1996. The EDR Historical Topographic Map Report is included as **Appendix C.** A summary of the topographic maps is provided below:

- Kapaa, 1963 Series 7.5' (Scale 1": 24,000') – The Site appears to be an undeveloped area surrounded by vacant land. Hulei Road is visible north of the Site. The Site is located in the vicinity of the Kalepa Forest Reserve. A well is visible west of the Site. A water tank, well, and the developed community of Hanamā'ulu is visible south of the Site. A cemetery and Hanamā'ulu Beach Park are visible southeast of the Site. State Route 56 is visible southeast of the Site, generally running southwest-northeast. A water tank, well, and the Pacific Ocean are visible east of the Site.

- Kapaa, 1983 Series 7.5' (Scale 1": 24,000') – The Site and surrounding properties appear similar to the previous topographic map (1963). The community of Hanamā'ulu is more developed. Kaua'i Memorial Gardens are visible southwest of the Site. A county correctional facility and Wailua County Golf Corse are visible northeast of the Site.

- Kapaa, 1996 Series 7.5' (Scale 1": 24,000') – The Site and surrounding properties appear similar to the previous topographic map (1983).

No RECs were identified during the historical topographic map review.

5.3.2 Fire Insurance/Sanborn® Maps

According to EDR, no Sanborn® Map coverage exists for the Site and surrounding area. The EDR Sanborn® "No Coverage" Report is included as **Appendix D**.

5.3.3 Historical Aerial Photos

Two historical aerial photographs of the Site and surrounding area were obtained from EDR, dated 1975 and 1992. A summary of the aerial photographs is provided below:

- 1975: The Site and surrounding properties appear to be an undeveloped area surrounded by vacant land. Hulei Road is visible north of the Site. The community of Hanamā'ulu is visible south of the Site. State Route 56 is visible southeast of the Site, generally running southwest-northeast.

- 1992: The Site and surrounding properties appear similar to the previous aerial photograph (1975). A water tank is visible east of the Site. The community of Hanamā'ulu is more developed.

No RECs were identified in the aerial photograph review. The EDR aerial photograph package is provided as **Appendix E**.

6 Site Reconnaissance

6.1 *Methodology and Limiting Conditions*

The site reconnaissance was performed on October 15, 2008. There were no environmental conditions (e.g., snow, driving rain, etc.) that precluded examination of the Site. The search method used on the Site consisted of a perimeter walk, transect walks and compound investigations to detect drains, meter covers, manholes, vents and fill pipes on the Site.

6.2 *General Site Setting*

The Site is a telecommunications compound containing a 60-foot self-support tower, a back-up generator within an equipment shelter, a UST, an air conditioning unit and associated equipment. The existing Site was surrounded by fencing.

The Site is located in Kaua'i County on the Island of Kaua'i. The Site is immediately surrounded by undeveloped vegetated land. Access to the Site was by a paved driveway connected to Hulei Road at the time of the site visit.

6.2.1 Area Geology and Soil Types

Information regarding the regional and local geology and soil in the area was obtained from the EDR Radius Map Report, which uses USGS and United States Department of Agriculture (USDA) Soil Conservation Service (SCS) databases. The EDR Radius Map Report is included in **Appendix A**. The soil type at the Site is classified as Kalapa, which is considered silty clay with moderate infiltration rates. The soil is considered to pose a high risk of corrosion to bare steel. This is a well drained, non-hydric soil.

6.2.2 Area Hydrology and Hydrogeology

The topography of the Site is generally flat and the Site is at higher elevations than the immediately surrounding properties. Surface water runoff at the Site is reported to be in a general northeast direction. A hydrogeologic investigation would be required to delineate the direction of groundwater flow and confirm depth to groundwater in the immediate vicinity of the Site. According to data obtained during the site visit the surface elevation at the Site is at 679 feet above mean sea level. According to EDR the surface elevation at the Site is at 619 feet above mean sea level.

Nine wetlands were identified within a one-mile radius of the Site in the USFWS's NWI maps, as shown in the EDR NEPA Check® Report, dated January 23, 2009, included as **Appendix B**. The Site is located in an upland area, and the nearest mapped wetland is located ½ mile from the Site. During the site visit on October 15, 2008, wetland vegetation was not observed on the Site or in the immediate vicinity of the Site. A formal wetland delineation was not conducted by MWH.

6.3 *Exterior Observations*

The exterior observations are divided into observations regarding the Site and surrounding property.

Site

The Site is a telecommunications compound containing a 60-foot self-support tower, a back-up generator within an equipment shelter, a UST, an air conditioning unit and associated equipment. The existing Site was surrounded by fencing.

Surrounding Property

The Site is located in Kaua'i County on the Island of Kaua'i. The Site is immediately surrounded by undeveloped vegetated land. Access to the Site was by a paved driveway connected to Hulei Road at the time of the site visit.

No RECs were identified during the exterior observations. Refer to Section 3.0 for additional information pertaining to exterior observations made.

6.4 *Interior Observations*

The Site is a telecommunications compound containing a 60-foot self-support tower and a back-up generator within an equipment shelter. The existing Site was surrounded by fencing. The equipment shelter contained communications equipment, back-up generator, and batteries at the time of the site visit.

7 Interviews

7.1 *Owner/Site Manager*

The purpose of the interviews was to obtain information indicating RECs in connection with the Site. MWH attempted to gather additional information on the Site and UST from Hawaiian Telcom. No response had been received at the time of this report.

7.2 *Local Government Officials*

MWH attempted to contact the Kaua'i Fire Department, via email. No response had been received at the time of this report.

8 Findings

The following summarizes the known or suspected environmental conditions associated with the Site. This includes RECs, historical environmental conditions, and *de minimus* environmental conditions.

The following REC was identified at the Site:

- No RECs associated with the Site were identified during the preparation of this Phase I EDDA.

Additional findings for the Site are summarized below:

- A diesel-fueled back-up generator was observed within the equipment shelter located at the Site. The back-up generator appeared to be in fair condition. A spill kit was observed adjacent to the back-up generator. No staining or leaking was observed in the vicinity of the back-up generator. The back-up generator is not considered a REC.

- A diesel-fueled back-up generator was observed within the equipment shelter located at the Site. The back-up generator appeared to be in fair condition. A spill kit was observed adjacent to the back-up generator. No staining or leaking was observed in the vicinity of the back-up generator. The back-up generator is not considered a REC.

- An empty gas can was observed inside the equipment shelter. The gas can is not considered a REC.

- Potential ACM were observed in the equipment shelter located at the Site. These materials consisted of 9-inch by 9-inch floor tiles.

- An unsecured compressed nitrogen tank was observed within the equipment shelter located at the Site. The compressed nitrogen tank is not considered a REC.

- The exterior paint on the tower appeared weathered and paint chips were observed on the ground surface adjacent to the tower. The lead content of the paint is not known.

- Batteries within secondary containment were observed inside the equipment shelter located at the Site. The batteries appeared to be in good condition. The batteries are not considered RECs.

- A battery was observed adjacent to the back-up generator. The battery appeared to be connected to the back-up generator. The battery was not within secondary containment or securely placed. The battery is not considered a REC.

- An air conditioning unit was observed mounted on a concrete pad adjacent to the equipment shelter located at the Site. The air conditioning unit appeared to be in good condition. The air conditioning unit is not considered a REC.

- Two white plastic containers were observed adjacent to the back-up generator. The content of the containers was unknown. The plastic containers are not considered RECs.

This assessment has revealed no RECs in connection with the property.

9 Opinion

Based on the data collected during the site reconnaissance, historical records search and review, EDR radius search, and interviews with the site representative, no RECs were identified in connection with the property. **MWH recommends tower paint chip and surface soil samples be collected at the Site to evaluate the lead content of the paint.**

10 Conclusions

MWH performed a Phase I EDDA in conformance with the scope and limitations of ASTM E 1527-00 off of Hulei Road, Hanamā'ulu, Kaua'i County, Hawai'i. Any exceptions or deletions from this practice are described in Section 12 of this report. This assessment has revealed no RECs in connection with the Site.

11 Limitations

This environmental assessment and report have been prepared in general accordance with the objectives of the June 2000 ASTM Standards (ASTM E 1527-00).

MWH conducted this assessment in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar circumstances. Information provided to MWH by client representatives and Site contacts has been accepted in good faith and is assumed to be accurate unless written documentation or visual observations indicate contradictions. MWH's findings are based on observations and data collected at one point in time. Assessment results are based upon conditions and operations at the time of the site visit. A change in any of these factors may alter the findings and conclusions expressed by MWH.

A site walk though, by nature, is limited in its ability to fully access potential environmental liabilities that may be present at the Site, but are beyond the scope of this Phase I EDDA. National and local laws and regulations, if referenced in this report, are provided for information purposes and should not be construed as legal opinion or recommendation.

This environmental assessment report was prepared under the direction of our client, General Dynamics C4 Systems and its representatives. Since professional judgments incorporated into the report are based on limited evidence, there is an inherent uncertainty in the conclusions drawn and reported. Any third party may necessarily have different interests, purposes, and motives than our client with regard to this assessment and report. Therefore, use of this report by any third party is expressly prohibited without the express written authorization of the client and MWH.

12 Deviations

The following deviations from ASTM E 1527-00 occurred during the preparation of this Phase I EDDA:

- A preliminary screening for jurisdictional wetlands was completed on the Site to identify potential permitting requirements and development constraints. A formal wetland delineation was not conducted.

- General Dynamics C4 Systems supplies MWH with latitude and longitude measurements in degrees, minutes, and seconds which are the basis for ordering the aforementioned EDR Reports. Due to EDR converting the provided degrees, minutes, and seconds into decimal degrees and back into degrees, minutes, and seconds, the latitude and longitude listed on the EDR Reports is occasionally different by one to three tenths of a second. This translates to a linear difference of less than 50 feet, which does not significantly affect the radius searched by EDR or the findings of MWH.

- At the time the EDR reports were ordered, Kalepa was given as the city which the Site is located in, however; the Site is located in the city of Hanamā'ulu.

- MWH attempted to contact the Kaua'i Fire Department, via email. No response had been received at the time of this report.

- MWH attempted to gather additional information on the Site and UST from Hawaiian Telcom. No response had been received at the time of this report.

13 References

ASTM. 2000. ASTM Standards on Environmental Due Diligence Audits for Commercial Real Estate. Fourth Edition. West Conshohocken, PA.

EDR. 2009. The EDR Radius Map with GeoCheck®, RFF Kalepa. Inquiry Number 2407116.2s. Hanamā'ulu, HI.

EDR. 2009. Sanborn No Coverage Report. Hanamā'ulu, HI.

EDR. 2009. The EDR Historical Topographic Map Report. Hanamā'ulu, HI.

EDR. 2009. The EDR Aerial Photo Decade Package. Hanamā'ulu, HI.

EDR. 2009. The EDR NEPA Check® Report. RFF Kalepa. Inquiry Number 2407116.7s. Hanamā'ulu, HI.

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J:\jobs\General Dynamics\Rescue 21 Program\Reports\Honolulu\HI-209 Kalepa\Phase I\Final\HI-209-P1EDDA-MW-Rev-02.doc

14 Signature of Preparer

This Phase I Environmental Due Diligence Audit was prepared by:

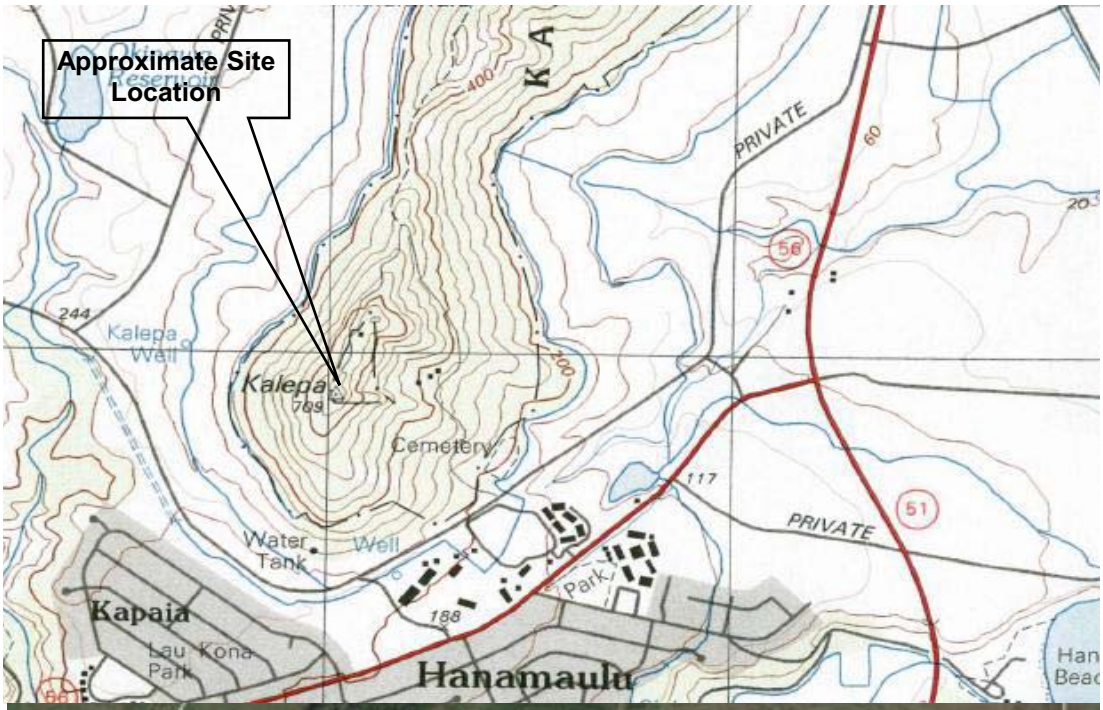
Kate E Goerke 2/25/09

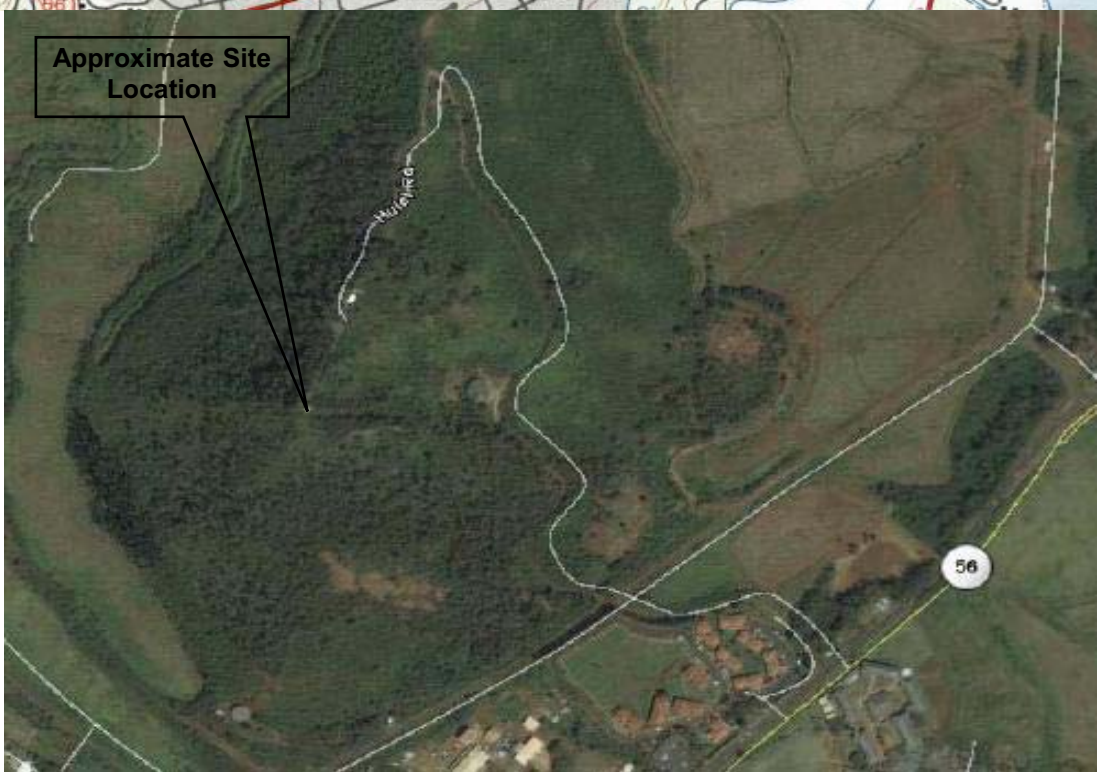
Kate E. Goerke Date

15 Qualifications of Preparer

Preparer has a Bachelor of Science degree in Biology and approximately seven years of work in environmental or scientific fields relating to site assessments and sampling.

Figure 1 – Site Location





Drawn by: KEG
Checked by: CVJ

MWH	RFF Kalepa Hulei Road Hanamā'ulu, Hawai'i	Figure 1 Site Location

Appendix A – EDR Radius Map With GeoCheck®

RFF Kalepa
RFF Kalepa
Kalepa, HI 96766

Inquiry Number: 2407116.2s
January 23, 2009

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	7
Orphan Summary	9
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-10
Physical Setting Source Map Findings	A-11
Physical Setting Source Records Searched	A-16

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

RFF KALEPA
KALEPA, HI 96766

COORDINATES

Latitude (North):	22.001700 - 22˚ 0' 6.1''
Longitude (West):	159.357800 - 159˚ 21' 28.1''
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	463067.2
UTM Y (Meters):	2432915.8
Elevation:	619 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	22159-A3 KAPAA, HI
Most Recent Revision:	Not reported
South Map:	21159-H3 KAPAA, HI
Most Recent Revision:	Not reported

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

EXECUTIVE SUMMARY

Federal CERCLIS list

CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System

Federal CERCLIS NFRAP site List

CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Transporters, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls

Federal ERNS list

ERNS ..... Emergency Response Notification System

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ..... Permitted Landfills in the State of Hawaii

State and tribal leaking storage tank lists

LUST ..... Leaking Underground Storage Tank Database
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST ..... Underground Storage Tank Database
INDIAN UST ..... Underground Storage Tanks on Indian Land

State and tribal institutional control / engineering control registries

INST CONTROL ..... Sites with Institutional Controls

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Response Program Sites

State and tribal Brownfields sites

BROWNFIELDS ..... Brownfields Sites

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ..... Clandestine Drug Labs

Local Land Records

LIENS 2 ..... CERCLA Lien Information
LUCIS ..... Land Use Control Information System

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
SPILLS ..... Release Notifications

Other Ascertainable Records

RCRA-NonGen ..... RCRA - Non Generators
DOT OPS ..... Incident and Accident Data
DOD ..... Department of Defense Sites
FUDS ..... Formerly Used Defense Sites
CONSENT ..... Superfund (CERCLA) Consent Decrees
ROD ..... Records Of Decision
UMTRA ..... Uranium Mill Tailings Sites
MINES ..... Mines Master Index File
TRIS ..... Toxic Chemical Release Inventory System
TSCA ..... Toxic Substances Control Act
FTTS ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS ..... FIFRA/TSCA Tracking System Administrative Case Listing
SSTS ..... Section 7 Tracking Systems
ICIS ..... Integrated Compliance Information System
PADS ..... PCB Activity Database System
MLTS ..... Material Licensing Tracking System
RADINFO ..... Radiation Information Database
FINDS ..... Facility Index System/Facility Registry System
RAATS ..... RCRA Administrative Action Tracking System
DRYCLEANERS ..... Permitted Drycleaner Facility Listing
AIRS ..... List of Permitted Facilities
INDIAN RESERV ..... Indian Reservations
SCRD DRYCLEANERS ..... State Coalition for Remediation of Drycleaners Listing
PWS ..... Public Water System Data

EXECUTIVE SUMMARY

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants..... EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Health.

A review of the SHWS list, as provided by EDR, and dated 04/04/2008 has revealed that there are 2 SHWS sites within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
HANAMAULU SERVICE CENTER	***3-4280 KUHIO HWY***	***ESE 1/2 - 1 (0.561 mi.)***	***1***	***7***
LIHUE PLANTATION CO, LTD - LIH	***3-4671 KUHIO HWY***	***ENE 1/2 - 1 (0.738 mi.)***	***2***	***8***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
HALEHAKA LANDFILL	SHWS
LIHUE PLANTATION CO, LTD - SEED DI	SHWS
ANAHOLA PROJECT FAITH	SHWS, BROWNFIELDS, INST CONTROL
LIHUE PLANTATION CO, LTD - SETTLIN	SHWS
NAWILIWILI HARBOR PIER 3 BOLLARD F	SHWS, INST CONTROL
HANALEI LDFL	CERC-NFRAP
KEKAHA LANDFILL PHASE II	SWF/LF
SHELL OIL PRODUCTS SAP 139572	RCRA-SQG
FARMER PESTICIDE DISPOSAL PROJECT	FINDS, RCRA-NonGen
STATE OF HAWAII WAINIHA BRIDGE 3	FINDS, RCRA-NonGen
WILCOX HOSPITAL	FINDS, RCRA-CESQG
WAL MART NO 2308	FINDS, RCRA-CESQG
CHEVRON 97619	RCRA-CESQG
HANAMAULU SERVICE	RCRA-CESQG

OVERVIEW MAP - 2407116.2s

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

0 1/4 1/2 1 Miles

- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: RFF Kalepa ADDRESS: RFF Kalepa Kalepa HI 96766 LAT/LONG: 22.0017 / 159.3578	CLIENT: Montgomery Watson CONTACT: Kate Goerke INQUIRY #: 2407116.2s DATE: January 23, 2009 5:42 pm

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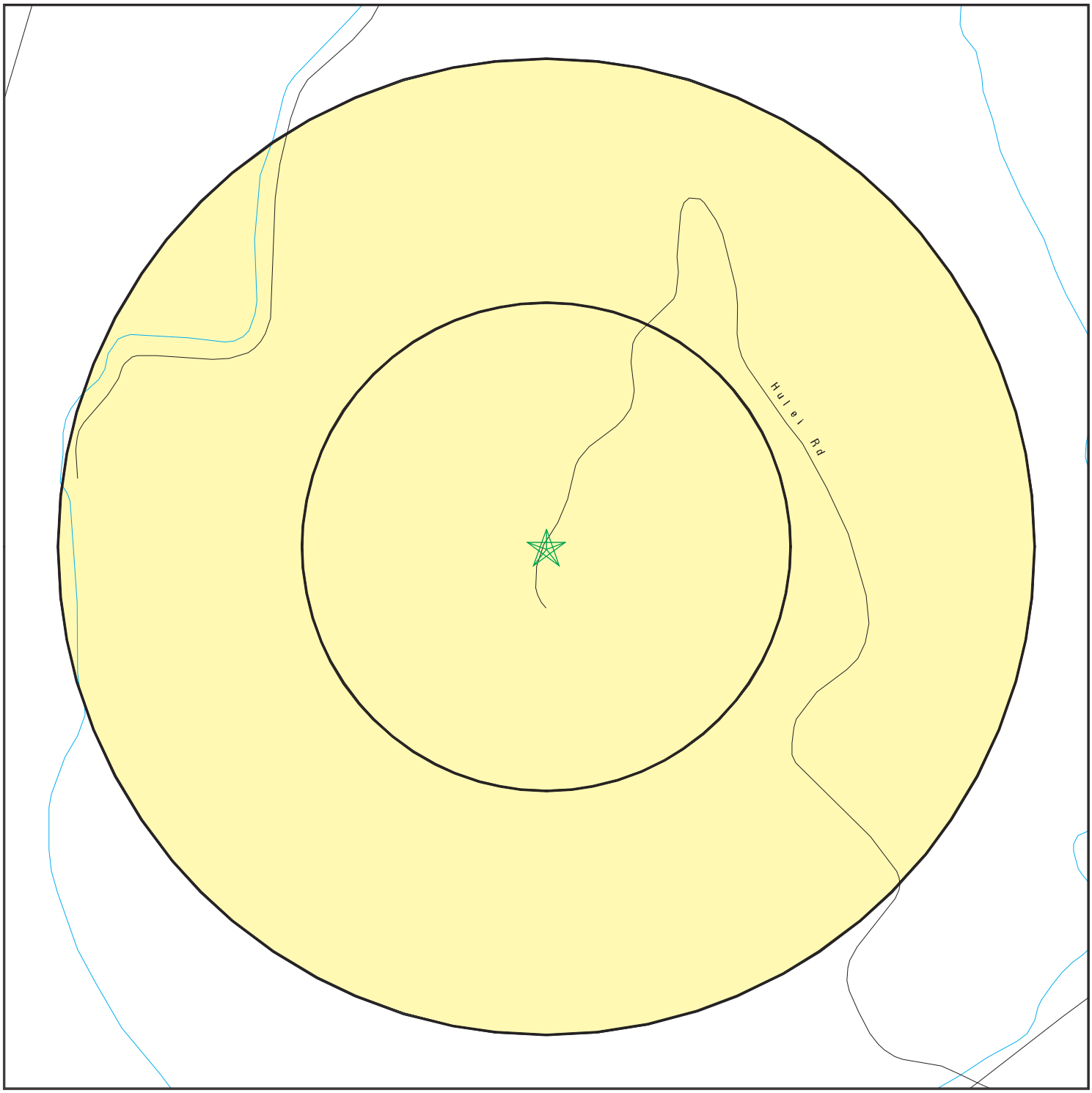
DETAIL MAP - 2407116.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: RFF Kalepa	CLIENT: Montgomery Watson
ADDRESS: RFF Kalepa Kalepa HI 96766	CONTACT: Kate Goerke INQUIRY #: 2407116.2s
LAT/LONG: 22.0017 / 159.3578	DATE: January 23, 2009 5:42 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL		1.000	0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS		0.500	0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP		0.500	0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS		1.000	0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF		0.500	0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG		0.250	0	0	NR	NR	NR	0
RCRA-SQG		0.250	0	0	NR	NR	NR	0
RCRA-CESQG		0.250	0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
Federal ERNS list								
ERNS		TP	NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
SHWS		1.000	0	0	0	2	NR	2
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF		0.500	0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST		0.500	0	0	0	NR	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST		0.250	0	0	NR	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
State and tribal institutional control / engineering control registries								
INST CONTROL		0.500	0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS		0.500	0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
INDIAN ODI		0.500	0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL		TP	NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS		TP	NR	NR	NR	NR	NR	0
SPILLS		TP	NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen		0.250	0	0	NR	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
PWS		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1 ESE 1/2-1 0.561 mi. 2960 ft.

HANAMAULU SERVICE CENTER
3-4280 KUHIO HWY
LIHUE, HI 96766

SHWS **1006820909**
FINDS **110013789365**
SPILLS
INST CONTROL

Relative: Lower

Actual: 105 ft.

SHWS:

File Under:	Shell Oil Company
Supplement:	Not reported
Restricted Use:	This facility is available for unrestricted use.
Restricted Use Comm:	Not reported
Ic Relied On In Remedy:	Not reported
Unit:	Hanamaulu Service Center
Fed Id:	Not reported
Funding:	NA FFY 2007 no Report/Ranking
Agreement/program:	State Site
Sitelist Name:	Hanamaulu Service Center
Activity Type:	Ranking based on SHWB Site Assessment
Assignment Date:	6/4/2007
Activity Lead:	Clarence Callahan
Assignment End Date:	6/4/2007
End fill:	6/4/2007
Result fill:	SDAR Ranked No Action (NA)/Referred back to SHWB
Overall Status:	Complete NA/Site Referred

FINDS:

Other Pertinent Environmental Activity Identified at Site

Not reported

HI-UST (Hawaii - Underground Storage Tank). Hawaii Underground Storage Tank Program regulates underground storage tanks which store petroleum or hazardous substances and offers documents and data products for downloading.

The HI-ECS (Hawaii Environmental Compliance Program) is the Hawaii state regulatory program relating to environmental compliance and hazardous materials that ensures that program areas and facilities are in compliance with environmental regulations

HI SPILLS:

Island:	Kauai
Supplemental Loc. Text:	Not reported
Case Number:	20060727-1300
Units:	Allegations of Fumes Causing Plants to Die
Substances:	Diesel Fumes
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Unknown
Activity Type:	Response
Assignment Date:	7/27/2006
Activity Lead:	Liz Galvez
Assignment End Date:	7/27/2006
Result:	8
File Under:	Shell Oil Company
Incident:	Geroge Bettencourt, complaining of plants in his yard dying as a result of the service station next door

HANAMAULU SERVICE CENTER (Continued) **1006820909**

Initial: Not reported
Report: Kauai District Health Office has conducted a site visit along with Dept. of Agriculture and UH. Requested Solid and Hazardous Waste Branch to follow-up and determine if there have been any underground storage tanks releases - no LUSTs. Spoke withClaren

HI INSTUTIONAL CONTROL:
Restricted Use: This facility is available for unrestricted use.
Comments on Restricted Use: Not reported
IC Relied on in Remedy: Not reported
File Under: Shell Oil Company

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2 ENE 1/2-1 0.738 mi. 3899 ft.

LIHUE PLANTATION CO, LTD - LIHUE HERBICIDE MIXING **SHWS** **S108008468**
3-4671 KUHIO HWY **INST CONTROL** **N/A**
HANAMAULU, HI 96766

Relative: Lower

Actual: 33 ft.

SHWS:
File Under: Amfac Sugar Kauai
Supplement: Not reported
Restricted Use: The site is under evaluation for land use control.
Restricted Use Comm: Not reported
Ic Relied On In Remedy: Not reported
Unit: Lihue Herbicide Mixing Plant
Fed Id: Not reported
Funding: Change Area of Concern Name
Agreement/program: PA/SI Site
Sitelist Name: Lihue Herbicide Mixing Plant
Activity Type: Addressed as Lihue Sugar Plantation Combined Sites
Assignment Date: 9/1/2005
Activity Lead: Richard Palmer
Assignment End Date: 9/14/2007
End fill: 9/14/2007
Result fill: Records Joined as "Lihue Sugar Plantation Combined Sites"
Overall Status: Closed EI (Refer to Lihue Sugar Plantation Combined Sites)

HI INSTUTIONAL CONTROL:
Restricted Use: The site is under evaluation for land use control.
Comments on Restricted Use: Not reported
IC Relied on in Remedy: Not reported
File Under: Amfac Sugar Kauai

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HANALEI	1003879118	HANALEI LDFL	KAUAI BELT RD & KUNIO HWY	96766	CERC-NFRAP
KEKAHA, KAUIA	S106401331	KEKAHA LANDFILL PHASE II	KAUMUALII HIGHWAY	96766	SWF/LF
LIHUE	1006820955	HALEHAKA LANDFILL	HALEHAKA RD	96766	SHWS
LIHUE	S108859900	LIHUE PLANTATION CO, LTD - SEED DI	4474 HOOMANA RD	96766	SHWS
LIHUE	1000297903	FARMER PESTICIDE DISPOSAL PROJECT	KAUMUALII HWY PUHI	96766	FINDS, RCRA-NonGen
LIHUE	1000906736	STATE OF HAWAII WAINIHA BRIDGE 3	KUHIO HIGHWAY WAINIHA BRIDGE 3	96766	FINDS, RCRA-NonGen
LIHUE	1004688861	WILCOX HOSPITAL	3420 KUHIO HWY	96766	FINDS, RCRA-CESQG
LIHUE	1004688937	WAL MART NO 2308	3 3300 KUHIO HWY	96766	FINDS, RCRA-CESQG
LIHUE	1008880400	CHEVRON 97619	3187 KUHIO HWY	96766	RCRA-CESQG
LIHUE	1009398539	SHELL OIL PRODUCTS SAP 139572	3178 KUHIO HWY	96766	RCRA-SQG
LIHUE	1009398559	HANAMAULU SERVICE	3 4280 KUHIO HWY	96766	RCRA-CESQG
LIHUE	S106816238	ANAHOLA PROJECT FAITH	KUIHIO HWY	96766	SHWS, BROWNFIELDS, INST CONTF
LIHUE	S108859901	LIHUE PLANTATION CO, LTD - SETTLIN	OFF HOOMANA RD	96766	SHWS
LIHUE	S106819278	NAWILIWILI HARBOR PIER 3 BOLLARD F	WAAPA RD	96766	SHWS, INST CONTROL

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 09/29/2008
Date Data Arrived at EDR: 10/10/2008
Date Made Active in Reports: 11/19/2008
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 01/26/2009
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 09/29/2008
Date Data Arrived at EDR: 10/10/2008
Date Made Active in Reports: 11/19/2008
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 09/29/2008
Next Scheduled EDR Contact: 01/26/2009
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 09/29/2008	Source: EPA
Date Data Arrived at EDR: 10/10/2008	Telephone: N/A
Date Made Active in Reports: 11/19/2008	Last EDR Contact: 09/29/2008
Number of Days to Update: 40	Next Scheduled EDR Contact: 01/26/2009
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/07/2008	Source: EPA
Date Data Arrived at EDR: 10/16/2008	Telephone: 703-412-9810
Date Made Active in Reports: 12/08/2008	Last EDR Contact: 01/16/2009
Number of Days to Update: 53	Next Scheduled EDR Contact: 04/13/2009
	Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 12/03/2007	Source: EPA
Date Data Arrived at EDR: 12/06/2007	Telephone: 703-412-9810
Date Made Active in Reports: 02/20/2008	Last EDR Contact: 01/12/2009
Number of Days to Update: 76	Next Scheduled EDR Contact: 03/16/2009
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 09/11/2008	Source: EPA
Date Data Arrived at EDR: 09/19/2008	Telephone: 800-424-9346
Date Made Active in Reports: 10/16/2008	Last EDR Contact: 12/01/2008
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/02/2009
	Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Transporters, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 09/10/2008
Date Data Arrived at EDR: 09/23/2008
Date Made Active in Reports: 10/16/2008
Number of Days to Update: 23

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/23/2009
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/10/2008
Date Data Arrived at EDR: 09/23/2008
Date Made Active in Reports: 10/16/2008
Number of Days to Update: 23

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/23/2009
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 09/10/2008
Date Data Arrived at EDR: 09/23/2008
Date Made Active in Reports: 10/16/2008
Number of Days to Update: 23

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/23/2009
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/10/2008
Date Data Arrived at EDR: 09/23/2008
Date Made Active in Reports: 10/16/2008
Number of Days to Update: 23

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/23/2009
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 10/06/2008
Date Data Arrived at EDR: 10/17/2008
Date Made Active in Reports: 12/08/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 12/29/2008
Next Scheduled EDR Contact: 03/30/2009
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls
A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 10/06/2008
Date Data Arrived at EDR: 10/17/2008
Date Made Active in Reports: 12/08/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 12/29/2008
Next Scheduled EDR Contact: 03/30/2009
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 01/23/2008
Date Made Active in Reports: 03/17/2008
Number of Days to Update: 54

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 01/23/2009
Next Scheduled EDR Contact: 04/19/2009
Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: Sites List
Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

Date of Government Version: 04/04/2008
Date Data Arrived at EDR: 06/18/2008
Date Made Active in Reports: 07/22/2008
Number of Days to Update: 34

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 12/18/2008
Next Scheduled EDR Contact: 03/16/2009
Data Release Frequency: Semi-Annually

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Permitted Landfills in the State of Hawaii
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/19/2004
Date Data Arrived at EDR: 05/20/2004
Date Made Active in Reports: 06/22/2004
Number of Days to Update: 33

Source: Department of Health
Telephone: 808-586-4245
Last EDR Contact: 01/19/2009
Next Scheduled EDR Contact: 04/19/2009
Data Release Frequency: Varies

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 06/30/2008
Date Data Arrived at EDR: 07/02/2008
Date Made Active in Reports: 07/22/2008
Number of Days to Update: 20

Source: Department of Health
Telephone: 808-586-4228
Last EDR Contact: 12/23/2008
Next Scheduled EDR Contact: 03/23/2009
Data Release Frequency: Semi-Annually

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/01/2008
Date Data Arrived at EDR: 12/03/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 20

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 11/19/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/18/2008
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 34

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/10/2008
Date Data Arrived at EDR: 10/10/2008
Date Made Active in Reports: 10/16/2008
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 12/02/2008
Date Data Arrived at EDR: 12/04/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 19

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 11/25/2008
Date Data Arrived at EDR: 11/26/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 27

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 06/06/2008
Date Data Arrived at EDR: 10/09/2008
Date Made Active in Reports: 11/19/2008
Number of Days to Update: 41

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 03/12/2008
Date Data Arrived at EDR: 03/14/2008
Date Made Active in Reports: 03/20/2008
Number of Days to Update: 6

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 06/30/2008
Date Data Arrived at EDR: 07/02/2008
Date Made Active in Reports: 07/24/2008
Number of Days to Update: 22
Source: Department of Health
Telephone: 808-586-4228
Last EDR Contact: 12/23/2008
Next Scheduled EDR Contact: 03/23/2009
Data Release Frequency: Semi-Annually

INDIAN UST R10: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 11/18/2008
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 34
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 09/05/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 10/16/2008
Number of Days to Update: 27
Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 12/01/2008
Date Data Arrived at EDR: 12/04/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 19
Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 11/19/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 11/25/2008
Date Data Arrived at EDR: 11/26/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 27
Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 09/08/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 10/16/2008
Number of Days to Update: 27

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
No description is available for this data

Date of Government Version: 06/06/2008
Date Data Arrived at EDR: 10/09/2008
Date Made Active in Reports: 11/19/2008
Number of Days to Update: 41

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 03/12/2008
Date Data Arrived at EDR: 03/14/2008
Date Made Active in Reports: 03/20/2008
Number of Days to Update: 6

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Sites with Institutional Controls
Voluntary Remediation Program and Brownfields sites with institutional controls in place.

Date of Government Version: 04/04/2008
Date Data Arrived at EDR: 06/18/2008
Date Made Active in Reports: 07/22/2008
Number of Days to Update: 34

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 12/18/2008
Next Scheduled EDR Contact: 03/16/2009
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 01/19/2009
Next Scheduled EDR Contact: 04/19/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 04/02/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 01/19/2009
Next Scheduled EDR Contact: 04/19/2009
Data Release Frequency: Varies

VCP: Voluntary Response Program Sites
Sites participating in the Voluntary Response Program. The purpose of the VRP is to streamline the cleanup process in a way that will encourage prospective developers, lenders, and purchasers to voluntarily cleanup properties.

Date of Government Version: 04/04/2008
Date Data Arrived at EDR: 06/18/2008
Date Made Active in Reports: 07/22/2008
Number of Days to Update: 34

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 12/18/2008
Next Scheduled EDR Contact: 03/16/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites
With certain legal exclusions and additions, the term 'brownfield site' means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

Date of Government Version: 04/04/2008
Date Data Arrived at EDR: 06/18/2008
Date Made Active in Reports: 07/22/2008
Number of Days to Update: 34

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 12/18/2008
Next Scheduled EDR Contact: 03/16/2009
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 10/01/2008
Date Data Arrived at EDR: 11/14/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 01/16/2009
Next Scheduled EDR Contact: 04/13/2009
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 03/25/2008
Date Data Arrived at EDR: 04/17/2008
Date Made Active in Reports: 05/15/2008
Number of Days to Update: 28

Source: EPA, Region 9
Telephone: 415-972-3336
Last EDR Contact: 12/22/2008
Next Scheduled EDR Contact: 03/23/2009
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 11/24/2008
Next Scheduled EDR Contact: 02/23/2009
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 10/31/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 53

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 10/31/2008
Next Scheduled EDR Contact: 03/23/2009
Data Release Frequency: Quarterly

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 08/19/2008
Date Data Arrived at EDR: 08/29/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 11

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 11/17/2008
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Varies

LUCIS: Land Use Control Information System
LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 12/08/2008
Next Scheduled EDR Contact: 03/09/2009
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/30/2008
Date Data Arrived at EDR: 10/16/2008
Date Made Active in Reports: 11/19/2008
Number of Days to Update: 34

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 01/13/2009
Next Scheduled EDR Contact: 04/13/2009
Data Release Frequency: Annually

SPILLS: Release Notifications

Releases of hazardous substances to the environment reported to the Office of Hazard Evaluation and Emergency Response since 1988.

Date of Government Version: 04/04/2008
Date Data Arrived at EDR: 06/18/2008
Date Made Active in Reports: 07/22/2008
Number of Days to Update: 34

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 12/18/2008
Next Scheduled EDR Contact: 03/16/2009
Data Release Frequency: Varies

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 09/10/2008
Date Data Arrived at EDR: 09/23/2008
Date Made Active in Reports: 10/16/2008
Number of Days to Update: 23

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/23/2009
Next Scheduled EDR Contact: 02/16/2009
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 05/14/2008
Date Data Arrived at EDR: 05/28/2008
Date Made Active in Reports: 08/08/2008
Number of Days to Update: 72

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 11/26/2008
Next Scheduled EDR Contact: 02/23/2009
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 11/07/2008
Next Scheduled EDR Contact: 02/02/2009
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 09/05/2008
Date Made Active in Reports: 09/23/2008
Number of Days to Update: 18

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 12/29/2008
Next Scheduled EDR Contact: 03/30/2009
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/15/2008
Date Data Arrived at EDR: 10/22/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 62

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/19/2009
Next Scheduled EDR Contact: 04/19/2009
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 10/21/2008
Date Data Arrived at EDR: 10/29/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 55

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/29/2008
Next Scheduled EDR Contact: 03/30/2009
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 07/13/2007
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/16/2009
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/07/2008
Date Data Arrived at EDR: 09/23/2008
Date Made Active in Reports: 10/16/2008
Number of Days to Update: 23

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 12/23/2008
Next Scheduled EDR Contact: 03/23/2009
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/19/2008
Next Scheduled EDR Contact: 12/15/2008
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 01/12/2009
Next Scheduled EDR Contact: 04/13/2009
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/08/2008
Date Data Arrived at EDR: 10/17/2008
Date Made Active in Reports: 12/08/2008
Number of Days to Update: 52

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 12/15/2008
Next Scheduled EDR Contact: 03/16/2009
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 10/08/2008
Date Data Arrived at EDR: 10/17/2008
Date Made Active in Reports: 12/08/2008
Number of Days to Update: 52

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 12/15/2008
Next Scheduled EDR Contact: 03/16/2009
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 03/14/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 12/04/2008
Next Scheduled EDR Contact: 01/12/2009
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/31/2008
Date Data Arrived at EDR: 08/13/2008
Date Made Active in Reports: 09/09/2008
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 01/12/2009
Next Scheduled EDR Contact: 04/13/2009
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 12/04/2007
Date Data Arrived at EDR: 02/07/2008
Date Made Active in Reports: 03/17/2008
Number of Days to Update: 39

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 09/18/2008
Next Scheduled EDR Contact: 11/03/2008
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/03/2008
Date Data Arrived at EDR: 10/15/2008
Date Made Active in Reports: 11/19/2008
Number of Days to Update: 35

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 12/29/2008
Next Scheduled EDR Contact: 03/30/2009
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/28/2008
Date Data Arrived at EDR: 10/29/2008
Date Made Active in Reports: 12/08/2008
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/29/2008
Next Scheduled EDR Contact: 01/26/2009
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 10/30/2008
Date Data Arrived at EDR: 10/31/2008
Date Made Active in Reports: 12/23/2008
Number of Days to Update: 53

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 12/29/2008
Next Scheduled EDR Contact: 03/30/2009
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 38

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 12/09/2008
Next Scheduled EDR Contact: 03/09/2009
Data Release Frequency: Biennially

DRYCLEANERS: Permitted Drycleaner Facility Listing

A listing of permitted drycleaner facilities in the state.

Date of Government Version: 03/28/2008
Date Data Arrived at EDR: 03/28/2008
Date Made Active in Reports: 04/24/2008
Number of Days to Update: 27

Source: Department of Health
Telephone: 808-586-4200
Last EDR Contact: 12/22/2008
Next Scheduled EDR Contact: 01/26/2009
Data Release Frequency: Varies

AIRS: List of Permitted Facilities

A listing of permitted facilities in the state.

Date of Government Version: 03/28/2008
Date Data Arrived at EDR: 03/28/2008
Date Made Active in Reports: 04/24/2008
Number of Days to Update: 27

Source: Department of Health
Telephone: 808-586-4200
Last EDR Contact: 12/22/2008
Next Scheduled EDR Contact: 01/26/2009
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 11/07/2008
Next Scheduled EDR Contact: 02/02/2009
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 09/08/2008
Date Data Arrived at EDR: 09/10/2008
Date Made Active in Reports: 09/23/2008
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 12/08/2008
Next Scheduled EDR Contact: 02/09/2009
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 11/07/2008
Next Scheduled EDR Contact: 02/02/2009
Data Release Frequency: N/A

PWS: Public Water System Data

This Safe Drinking Water Information System (SDWIS) file contains public water systems name and address, population served and the primary source of water

Date of Government Version: 02/24/2000
Date Data Arrived at EDR: 04/27/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: EPA
Telephone: N/A
Last EDR Contact: 12/29/2008
Next Scheduled EDR Contact: 03/30/2009
Data Release Frequency: N/A

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 07/09/2008
Date Data Arrived at EDR: 09/30/2008
Date Made Active in Reports: 10/07/2008
Number of Days to Update: 7

Source: EPA
Telephone: 202-564-6064
Last EDR Contact: 12/29/2008
Next Scheduled EDR Contact: 03/30/2009
Data Release Frequency: Quarterly

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data

Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

RFF KALEPA
RFF KALEPA
KALEPA, HI 96766

TARGET PROPERTY COORDINATES

Latitude (North):	22.00170 - 22˚ 0' 6.1''
Longitude (West):	159.3578 - 159˚ 21' 28.1''
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	463067.2
UTM Y (Meters):	2432915.8
Elevation:	619 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	22159-A3 KAPAA, HI
Most Recent Revision:	Not reported
South Map:	21159-H3 KAPAA, HI
Most Recent Revision:	Not reported

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

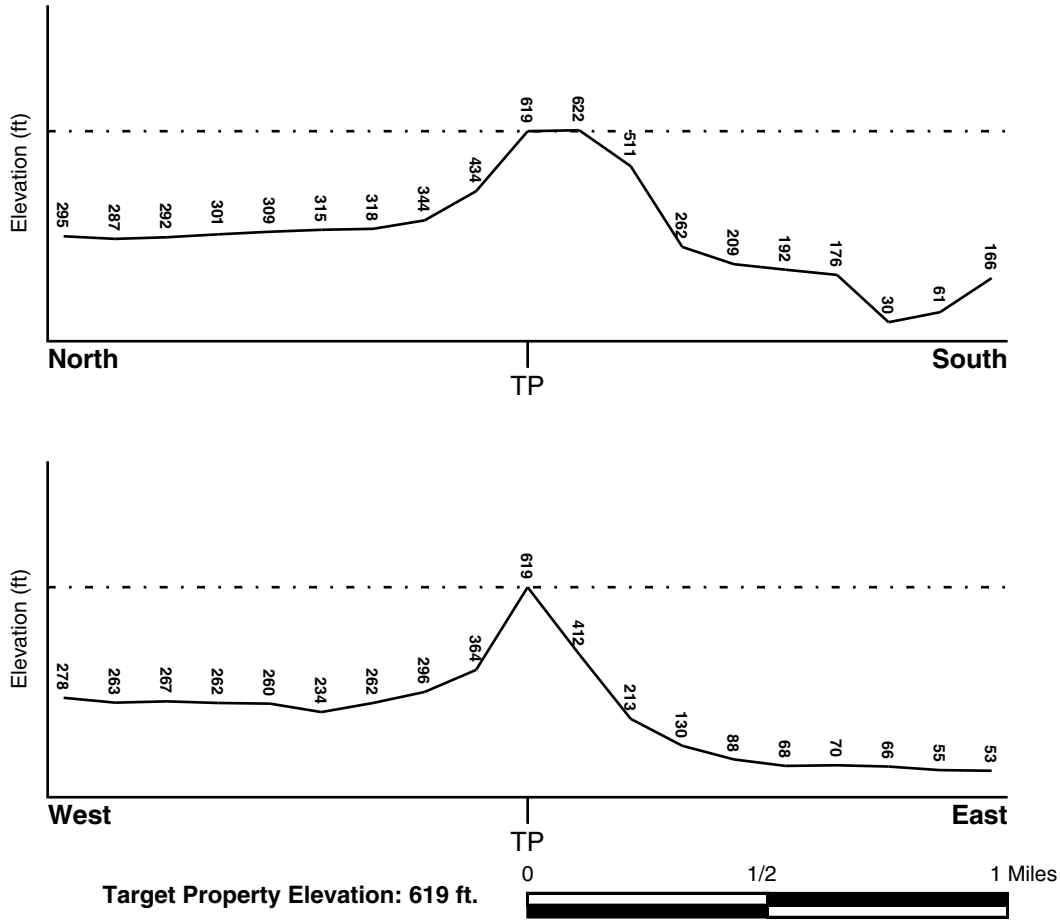
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 619 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
KAUAI, HI	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 1500020140D

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

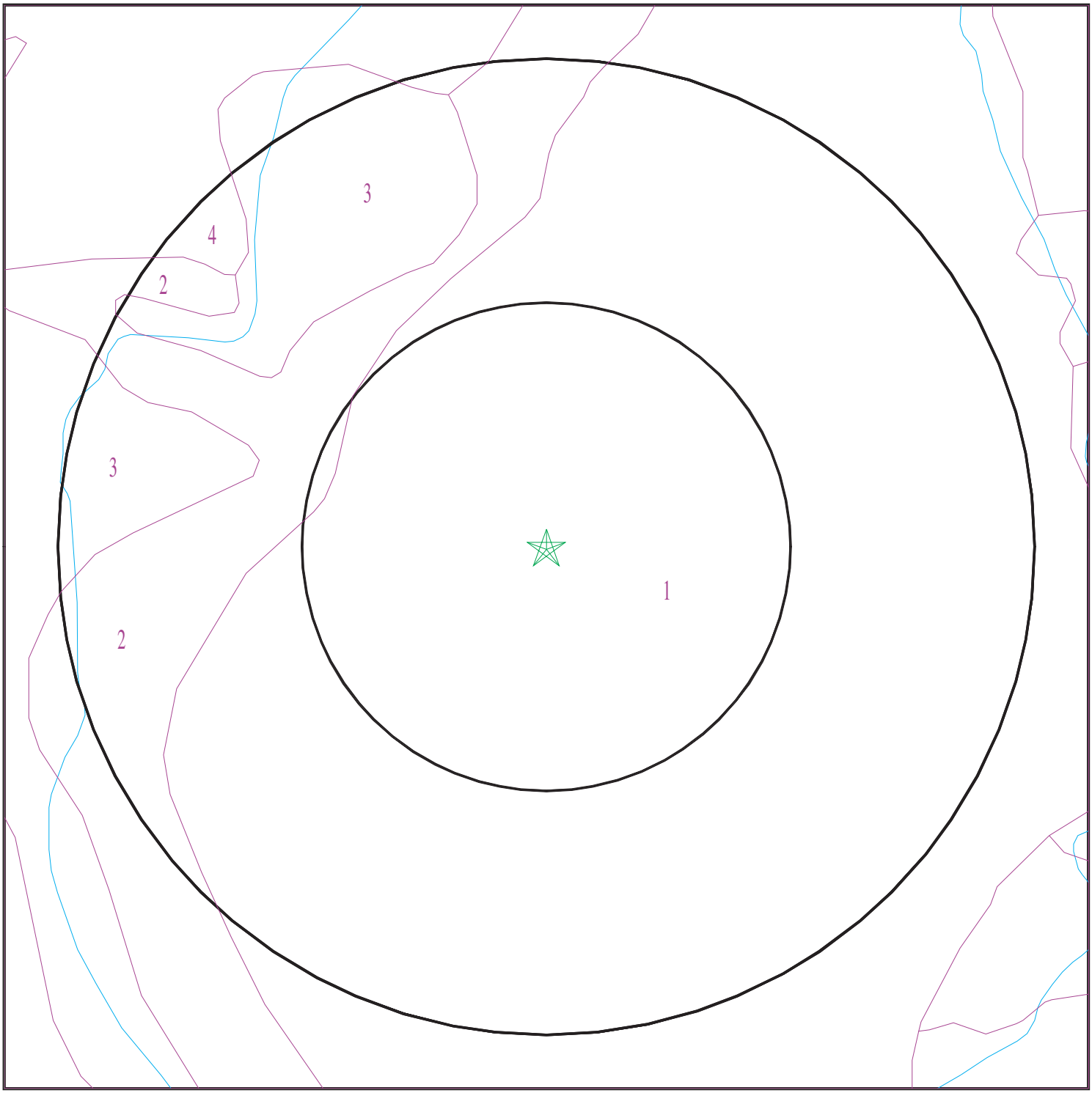
Era:	-
System:	-
Series:	-
Code:	N/A *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: -

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 2407116.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME: RFF Kalepa ADDRESS: RFF Kalepa Kalepa HI 96766 LAT/LONG: 22.0017 / 159.3578	CLIENT: Montgomery Watson CONTACT: Kate Goerke INQUIRY #: 2407116.2s DATE: January 23, 2009 5:42 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Kalapa

Soil Surface Texture: silty clay

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	MH-O (proposed)	Max: 1.41 Min: 0.01	Max: 5 Min: 4.5
2	9 inches	59 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	MH-O (proposed)	Max: 1.41 Min: 0.01	Max: 5 Min: 4.5

Soil Map ID: 2

Soil Component Name: Lihue

Soil Surface Texture: silty clay

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	MH-O (proposed)	Max: 4.23 Min: 1.41	Max: 7.3 Min: 5.6
2	11 inches	59 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	MH-O (proposed)	Max: 4.23 Min: 1.41	Max: 7.3 Min: 5.6

Soil Map ID: 3

Soil Component Name: Lihue

Soil Surface Texture: silty clay

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	MH-O (proposed)	Max: 4.23 Min: 1.41	Max: 7.3 Min: 5.6
2	11 inches	59 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	MH-O (proposed)	Max: 4.23 Min: 1.41	Max: 7.3 Min: 5.6

Soil Map ID: 4

Soil Component Name: Lihue

Soil Surface Texture: silty clay

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	MH-O (proposed)	Max: 4.23 Min: 1.41	Max: 7.3 Min: 5.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	11 inches	59 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	MH-O (proposed)	Max: 4.23 Min: 1.41	Max: 7.3 Min: 5.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

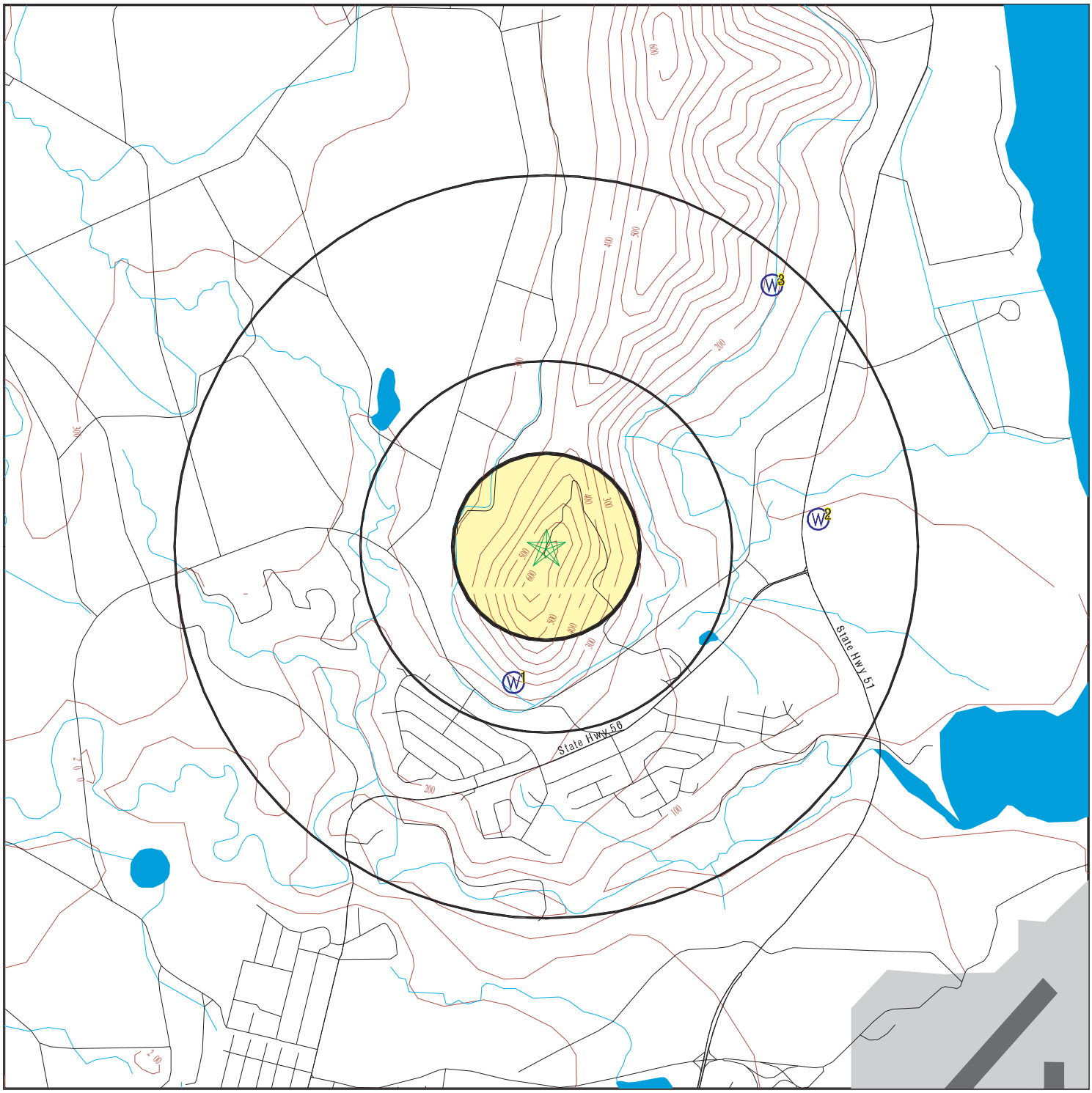
MAP ID	WELL ID	LOCATION FROM TP
1	HI3000000003981	1/4 - 1/2 Mile SSW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	HI3000000004003	1/2 - 1 Mile East
3	HI3000000004007	1/2 - 1 Mile NE

PHYSICAL SETTING SOURCE MAP - 2407116.2s



County Boundary
Major Roads
Contour Lines
Airports
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
GI Indeterminate Groundwater Flow at Location
GV Groundwater Flow Varies at Location

N

SITE NAME: RFF Kalepa ADDRESS: RFF Kalepa Kalepa HI 96766 LAT/LONG: 22.0017 / 159.3578	CLIENT: Montgomery Watson CONTACT: Kate Goerke INQUIRY #: 2407116.2s DATE: January 23, 2009 5:42 pm

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Map ID Direction Distance Elevation	Database	EDR ID Number
1 **SSW** **1/4 - 1/2 Mile** **Lower**	**HI WELLS**	**HI3000000003981**

Wid:	2-5921-001	Island:	2
Well no:	5921-01	Well name:	Kalepa Ridge
Old name:	Not Reported	Yr drilled:	1954
Driller:	SAMSON-SMOCK	Quad map:	10
Longitude2:	1592143	Latitude27:	215959
Longitude8:	1592133	Latitude83:	215947
Lat83d:	21	Lat83m:	59
Lat83s:	47	Lon83d:	159
Lon83m:	21	Lon83s:	33
Lat83dd:	21.99639		
Lon83dd:	-159.35917		
Lat83d 1:	15	Lat83m 1:	92
Lat83s 1:	13	Lon83d 1:	215
Lon83m 1:	94	Lon83s 1:	7
Lat83dd 1:	16.53694		
Lon83dd 1:	-216.56861		
Lat83d 12:	15	Lat83m 12:	92
Lat83s 12:	13	Lon83d 12:	215
Lon83m 12:	94	Lon83s 12:	7
Lat83dd 12:	16.53694		
Lon83dd 12:	-216.56861		
Long83dd:	-159.35917		
Lat83dd 13:	21.99639		
Gps:	1	Utm:	0
Owner user:	Kauai DWS	Old number:	Not Reported
Well type:	ROT	Casing dia:	14
Ground el:	302	Well depth:	540
Solid case:	315	Perf case:	Not Reported
Use:	UNU	Use year:	76
Init water:	16.0	Init head:	15.00000
Init chlor:	23		
Init cl:	23		
Test date:	7/8/1992	Test gpm:	120
Test ddown:	25.0	Test chlor:	76
Test temp:	Not Reported	Temp unit:	Not Reported
Pump gpm:	Not Reported	Draft mgy:	Not Reported
Head feet:	Not Reported	Max chlor:	Not Reported
Min chlor:	Not Reported	Geology:	TWN
Pump yr:	Not Reported	Draft yr:	71
Head yr:	Not Reported	Maxchl:	Not Reported
Maxchl yr:	0	Minchl:	Not Reported
Minchl yr:	0	Bot hole:	-238
Bot solid:	-13	Bot perf:	Not Reported
Spec capac:	5	Pump mgd:	Not Reported
Draft mgd:	Not Reported	Aquifer:	20102
Tmk:	3-8-002:008	Old aqui:	Not Reported
Aqui code:	20102	Latest hd:	Not Reported
Cur head:	Not Reported	Cur cl:	Not Reported
Cur temp:	Not Reported	Wcr:	########
Pir:	Not Reported	Surveyor:	Not Reported

T:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Site id:	HI3000000003981

2
East **HI WELLS** **HI3000000004003**
1/2 - 1 Mile
Lower

Wid:	2-0020-003	Island:	2
Well no:	0020-03	Well name:	EWM 1
Old name:	Not Reported	Yr drilled:	2001
Driller:	OASIS WTR SYS	Quad map:	10
Longitude2:	1592057	Latitude27:	220021
Longitude8:	1592047	Latitude83:	220010
Lat83d:	22	Lat83m:	00
Lat83s:	10	Lon83d:	159
Lon83m:	20	Lon83s:	47
Lat83dd:	22.00278		
Lon83dd:	-159.34639		
Lat83d 1:	15	Lat83m 1:	92
Lat83s 1:	04	Lon83d 1:	220
Lon83m 1:	01	Lon83s 1:	0
Lat83dd 1:	16.53444		
Lon83dd 1:	-220.01667		
Lat83d 12:	15	Lat83m 12:	92
Lat83s 12:	04	Lon83d 12:	220
Lon83m 12:	01	Lon83s 12:	0
Lat83dd 12:	16.53444		
Lon83dd 12:	-220.01667		
Long83dd:	-159.34639		
Lat83dd 13:	22.00278		
Gps:	0	Utm:	1
Owner user:	EWM Kauai LLC	Old number:	Not Reported
Well type:	ROT	Casing dia:	12
Ground el:	69	Well depth:	290
Solid case:	110	Perf case:	Not Reported
Use:	IRRGC	Use year:	03
Init water:	Not Reported	Init head:	6.01000
Init chlor:	42		
Init cl:	42		
Test date:	########	Test gpm:	374
Test ddown:	16.3	Test chlor:	489
Test temp:	76.3	Temp unit:	F
Pump gpm:	150.00000	Draft mgy:	Not Reported
Head feet:	7.49	Max chlor:	Not Reported
Min chlor:	Not Reported	Geology:	Not Reported
Pump yr:	03	Draft yr:	Not Reported
Head yr:	Not Reported	Maxchl:	Not Reported
Maxchl yr:	Not Reported	Minchl:	Not Reported
Minchl yr:	Not Reported	Bot hole:	-221
Bot solid:	-41	Bot perf:	Not Reported
Spec capac:	23	Pump mgd:	0.216
Draft mgd:	Not Reported	Aquifer:	Not Reported
Tmk:	3-7-003:001	Old aqui:	Not Reported
Aqui code:	20102	Latest hd:	Not Reported
Cur head:	Not Reported	Cur cl:	Not Reported
Cur temp:	Not Reported	Wcr:	Not Reported
Pir:	Not Reported	Surveyor:	RONALD CASUGA

T:	18100.00000	Pump elev:	-33
Pump depth:	102	Site id:	HI3000000004003

3
NE **HI WELLS** **HI3000000004007**
1/2 - 1 Mile
Lower

Wid:	2-0021-001	Island:	2
Well no:	0021-01	Well name:	Kalepa Ridge
Old name:	Not Reported	Yr drilled:	1967
Driller:	ROSCOE MOSS	Quad map:	10
Longitude2:	1592104	Latitude27:	220054
Longitude8:	1592054	Latitude83:	220043
Lat83d:	22	Lat83m:	00
Lat83s:	43	Lon83d:	159
Lon83m:	20	Lon83s:	54
Lat83dd:	22.01194		
Lon83dd:	-159.34833		
Lat83d 1:	15	Lat83m 1:	92
Lat83s 1:	05	Lon83d 1:	220
Lon83m 1:	04	Lon83s 1:	3
Lat83dd 1:	16.53472		
Lon83dd 1:	-220.0675		
Lat83d 12:	15	Lat83m 12:	92
Lat83s 12:	05	Lon83d 12:	220
Lon83m 12:	04	Lon83s 12:	3
Lat83dd 12:	16.53472		
Lon83dd 12:	-220.0675		
Long83dd:	-159.34833		
Lat83dd 13:	22.01194		
Gps:	0	Utm:	1
Owner user:	State DLNR-Engineering	Old number:	Not Reported
Well type:	PER	Casing dia:	8
Ground el:	166	Well depth:	276
Solid case:	166	Perf case:	196
Use:	UNU	Use year:	67
Init water:	15.0	Init head:	15.00000
Init chlor:	27		
Init cl:	27		
Test date:	########	Test gpm:	50
Test ddown:	20.0	Test chlor:	27
Test temp:	Not Reported	Temp unit:	Not Reported
Pump gpm:	Not Reported	Draft mgy:	Not Reported
Head feet:	Not Reported	Max chlor:	Not Reported
Min chlor:	Not Reported	Geology:	TWN
Pump yr:	Not Reported	Draft yr:	Not Reported
Head yr:	Not Reported	Maxchl:	Not Reported
Maxchl yr:	0	Minchl:	Not Reported
Minchl yr:	0	Bot hole:	-110
Bot solid:	0	Bot perf:	-30
Spec capac:	3	Pump mgd:	Not Reported
Draft mgd:	Not Reported	Aquifer:	20102
Tmk:	3-9-002:014	Old aqui:	Not Reported
Aqui code:	20102	Latest hd:	Not Reported
Cur head:	Not Reported	Cur cl:	Not Reported
Cur temp:	Not Reported	Wcr:	########
Pir:	Not Reported	Surveyor:	Not Reported

T:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Site id:	HI3000000004007

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for KAUAI County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 96766

Number of sites tested: 13

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.131 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	2.300 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Well Index Database
Source: Department of Land and Natural Resources
Telephone: 808-587-0214
CWRM maintains a Well Index Database to track specific information pertaining to the construction and installation of production wells in Hawaii

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Appendix B – EDR NEPA Check®

RFF Kalepa
RFF Kalepa
Kalepa, HI 96766

Inquiry Number: 2407116.7s
January 23, 2009

EDR NEPACheck®

Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
EDR NEPACheck® Description	1
Map Findings Summary	2
Natural Areas	3
Historic Sites	7
Flood Plain	10
Wetlands	12
Wetlands Classification System	14
FCC & FAA Sites	18
Key Contacts and Government Records Searched	25

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR NEPACheck® DESCRIPTION

The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies include in their decision-making processes appropriate and careful consideration of all environmental effects and actions, analyze potential environmental effects of proposed actions and their alternatives for public understanding and scrutiny, avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

The EDR NEPACheck provides information which may be used, in conjunction with additional research, to determine whether a proposed site or action will have significant environmental effect.

The report provides maps and data for the following items (where available). Search results are provided in the Map Findings Summary on page 2 of this report.

Section	Regulation
Natural Areas Map	
• Federal Lands Data:	
- Officially designated wilderness areas	47 CFR 1.1307(1)
- Officially designated wildlife preserves, sanctuaries and refuges	47 CFR 1.1307(2)
- Wild and scenic rivers	40 CFR 6.302(e)
- Fish and Wildlife	40 CFR 6.302
• Threatened or Endangered Species, Fish and Wildlife, Critical Habitat Data (where available)	47 CFR 1.1307(3); 40 CFR 6.302
Historic Sites Map	
• National Register of Historic Places	47 CFR 1.1307(4); 40 CFR 6.302
• State Historic Places (where available)	
• Indian Reservations	
Flood Plain Map	
• National Flood Plain Data (where available)	47 CFR 1.1307(6); 40 CFR 6.302
Wetlands Map	
• National Wetlands Inventory Data (where available)	47 CFR 1.1307(7); 40 CFR 6.302
FCC & FAA Map	
• FCC antenna/tower sites, AM Radio Towers, FAA Markings and Obstructions, AM Radio Interference Zones, Airports, Topographic gradient	47 CFR 1.1307(8)
Key Contacts and Government Records Searched	

MAP FINDINGS SUMMARY

The databases searched in this report are listed below. Database descriptions and other agency contact information is contained in the Key Contacts and Government Records Searched section on page 25 of this report.

TARGET PROPERTY ADDRESS

RFF KALEPA
RFF KALEPA
KALEPA, HI 96766

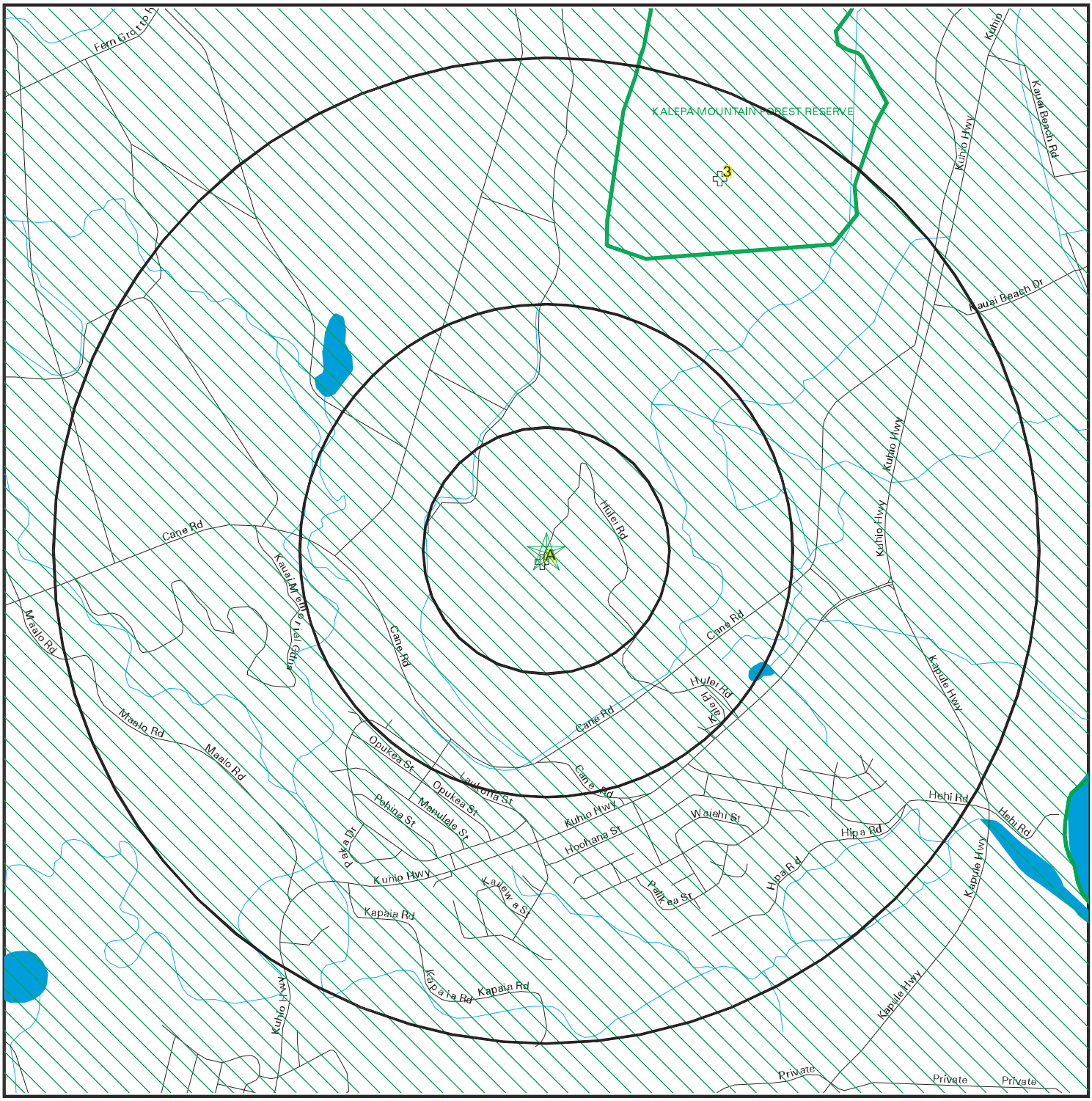
Inquiry #: 2407116.7s
Date: 1/23/9

TARGET PROPERTY COORDINATES

Latitude (North):	22.001699 - 22˚ 0' 6.1''
Longitude (West):	159.357803 - 159˚ 21' 28.1''
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	463067.2
UTM Y (Meters):	2432915.8

Applicable Regulation from 47 CFR/FCC Checklist	Database	Search Distance (Miles)	Within Search	Within 1/8 Mile
NATURAL AREAS MAP				
1.1307a (1) Officially Designated Wilderness Area	US Federal Lands	1.00	NO	NO
1.1307a (2) Officially Designated Wildlife Preserve	US Federal Lands	1.00	NO	NO
1.1307a (2) Officially Designated Wildlife Preserve	HI Managed Areas	1.00	YES	YES
1.1307a (2) Officially Designated Wildlife Preserve	HI Game Management	1.00	YES	YES
1.1307a (3) Threatened or Endangered Species or Critical Habitat	County Endangered Species	County	YES	N/A
HISTORIC SITES MAP				
1.1307a (4) Listed or eligible for National Register	National Register Hist. Places	1.00	YES	NO
	Indian Reservation	1.00	NO	NO
FLOODPLAIN MAP				
1.1307 (6) Located in a Flood Plain	FLOODPLAIN	1.00	YES	NO
WETLANDS MAP				
1.1307 (7) Change in surface features (wetland fill)	NWI	1.00	YES	NO
	HI COASTAL ZONE	20.00	YES	YES
FCC & FAA SITES MAP				
	FCC Cellular	1.00	NO	NO
	FCC Antenna	1.00	YES	YES
	FCC Tower	1.00	YES	YES
	FCC AM Tower	1.00	NO	NO
	FAA DOF	1.00	YES	YES
	Airports	1.00	NO	NO
	Power Lines	1.00	NO	NO

Natural Areas Map



Target Property
Roads
County Boundary
Waterways
Water
Locations
Federal Areas
Federal Linear Features
State Areas
State Linear Features

SITE NAME: RFF Kalepa	CLIENT: Montgomery Watson
ADDRESS: RFF Kalepa Kalepa HI 96766	CONTACT: Kate Goerke INQUIRY #: 2407116.7s
LAT/LONG: 22.0017 / 159.3578	DATE: January 23, 2009

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NATURAL AREAS MAP FINDINGS

Endangered Species Listed for: KAUAI County, HI.

Source: EPA Endangered Species Protection Program Database

ARACHNID:	SPIDER, KAUAI CAVE WOLF
BIRD:	’O’U (HONEYCREEPER)
BIRD:	DUCK, HAWAIIAN (KOLOA)
BIRD:	COOT, HAWAIIAN (=ALAE KEO KEO)
BIRD:	GOOSE, HAWAIIAN (NENE)
BIRD:	MOORHEN, HAWAIIAN COMMON
BIRD:	NUKU PU’U (KAUAI)
BIRD:	PETREL, HAWAIIAN DARK-RUMPED
BIRD:	STILT, HAWAIIAN (=AE’O)
BIRD:	SHEARWATER, NEWELL’S TOWNSEND’S
BIRD:	THRUSH, LARGE KAUAI
BIRD:	THRUSH, SMALL KAUAI (PUAIOHI)
BIRD:	’AKIA LOA, KAUAI (HEMIGNATHUS PROCERUS)
BIRD:	’O’O, KAUAI (=’A’A)
CRUSTACEAN:	AMPHIPOD, KAUAI CAVE
INSECT:	DROSOPHILA MUSAPHILIA (NCN)
MAMMAL:	SEAL, HAWAIIAN MONK
MAMMAL:	BAT, HAWAIIAN HOARY
PLANT:	PHYLLOSTEGIA WAIMEAE (NCN)
PLANT:	PHYLLOSTEGIA WAWRANA (NCN)
PLANT:	SCHIEDEA HELLERI (NCN)
PLANT:	SCHIEDEA KAUAIENSIS (NCN)
PLANT:	PLATANTHERA HOLOCHILA (NCN)
PLANT:	POA SIPHONOGLOSSA (NCN)
PLANT:	POPOLO ’AIAKEAKUA (SOLANUM SANDWICENSE)
PLANT:	PU’UKA’A (CYPERUS TRACHYSANTHOS)
PLANT:	REMYA KAUAIENSIS (NCN)
PLANT:	REMYA MONTGOMERYI (NCN)
PLANT:	SPERMOLEPIS HAWAIIENSIS (NCN)
PLANT:	STENOGYNE CAMPANULATA (NCN)
PLANT:	SCHIEDEA MEMBRANACEA (NCN)
PLANT:	SCHIEDEA NUTTALLII (NCN)
PLANT:	SCHIEDEA SPERGULINA VAR. LEIOPODA (NCN)
PLANT:	SCHIEDEA SPERGULINA VAR. SPERGULINA (NCN)
PLANT:	SILENE LANCEOLATA (NCN)
PLANT:	VIOLA HELENAE (NCN)
PLANT:	XYLOSMA CRENATUM (NCN)
PLANT:	’AIEA (NOTHOCESTRUM PELTATUM)
PLANT:	’AKOKO (EUPHORBIA HAELEELEANA)
PLANT:	’AWIWI (CENTAURIUM SEBAEOIDES)
PLANT:	’AWIWI (HEDYOTIS COOKIANA)
PLANT:	’OHA (DELISSEA RIVULARIS)
PLANT:	’OHAI (SESBANIA TOMENTOSA)
PLANT:	’OLULU (BRIGHAMIA INSIGNIS)
PLANT:	A’E (ZANTHOXYLUM HAWAIIENSE)
PLANT:	ALANI (MELICOPE HAUPUENSIS)
PLANT:	ALANI (MELICOPE KNUDSENII)
PLANT:	ALANI (MELICOPE PALLIDA)
PLANT:	ALANI (MELICOPE QUADRANGULARIS)
PLANT:	ALSINIDENDRON VISCOSUM (NCN)
PLANT:	AUPAKA (ISODENDRION LAURIFOLIUM)
PLANT:	AUPAKA (ISODENDRION LONGIFOLIUM)
PLANT:	CHAMAESYCE HALEMANUI
PLANT:	BLUEGRASS, HAWAIIAN
PLANT:	BLUEGRASS, MANN’S (POA MANNII)
PLANT:	BONAMIA MENZIESII (NCN)
PLANT:	DUBAUTIA LATIFOLIA
PLANT:	DUBAUTIA PAUCIFLORULA

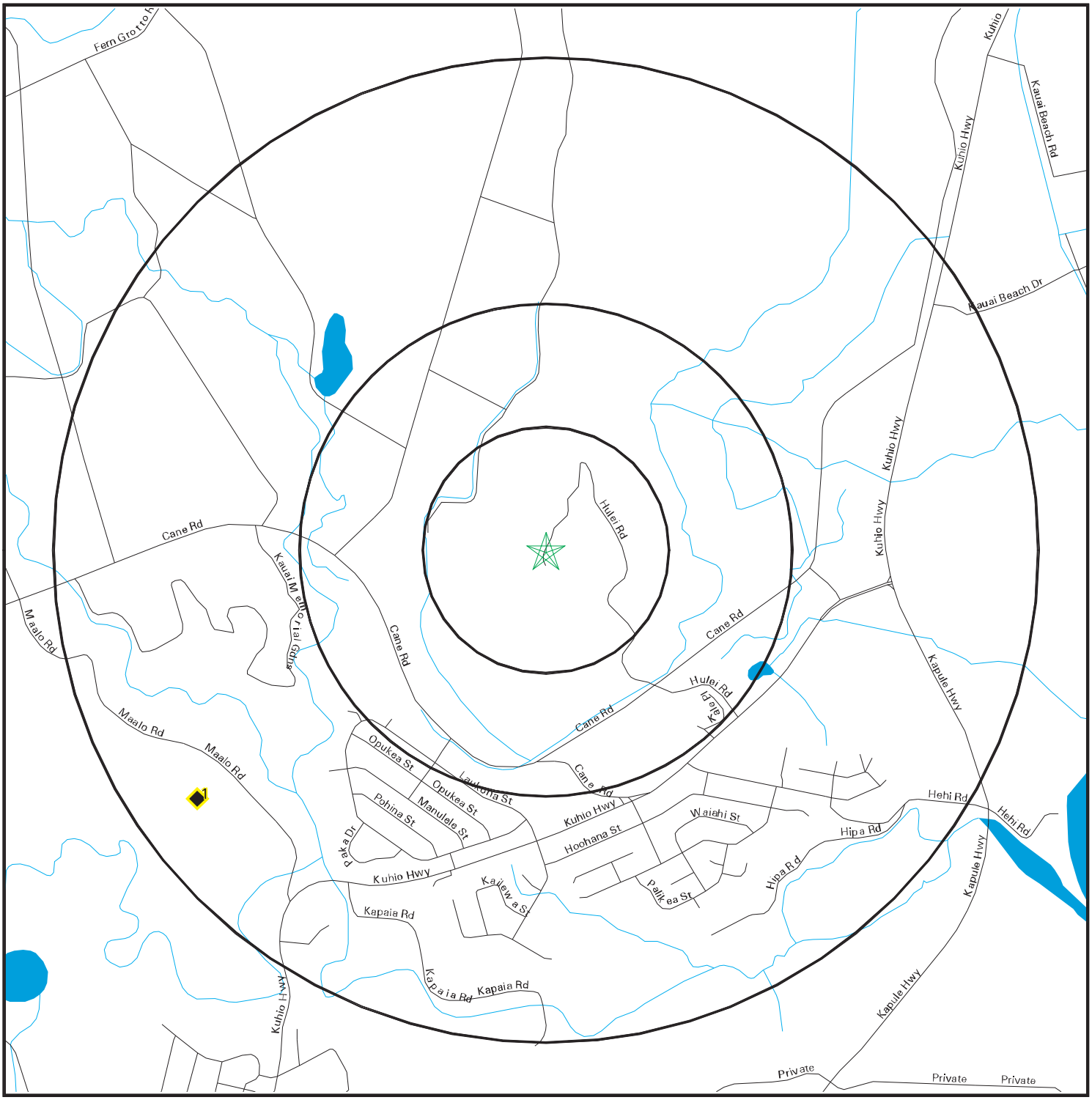
NATURAL AREAS MAP FINDINGS

PLANT:	CYANEA UNDULATA (NCN)
PLANT:	DELISSEA RHYTODISPERMA (NCN)
PLANT:	DIELLIA PALLIDA (NCN)
PLANT:	FERN, PENDANT KIHI (ADENOPHORUS PERIENS)
PLANT:	HAHA (CYANEA RECTA)
PLANT:	HAHA (CYANEA REMYI)
PLANT:	HAU KAUHIWI (HIBISCADELPHUS WOODI)
PLANT:	HAU KUAHIWI (HIBISCADELPHUS DISTANS)
PLANT:	HEAU (EXOCARPOS LUTEOLUS)
PLANT:	HEDYOTIS ST.-JOHNII (NCN)
PLANT:	HESPEROMANNIA LYDGATEI (NCN)
PLANT:	HIBISCUS, CLAY'S
PLANT:	HILO ISCHAEMUM (ISCHAEMUM BYRONE)
PLANT:	ILIAU (WILKESIA HOBDYI)
PLANT:	KAMAKAHALA (LABORDIA LYDGATEI)
PLANT:	KAMAKAHALA (LABORDIA TINIFOLIA VAR. WAHIAWAEN
PLANT:	KAULU (PTERALYXIA KAUAIENSIS)
PLANT:	KOKI'O (KOKIA KAUAIENSIS)
PLANT:	KOKI'O KE'OKE'O (HIBISCUS WAIMEAE SSP. HANNER
PLANT:	KOLEA (MYRSINE LINEARIFOLIA)
PLANT:	KUAWAWAENOHU (ALSINIDENDRON LYCHNOIDES)
PLANT:	LAU'EHU (PANICUM NIIHAUENSE)
PLANT:	LAUKAHI KUAHIWI (PLANTAGO PRINCEPS)
PLANT:	LAULIHILIHI (SCHIEDEA STELLARIOIDES)
PLANT:	LOBELIA NIIHAUENSIS (NCN)
PLANT:	GOUANIA MEYENII (NCN)
PLANT:	HA'IWALE (CYRTANDRA LIMAHULIENSIS)
PLANT:	HAHA (CYANEA ASARIFOLIA)
PLANT:	LOULU (PRITCHARDIA NAPALIENSIS)
PLANT:	LOULU (PRITCHARDIA VISCOSA)
PLANT:	LYSIMACHIA FILIFOLIA (NCN)
PLANT:	MA'OLI'OLI (SCHIEDEA APOKREMNOS)
PLANT:	MAHOE (ALECTRYON MACROCOCCUS)
PLANT:	MAKOU (PEUCEDANUM SANDWICENSE)
PLANT:	MAPELE (CYRTANDRA CYANEOIDES)
PLANT:	MARISCUS PENNATIFORMIS (NCN)
PLANT:	MEHAMEHAME (FLUEGGEA NEOWAWRAEA)
PLANT:	MUNROIDENDRON RACEMOSUM (NCN)
PLANT:	NANI WAI'ALE'ALE (VIOLA KAUAENSIS VAR. WAHIAW
PLANT:	NEHE (LIPOCHAETA FAURIEI)
PLANT:	NEHE (LIPOCHAETA MICRANTHA)
PLANT:	NEHE (LIPOCHAETA WAIMEAENSIS)
PLANT:	PHYLLOSTEGIA KNUDSENII (NCN)
REPTILE:	TURTLE, GREEN SEA
REPTILE:	TURTLE, HAWKSBILL SEA
SNAIL:	SNAIL, NEWCOMB'S

NATURAL AREAS MAP FINDINGS

Map ID Direction Distance Distance (ft.)			EDR ID Database
A1 North 0-1/8 mi 0	Unit:	Not reported	HI10000002 HI Game Management
A2 North 0-1/8 mi 0	Reserve Type: Reserve Name: Managed Area: Reserve Sub-section:	Undefined (code 0) Not reported 0 Not reported	HI20000002 HI Managed Areas
3 NNE 1/2-1 mi 3303	Reserve Type: Reserve Name: Managed Area: Reserve Sub-section:	State Forest Reserve KALEPA MOUNTAIN FOREST RESERVE 703 Not reported	HI20000023 HI Managed Areas

Historic Sites Map



- Target Property
- Streets
- County Boundary
- Waterways
- Water
- Historic Sites
- Federal Historic Areas
- State Historic Areas
- US Indian Reservations
- Scenic Trail

SITE NAME: RFF Kalepa	CLIENT: Montgomery Watson
ADDRESS: RFF Kalepa Kalepa HI 96766	CONTACT: Kate Goerke INQUIRY #: 2407116.7s
LAT/LONG: 22.0017 / 159.3578	DATE: January 23, 2009

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HISTORIC SITES MAP FINDINGS

Map ID Direction Distance Distance (ft.)				EDR ID Database
1 SW 1/2-1 mi 4588	Resource Name:	Lihue Hongwanji Mission		
	Alternate Name:	Not Reported		78001025
	Resource Address:	N of Lihue at HI 56		National Register Hist. Places
	Resource Type:	Building		
	Location:	Lihue, HI		
	County:	Kauai, HI		
	Primary Certification:	Listed in the national register		
	Certification Date:	19780321	Acreage: 4	
	Number of Buildings:	1	Number of Objects: 0	
	Number of Sites:	0	Num. of Structures: 0	
	Number of non-contributing Buildings:		0	
	Number of non-contributing Objects:		0	
	Number of non-contributing Sites:		0	
	Num. of non-contributing Structures:		0	
	Applicable Criteria:	Event, Person, Architecture/Engineering		
	Areas of Significance:	Architecture, Religion, Social history		
	Current Function:	Religion		
	Building Material:	None listed, Wood		

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

	Status EDR ID Database

No unmapped sites were found in EDR's search of available government records.

Flood Plain Map

Major Roads
Contour Lines
Waterways
County Boundary
Power Lines
Pipe Lines
Fault Lines
Water
100-year flood zone
500-year flood zone
Electronic FEMA data available
Electronic FEMA data not available

SITE NAME: RFF Kalepa ADDRESS: RFF Kalepa Kalepa HI 96766 LAT/LONG: 22.0017 / 159.3578	CLIENT: Montgomery Watson CONTACT: Kate Goerke INQUIRY #: 2407116.7s DATE: January 23, 2009

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FLOOD PLAIN MAP FINDINGS

Source: FEMA Q3 Flood Data

County	FEMA flood data electronic coverage
KAUAI, HI	YES

Flood Plain panel at target property: 1500020140D
Additional Flood Plain panel(s) in search area: None Reported

National Wetlands Inventory Map

Major Roads
Contour Lines
Waterways
County Boundary
Power Lines
Pipe Lines
Fault Lines
Water
National Wetland Inventory
Electronic NWI data available
Electronic NWI data not available

SITE NAME: RFF Kalepa	CLIENT: Montgomery Watson
ADDRESS: RFF Kalepa Kalepa HI 96766	CONTACT: Kate Goerke
LAT/LONG: 22.0017 / 159.3578	INQUIRY #: 2407116.7s DATE: January 23, 2009

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WETLANDS MAP FINDINGS

Source: Fish and Wildlife Service NWI data

NWI hardcopy map at target property: Not reported in source data
Additional NWI hardcopy map(s) in search area:
Kapaa

Map ID Direction Distance Distance (ft.)	Code and Description*	Database
1 WSW 1/4-1/2 mi 2234	PFO3C [P] Palustrine, [FO] Forested, [3] Broad-Leaved Evergreen, [C] Seasonally Flooded	NWI
2 WSW 1/4-1/2 mi 2328	PEM1C [P] Palustrine, [EM] Emergent, [1] Persistent, [C] Seasonally Flooded	NWI
3 West 1/4-1/2 mi 2425	PEM1C [P] Palustrine, [EM] Emergent, [1] Persistent, [C] Seasonally Flooded	NWI
4 ESE 1/4-1/2 mi 2524	POWHh [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [h] Diked/Impounded	NWI
5 NW 1/2-1 mi 2799	POWHh [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [h] Diked/Impounded	NWI
6 NNW 1/2-1 mi 3181	PEM1F [P] Palustrine, [EM] Emergent, [1] Persistent, [F] Semipermanently Flooded	NWI
7 NW 1/2-1 mi 3371	PEM1A [P] Palustrine, [EM] Emergent, [1] Persistent, [A] Temporarily Flooded	NWI
8 NNW 1/2-1 mi 3696	PEM1C [P] Palustrine, [EM] Emergent, [1] Persistent, [C] Seasonally Flooded	NWI
9 South 1/2-1 mi 5020	PFO3C [P] Palustrine, [FO] Forested, [3] Broad-Leaved Evergreen, [C] Seasonally Flooded	NWI

*See Wetland Classification System for additional information.

WETLANDS CLASSIFICATION SYSTEM

National Wetland Inventory Maps are produced by the U.S. Fish and Wildlife Service, a sub-department of the U.S. Department of the Interior. In 1974, the U.S. Fish and Wildlife Service developed a criteria for wetland classification with four long range objectives:

- to describe ecological units that have certain homogeneous natural attributes,
- to arrange these units in a system that will aid decisions about resource management,
- to furnish units for inventory and mapping, and
- to provide uniformity in concepts and terminology throughout the U.S.

High altitude infrared photographs, soil maps, topographic maps and site visits are the methods used to gather data for the productions of these maps. In the infrared photos, wetlands appear as different colors and these wetlands are then classified by type. Using a hierarchical classification, the maps identify wetland and deepwater habitats according to:

- system
- subsystem
- class
- subclass
- modifiers

(as defined by Cowardin, et al. U.S. Fish and Wildlife Service FWS/OBS 79/31. 1979.)

The classification system consists of five systems:

1. marine
2. estuarine
3. riverine
4. lacustrine
5. palustrine

The marine system consists of deep water tidal habitats and adjacent tidal wetlands. The riverine system consists of all wetlands contained within a channel. The lacustrine systems includes all nontidal wetlands related to swamps, bogs & marshes. The estuarine system consists of deepwater tidal habitats and where ocean water is diluted by fresh water. The palustrine system includes nontidal wetlands dominated by trees and shrubs and where salinity is below .5% in tidal areas. All of these systems are divided in subsystems and then further divided into class.

National Wetland Inventory Maps are produced by transferring gathered data on a standard 7.5 minute U.S.G.S. topographic map. Approximately 52 square miles are covered on a National Wetland Inventory map at a scale of 1:24,000. Electronic data is compiled by digitizing these National Wetland Inventory Maps.

SYSTEM — **MARINE**

SUBSYSTEM — **1 - SUBTIDAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RF-REEF	OW-OPEN WATER / Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 3 Rooted Vascular 5 Unknown Submergent	1 Coral 2 Mollusk 3 Worm	

SUBSYSTEM — **2 - INTERTIDAL**

CLASS	AB-AQUATIC BED	RF-REEF	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE
Subclass	1 Algal 3 Rooted Vascular 5 Unknown Submergent	1 Coral 2 Mollusk 3 Worm	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic

SYSTEM — **E - ESTUARINE**

SUBSYSTEM — **1 - SUBTIDAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RF-REEF	OW-OPEN WATER / Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	2 Mollusk 3 Worm	

SUBSYSTEM — **2 - INTERTIDAL**

CLASS	AB-AQUATIC BED	RF-REEF	SB - STREAMBED	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE	EM-EMERGENT	SS-SCRUB SHRUB	FO-FORESTED
Subclass	1 Algal 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	2 Mollusk 3 Worm	1 Cobble- Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble	1 Cobble- Gravel 2 Sand 3 Mud 4 Organic	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

SYSTEM — **R - RIVERINE**

SUBSYSTEM	1 - TIDAL	2 - LOWER PERENNIAL	3 - UPPER PERENNIAL	4 - INTERMITTENT	5 - UNKNOWN PERENNIAL			
CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	*SB-STREAMBED	AB-AQUATIC BED	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE	**EM-EMERGENT	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent	

* STREAMBED is limited to TIDAL and INTERMITTENT SUBSYSTEMS, and comprises the only CLASS in the INTERMITTENT SUBSYSTEM.
**EMERGENT is limited to TIDAL and LOWER PERENNIAL SUBSYSTEMS.

SYSTEM — **L - LACUSTRINE**

SUBSYSTEM — **1 - LIMNETIC**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	

SUBSYSTEM — **2 - LITTORAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE	EM-EMERGENT	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent	

SUBSYSTEM

P - PALUSTRINE

CLASS	RB--ROCK BOTTOM	UB--UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	US--UNCONSOLIDATED SHORE	ML--MOSS-LICHEN	EM--EMERGENT	SS--SCRUB-SHRUB	FO--FORESTED	OW-OPEN WATER/ Unknown
Bottom									
Subclass	1 Bedrock 2 Rubble 3 Mud 4 Organic	1 Cobble-Gravel 2 Sand	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	1 Moss 2 Lichen	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6Deciduous 7 Evergreen	

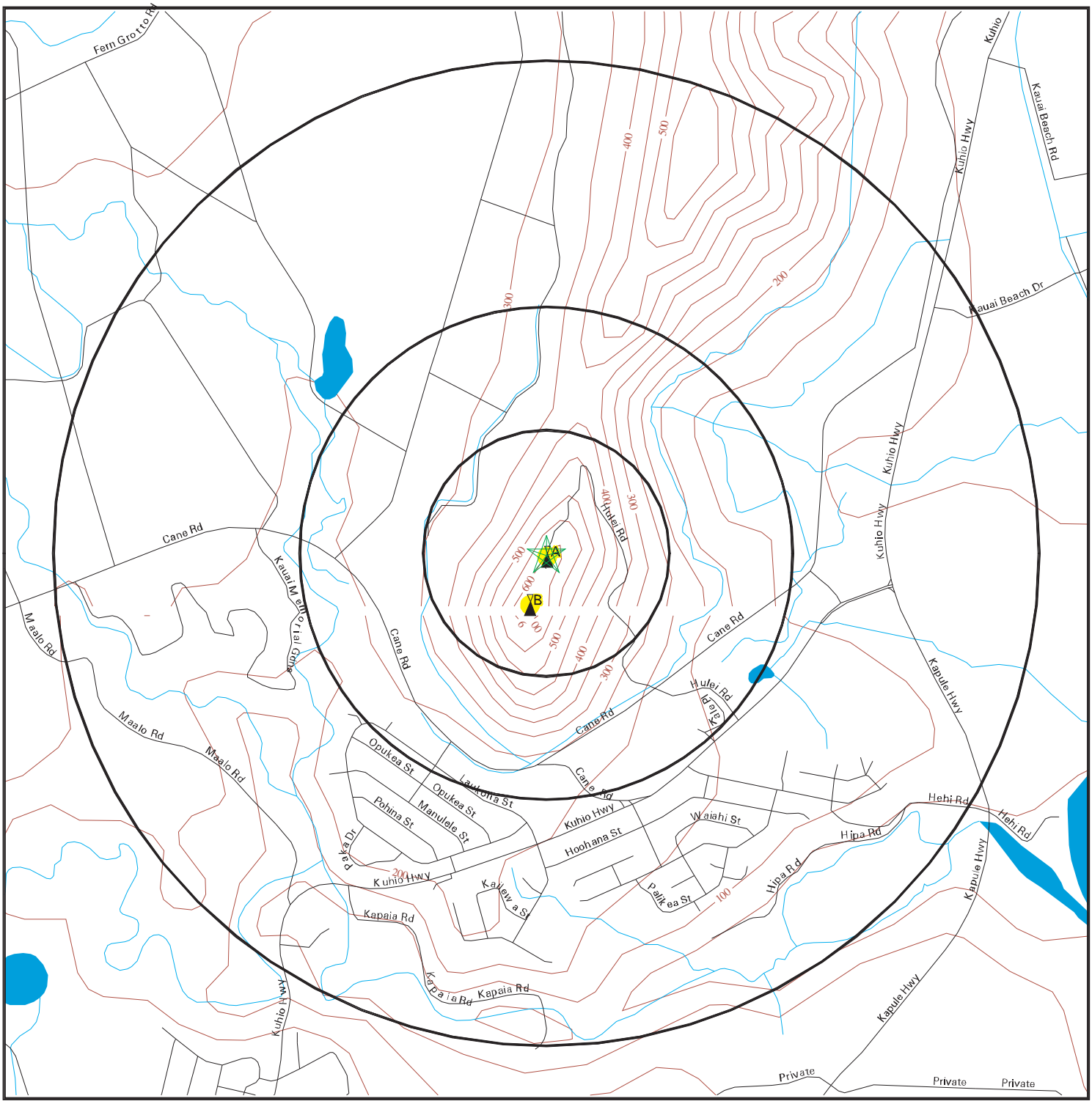
MODIFIERS

In order to more adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME				WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS
Non-Tidal	**Tidal**	**Coastal**	**Halinity**	**Inland**	**Salinity**	**pH**	**Modifiers for all Fresh Water**	
A Temporarily Flooded B Saturated C Seasonally Flooded D Seasonally Flooded/ Well Drained E Seasonally Flooded/ Saturated F Semipermanently Flooded G Intermittently Exposed	H Permanently Flooded J Intermittently Flooded K Artificially Flooded W Intermittently Flooded/Temporary Y Saturated/Semipermanent/ Seasonal Z Intermittently Exposed/Permanent U Unknown	K Artificially Flooded L Subtidal M Irregularly Exposed N Regularly Flooded P Irregularly Flooded	*S Temporary-Tidal *R Seasonal-Tidal *T Semipermanent -Tidal V Permanent -Tidal U Unknown *These water regimes are only used in tidally influenced, freshwater systems.	1 Hyperhaline 2 Euhaline 3 Mixohaline (Brackish) 4 Polyhaline 5 Mesohaline 6 Oligohaline 0 Fresh	7 Hypersaline 8 Eusaline 9 Mixosaline 0 Fresh	a Acid t Circumneutral i Alkaline	g Organic n Mineral	b Beaver d Partially Drained/Ditched f Farmed h Diked/Impounded r Artificial Substrate s Spoil x Excavated

Source: U.S. Department of the Interior
Fish and Wildlife Service
National Wetlands Inventory

FCC & FAA Sites Map



- Streets
- Contour Lines
- County Boundary
- Waterways
- Power Lines
- Water
- Sites
- Omni Directional AM Interference
- Directional AM Interference

SITE NAME: RFF Kalepa	CLIENT: Montgomery Watson
ADDRESS: RFF Kalepa Kalepa HI 96766	CONTACT: Kate Goerke
LAT/LONG: 22.0017 / 159.3578	INQUIRY #: 2407116.7s DATE: January 23, 2009

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FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)	EDR ID Database

A1 — DOF100000002022
SE — FAA DOF
0-1/8 mi
15

Nacg code:	12	Obs number:	0366
O or u:	U	State id:	HI
City name:	HANAMAULU	Latdeg:	22
Latmin:	0		
Latsec:	6		
Lat hemi:	N	Longdeg:	159
Longmin:	21		
Longsec:	28		
Long hemi:	W	Obs type:	TOWER
Frequency:	Not Reported	Agl ht:	0080
Amsl ht:	00730	Strobe ind:	R
Acc h:	Not Reported	Acc v:	Not Reported
Mark ind:	Y	Faa stdy n:	97WP0538
Act acd dt:	AA4312	Datchk cd:	228364
Dat file:	AWP	Site id:	DOF100000002022

A2 — ANT100000018961
SSE — ANTREG
0-1/8 mi
50

Tower ID:	1019388		
Address:	.5 MI NW, HANAMAULU, HI		
Lat (NAD 27):	220017	Lon (NAD 27):	1592138
Lat (NAD 83):	220006	Lon (NAD 83):	1592128
Construction Date:	Jul 11 1969	Dismantled Date:	
Nepa Flag:	N	FAA ID:	97-AWP-0538-OE
Structure Type:	TOWER	Elevation (M):	198.00
Structure Hgt (M):	24.00	Hgt Above Ground:	24.30
Hgt Above Ground (M):	24.3842964	Hgt Above Mean Sea Level (M):	222.506698
Date Activated:	May 14 1997	License Issue Date:	May 14 1997
Date Keyed:	Apr 23 1997	Date Printed:	May 15 1997
Date Processed:	Apr 24 1997	Date Received:	Apr 22 1997
Licensee Signature	JOHN W RALSTON		
Nature of Modification:		Purpose:	R
Company (DBA) Name:			
Owner Name:	GTE HAWAIIAN TELEPHONE COMPANY INCORPORATED		
Attention:	JOHN W RALSTON		
Owner Address:	, IRVING, TX 750152092		
Owner PO Box:	152092 MC:HQB07A12	Phone Number:	2147181058
E-Mail Address:	JOHN.RALSTON@TELOPS.GTE.COM		
Internet Domain:	TELOPS.GTE.COM		
Painting & Lighting Specs:		Date of Last Remarks:	
Special Conditions #1:			
Special Conditions #2:			
Key Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)	EDR ID Database
A3 SSE 0-1/8 mi 50	TOW100000013253 TOWER

Tower ID:	117946		
Tower Owner Name:	PAGEMART II INC		
0.5 MI NW, HANAMAULU, HI			
Latitude:	22 0' 79217"	Latitude (in seconds):	79217
Longitude:	159 21' 38"	Longitude (in seconds):	573698
Transmitter Latitude:	220017	Transmitter Longitude	1592138
Construction Date:		Activation Date:	Apr 21 1997
FAA Date:	Mar 25 1997	FCC Date:	Aug 29 1996
File Number:	D051731E	FAA ID:	97-AWP-0538-OE
Antenna Height:	0.0000	Antenna Height (M):	0.0000
Beacon Height:	0.0000	Beacon Height (M):	0.0000
Elevation:	730.0000	Elevation FAA:	730.0000
Elevation FAA (M):	222.5000	Elevation (M):	222.5000
Structure Height:	80.0000	Structure Height (M):	24.4000
Structure Height FAA:	80.0000	Structure Height FAA (M):	24.4000
Supporting Struct Hgt:	0.0000	Supporting Struct Hgt (M):	0.0000
Tower Height:	80.0000	Tower Height (M):	24.4000
Structure Type:	TOW	Tower Type:	E
Key Remarks:		Date:	
Key Site:	731	Record Action:	MOD
ID Exam:	PRB1	ID_ASB_ACC:	C
Paint and Lighting Specs:	1 2		
Special Conditions/Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)	EDR ID Database
B4 SSW 0-1/8 mi 578	TOW100000021352 TOWER

Tower ID:	125779		
Tower Owner Name:	KAUAI, COUNTY OF KALEPA RIDGE, HANAMAULU, HI		
Latitude:	22 0' 79212"	Latitude (in seconds):	79212
Longitude:	159 21' 40"	Longitude (in seconds):	573700
Transmitter Latitude:	220012	Transmitter Longitude	1592140
Construction Date:		Activation Date:	Sep 12 1994
FAA Date:	Aug 23 1994	FCC Date:	Aug 8 1994
File Number:	706093	FAA ID:	94-AWP-1038-OE
Antenna Height:	0.0000	Antenna Height (M):	0.0000
Beacon Height:	0.0000	Beacon Height (M):	0.0000
Elevation:	760.0000	Elevation FAA:	760.0000
Elevation FAA (M):	231.7000	Elevation (M):	231.7000
Structure Height:	51.0000	Structure Height (M):	15.5000
Structure Height FAA:	51.0000	Structure Height FAA (M):	15.5000
Supporting Struct Hgt:	0.0000	Supporting Struct Hgt (M):	0.0000
Tower Height:	0.0000	Tower Height (M):	0.0000
Structure Type:	TOW	Tower Type:	E
Key Remarks:		Date:	
Key Site:	76499	Record Action:	ADD
ID Exam:	PRB0	ID_ASB_ACC:	
Paint and Lighting Specs:			
Special Conditions/Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

B5 SSW 0-1/8 mi 582	DOF100000002021 FAA DOF

Nacg code:	12	Obs number:	0365
O or u:	U	State id:	HI
City name:	HANAMAULU	Latdeg:	22
Latmin:	0		
Latsec:	.6		
Lat hemi:	N	Longdeg:	159
Longmin:	21		
Longsec:	29.9		
Long hemi:	W	Obs type:	POLE
Frequency:	Not Reported	Agl ht:	0051

Map ID
Direction
Distance
Distance (ft.)

EDR ID
Database

Amsl ht:	00760	Strobe ind:	Not Reported
Acc h:	Not Reported	Acc v:	Not Reported
Mark ind:	Not Reported	Faa stdy n:	94WP1038
Act acd dt:	AA4312	Datchk cd:	206424
Dat file:	AWP	Site id:	DOF100000002021

FCC & FAA SITES MAP FINDINGS
AIRPORTS

EDR ID
Database

No Sites Reported.

FCC & FAA SITES MAP FINDINGS
POWERLINES

EDR ID
Database

No Sites Reported.

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Various Federal laws and executive orders address specific environmental concerns. NEPA requires the responsible offices to integrate to the greatest practical extent the applicable procedures required by these laws and executive orders. EDR provides key contacts at agencies charged with implementing these laws and executive orders to supplement the information contained in this report.

NATURAL AREAS
Officially designated wilderness areas
Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.
Date of Government Version: 12/31/2005

Federal Contacts for Additional Information

National Park Service, Pacific West Region
600 Harrison Street, Suite 600
San Francisco, CA 94107
415-427-1300

USDA Forest Service, Pacific Southwest
630 Sansome Street
San Francisco, CA 94111
415-705-2557

Fish & Wildlife Service, Region 1
Eastside Federal Complex 911 NE 11th Avenue
Portland, OR 97232-4181
503-231-6188

Officially designated wildlife preserves, sanctuaries and refuges
Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.
Date of Government Version: 12/31/2005

HI Game Management: Game Management Areas
State Game Management areas for islands of Kauai, Oahu, Molokai, Lanai, Maui and Hawaii
Source: Dept. of Land and Natural Resources.
Telephone: 808-587-0166

HI Managed Areas: Managed Areas
Managed areas (e.g. refuges, preserves, etc.) for islands Kauai, Oahu, Maui, Molokai, Lanai and Hawaii. Such areas include, but are not limited to, private and public wildlife refuges, preserves, sanctuaries and reserves. Also includes state forest reserves and some state parks
Source: Dept. of Land and Natural Resources.
Telephone: 808-587-0166

Federal Contacts for Additional Information

Fish & Wildlife Service, Region 1
Eastside Federal Complex 911 NE 11th Avenue
Portland, OR 97232-4181
503-231-6188

State Contacts for Additional Information

Dept. of Land & Natural Resources 808-587-0100

Wild and scenic rivers

Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 12/31/2005

Federal Contacts for Additional Information

Fish & Wildlife Service, Region 1
Eastside Federal Complex 911 NE 11th Avenue
Portland, OR 97232-4181
503-231-6188

Endangered Species

Government Records Searched in This Report

Endangered Species Protection Program Database
A listing of endangered species by county.
Source: Environmental Protection Agency
Telephone: 703-305-5239

Federal Contacts for Additional Information

Fish & Wildlife Service, Region 1
Eastside Federal Complex 911 NE 11th Avenue
Portland, OR 97232-4181
503-231-6188

State Contacts for Additional Information

Natural Heritage Program, The Nature Conservancy of Hawaii 808-537-4508

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

LANDMARKS, HISTORICAL, AND ARCHEOLOGICAL SITES
Historic Places
Government Records Searched in This Report

National Register of Historic Places:
The National Register of Historic Places is the official federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. These contribute to an understanding of the historical and cultural foundations of the nation.
The National Register includes:
- All prehistoric and historic units of the National Park System;
- National Historic Landmarks, which are properties recognized by the Secretary of the Interior as possessing national significance; and
- Properties significant in American, state, or local prehistory and history that have been nominated by State Historic Preservation Officers, federal agencies, and others, and have been approved for listing by the National Park Service.

Date of Government Version: 03/23/2006

Federal Contacts for Additional Information

Park Service; Advisory Council on Historic Preservation
1849 C Street NW
Washington, DC 20240
Phone: (202) 208-6843

State Contacts for Additional Information

Dept. of Land & Natural Resources 808-587-0401

Indian Religious Sites
Government Records Searched in This Report

Indian Reservations:
This map layer portrays Indian administrated lands of the United States that have any area equal to or greater than 640 acres.
Source: USGS
Phone: 888-275-8747
Date of Government Version: 12/31/2005

Federal Contacts for Additional Information

Department of the Interior- Bureau of Indian Affairs
Office of Public Affairs
1849 C Street, NW
Washington, DC 20240-0001
Office: 202-208-3711
Fax: 202-501-1516

National Association of Tribal Historic Preservation Officers
1411 K Street NW, Suite 700
Washington, DC 20005
Phone: 202-628-8476
Fax: 202-628-2241

State Contacts for Additional Information
A listing of local Tribal Leaders and Bureau of Indian Affairs Representatives can be found at:
http://www.doi.gov/bia/areas/agency.html

FLOOD PLAIN, WETLANDS AND COASTAL ZONE

Flood Plain Management

Government Records Searched in This Report
Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

Federal Contacts for Additional Information
Federal Emergency Management Agency 877-3362-627

State Contacts for Additional Information
Department of Defense, Emergency Mgmt. 808-733-4300

Wetlands Protection

Government Records Searched in This Report
NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2004 from the U.S. Fish and Wildlife Service.

Federal Contacts for Additional Information
Fish & Wildlife Service 813-570-5412

State Contacts for Additional Information
Dept. of Land & Natural Resources 808-587-0100

Coastal Zone Management

Government Records Searched in This Report
CAMA Management Areas
Dept. of Env., Health & Natural Resources
919-733-2293

Federal Contacts for Additional Information
Office of Ocean and Coastal Resource Management
N/ORM, SSMC4
1305 East-West Highway
Silver Spring, Maryland 20910
301-713-3102

State Contacts for Additional Information
Office of Planning, Coastal Zone Management Program 808-587-2875

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

FCC & FAA SITES MAP
For NEPA actions that come under the authority of the FCC, the FCC requires evaluation of Antenna towers and/or supporting structures that are to be equipped with high intensity white lights which are to be located in residential neighborhoods, as defined by the applicable zoning law.

Government Records Searched in This Report

Cellular
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700
Portions copyright (C) 1999 Percon Corporation. All rights reserved.

Tower
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700
Portions copyright (C) 1999 Percon Corporation. All rights reserved.

Antenna Registration
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700
Portions copyright (C) 1999 Percon Corporation. All rights reserved.

AM Tower
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

FAA Digital Obstacle File
Federal Aviation Administration (FAA)
1305 East-West Highway, Station 5631
Silver Sprinng, MD 20910-3281
Telephone: 301-713-2817
Describes known obstacles of interest to aviation users in the US. Used by the Federal Aviation Administration (FAA) and the National Oceanic and Atmospheric Administration to manage the National Airspace System.

Airport Landing Facilities
Federal Aviation Administration
Telephone (800) 457-6656
Private and public use landing facilities.

Electric Power Transmission Line Data
PennWell Corporation
Telephone: (800) 823-6277
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KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Excessive Radio Frequency Emission
For NEPA actions that come under the authority of the FCC, Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities, require the determination of whether the particular facility, operation or transmitter would cause human exposure to levels of radio frequency in excess of certain limits.

Federal Contacts for Additional Information

Office of Engineering and Technology
Federal Communications Commission
445 12th Street SW
Washington, DC 20554
Phone: 202-418-2470

OTHER CONTACT SOURCES

STREET AND ADDRESS INFORMATION

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Appendix C – EDR Historical Topographic Map Report

RFF Kalepa
RFF Kalepa
Kalepa, HI 96766

Inquiry Number: 2407116.4
January 26, 2009

The EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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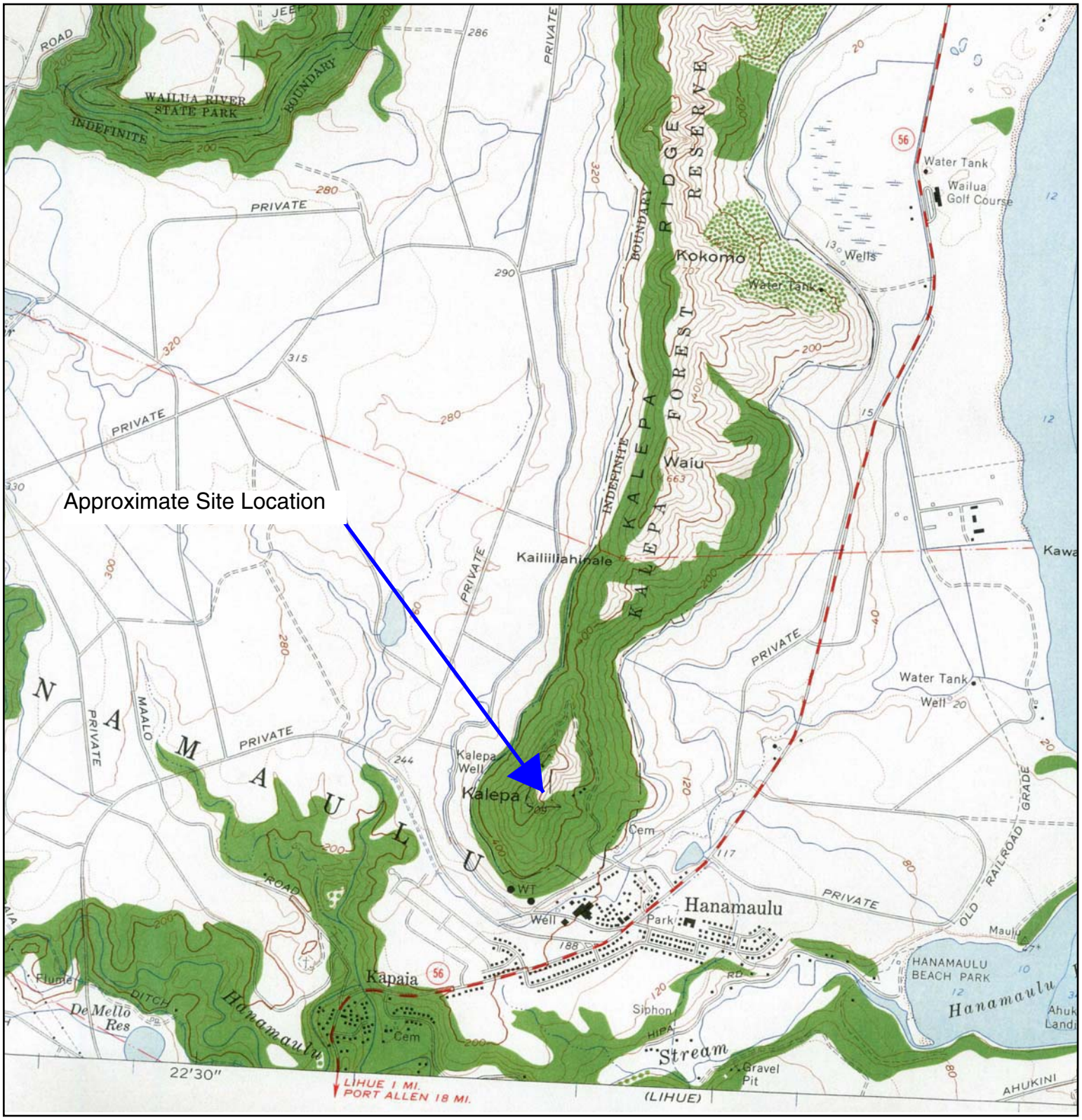
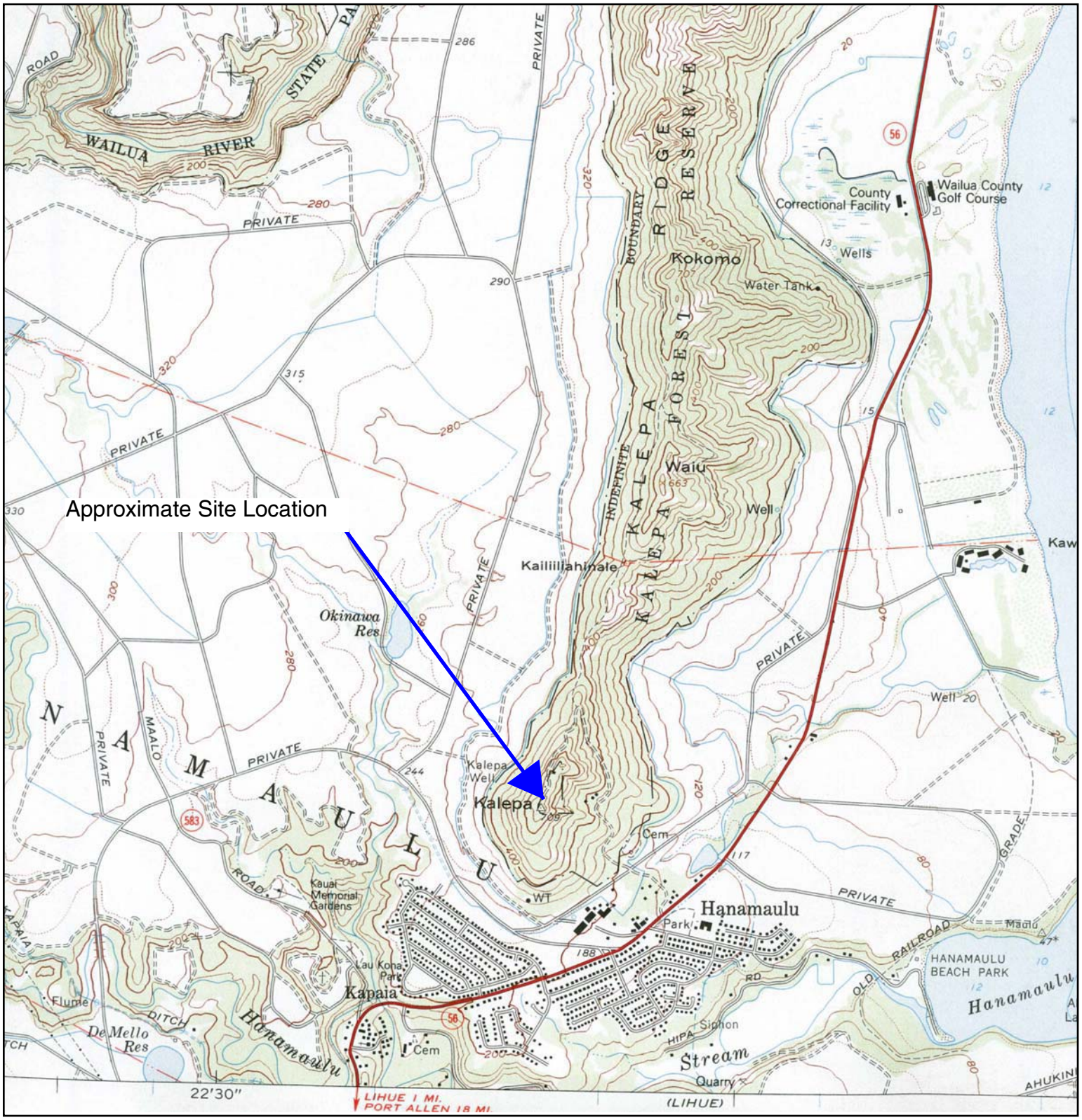
Historical Topographic Map



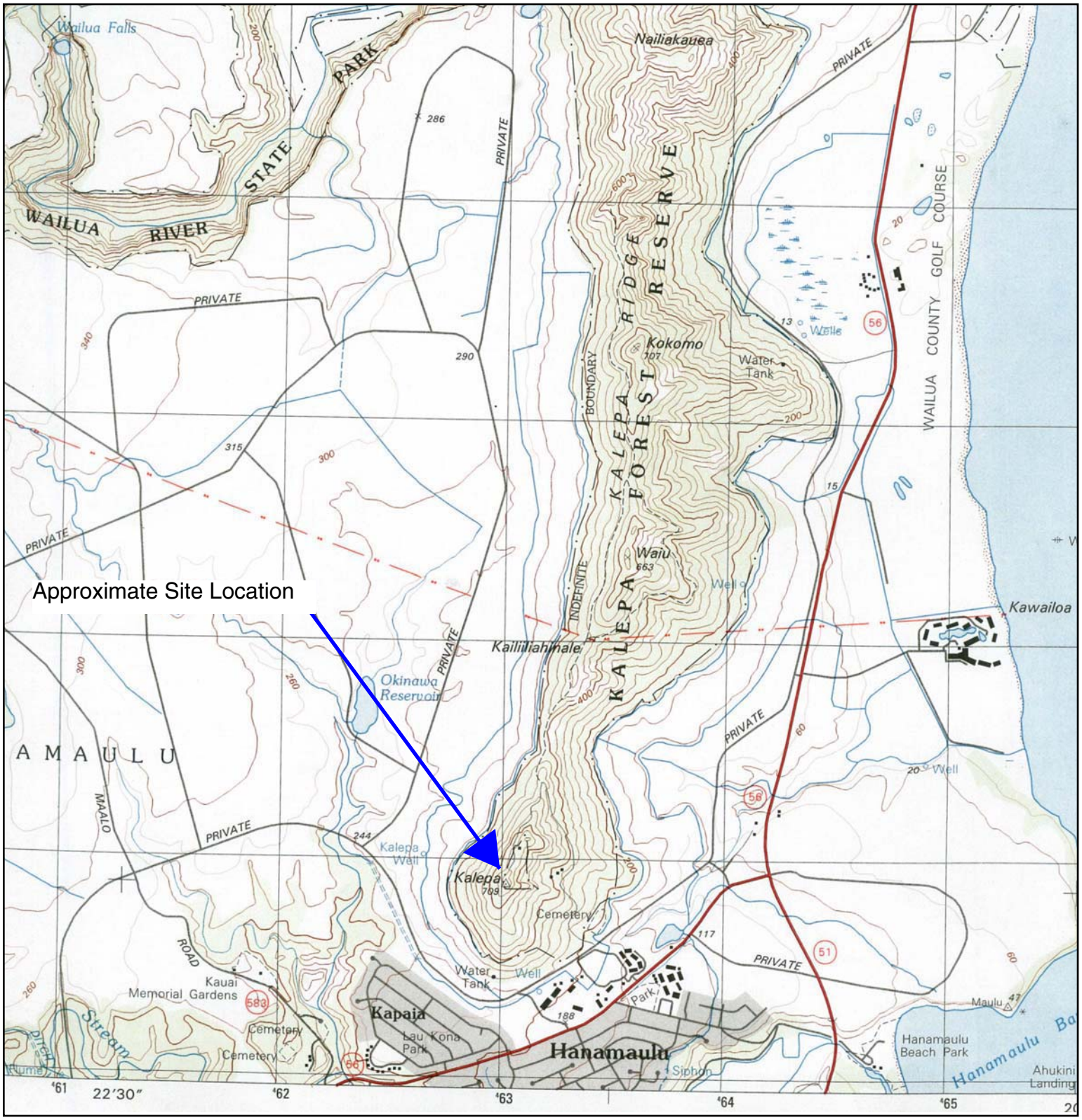
N	TARGET QUAD NAME: KAPAA, HI MAP YEAR: 1963 SERIES: 7.5 SCALE: 1:24,000	SITE NAME: RFF Kalepa ADDRESS: RFF Kalepa Kalepa, HI 96766 LAT/LONG: 22.0017 / 159.357	CLIENT: Montgomery Watson CONTACT: Kate Goerke INQUIRY#: 2407116.4 RESEARCH DATE: 01/26/2009

Historical Topographic Map



N	TARGET QUAD NAME: KAPAA, HI MAP YEAR: 1983 SERIES: 7.5 SCALE: 1:24,000	SITE NAME: RFF Kalepa ADDRESS: RFF Kalepa Kalepa, HI 96766 LAT/LONG: 22.0017 / 159.357	CLIENT: Montgomery Watson CONTACT: Kate Goerke INQUIRY#: 2407116.4 RESEARCH DATE: 01/26/2009

Historical Topographic Map



N	TARGET QUAD NAME: KAPAA, HI MAP YEAR: 1996 SERIES: 7.5 SCALE: 1:24,000	SITE NAME: RFF Kalepa ADDRESS: RFF Kalepa Kalepa, HI 96766 LAT/LONG: 22.0017 / 159.357	CLIENT: Montgomery Watson CONTACT: Kate Goerke INQUIRY#: 2407116.4 RESEARCH DATE: 01/26/2009

Appendix D – EDR Sanborn® Map Report – No Coverage

RFF Kalepa
RFF Kalepa
Kalepa, HI 96766

Inquiry Number: 2407116.3
January 23, 2009

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

1/23/09

Site Name:
RFF Kalepa
RFF Kalepa
Kalepa, HI 96766

EDR Inquiry # 2407116.3

Client Name:
Montgomery Watson
35055 W. Twelve Mile Road
Farmington Hills, MI 48331

Contact: Kate Goerke

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Montgomery Watson were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: RFF Kalepa
Address: RFF Kalepa
City, State, Zip: Kalepa, HI 96766
Cross Street:
P.O. # 2091104
Project: GD - Honolulu
Certification # DC3D-4ACB-A743

Sanborn® Library search results
Certification # DC3D-4ACB-A743

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

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Appendix E – EDR Aerial Photo Decade Package

RFF Kalepa
RFF Kalepa
Kalepa, HI 96766

Inquiry Number: 2407116.5
January 26, 2009

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

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Date EDR Searched Historical Sources:

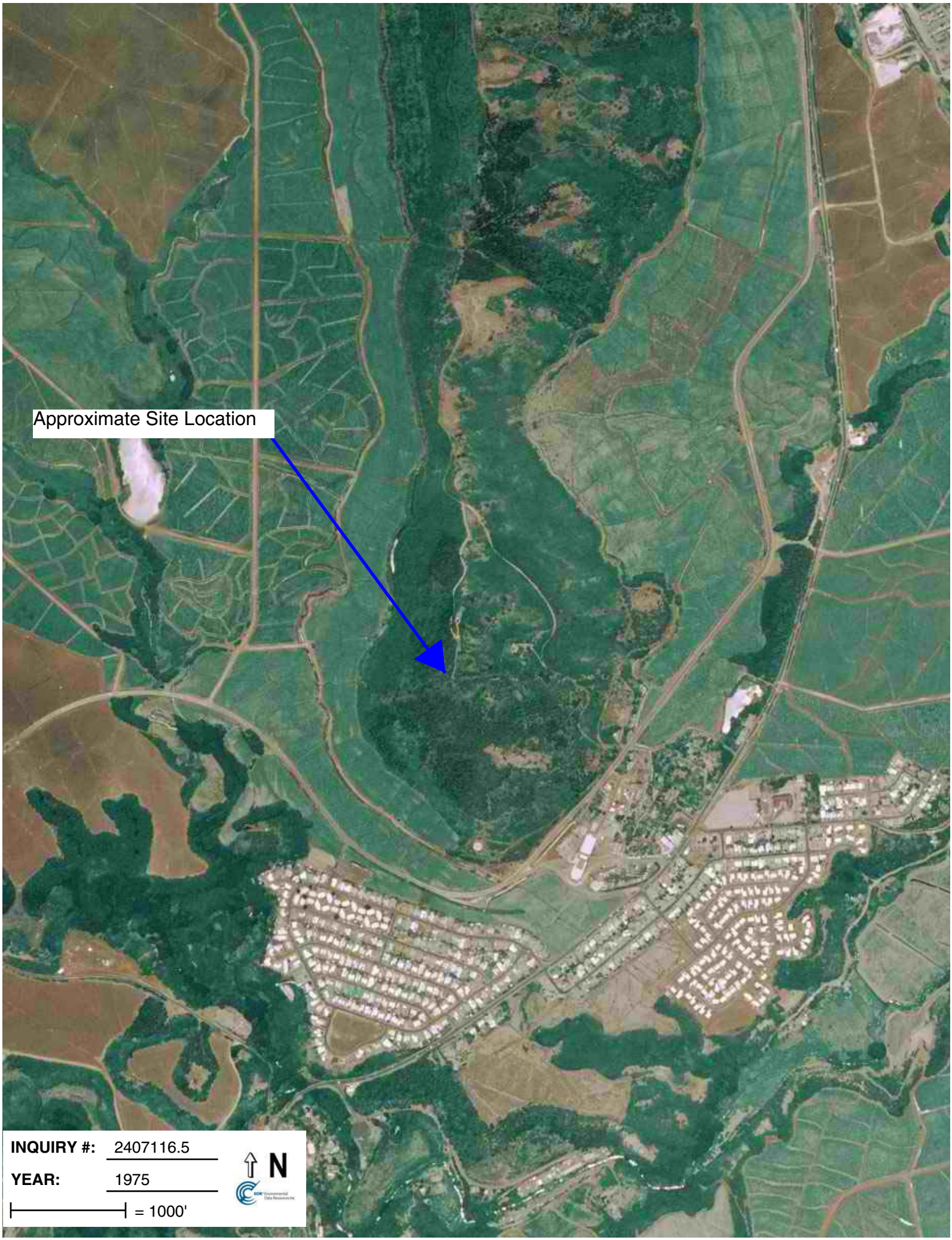
Aerial Photography January 26, 2009

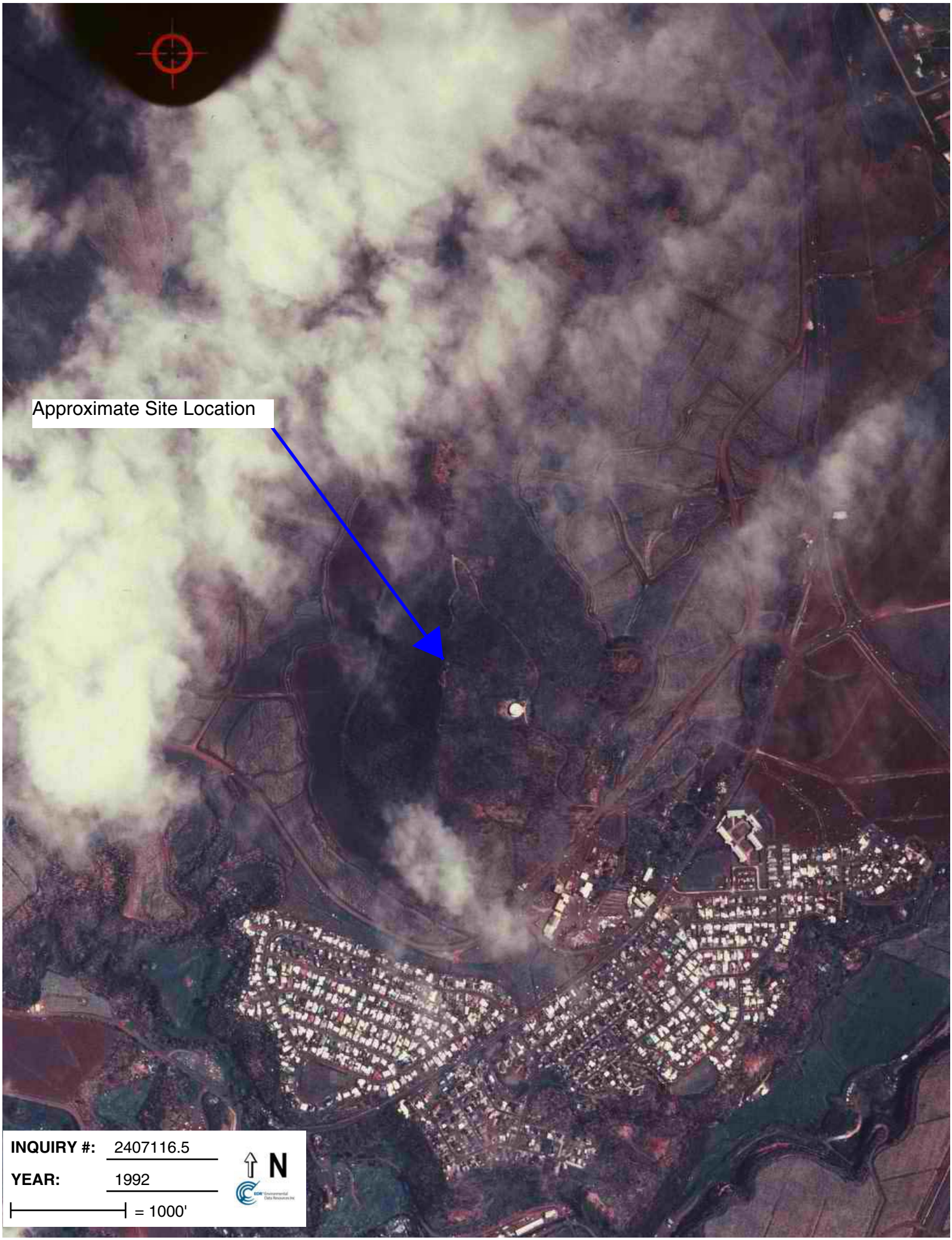
Target Property:

RFF Kalepa

Kalepa, HI 96766

Year	***Scale***	***Details***	***Source***
1975	Aerial Photograph. Scale: 1"=1000'	Panel #: 2443115-B6/Flight Date: July 15, 1975	EDR
1992	Aerial Photograph. Scale: 1"=1000'	Panel #: 2443115-B6/Flight Date: September 30, 1992	EDR


Approximate Site Location
INQUIRY #: 2407116.5
YEAR: 1975
= 1000'
N


Approximate Site Location
INQUIRY #: 2407116.5
YEAR: 1992
= 1000'
N

Appendix F – RFF Kalepa Photo Log

Customer:	**General Dynamics**	**Project Number:**	**2091104**
Site Name:	**RFF Kalepa**	**Site Location:**	**Kalepa, Hawai'i**

Photograph ID: 1

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
NA

Comments:
Compressed nitrogen tank inside the Hawaiian Telecom equipment shelter.

Photograph ID: 2

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
NA

Comments:
Inside the equipment shelter.

Customer:	**General Dynamics**	**Project Number:**	**2091104**
Site Name:	**RFF Kalepa**	**Site Location:**	**Kalepa, Hawai'i**

Photograph ID: 3

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
NA

Comments:
Inside the equipment shelter.

Photograph ID: 4

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
NA

Comments:
Site registration number.

Customer:	**General Dynamics**	**Project Number:**	**2091104**
Site Name:	**RFF Kalepa**	**Site Location:**	**Kalepa, Hawai'i**

Photograph ID: 5

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
North

Comments:
Hawaiian Telecom tower and compound.

Photograph ID: 6

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
West

Comments:
General view of the surrounding property.

Customer:	**General Dynamics**	**Project Number:**	**2091104**
Site Name:	**RFF Kalepa**	**Site Location:**	**Kalepa, Hawai'i**

Photograph ID: 7

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
East

Comments:
General view of the surrounding property.

Photograph ID: 8

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
North

Comments:
Equipment shelter.

Customer:	**General Dynamics**	**Project Number:**	**2091104**
Site Name:	**RFF Kalepa**	**Site Location:**	**Kalepa, Hawai'i**

Photograph ID: 9

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
North

Comments:
Air conditioning unit adjacent to the Hawaiiian Telecom equipment shelter.

Photograph ID: 10

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
NA

Comments:
Underground storage tank (UST).

Customer:	**General Dynamics**	**Project Number:**	**2091104**
Site Name:	**RFF Kalepa**	**Site Location:**	**Kalepa, Hawai'i**

Photograph ID: 11

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
NA

Comments:
Vent for back-up generator, safety bollards, and UST piping to back-up generator.

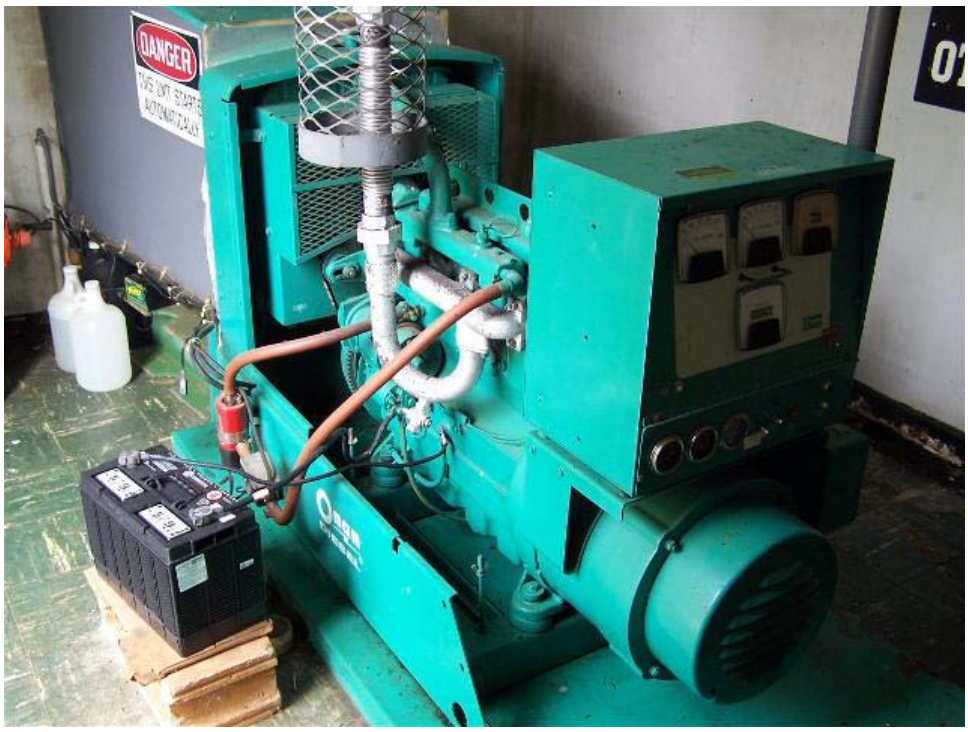
Photograph ID: 12

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
North

Comments:
Back-up generator inside the equipment shelter.



Customer:	**General Dynamics**	**Project Number:**	**2091104**
Site Name:	**RFF Kalepa**	**Site Location:**	**Kalepa, Hawai'i**

Photograph ID: 13

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
South

Comments:
Site access.

Photograph ID: 14

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
NA

Comments:
Tiles inside the equipment shelter.

Customer:	**General Dynamics**	**Project Number:**	**2091104**
Site Name:	**RFF Kalepa**	**Site Location:**	**Kalepa, Hawai'i**

Photograph ID: 15

Date: Oct 15, 2008

Location:
RFF Kalepa

Direction:
NA

Comments:
Spill kit inside the equipment shelter.