96

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AN EQUAL OPPORTUNITY EMPLOYER
COUNTY OF KAUAI
DEPARTMENT OF PUBLIC WORKS
3021 UMI STREET
LIHUE, KAUAI, HAWAII 96766

April 20, 1994

'94 APR 21 P2:53

Bruce S. Anderson, PhD., Acting Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, HI 96813

Dear Dr. Anderson:

SUBJECT: NEGATIVE DECLARATION FOR COUNTY OF KAUAI
800 MHz RADIO COMMUNICATIONS UPGRADE
ISLAND OF KAUAI, HAWAII

The Department of Public Works has reviewed the comments received during the 30-day public comment period which began on April 8, 1994. The agency has determined that this project will not have significant environmental effect and has issued a negative declaration. Please publish this notice in the May 8, 1994 OEQC Bulletin.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the final Environmental Assessment.

Please contact Dexter Takashima at 241-6635 if you have any questions.

Sincerely,

ED RENAUD
Deputy County Engineer

DT/llv

Attachment

46

1994-05-08 - KA-FEA- Kauai County Radio Communications Upgrade

MAY 8 1994

FINAL ENVIRONMENTAL ASSESSMENT

COUNTY OF KAUAI
800 MHz TRUNKED RADIO COMMUNICATIONS UPGRADE

Island of Kauai, State of Hawaii

Prepared in Fulfillment of the Requirements
of Chapter 343, Hawaii Revised Statutes and
Chapter 200, Title 11 Administrative Rules
Department of Health, State of Hawaii

Prepared for:

Department of Public Works
County of Kauai
3021 Umi Street
Lihue, Kauai 96766

Prepared By:

Gerald Park Urban Planner
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

April, 1994

SUMMARY

PROPOSED ACTION:	County of Kauai 800 MHz Trunked Radio Communications Upgrade
PROPOSING AGENCY:	Department of Public Works County of Kauai 3021 Umi Street Lihue, Kauai, Hawaii 96766
COMMUNICATION SITES:	* 1. Kilauea Crater Hill 2. Puu Auau 3. Puu Alanakau (Anahola Water Tank) 4. Kalepa Ridge * 5. Lihue Dispatch Center 6. Grove Farm (Laaukahi Peak) * 7. Kukuiolono Park * 8. Kokee Air Force Station, Kukui 9. Kokole Point
CONTACT PERSON:	Dexter Takashima Telecommunications Officer Department of Public Works County of Kauai 3021 Umi Street Lihue, Kauai, Hawaii 96766 Phone: (808) 241-6635

* Existing County radio site. All other sites are new. Most new sites have been improved for communication use by users other than the County of Kauai.

Note: Revisions to the Draft Environmental Assessment are shown in bold type and underscored. Deleted text is enclosed by brackets [].

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

SECTION 1 PROJECT DESCRIPTION

A. Introduction

The Department of Public Works, County of Kauai, proposes to upgrade the County of Kauai's existing public safety radio communication system through implementation of a modern 800 MHz trunked radio system. The system is an intra-island voice radio system interconnected by a digital microwave radio network that will improve voice and data transmissions and provide all County agencies with voice radio communication capability. The new radio system will be used primarily by the Kauai Police Department, the Kauai Fire Department, the Kauai Civil Defense Agency, and departments of the county government (Local Government). In addition to County users, certain State of Hawaii and Federal Government entities are likely to elect to share usage of this trunked system.

B. Background

The first Kauai County radio stations were believed to have been installed before World War II but not much can be determined about the old system or its operation. The existing system is believed to have evolved from the first FM stations installed after 1950.

The existing County communication network is a voice radio system that uses voice channels only in the VHF band. The system serves the Kauai Police Department on 6 VHF and 2 UHF data link frequencies, the Kauai Fire Department on 1 VHF frequency, and Local Government services on 5 VHF frequencies which is shared with the Police Department. Service is also provided to a small number of State and Federal operations. Kauai Civil Defense Agency operations including civil defense sirens are supported on the system.

The County of Kauai operates a network 150 MHz repeaters and base stations located at Crater Hill at Kilauea National Wildlife Refuge, Lihue Police Department, Mt. Kahili, Kukuiolono Park Water Tank, Kokee Air Force Station Kukui (hereafter referred to as Radio Station Kukui), and Mana. The existing 150 MHz network equipment is 15-20 years old. The network design dates from 1950 and has been updated mainly by equipment replacement. Functionally, it is still "1950 state-of-the-art".

Existing support facilities also need to be upgraded. All radio equipment at remote sites are housed in wooden buildings and cabinets where they are unprotected from high temperatures, high humidity, and subject to intrusion by dust, insects, and small animals. Consequently, there has been a gradual degradation of the equipment resulting in unit failures and longer downtimes. There is also a pressing need to assure the availability of uninterruptible power sources during power outages.

Hurricaine Iniki severely damaged all police, fire, and local government repeater sites when it passed over the island in 1992. Most of the sites are beyond economical repair and replacement is necessary. After the storm, shortcomings in the systems support facilities contributed to downtime when the need for radio communication between all parts of the island was most critical.

C. Need for the Project

The purpose of the project is to replace an outdated and failure-prone radio network used by the Police Department, Fire Department, Civil Defense Agency, Public Works Department, and other local government agencies. The existing 150 MHz network has served the island of Kauai well for 40+ years. The system, however, has not kept pace with advances in telecommunications technology. Shortcomings are becoming increasingly evident as the need for expanded communication capabilities grow in proportion to population growth and development on the island.

The new system will expand island-wide radio coverage, increase transmission/reception capacity (allowing for 400 units), improve network reliability especially during storm emergencies, permit greater usage of hand-held portable radios instead of relying on vehicle mounted radios, provide greater operational flexibility (unit ID, emergency access), and allow for modular expansion by adding periperal equipment such as mobile data units and additional channels.

The upgrade program will provide maximum protection for equipment in remote locations to assure that the system can and will function as planned.

D. Network Description

The proposed 800 MHz Trunked Radio System combines an island-wide microwave radio system and a land mobile voice radio system. The County currently has no microwave equipment and relies on an outdated land mobile voice radio system for day-to-day activities and emergency situations. Remote transmitters are controlled by commercially leased telephone lines. This practice is both expensive and unacceptably unreliable for a public safety communications system.

Microwave relay stations transmit and receive microwave signals across relatively short distances using round, parabolic dish shaped antennas usually mounted at or near the top of a supporting tower or occasionally on top of a building. The antenna heights above ground level vary with the radio site but range from a low of about 40 feet to a high of 180 feet. Microwave signals travel in a line-of-site path within a highly directional beam, similar to a spotlight, from one antenna to the next. The dispersion of microwave energy outside of the relatively narrow beam is minimal. Generally, microwave stations are fixed sites.

"Land mobile" communication systems are designed to provide voice radio coverage to and from fixed stations to mobile or portable radios. The land mobile radio system will operate in the public safety 800 MHz band allocated by the Federal Communications Commission (FCC) and is designed to provide islandwide radio coverage via sites dispersed throughout the County. Antennas are usually the vertical "whips" mounted on towers at heights which are adeqaute to provided reliable coverage. The fixed stations are located in secure facilities which are inaccessible to the general public.

The proposed land mobile voice radio will operate on an advanced design 5-channel trunked radio system using one control channel and four voice channels. The five channel trunked radio system will support up to 400 users of the public safety short message type without unacceptable delay. On those rare peak traffic occasions when momentary traffic saturation occurs, certain users such as Police and Fire will have priority over other users by pre-programming. Delays that do occur should not last for more than a few seconds. If additional network capacity is required by traffic

growth or addition of more users, the trunked radio system can be modularly expanded. One or more channels can be added to a maximum of twenty channels. Twenty channels will accommodate several thousand users.

The trunked radio network will operate in the 800 MHz band. Efficient functioning of the 800 MHz trunked radio system requires a reliable common interconnection/control link between all trunked stations. A 6 gHz (gigahertz) redundant digital microwave network provides the control link and is the backbone of the system. Operational frequencies in the 6 gHz band will be determined at a later date upon completion of the microwave frequency coordination process.

The new 800 MHz system will be licensed in the 821-824 and 866-869 MHz portion of the 800 MHz band allocated by the FCC for public safety. The specific frequencies are being identified in the Region 11 (State of Hawaii) National Public Safety Planning Advisory Committee (NPSPAC) Plan, which makes specific assignments for the region.

E. Radio Coverage

The system will expand and improve radio coverage in the populated and traveled areas of Kauai. These areas are the coastal areas and main and secondary roads from Wainiha on the north coast, through Kilauea, Kapaa, Lihue, and along the south coast to Polihale Beach State Park. Coverage will be provided in the inland populated areas above Kapaa and Lihue, through Knudsen Gap to Kalaheo, and along State Highway 550 from Kekaha into Kokee State Park.

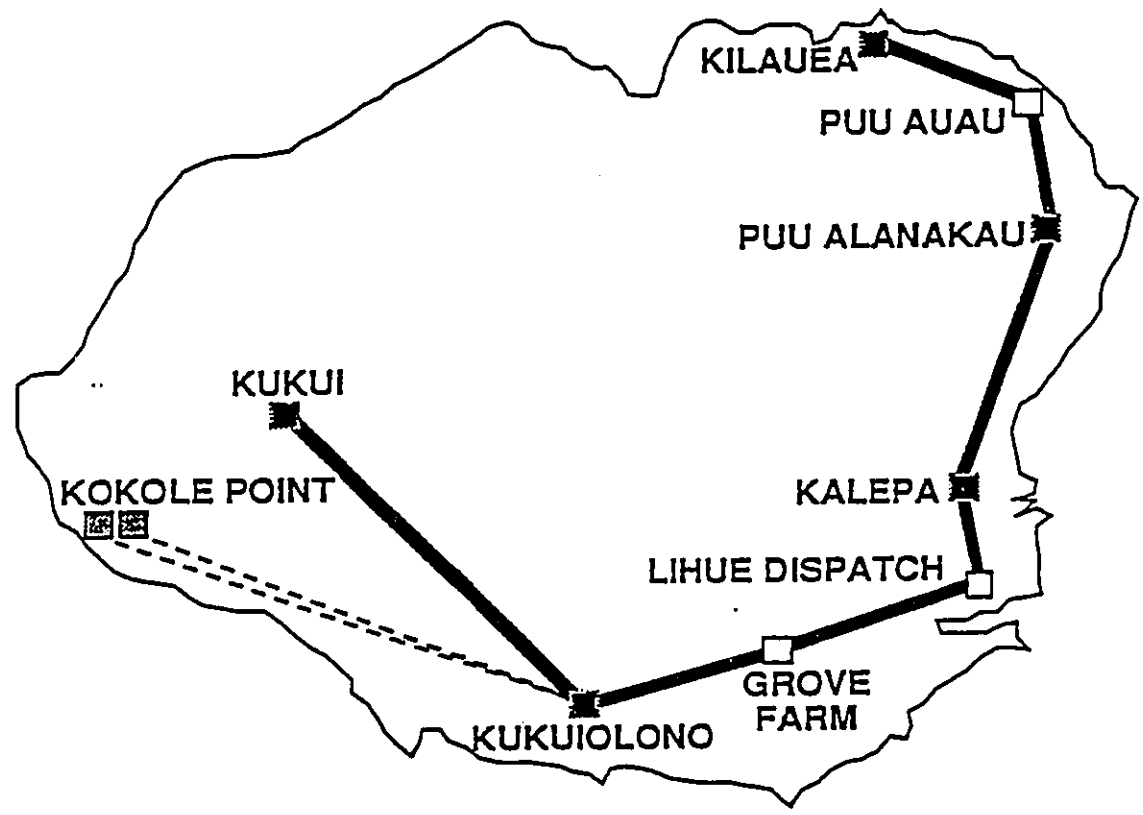
Nine sites have been selected to fulfill the communication system requirements. The Lihue Dispatch Center, to be located in the new Lihue Civic Center, is the center of and the control point for the entire network. The central trunking controllers and all network operations will be headquartered in the Dispatch Center. Lihue Dispatch will be the only manned site in the system.

The radio network is separated into east/north and west/south legs. Each leg operates in parallel with each other but can also function independently. A failure in one leg will not hinder trunked radio operations in the other. This configuration combined with equipment redundancy enhances system reliability and makes a complete backbone failure remote.

From the Lihue Dispatch Center, the east/north leg will be linked by 6 gHz digital microwave with stations at Kalepa Ridge, Puu Alanakau (Anahola Water Tank), Puu Auau (repeater only) and terminate at Kilauea Crater Hill. The west/south leg also is linked by 6 gHz microwave to Kukuiolono Park via a repeater at Grove Farm (Laaukahi Peak). At Kukuiolono Park, a microwave leg goes to Radio Station Kukui and an 800 MHz control link will access two transmitters located at the Pacific Missile Range Facility/Naval Communication Facility at Kokole Point (See Kauai County 800 MHz Trunking System).

Five channel, 800 MHz trunked stations for two-way radio communciation are planned for Kilauea Crater Hill, Puu Alanakau, Kalepa Ridge, Kukuiolono Park, and Radio Station Kukui. Two channels will be installed at Kokole Point. The system design will support addition of a microwave line and five channel operation if future growth warrants such expansion.

KAUAI COUNTY
800 MHz
TRUNKING SYSTEM



LEGEND

- ■ = MW + 5 TRUNKED
- □ = MW ONLY
- ▣ = CONVENTIONAL
- ▬ = 6 GHz MW LINK
- - - = 800MHz CONTROL STATION LINK

MOTOROLA

4-1-93

F. Facilities

New radio facilites will be constructed at three sites and existing facilities will be upgraded at four sites. Non-county facilities will be used at two locations. The microwave and voice radio systems will share radio sites, equipment buildings, and towers or monopoles. Table 1 summarizes the major facility improvements proposed for each site.

Site improvement requirements vary for each site. In general, the following improvements to all sites apply:

- *o* All sites will be graded for proper drainage.
- *o* Equipment buildings will be secured on concrete slab foundations a minimum of 6" thick with 2" above grade.
- *o* All equipment buildings are pre-fabricated fiberglass structures. The building size is dependent on individual station requirements.
- *o* Equipment buildings will be air conditioned.
- *o* Radio towers will be designed to withstand 150 mph wind loadings and will be corrosion treated to resist the sub-tropical climate of Kauai.
- *o* Towers will be properly grounded with lightning rods and, if required by the FAA, supplied with an obstruction lighting system.
- *o* 15KW emergency generators with 250 gallon LPG fuel tanks will provide emergency operating power during commercial electrical outages.
- *o* Battery/charger power sources will be provided to operate each station for a minimum of 8 hours in the event of commercial or emergency generator power failures.

G. Funding and Implementation

The cost of the project is estimated at [$ 5.865] $ 7.2 million. The project is jointly funded by the County of Kauai and the State of Hawaii.

Construction will commence after all necessary approvals are received. The radio contractor has 240 days days in which to complete the civil work for each of the sites and install and test all system components.

The only site owned by the County of Kauai is the Lihue Dispatch Center which will be located in the new Lihue Civic Center. All other sites are owned by the State of Hawaii, the United States of America, and private entities. The County of Kauai is entering into lease arrangements and licensing agreements with several land owners to site the proposed communication facilities on their lands.

Table 1. Summary of Facility Improvements

Site	Tax Map Key	800 MHz Voice Radio	Digital Microwave	Building		Tower	
				New	Upgrade	New	Existing
Kilauea Crater Hill	5-2-04: 103	X	X		X	40-ft SS	
Puu Auau	4-9-09: 022		X (R)			30-ft SS	
Puu Alanakau	4-8-03: 023	X	X	X		120-ft SS	
Kalepa Ridge	3-8-02: 005	X	X	X		40-ft MP	
Lihue Dispatch	**3-6-05: 006**		X		X	50-ft MP	
Grove Farm	2-8-01: 12,5		X (R)				50-ft SS
Kukuiolono Park	2-3-05: 010	X	X		X	**70-ft MP**	
Kukui	1-2-01: 009	X	X		X		180-ft SS
Kokole Point	1-2-02: 013	X					65-ft TP

* (R) Repeater Only

**SS Self Supporting, MP Monopole, TP Timber Pole

SECTION 2 GENERAL ENVIRONMENTAL IMPACTS

A. Assessment Process

The scope of the project was discussed with staff of the Office of the County Attorney, Department of Public Works, Planning Department, the County's communication consultant, and the radio contractor. State and County agencies were contacted for information relative to their areas of expertise. Time was spent in the field noting site conditions and conditions in the vicinity of eight of the nine sites. The Grove Farm site was not surveyed because of accessibility problems. Information about the Grove Farm site was obtained from the current lessee and a literature search. The discussions and field investigations allowed us to identify existing conditons and features which could affect or be affected by implementation of the proposed project. While recognizing the differing characteristics of each site, there are common characteristics for all. These similar conditions and characteristics are:

- *o* Each site has been modified by man's activities. In some instances this involves grubbing or grading work, construction of a bulding or ancillary facilty, or a previous land use;

- *o* There are existing communication stations or facilities on the site or nearby thus the proposed use is not the first of its kind in any locale;

- *o* There are no rare, threatened, or endangered flora on any site;

- *o* No site is located near fresh water bodies such as streams, reservoirs, or areas designated as wetlands; and

- *o* Each site is not located within a flood hazard area.

B. Land Alteration

Some degree of land alteration is necessary at each site to accommodate the planned communication facilities. Limited grubbing, grading, and filling are required to achieve design elevations for the equipment buildings, generator pads, and above-ground LPG tanks. Excavation should be minimal except for tower foundations. The ground surrounding the equipment building and tower will be graded to drain away from the respective structures. Affected areas near each site will be restored to pre-construction conditions after construction is completed. Considering the size of each communication site, these activities should not singificantly increase erosion or alter drainage patterns.

Pending completion of soils testing and structural analysis, the type of foundation and amount of excavated area for the towers at each site cannot be determined at this time. Soil conditions determine the type and depth of footing to support the tower. Towers can be erected on matted, posted, or bell-shaped foundations. A typical rule-of-thumb is that the depth of footing is about 10-15% of the height of the tower.

C. Air Quality and Noise

Construction of the proposed improvements will temporarily impact ambient air quality and noise levels. Construction will generate fugitive dust, thereby increasing the amount of dust in the air, and construction machinery will increase noise levels. These impacts are expected to be minimal because most sites are in remote locations away from populated areas. Construction activities will comply with state Department of Health Air Quality Regulations and conditions attached to all approved grading plans.

D. Flood Hazards

None of the communication sites are located in identified flood hazard areas. According to Flood Insurance Rate Maps, all sites are in Zone X (Unshaded) which is defined as areas "determined to be outside [the] 500 year flood plain" (Federal Emergency Management Agency, 1987).

E. Public Services and Facilities

Electrical power is currently provided to all sites and will be available for the new equipment buildings. Water, wastewater disposal, or other public services are not required.

The project will have direct beneficial impacts on public services provided by the County. The Police and Fire departments and Civil Defense Agency will benefit as shortcomings in the existing system are eliminated. Other agencies can hook into the system at a later time. An improved public safety communication system will enhance public safety during times of island-wide emergencies when other means of communication are not functioning. It will provide an indispensible communications command and control medium to coordinate efforts in the recovery period immediately after such an event such as Hurricaine Iniki.

F. Economic

Construction of the proposed radio microwave system will generate short-term employment opportunities for the Contractor, construction companies, and material suppliers. Following completion, the remote sites will be unmanned but routinely maintained by the radio contractor. County communications specialists will staff the Lihue Dispatch Center 24 hours a day, 365 days a year.

G. Radio Frequency (RF) Radiation*

Within the last several decades, the proliferation of radio frequency (RF) emitters in the environment has spurred extensive and ongoing research efforts to investigate the biological and public health effects of low-level non-ionizing radiation.

It should be emphasized that environmental levels of RF radiation routinely encountered by the public are well below hazardous levels. The U.S. Environmental Protection Agency has estimated that 98-99% of the population in seven U.S. urban areas studied is exposed to less than 0.001 miliwatts per centimeter squared.

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*Schema Systems Inc., 1993. Letter to Hoaliku Drake, Chair, Department of Hawaiian Homelands.

In the United States, there is currently no official mandatory federal standard for protection of the public or workers from potentially hazardous exposure to RF radiation. Nonetheless, several federal agencies and non-government organizations have adopted general guidelines. The Occupational Safety and Health Administration (OSHA) generated a guideline for workers in 1971 but it was later ruled to be advisory only. The National Institute for Occupational Safety and Health (NIOSH) has been working on a recommended worker standard for some time. However, there is no evidence that NIOSH will issue a recommdation in the near future.

The Center for Devices and Radiological Health (CDRH), a branch of the U.S. Food and Drug Administration, has regulated radiation from microwave ovens since 1971. CDRH has established a radiation performance standard for microwave ovens that allows leakage (measured at five centimeters from the oven surface) of 1 milliwatt (mW) per square centimeter (cm^2) at the time of manufacture and a maximum level of 5 mW/cm^2 during the lifetime of the oven.

By far the most widely used guideline is from the American National Standards Institute (ANSI), a non-profit organization that develops recommended standards for a variety of applications. In 1982 ANSI issued revised RF protection guidelines (C-95.1, 1982) which were based on more recent data regarding the interaction of RF radiation within the human body. The study showed that the human body absorbs RF energy at some frequencies more efficiently that at others. The most restrictive limits are in the frequency range of 30-300 MHz, where maximum levels of 1 mW/cm^2, averaged over any six minute period of exposure, are recommended.

The recommendations were based on a determination that the threshold for hazardous biological effects was approximately 4 watts per kilogram (4W/kg). The W/kg is an expression for the rate of energy absorption in the body given in terms of the "specific absorption rate" or SAR. A safety factor of ten was then incorporated to arrive at the final recommended protection guidelines. In other words, the guidelines can be correlated with an SAR threshold of about 0.4W/kg.

ANSI has been in the process of revising its 1982 standard, and in early 1992, a new standard (C-95.1, 1990) was released from committee. The new guideline differentiates between occupational standards for workers and the general public. The occupational standards are 1 mW/cm^2 for a 6 minute exposure (no change from the 1982) and 0.2 mW/cm^2 for a 30 minute exposure for the general public. It should be noted that the new standard has not yet been generally accepted throughout the industry, including the FCC.

The most used guideline in the industry today is the ANSI, C-95.1 adopted in 1982. The guideline is applied in the following calculations for radiation exposure levels. ANSI exposure levels which are applicable for the County of Kauai frequencies are shown below.

ANSI Exposure Standards

Frequency in MHZ	Power Density (mW/c^2)
300-1500	freq/300
1500-100,000	5

The intensity of the radiation depends on the source, the distance from the source, and the radiation pattern. Given the source level and any given distance, the field intensity can be calculated fairly

accurately, usually in fractions of a watt such as a milliwatt or microwatts that pass through a unit area of square centimeter.

Radiated RF energy from a given source decreases rapidly as distance is increased. In fact, the level decreases according to the inverse square law, that is, RF energy is inversely proportional to the square of the distance. Simply stated, as the distance doubles, the level of radiation decreases by a factor of four.

RF Exposure to County Microwave System

The microwave antennas to be used in the County system operate in the 6 gHz (gigahertz) band and have a highly directional beam for point-to-point communcations. They are generally tower mounted and range in height from 30 to 180 feet above ground level. Depending on the transmitter power output (0.5 watts to 1.0 watts), branching losses, transmission line losses, and size (diameter) and gain of antenna, the effective radiated power (ERP) from the antenna in the focused beam can range from 500 to 7,000 watts.

Because of the antenna's highly directional beam and typical height above ground, power densities at ground level from microwave antennas are markedly below the ANSI guidelines. An individual would have to stand *directly in front of the antenna for a significant period of time* in order to be exposed to a radiation level that might be considered harmful. This is generally is not possible due to the height of the antenna above ground.

Using the ANSI guideline of 5.0 mW/cm^2 for 6 gHz (from Table 1-1500-100,000 MHz) and using a six foot dish with an approximate ERP of 7,000 watts, the location of maximum power density in the focal plane of the antenna is calculated as follows:

Location of Maximum Power Density	Calculated Level of Maximum Power Density
45 feet from antenna	0.1849 mW/cm^2

These calculations indicate that the exposure levels to County microwave antenna radiation at 45 feet, directly in front of the dish, are well below the ANSI standard of 5.0 mW/cm^2. Beyond that distance, the level would continue to decrease significantly.

County 800 MHz System

A typical County 800 MHz radio site will consist of fixed transmitter stations varying from 2 at minor sites and 6 at major sites (one of which is a backup transmitter). The fixed stations will operate with a transmitter power output of 75 to 125 watts. The average effective radiated power (ERP) including transmitter combiner and transmission line loss plus antenna gain (+10 db) from the antenna for a single 800 MHz transmitter will be approximately 200 watts. Maximum ERP would occur on occasions when all 6 stations at a given site are transmitting simultaneously. In this case, for example, the combined ERP would be around 1200 watts. County fixed stations will not transmit continuously but will transmit intermittently and only when needed to carry public safety related communications.

The majority of 800 MHz antennas installed for the County system will be tower mounted at heights ranging from approximately 30 feet to 180 feet above ground level with an average height of 100 feet. The antennas are designed to convey the signals in the direction of the horizon with

very little emission in other directions, such as above or directly below the tower. Therefore, the power density around antennas at ground level will be significantly less than the ANSI guideline.

The ANSI guideline of 2.8 mW/cm^2 (Exposure Standards: 850 MHz/300=2.8 mW/cm^2) is used for calculating the exposure levels at varying distances from an antenna with a single transmitter of 200 watts ERP and multiple transmitters (6 X 200 watts) for a combined ERP of 1200 watts. The normal worse case is 5 transmitters. All six would only be on in an anomolous condition.

Calculated Level in mW/cm^2

Distance	200 watts ERP	1200 watts ERP
50 feet	0.0274100	0.1644600
500 feet	0.0002709	0.0016257
5000 feet	0.0000027	0.000016

The above calcuation show that for either level of ERP the exposure levels for two-way radios are lower than the 2.8 mW/cm^2 guideline established by ANSI.

The Hazard Evaluation and Emergency Response Office of the State Department of Health commented (Letter of March 31, 1994) "that the Radio Communications Upgrade, as planned, will not endanger public health" based on the transmitter placements described in the Draft Environmental Assessment dated February, 1994.

H. Avifauna

The U.S. Fish and Wildlife Service commented that annual "fall-out" of shearwater (Newell's Shearwater (*Puffinus newelli*)) and petrels (Hawaiian Petrel (*Pterodroma phaeopygia*) and the Band-rumped Storm Petrel (*Oceanodroma castro*)) on Kauai is a serious problem. Newell's Shearwater and the Hawaiian Petrel are federally endangered species and the Storm Petrel is a candidate for endangered status. Fall out usually occurs from exhaustion or when the birds collide with structures brought on by attraction to and disorientation from bright lights.

Consultation with staff of the Division of Forestry and Wildlife, Department of Land and Natural Resouces indicates that bright lights (flood lights for example) and guy wires not radio towers per se are the major causes of fall-outs. Most of the planned radio towers are low in height and only the 120-foot high self-supported tower at Puu Alanakau is of significant height. This tower will be equippped with aircraft obstruction lights meeting Federal Aviation Administration standards. No bright lights will be mounted on the tower. The aircraft obstruction lights will be red in color and flash at 1-2 second intervals. The flashing red lights are not anticipated to attract and disorient birds. The self-supporting tower will not be secured by guy wires thus mitigating the second cause of fall-outs.

SECTION 3 COMMUNICATION SITES AND FACILITIES

Nine sites have been selected initially for the planned County of Kauai 800 MHz Trunked Radio System. The sites either are named after a geographic location or an existing communication site.

East/ North Leg

Kilauea (Crater Hill)
Puu Auau
Puu Alanakau (Anahola Water Tank)
Kalepa Ridge

Control Station

Lihue Dispatch Center

West/South Leg

Grove Farm (Laaukahi Peak)
Kukuiolono Park
Kokee Air Force Station, Kukui Facility
Kokole Point

This section summarizes potential environmental impacts resulting from planned improvements to specific sites and measures to mitigate adverse effects. Each site description includes a description of the proposed improvements, affected environment, and potential environmental impacts. The written material is supplemented with Location Maps, Site Plans, Floor Plans, and Elevation Persectives (if available).

Kilauea (Crater Hill)
Site Profile

TAX MAP KEY:	5-2-4: 103
LAND AREA:	91.97 acres
Area of Use:	800 square feet
LANDOWNER:	United States of America
EXISTING USE:	Vacant Site, Concrete Bunker
NEAREST TOWN:	Kilauea
Distance From Site:	1 mile
PROPOSED USE:	Communication Facility
STATE LAND USE DISTRICT:	Agricultural
COUNTY ZONING:	Open, ST-R
SPECIAL MANAGEMENT AREA:	Located in SMA

A. Location and Existing Uses

The existing County radio site is located in the Kilauea National Wildlife Refuge on the northeast coast of Kauai. The radio site, which is an excavated pad originally developed for a World War II RADAR facility, is situated on the makai side and just below the rim of Crater Hill an extinct volcanic crater (See Figure 1).

The old Kilauea Crater Hill radio communications building was destroyed by Hurricaine Iniki and the present temporary communications structure was rebuilt over the site by the County of Kauai. In addition, the present structure was sited further inside the existing excavation to protect it from the prevailing wind.

This temporary radio facility consists of a small, wooden building of approximately 160 square feet (20'L X 8'W X 10'H), a generator, and nine (9) "whip" antennas atop Crater Hill. Only two of the nine antennas are currently in use. The equipment building is of wood construction, topped by a flat corrugated iron roof, and posted about 4-5 feet above ground. A ladder perched on the roof permits access to the antenna site atop the summit..

A wooden observation deck constructed by the U.S. Fish and Wildife Service on the seaward side of the crater rim overlooks the sheer faced cliffs and shoreline below. The deck is located about 50 feet north of the antenna site.

The facility is the main propagation site for radio coverage to the north and northwest areas of the island. Presently, the County's Fire, Police, Public Works, and Water Departments and the State

of Hawaii's Department of Transportation, Land and Natural Resources, and Emergency Medical Services temporarily operate from the site. Hawaii Public Television commenced broadcasting from the temporary radio facility in March, 1994.

The prinicpal access to the site is from the scenic lookout overlooking Kilauea Point Lighthouse at the end of Kilauea Road. From the lookout, a steep concrete driveway winds its way to a broad, grassy pasture above which rises to the summit of Crater Hill. The concrete driveway is secured by an iron gate and there is no vehicle trail through the pasture. Access to this area is controlled by the Refuge Manager. A second access, also controlled by the Refuge Manager, is located mauka of the pasture.

B. Proposed Improvements

The Kilauea facility links with Puu Auau to the south and is the termination point for the digital microwave system's northeast branch. The station is also the main propagation site for radio coverage for the north and northeast sections of Kauai.

The new Crater Hill communications facility will be located approximately 200 feet downslope of the existing radio site with a net drop in elevation of about 60 feet from the existing site. The specific location of the new building and tower is immediately adjacent to and north of a cement bunker known on the Hill as the "paint shed". The 13' X 15' paint shed is actually a cement bunker which was used during World War II as a fortified generator room.

Microwave and radio equipment will be housed in a single story, pre-fabricated fiberglass building. The building measures 12'W X 28'L X 9'H and will be air-conditioned. A 15 KW emergency generator will be installed inside a separate compartment within the equipment building. An above ground 250 gallon LPG fuel tank will be placed inside the cement bunker. A Site Plan is shown in Figure 2.

A three-legged 40-foot high self-supported tower will be erected between the bunker and the equipment building. One 6' microwave dish antenna and two (2) 800 MHz (ominidirectional) antennas will be mounted on the tower. No security fence is planned for the site.

Limited grubbing, excavation, and grading are required to set the foundations for the equipment building and tower. Low walls may have to be constructed to retain fill material.

Power and communication cabling will be re-routed underground to the new site from an existing pullbox about 500 feet to the west of the existing site. The cables will be placed along an existing dirt and grass vehicle trail originating below the summit of Crater Hill. One branch of the trail leads to the top of Crater Hill and the other passes the new site. Placing the cables underground requires digging a 4" wide by 18-24" deep trench approximately 800 LF. The trench will be backfilled and the ground restored to pre-construction conditions once the conduits are in place.

A 1 1/2 to 2-inch hole will be drilled through the north facing wall of the cement bunker to run a fuel line from the LPG tank to the generator inside the building. No other alterations to the bunker are proposed. There are no plans to restore the bunker at this time and it will be preserved in place.

The station's emergency generator will operate only during power outages and routine maintenance testing.

C. Affected Environment

The summit of Crater Hill rises to the 548 foot elevation overlooking the Pacific Ocean. The makai side of the Hill is a sheer cliff rising almost perpendicular from the ocean. Pasture lands (primarily kikuyu grass) cover most of the summit and lower areas on the mauka side. Crater Hill and the surrounding Federally owned lands comprise the Kilauea National Wildlife Refuge. In addition, the Kilauea Point Lighthouse (Site No. 50-30-04-300) located to the north of Crater Hill is a registered historic feature on both the State and National Registers of Historic Places.

In 1989, Crater Hill was surveyed to ascertain the presence of historical or archaeological features and their potential significance. In their survey report to the U.S. Fish and Wildlife Service, Xamanek Researches (1989) provided the following description of the existing and proposed site of the County radio station.

"The highest point on Crater Hill was the site of a Radar station during World War II, and it is now the location for 3 radio antennas, the police and emergency frequency, and two others. The builidng which houses the radio equipment is placed on the concrete pedestals that supported the original radar installation, To the west of this structure is a vent which is part of the tunnel system below." [Note: the building described above was destroyed in 1992 by Hurricaine Iniki, The present radio equipment building was rebuilt by County personnel but not on the concrete pedestals cited by Xamanek].

". . . Some 50 or more feet below the vent structures lies the entrance to a tunnel which was part of the radar complex. The tunnel is approximately 130 feet in length, running back into the hilside at about 55 degrees magnetic. The chamber below the vent is about 15 to 20 feet wide and 45 feet long, and the "chimney" under the vent is about 30 to 35 feet high. A considerable quantity of material in the form of cast-off items, appears to have been thrown down the vent, and has collected on the chamber floor below. A detailed survey of the tunnel and chamber should be made at some point in the future. The tunnel was used as a storage area for explosives by Kilauea Plantation after the war. The entry tunnel measures about 8 feet wide and 8 feet high. Originally the entryway has been secured by a metal door which presently lies to one side of the tunnel." [Note: The tunnel entryway was recently sealed with plywood sheeting by the U.S. Fish and Wildlife Service for safety reasons].

". . . About 20 feet to the west of the tunnel entrance lie the remains of the former radar complex generator enclosure. The chamber measures about 8 X 12 feet, with the remnants of two mounting platforms for generators still identifiable. At the rear of the enclosure (the north wall) there are two ventilation shafts, or perhaps, more appropriately, exhaust shafts. Both are rectangular in shape and measure ca. 2 feet square. Presently both of them are filled with detritus and seem to be totally sealed-off from their outlet near the summit of the ridge."

Xamanek concluded that "the World War II secret Radar Installation has historical significance by virtue of its age (nearly 50 years) and because it is a nearly intact feature from the historically important period." ". . . Neither the Crater Hill radar complex nor the Mokolea Point sugar-loading complex should be distrubed as a result of Park development plans. Both of these sites could be preserved and/or restored and would enhance the Park's historic importance."

Approximately three dozen species of avifauna frequent the refuge nesting primarily on the rocky cliffs overlooking Makapili Rock. Eight species are considered native (endemic or indigenous) and the remainder are introduced. Only one native bird, the nene *(Nesochen sandvicensis)*, is listed as endangered. Following the success of a breeding program on Maui, refuge biologists also have successfully initiated a nene breeding program. A fenced breeding pen has been established approximately 1,000 LF northwest of Crater Hill. Nene are not confined to the pen but allowed to roam the entire refuge.

Several avian species are known to occur or use the area within 50 yards of the new County radio site (Viernes, 1994). Native species in this group include the nene, Pacific golden plover *(Pluvialis fulva)*, and the pueo *(Asio flammeus sandwichensis)*; the remaining species, about a dozen birds, are introduced.

Refuge staff and volunteer workers propagate native plants on the refuge grounds. According to refuge staff (Viernes, 1994) the Crater Hill parcel supports native akia *(Wikstroomia uva-ursi)*, akoko *(Chamaesyce celastroides)*, aheahea *(Chenopodium oahuense)*, hala *(Pandanus odoratissimus)*, ilima *(Sida fallax)*, morning glory *(Ipomea sp.)*, naupaka *(Scaevola sericea)*, nehe *(Lipochaeta succulenta)*, and u'ulei *(Osteomeles anthyllidifolia)*. Akoko, aheahea, ilima, and naupaka occur within 50 yards of the project site as do introduced species including haole koa *(Leucaena [L]leucocephala)*, lantana *(lantana camara)*, sourgrass *(Tricachne insularis)*, ironwood *(Casuarina equisetifolia)*, and Christmas berry *(Schinus terebinthifolius)*

Crater Hill is designated Agricultural by the State Land Use Commission and zoned Open and Scenic/Ecological Resource (ST-R) by the County. To implement the project, a State Special Use Permit for non-agricultural use may be required and County of Kauai Class IV Zoning and Use Permits. The project site also lies within the County delineated Special Management Area and a Special Management Area Use Permit may be required.

Electrical power is available to serve the new site.

D. Potential Environmental Impacts

Limited grubbing and grading are required to site the equipment building and radio tower. The area to be grubbed (approximately 800 square feet) is too small to significantly increase erosion and runoff in downhill areas. Low retaining walls may be constructed to retain fill. [Exposed areas will be covered with gravel for erosion and weed control.] **Disturbed areas around the equipment building will be re-vegetated with native plants.**

No significant impacts on flora are anticipated. The radio station site contains [only]**primarily** introduced species **and a few native plants all of** which are common to Kauai and the State of Hawaii. [Native species that occur near the radio site are also common to Kauai and the State.]

An earlier plan to locate radio equipment inside the cement bunker proposed significant alterations to the structure. These modifications included replacing the door, venting the roof, air conditioning the structure, and installing utility lines. After reviewing this proposal, the State Historic Preservation Officer wrote "we concur that the proposed use will have no effect upon the historic property under the management of the Fish and Wildlife Service (DLNR, 1992). In comparision to the earlier proposal, the current plan proposes minimal alterations to the bunker and likewise should not have adverse effects on the historic property.

Both the building and lower sections of the tower will be sheltered from existing views at equal or lower levels by an existing stand of ironwood trees located about 15 feet mauka of the facilities. One microwave antenna and two omini-directional antennas will be mounted on the tower and may be visible against the hillside. However, because the height of the tower is lower than the summit of Crater Hill, the antenna will not project into the skyline above Crater Hill as the existing antenna do. Reasonable steps, to include painting the tower and equipment building to blend with the background, will be taken to minimize this visual intrusion.

Nene often roam the summit and concern was expressed about RF radiation affecting this bird. Only one microwave antenna will be mounted on the tower. The antenna will face south in the direction of Puu Auau. The line of sight (path of the beam) is unobstructed by any part of Crater Hill. Thus, walking or nesting geese should not stray though any microwave beam. It is possible that the nene could fly through the path of the microwave beam, for which the effects on the species are unknown.

Volunteer workers oftentimes work at or near the summit planting native vegetation or clearing weeds. These workers are not now and in the future will not be in the path of the microwave beam between Crater Hill and Puu Auau. The microwave antennas to be mounted on the tower are designed to convey radio signals in the direction of the horizon with little dispersion in other directions. Native flora and fauna and persons working near the summit which is higher than the top to the tower should not be exposed to significant levels of radio frequency radiation.

Refuge staff pointed out that nene goslings often roam the roadway leading to the proposed communication site. There is concern that goslings could fall into the electrical trench if it is left uncovered both during construction and at the end of each work day. Therefore,the Contractor will cover the trench at the end of each working day (using plywood strips). In addition, should goslings enter the work site, work in the immediate area will cease and refuge staff notifed for assistance in safely directing the birds away from work sites.

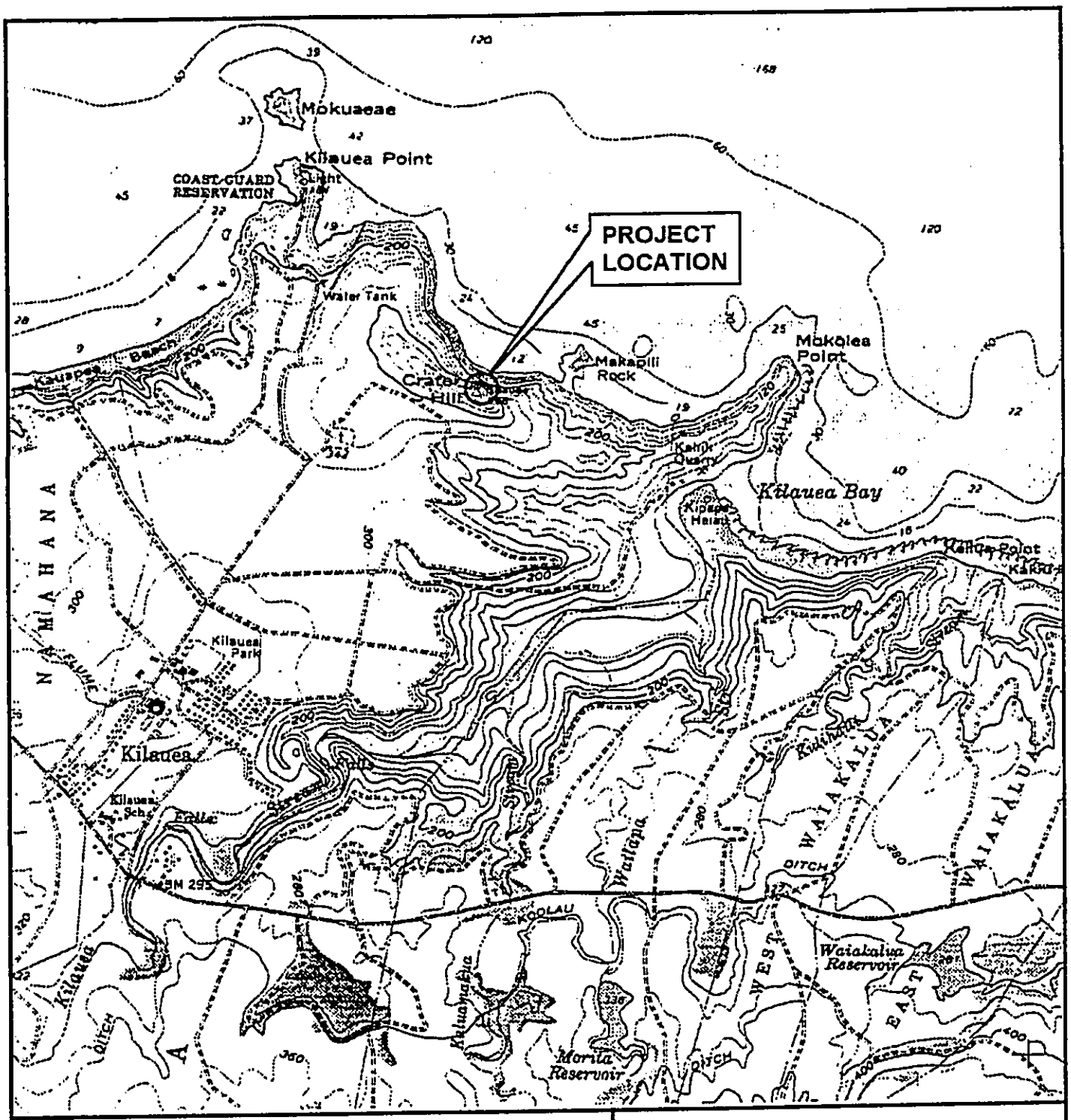


Figure 1
Location Map

KILAUEA CRATER HILL

County of Kauai 800 Mhz Trunked
Radio Communications Upgrade
Source: USGS Anahola Quadrangle
Scale: 1"=2000'

GERALD PARK URBAN PLANNER

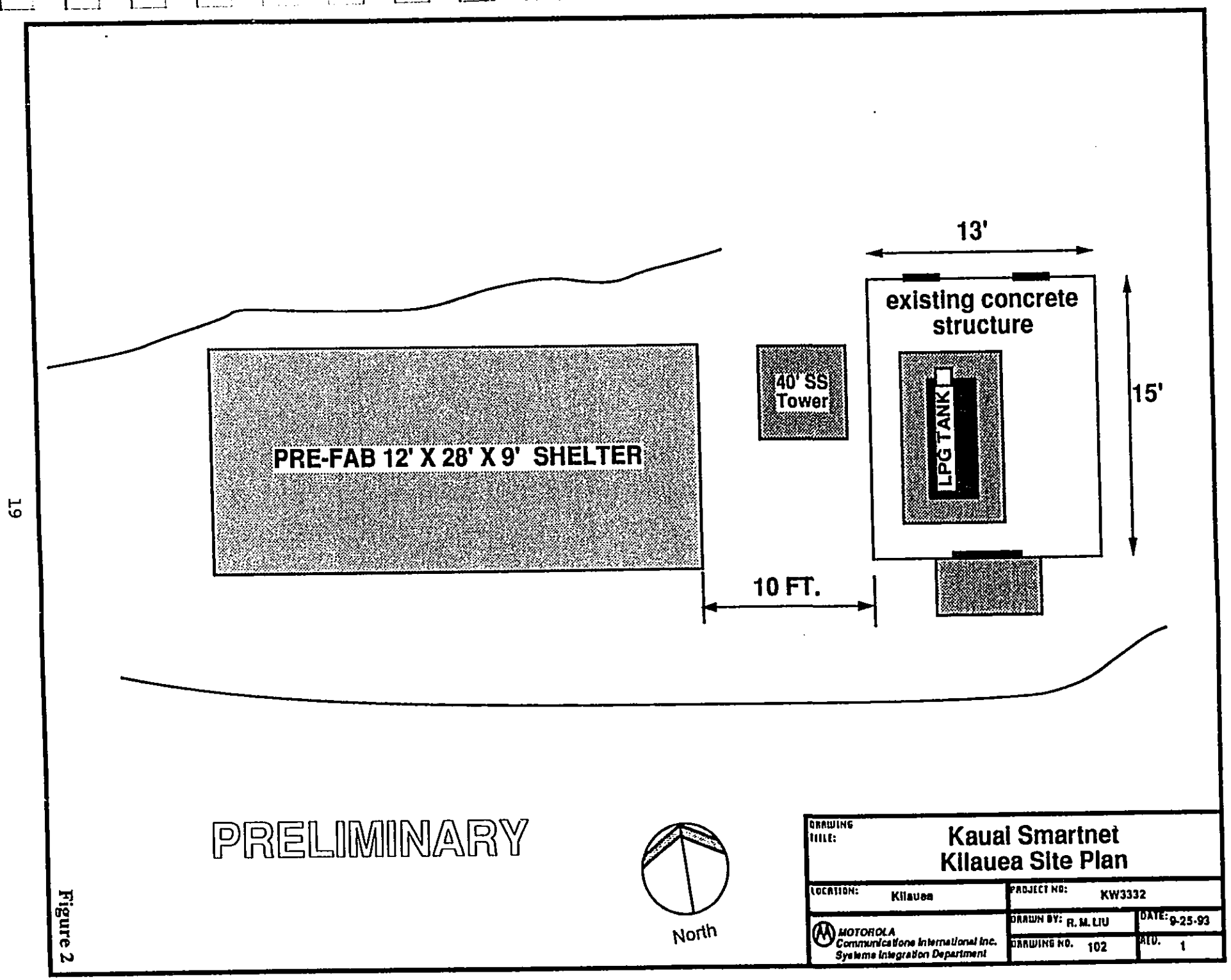

13'
existing concrete structure
15'
40' SS Tower
LPG TANK
PRE-FAB 12' X 28' X 9' SHELTER
10 FT.
PRELIMINARY
North
DRAWING TITLE:
Kauai Smartnet
Kilauea Site Plan
LOCATION: Kilauea
PROJECT NO: KW3332
MOTOROLA
Communications International Inc.
Systems Integration Department
DRAWN BY: R. M. LIU
DATE: 9-25-93
DRAWING NO. 102
REV. 1

Figure 2

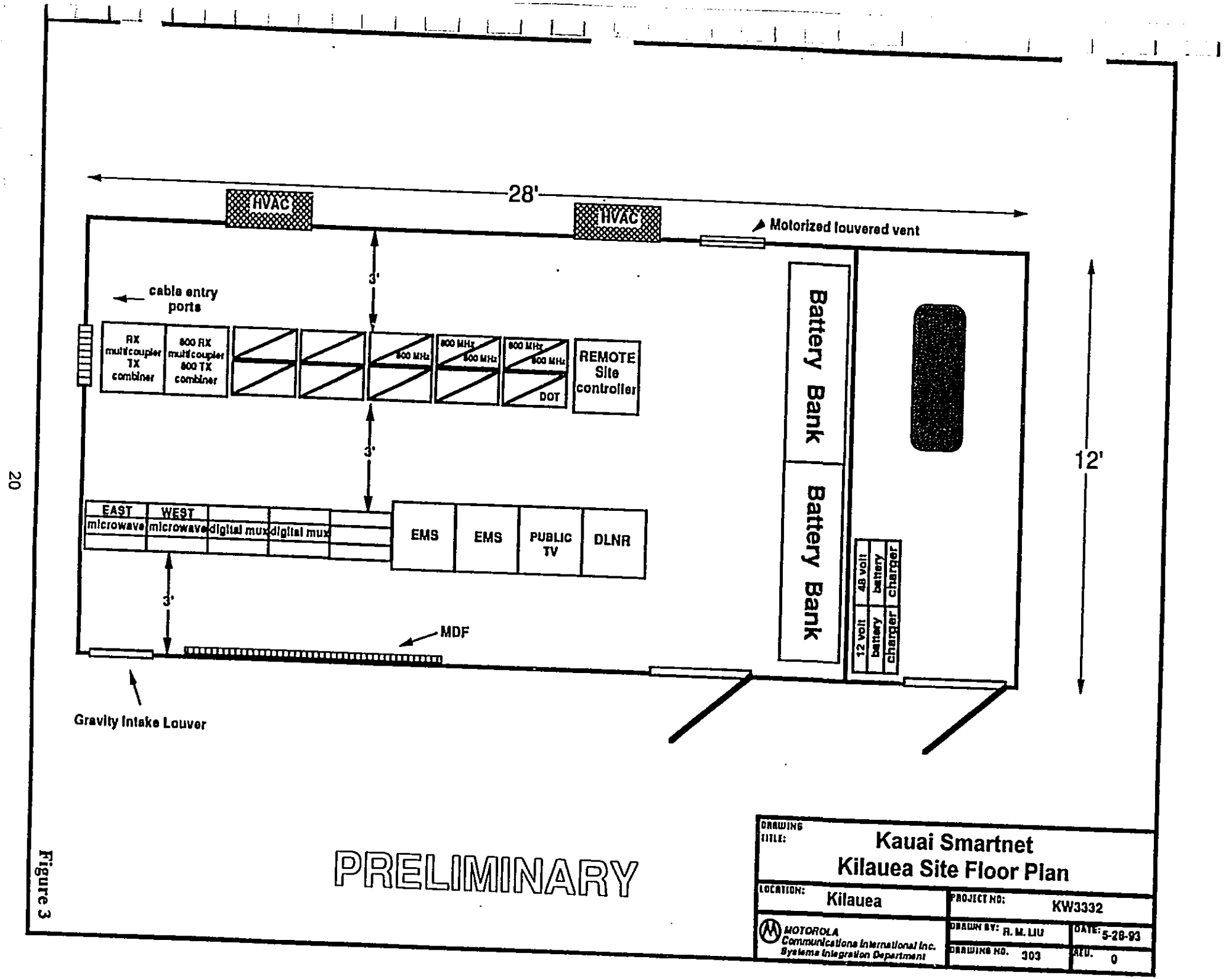

28'
HVAC
HVAC
Motorized louvered vent
3'
cable entry ports
RX multicoupler TX combiner
800 RX multicoupler 800 TX combiner
800 MHz
800 MHz
800 MHz
800 MHz
800 MHz
800 MHz
DOT
REMOTE Site controller
Battery Bank
Battery Bank
12'
3'
EAST microwave
WEST microwave
digital mux
digital mux
EMS
EMS
PUBLIC TV
DLNR
48 volt battery charger
12 volt battery charger
3'
MDF
Gravity Intake Louver
PRELIMINARY
DRAWING TITLE: Kauai Smartnet
Kilauea Site Floor Plan
LOCATION: Kilauea
PROJECT NO: KW3332
MOTOROLA Communications International Inc. Systems Integration Department
DRAWN BY: R. M. LIU
DATE: 5-28-93
DRAWING NO. 303
REV. 0

Figure 3

Puu Auau
Site Profile

TAX MAP KEY:	4-9-9: 22
LAND AREA:	47.274 acres
Area of Use:	100 square feet
LANDOWNER:	Lihue Plantation Company, ltd.
Lessee:	Moloaa Farmers Coop
Sublessee:	Theodore J. J[e]avellana Jr.
EXISTING USE:	Water Tank, Antenna
NEAREST TOWN:	Anahola
PROPOSED USE:	Self-supported Tower
STATE LAND USE DISTRICT:	Agricultural
COUNTY ZONING:	Agriculture
SPECIAL MANAGEMENT AREA:	Not located in SMA

A. Location and Existing Use

The proposed Puu Auau communication site is located on the Moloaa coastal plain about 0.3 of a mile makai of Kuhio Highway (See Figure 1). The site is located atop a small hill overlooking sugarcane fields, papaya orchards, and banana patches.

The site is not yet radio-developed for county use. On-site improvements include a 10' X 10' fenced site enclosing a 30-foot high timber monopole (belonging to Cybertel Cellular Telephone) with two microwave dish antenna mounted near the top. A .5 mg steel water tank is located to the east of the Cybertel pole.

B. Proposed Improvements

No communications building will be located on the premises. A 10' X 10' area has been staked for erecting a 30-foot tall self-supported tower, foundation, and installing a weatherproof cabinet to house repeater equipment and a battery system (See Figure 2). The staked site is located about 30 feet to the southwest of the steel water tank and adjacent to the Cybertel site. Two 6' microwave dish antennas will be mounted on the tower.

Puu Auau station will function as a microwave repeater between Puu Alanakau to the south and Kilauea Crater to the north.

C. Affected Environment

Puu Auau is located in an area where agriculture is the predominant land use and sugarcane the primary crop. The rich, productive Lihue silty clay soil (Soil Conservation Service, 1972) is highly suitable for sugarcane growing and is classified Prime Agricultural Land by the Agricultural Lands of Importance to the State of Hawaii (ALISH) rating system (Department of Agriculture, 1977). Although unconfirmed, the project site has not been in sugarcane production since 1975--- the year the steel water tank was constructed.

Aside from nearby papaya, banana, and sugarcane fields, the county radio site is relatively bare of vegetation and only supports a few weeds.

Historic site maps on file at the Historic Preservation Division, Department of Land and Natural Resources, note the presence of a recorded historic feature at Puu Auau. The feature, identified as Site 50-30-04: 125, is called Puu Wouwou Heiau. The site was reported by Bennett (1931) who supplied the following description: " the heiau completely removed and the hill planted in pineapples. Some say this was a place of refuge". The site record indicates the heiau site was totally destroyed by pineapple cultivation.

The site is classified Agricultural by the State Land Use Commission and zoned Agriculture by the County. A State Special Use Permit for non-agricultural use and County Class IV Zoning and Use Permits are required.

There are no water, drainage, and communication systems to the site. Power is supplied to the Cybertel antenna by overhead wiring. The site is accessible by motor vehicle from Kuhio Highway but requires driving on secondary roads.

D. Potential Environmenal Impacts

The proposed improvements require minimum alteration to the site. Limited grubbing, excavation, and grading will be performed to construct the tower foundation and pad for the weatherproof cabinet. These activities, coupled with the relatively small affected area (approximately 100 square feet), will not result in significant adverse impacts.

Should evidence of Puu Wouwou Heiau or other cultural artifacts be unearthed, work in the immediate area will cease and the proper historic authorities notified for dispostion of the finds.

The 30-foot high tower will not affect existing views of the area. The tower will rise above the adjacent canefields but its height will not be significantly different from the height of the existing pole antenna and water tank.

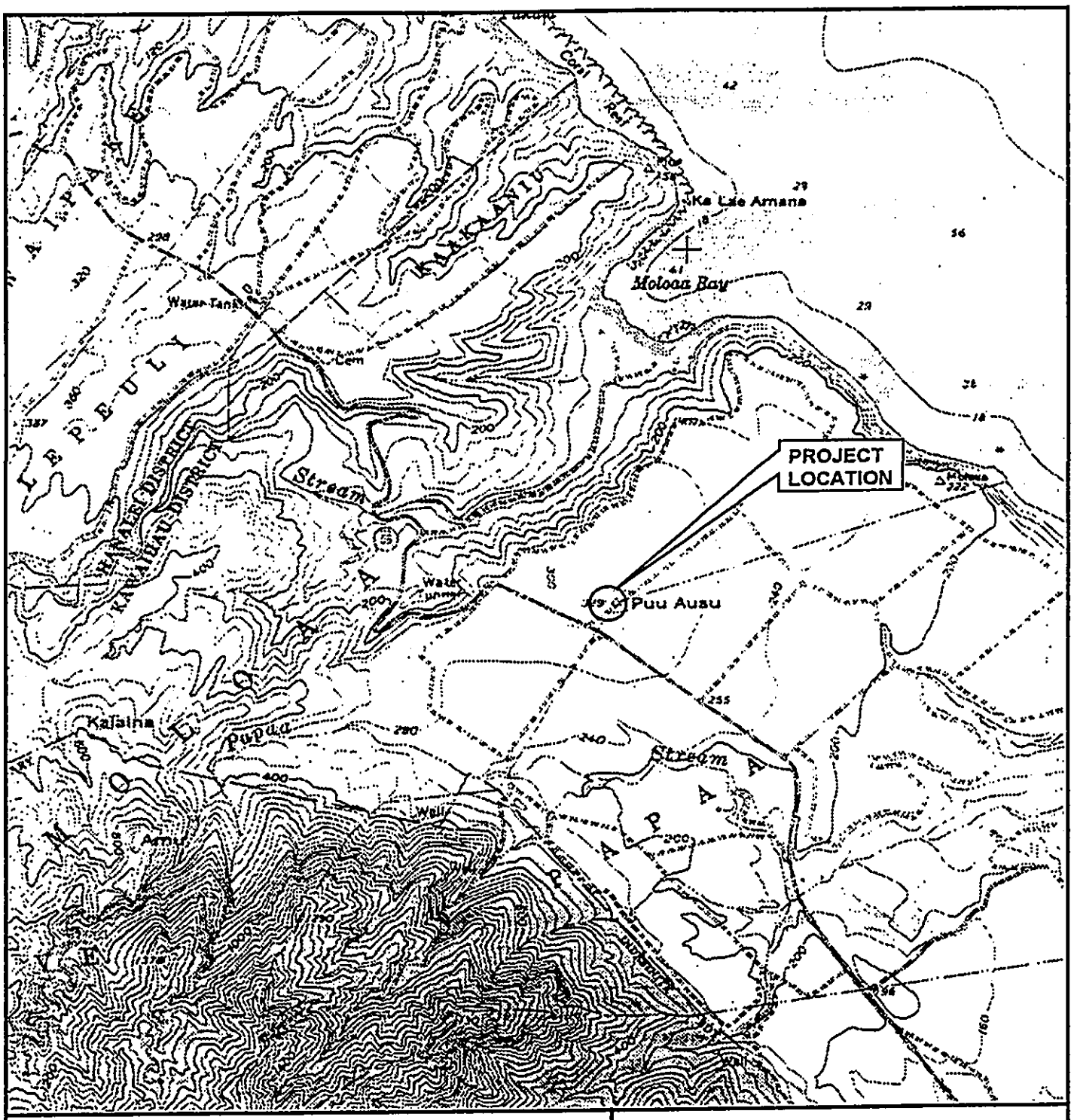


Figure 1
Location Map

PUU AUAU

County of Kauai 800 Mhz Trunked Radio Communications Upgrade
Source: USGS Anahola Quadrangle
Scale: 1"=2000'

GERALD PARK URBAN PLANNER

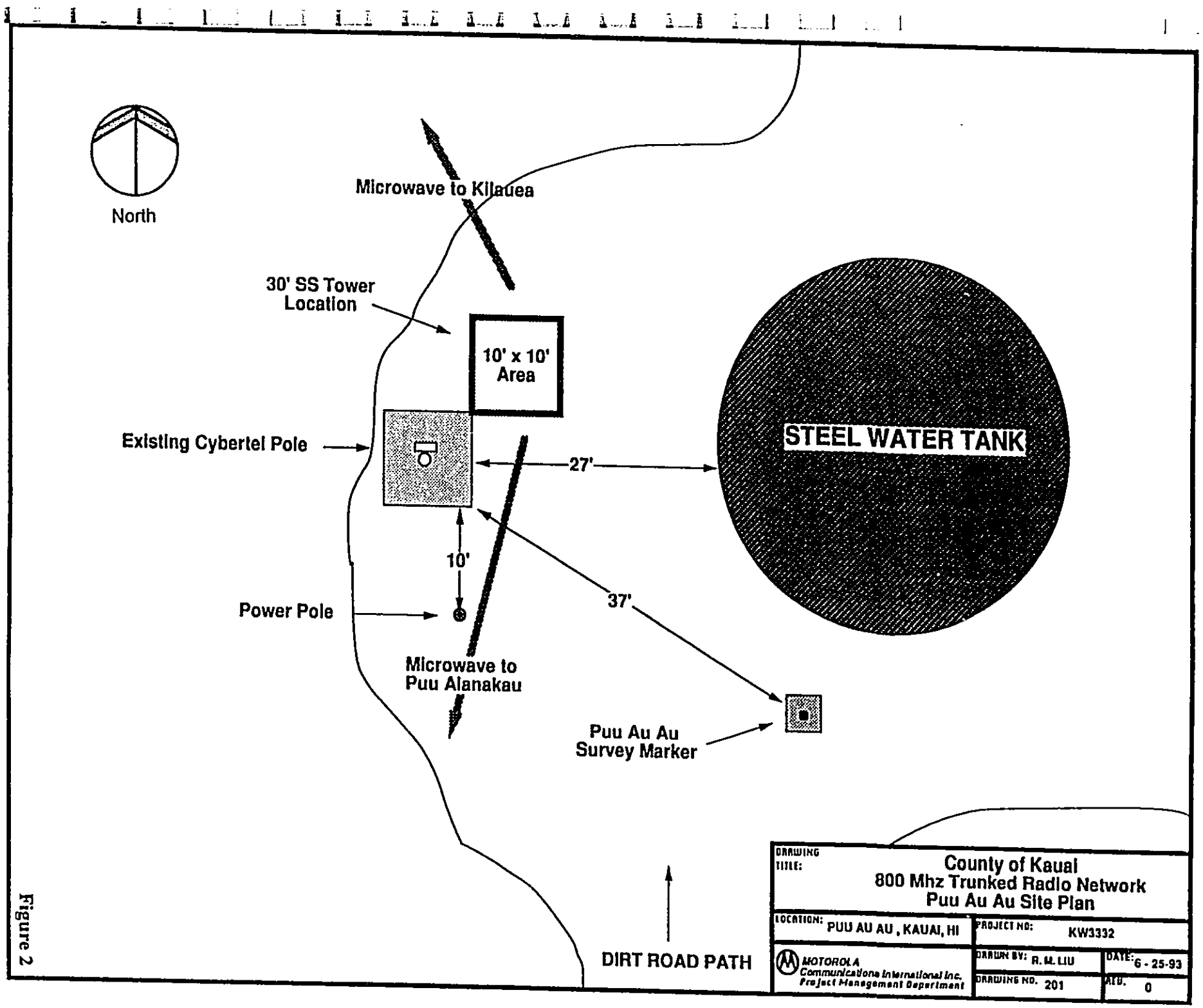

North
Microwave to Kilauea
30' SS Tower Location
10' x 10' Area
Existing Cybertel Pole
Pb
27'
STEEL WATER TANK
10'
37'
Power Pole
Microwave to Puu Alanakau
Puu Au Au Survey Marker
DIRT ROAD PATH
DRAWING TITLE:
County of Kauai
800 Mhz Trunked Radio Network
Puu Au Au Site Plan
LOCATION: PUU AU AU , KAUAI, HI
PROJECT NO: KW3332
MOTOROLA Communications International Inc. Project Management Department
DRAWN BY: R. M. LIU
DATE: 6 - 25-93
DRAWING NO. 201
REV. 0

Figure 2

Puu Alanakau
Site Profile

TAX MAP KEY:	[4-4-8: 23]4-8-3: 23
LAND AREA:	1.38 acre
Area of Use:	1,500 square feet
LANDOWNER:	Hawaiian Homes Commission
EXISTING USE:	Water Tank, Antennna, ETV
NEAREST TOWN:	Anahola
PROPOSED USE:	Communication Facility
STATE LAND USE DISTRICT:	Agricultural
COUNTY ZONING:	Open
SPECIAL MANAGEMENT AREA:	Not Located in SMA

A. Location and Existing Use

The Puu Alanakau or Anahola Water Tank site is located approximately 0.5 mile mauka of Kuhio Highway (Highway 56) and about [.25] 1.0 mile southwest of the town of Anahola (See Figure 1). The 1.38 acre property is located in a fenced plot at the end of Kalalea Street. As suggested by its name, there are two County Department of Water water tanks on the premises---an at grade 150,000 gallon reinforced concrete water reservoir and an abandoned above grade steel water tank. The steel water tank is mounted atop a massive four-legged tower 120 feet in height. Water is pumped to the reservoir from two wells on the premises.

The site is also used for telecommunication purposes. Cybertel Cellular Telephone maintains an equipment shed and 150-foot tall antenna tower in the northeast corner of the property. Hawaii Public Television broadcasts its signal from a 150-foot guyed antenna in the middle of the property. An abandoned 40-foot tall Kauai Cable Television tower stands in the south[west] east corner.

B. Proposed Improvements

Puu Alanakau links with the Kalepa Ridge site to the south and Puu Auau to the northeast.

The Puu Alanakau communications facility will be located on approximately 1,500 square feet (60'L X 25'W) in the [north]southwest corner of the 1.38 acre site. Microwave and radio equipment will be housed in a single story, pre-fabricated fiberglass building. The self-contained building measures 12'W X 28'L X 9'H and will be air-conditioned to assure a proper operating

environment. A 15 KW emergency generator will be installed inside a compartment within the equipment building. An above-ground 250 gallon LPG fuel tank will be installed outside the building on the west end of the site. A Site Plan is shown in Figure 2.

A three-legged 120-foot high self-supported tower will be erected on the east end of the site adjacent to the equipment building. The self-supporting tower eliminates the need for guy wires. Two 6' microwave dish antenna and two (2) [7'6"] 10'4" 800 MHz (ominidirectional) antennas will mounted on the tower. No additional security fencing will be erected.

Limited grubbing and grading are required to establish a level surface for the concrete building pad. The amount of excavation for the tower foundation will be determined pending completion of soils testing and structural analysis.

Primary power is available from existing power lines at the site. Power will be routed aboveground from an existing power pole to the equipment building. The County also plans to install a 12' wide gate near the northeast corner of the enclosure. The gate will be accessed from outside the fence along an existing unimproved road located along the mauka fence line.

C. Affected Environment

The proposed County radio site is located in the northwest corner of the property. The site is flat and covered by grass. An 8' high chain link fence borders the building site to the north and west. The east and south boundaries open to the remainder of the site below.

The entire property stands above the surrounding agricultural fields and residential subdivision to the south. There appears to be no drainage problems and the property is not located in an identified flood hazard area.

Except for the grassed ground surface, the fenced plot is bare of vegetation. The grounds are free of debris and well maintained.

No historical features have been found on the premises and none have been unearthed during construction of the existing on-site waterworks and communication facilities.

The property is located in an agricultural area planted primarily in sugar cane. Designated Agricultural by the State Land Use Commision, the site is zoned Open by the County of Kauai. The property is not rated on Agricultural Lands of Importance to the State of Hawaii (ALISH) maps.

A State Special Use Permit for non-agricultural use of land and County Class IV zoning permits are required to implement the proposed action. A height variance will be required to erect the 120-foot tall tower.

The Anahola Water Tank site occupies a prominent location mauka of Kuhio Highway. The existing steel water tank and two tall antennas are visible from many locations near and far. For example, the antennas are faintly visible against the skyline when viewed from Puu Auau about 4.0 miles to the north.

D. Potential Environmental Impacts

Although Puu Alanakau is one of the larger radio stations planned by the County, environmental impacts are not anticipated to be significant. Limited grubbing, excavating, and grading will be performed to construct level concrete building pads for the equipment building and generator. These activities will alter the land slightly but will not result in any significant erosion impacts. Should subsurface archaeological features be unearthed, work in the immediate area will cease and historic authorities notified for proper disposition of the finds.

The County radio site and facilities should not interefere with existing facilites on the premises and the use of those facilities. The County site is in a corner of the lot away from facilities operated by Cybertel and Hawaii Public Television. After the County radio station is operationalized, the Hawaii Public Television tower will probably be removed and a broadcast antenna mounted on the *County tower.*

The planned 120-foot tall tower adds another object to be viewed against the local skyline and the Anahola Mountain Range. However, it will not be more visible than some of the structures at Puu Alanakau and will not cause a significant change in the existing view. Although this is the tallest of the towers to be installed as part of the proposed County radio system, there are existing antenna at Puu Alanakau whose height exceeds that of the planned tower and a water tank of equal height.

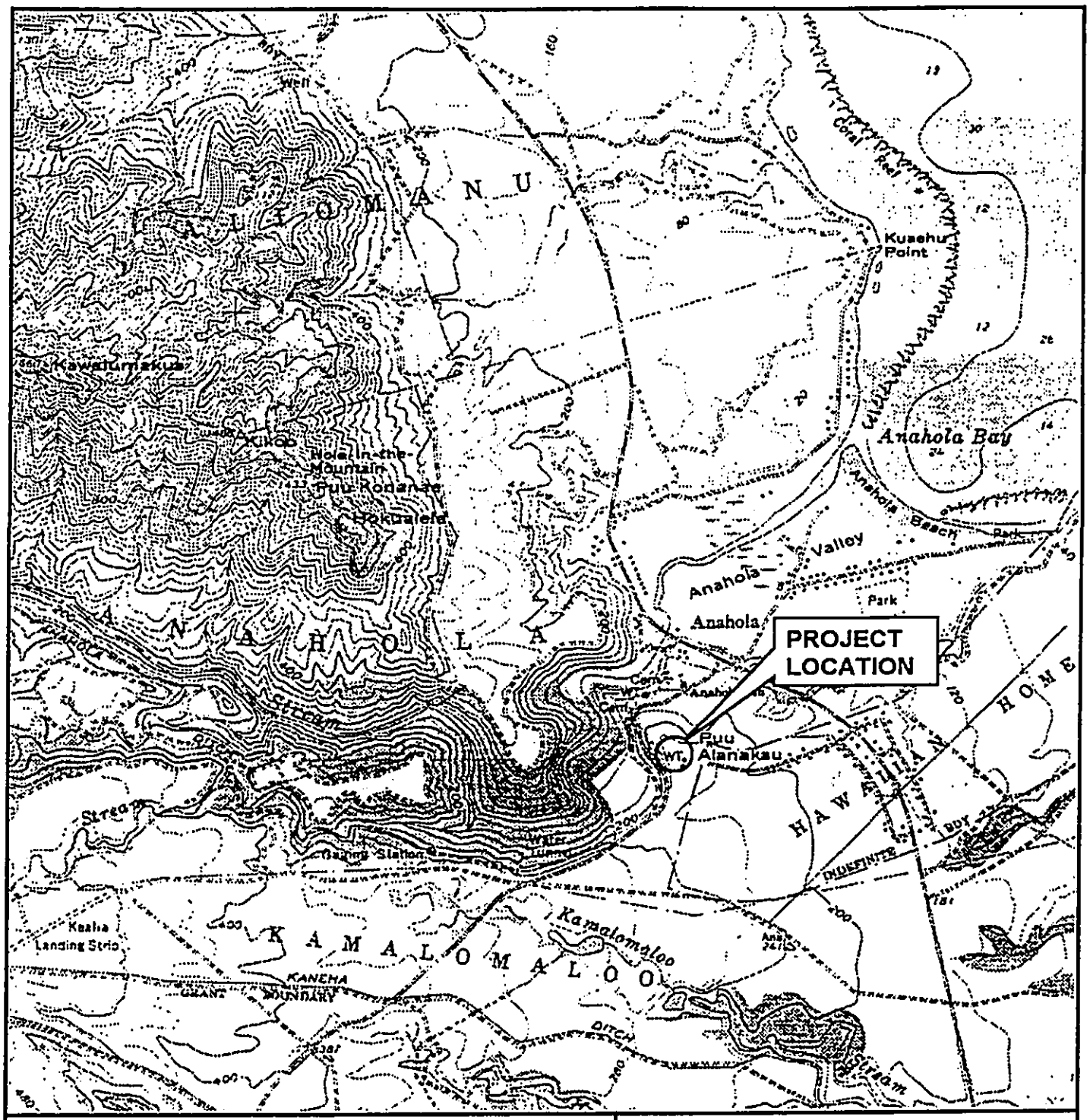


Figure 1
Location Map

PUU ALANAKAU

County of Kauai 800 Mhz Trunked Radio Communications Upgrade
Source: USGS Anahola Quadrangle
Scale: 1"=2000'

GERALD PARK URBAN PLANNER

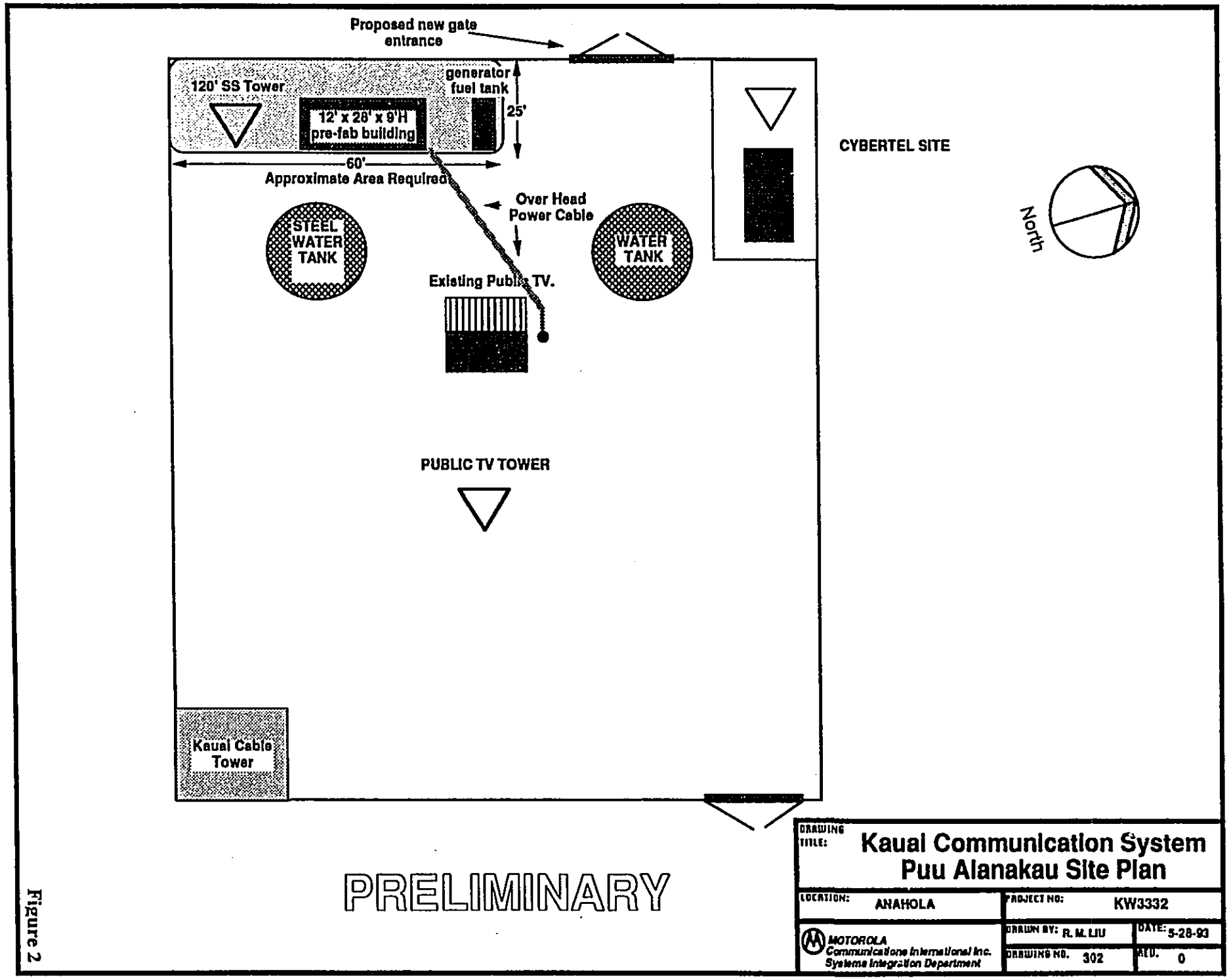
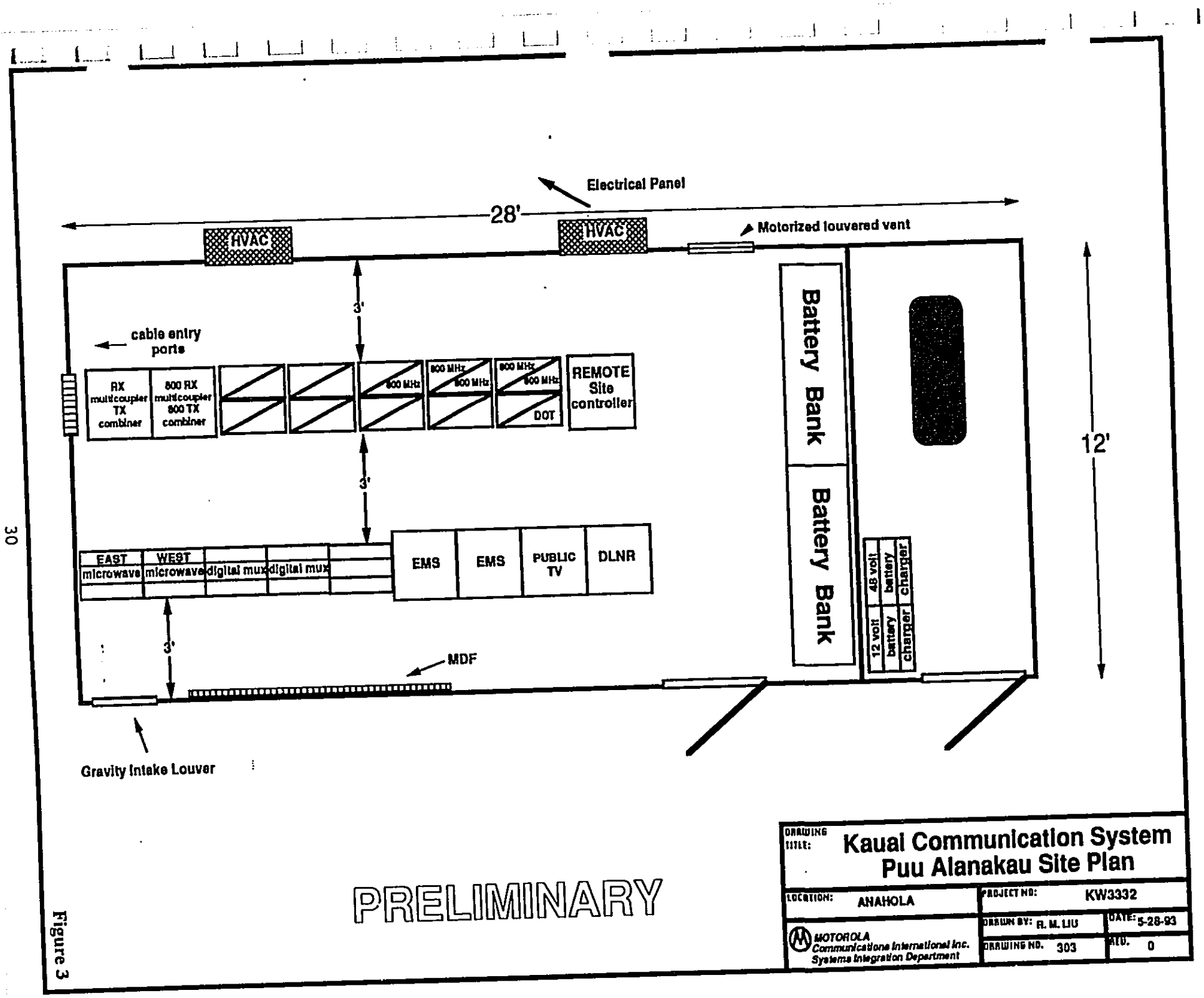

Proposed new gate entrance
120' SS Tower
generator fuel tank
12' x 28' x 9'H pre-fab building
25'
60'
Approximate Area Required
Over Head Power Cable
STEEL WATER TANK
WATER TANK
Existing Public TV.
CYBERTEL SITE
North
PUBLIC TV TOWER
Kauai Cable Tower
PRELIMINARY
DRAWING TITLE: Kauai Communication System Puu Alanakau Site Plan
LOCATION: ANAHOLA
PROJECT NO: KW3332
MOTOROLA Communications International Inc. Systems Integration Department
DRAWN BY: R. M. LIU
DATE: 5-28-93
DRAWING NO. 302
REV. 0

Figure 2



PRELIMINARY

DRAWING TITLE:	Kauai Communication System Puu Alanakau Site Plan		
LOCATION: ANAHOLA		PROJECT NO: KW3332	
MOTOROLA Communications International Inc. Systems Integration Department		DRAWN BY: R. M. LIU	DATE: 5-28-93
		DRAWING NO. 303	REV. 0

Figure 3

Kalepa Ridge
Site Profile

TAX MAP KEY:	3-8-02: por. 5
LAND AREA:	4.662 acres
Area of Use:	400 square feet
LANDOWNER:	Lihue Plantation Company Ltd.
EXISTING USE:	Communication Shed
NEAREST TOWN:	Hanamaulu
Distance From Site:	1 mile
PROPOSED USE:	Communication Facility
STATE LAND USE DISTRICT:	Conservation
Conservation District Subzone:	Limited
COUNTY ZONING:	None
SPECIAL MANAGEMENT AREA:	Not Located in SMA

A. Location and Existing Use

The Kalepa Ridge Relay Facility is planned atop the southernmost summit of Kalepa Ridge, a prominent physical landmark on the Hanamaulu Plain (See Figure 1). In general, Kalepa Ridge offers excellent line-of-sight viewing to the north and south and for this reason it is well used for communication and public safety purposes. GTE Hawaiian Telephone Company Incorporated owns and operates a repeater station and two towers, the State of Hawaii maintains airplane warning lights, and Lihue Plantation maintains a radio telephone station on the premises. One of the GTE Hawaiian Telephone Company Incorporated towers is located adjacent to the Lihue Plantation radio telephone hut; the repeater station and second tower are located about 550 LF to the north.

In addition, the KALEPA government triangulation station is located atop the southernmost summit of Kalepa Ridge.

The site is accessed from Kuhio Highway via Hulei Road which ends at the Hanamaulu Cemetary. From the cemetary, a paved, one-lane driveway winds up the ridge for about 1.5 miles to a large level area just below the summit. From here, a jeep trail about 15 feet wide and 300 feet long leads to the summit.

The driveway is a non-exclusive roadway and utility easement in favor of Hawaiian Telephone Company. The driveway is chained near the cemetary to limit public access.

B. Proposed Improvements

The Kalepa Ridge Relay Facility is part of the east/north leg of the transmission system. Equipment at the facility coordinates transmissions from the Lihue Dispatch Center to the south and a relay facility at Puu Alanakau to the north.

The planned facility is a voice and microwave radio relay with two-way communication equipment. The relay will be located on a 400 square foot site (20' X 20') reserved for Lihue Plantation Company, Ltd. The site is a level area approximately 15 feet below (to the north of) the summit of Kalepa Ridge and adjacent to an existing 40-foot tall microwave tower owned by GTE Hawaiian Telephone Company Incorporated.

An existing wooden hut owned by Lihue Plantation Company Limited and housing their radio telephone equipment will be removed and the site grubbed and graded in limited fashion. Approximately 8-10 cubic yards of fill will be placed on the north slope to widen the existing 12' X 12' pad to a 20' X 20' building pad. A 5-6 foot high retaining wall will probably be constructed on the bottom (north) side of the pad to retain fill material.

Radio equipment will be housed in a single story, pre-fabricated fiberglass building. The self-contained building measures 12'W X 20'L X 9'H and the interior will be air-conditioned. A 15 KW emergency generator will be housed in a separate compartment inside the building and an above-ground 250 gallon LPG fuel tank will be sited outside the building. A Site Plan and Elevation View are shown in Figures 2 and 3.

A 40-foot high steel monopole will be installed in the northwest corner of the site. Two 6-foot diameter solid dishes and two 13-foot fiberglass antennas will be mounted on the monopole. No security fence is planned for the site.

Primary power is available from existing Kauai Electric Company power lines at the summit. The station's emergency generator will operate only during power outages and routine maintenance testing.

During construction of the relay facility, the Lihue Plantation radio-telephone equipment will be temporarily relocated to another site. The equipment will be returned and housed in the new building when construction is completed.

C. Affected Environment

Topography

The southern summit of Kalepa Ridge comprises a 100 square foot area at elevation 709' above msl. The Lihue Plantation Company, Limited radio telephone site is located about 15 feet below on the north side of the summit at approximately the 693 foot elevation. The existing 144 square foot site (12' per side) was cut from the north sloping face and leveled. The wood framed radio telephone hut rests on an 8' X 8' concrete slab.

Soils

According to the Soil Conservation Service (1972) the site consists of Kalapa silty clay (40 to 70%) slopes of the Kalapa soil series. This soil is well drained and can pose a severe to very severe erosion hazard.

Hazards

No natural hazards have been identified.

Flora and Fauna

Flora consists of trees, shrubs, and weeds common to the Hawaiian Islands. Predominant species include Christmas berry (*Schinus terebinthifolius*), koa haole (*Leucaena leucocephala*) guava (*Psidium guajava*), guinea grass (*Panicum maximum*), ilima (*Sida spp.*), lantana (*Lantana camara*), lilikoi (*Passiflora edulis*), and sensitive plant (*Mimosa pudica)*. None of the species are rare, threatened or endangered.

Wildlife were neither observed nor heard during our site inspection.

Archaelogical Features

A recorded archaeological feature (Site 50-30-08-1827) lies atop the southern summit of Kalepa Ridge adjacent to the triangulation station monument. The site was discovered in 1990 when a human burial was uncovered during construction of the Kalepa Radio Station. The burial was disinterred by State archaeologists who also documented that additional human remains existed within a boulder rubble mound (Rosendahl, 1990). The area of the burials appeared to have once been a quarry and/or flake reduction activity area. State archaeologists evaluated the site as significant for its information content, as an excellent example of a site type, and as culturally valuable.

In late 1990, Rosendahl inspected three alternate radio station sites near the summit for GTE Hawaiian Telephone Company (See Figure 5). One of the sites, Alternate 1, located immediately mauka of the Lihue Plantation Company radio shack, was not tested because of its steep slope but was determined to be partially atop a portion of Site 1827. An alternate site (Alternate 2) was selected for the radio station site and subsequently a 40-foot high tower was erected thereon by GTE Hawaiian Telephone Company.

In November, 1993, staff of the Historic Preservation Program, Department of Land and Natural Resources, inspected the Lihue Plantation Company radio shack site. They concluded that the proposed project "will have no adverse effect on the significant historic sites located on the ridge if the platform base for the tower or monopole is built/constructed out from the hill. We would prefer that no further major impacts take place on top of this hill, including any type of grading work" (Historic Preservation Division, 1993).

Land Use Controls

The property is classified Conservation by the State Land Use Commission and designated **Limited Subzone**. The proposed use may be permitted in the Limited subzone by the Board of Land and Natural Resources. The site is general planned Open on the Lihue Community Plan.

Public Facilities

In general, the site is not serviced by public facilities. There are no county water and wastewater disposal systems or access to the site. Pole mounted overhead cables bring electrical power to the site. The poles are placed within utility easments along the eastern face of the ridge.

D. Potential Environmental Impacts

Limited grubbing and grading will enlarge the site to accommodate the equipment building, generator, fuel tank, and monopole. The site is relatively flat, small in size, and already has been modified thus erosion is not expected to be significant. Site work entails leveling the site to finish grade and depositing approximately 8-10 cubic yards of fill along the north side of the site. A 5-6 foot high retaining wall will be constructed on the bottom of the site to retain the filled area. Erosion control measures will be specified on a grading plan to be submitted for review and approval by the Department of Public Works.

No major excavation work is required that will affect or alter existing drainage patterns.

The south facing slope will not be graded as recommended by staff of the Historic Preservation Division. A smaller than 20' X 20' concrete slab will be constructed out from the base of the slope. Should subsurface archaeological or cultural deposits be unearthed, work in the immediate area will cease and historic authorities notified for proper disposition of the finds.

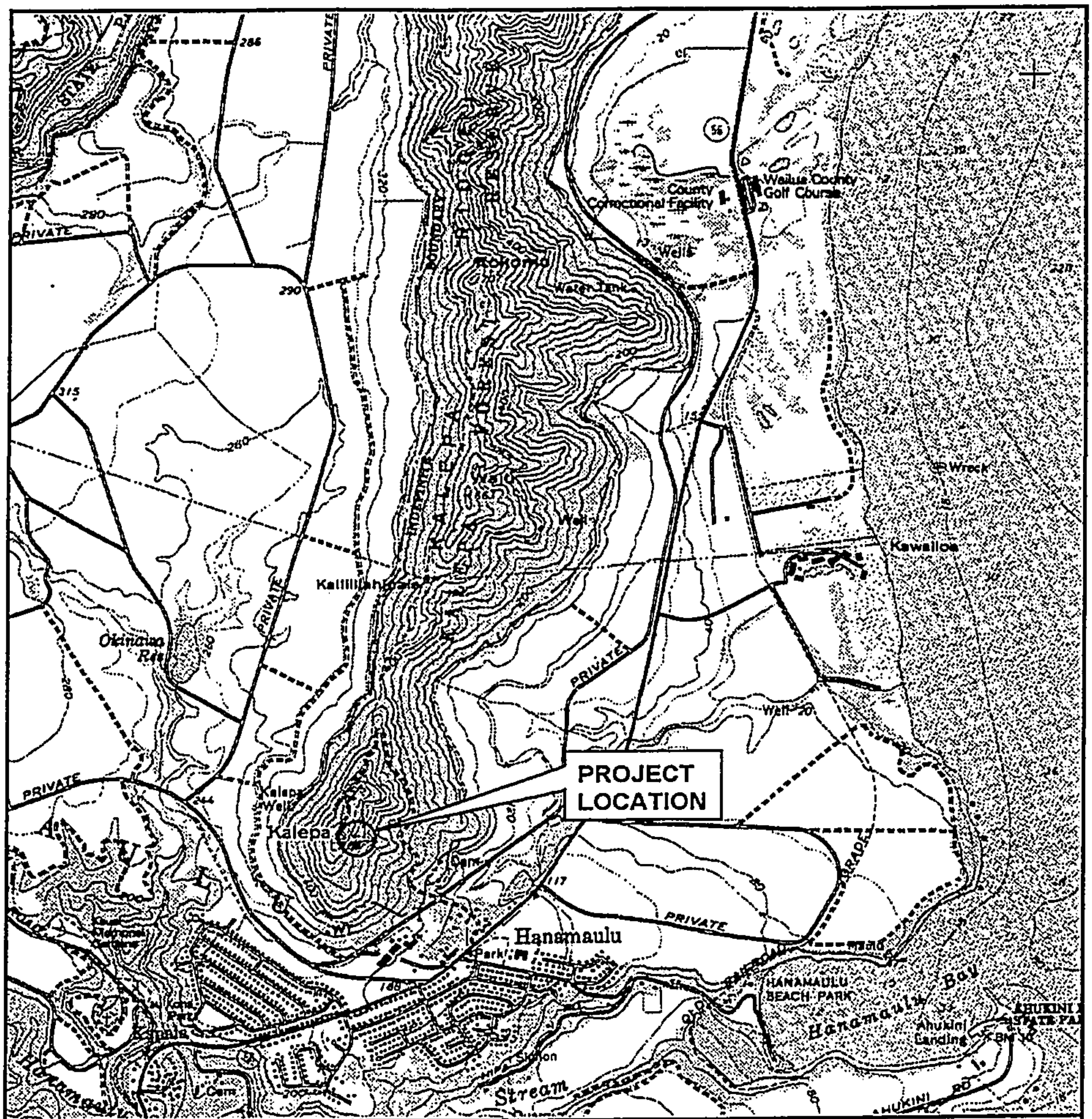
All vegetation within the radio station site will be grubbed. No significant effects are anticipated as the species observed are commonly found throughout Hawaii.

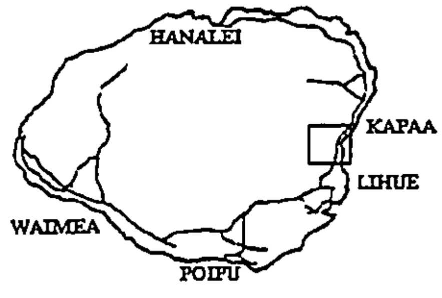
Following construction, equipment staging and material storage areas will be restored to near pre-construction condition.

The new facility will have minimal impact on access and traffic to the site. The existing driveway provides adequate access to the summit and its use is carefully controlled by GTE Hawaiian Telephone Company. The existing facilities already are routinely serviced by their users and the new facility should not result in a net increase in vehicle traffic to the site.

Kalepa Ridge rises about 700 feet above the flat coastal plain and is the most prominent physical feature in the Hanamaulu region. When seen from areas immediately below the ridge (for example, Kapule Highway), the existing radio towers, antennas, and aircraft beacon can be glimpsed amidst the skyline and ironwood trees in the background. Because of its height and size, the northernmost tower (owned by GTE Hawaiian Telephone Company) rises above the tree line and is the most visible object atop the ridge. Its visiblility is predicated also on being located in an area free of trees in order to have a clear alignment shot in the direction of Oahu.

The 40-foot high monopole should not adversely affect the scenic qualities of the ridge. It will be erected in an area already occupied by a radio tower and antennas and should not be readily distinguishable from these existing facilities. The slender shape of the monopole also makes it difficult to see from a distance and it will be painted to blend with its surroundings.





ISLAND OF KAUAI

True North

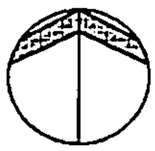
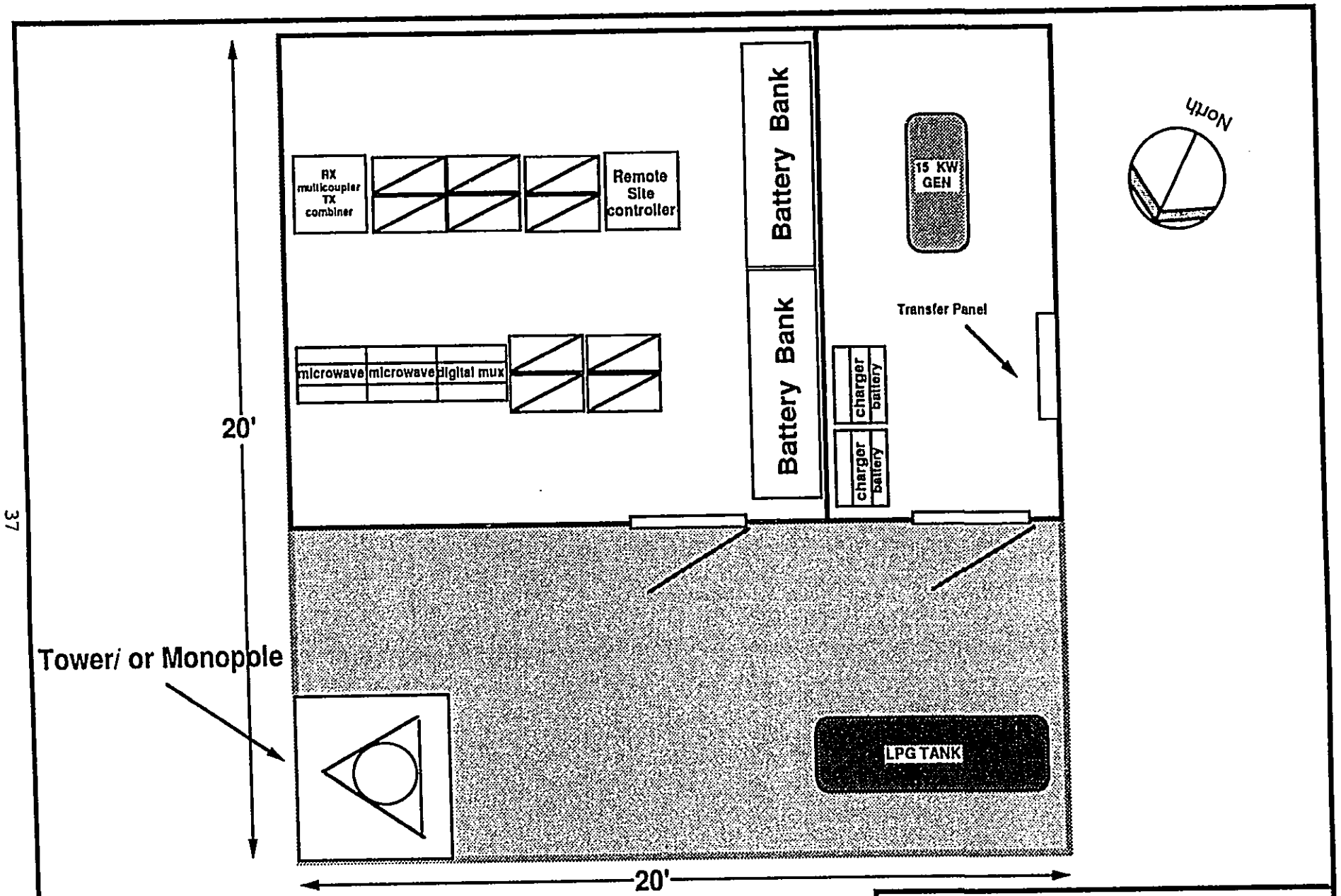


Figure 1
Location Map

KALEPA RIDGE

County of Kauai 800 Mhz Trunked Radio Communications Upgrade
Source: USGS Kapaa Quadrangle
Scale: 1"=2000'

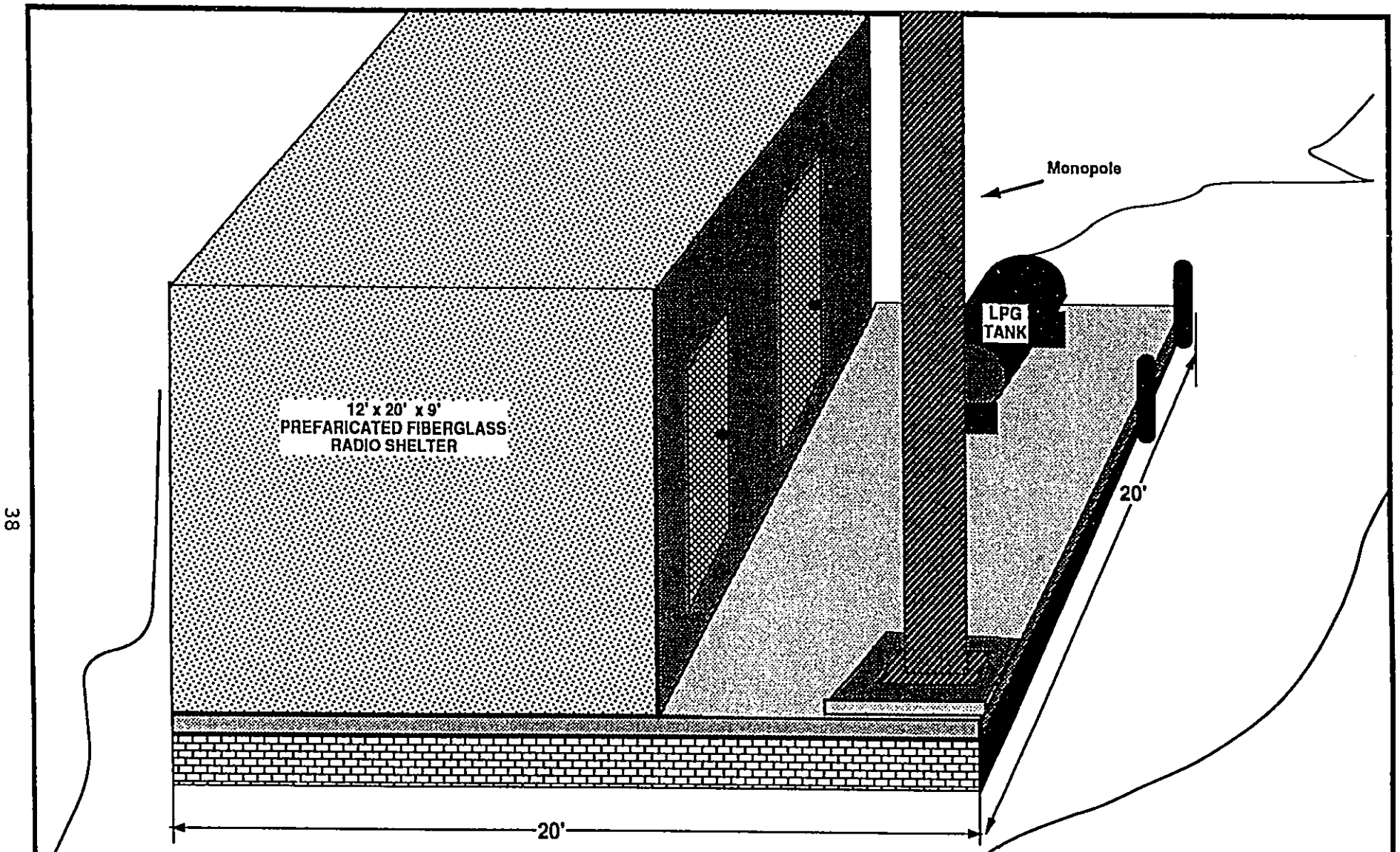
GERALD PARK URBAN PLANNER



PRELIMINARY

DRAWING TITLE:	KAUAI 800 MHZ SMARTNET SITE PLOT
LOCATION: Kalepa	PROJECT NO: KW3332
MOTOROLA Communications International Inc. Project Management Department	DRAWN BY: R. M. LIU; DATE: 11-15-93; DRAWING NO. 403A; REV. 1.1

Figure 2



PRELIMINARY

DRAWING TITLE:	KAUAI 800 MHZ SMARTNET SITE PLOT ELEVATION VIEW
LOCATION: Kalepa	PROJECT NO: KW3332
MOTOROLA Communications International Inc. Project Management Department	DRAWN BY: R. M. LIU DATE: 11-1-93 DRAWING NO. 402 REV. 1

Figure 3

Lihue Dispatch Center
Site Profile

TAX MAP KEY:	3-6-05: 6
LAND AREA:	6.58 acres
Area of Use:	3,360 square feet (Interior space) 560 square feet (Exterior area)
LANDOWNER:	County of Kauai
EXISTING USE:	Lihue Civic Center Shopping Center
NEAREST TOWN:	Lihue
PROPOSED USE:	Communication Facility
STATE LAND USE DISTRICT:	Urban
COUNTY ZONING:	Mixed Use, General Commercial
SPECIAL MANAGEMENT AREA:	Not Located in SMA

A. Location and Existing Use

The Lihue Dispatch Center will be located in the new Lihue Civic Center (formerly the Lihue Shopping Center). The new dispatch center will replace the existing Kauai County Dispatch Center located in the Kauai Police Department Headquarters Building on Umi Street in Lihue. Acquired by the County in 1986, the shopping center is being renovated for government use. The site and building space are large enough to meet current and future spatial demands of the County government. Eventually, all County line-agency offices will be centralized in this one location rather than being dispersed throughout Lihue.

The Civic Center occupies a prominent corner at the crossroads of several major east-west and north-south streets (See Figure 1). Rice Street borders the site to the south, Kuhio Highway to the west, Hardy Street to the north, and Eiwa Street to the east. All have driveways leading into the Civic Center.

B. Proposed Improvements

The Lihue Dispatch Center is the control point for the entire communications network. The Center will house all electronic equipment related to the master control of the 800 MHz trunked radio system and the digital microwave transmission system. The Dispatch Center will occupy approximately 3,360 square feet of space in the southwest corner of the former shopping center. The space was most recently occupied by First Hawaiian Bank and is near to a loading dock located at the rear of Big-Save Market.

Space is allocated for four dispatcher consoles (of which one is a backup), one supervisor console, a conference room, locker rooms, toilet facilities, battery room, and breakrooms. All system operations will be carried out in a temperature controlled and secured environment. Although the other sites in the system are unmanned, the Lihue Dispatch Center will be staffed 24 hours a day, 7 days a week.

A 50-foot tall steel monopole will be erected outside the Dispatch Center in the inside corner of the building (See Figure 2). The monopole will support two 6' microwave antennas. One antenna connects via a dish to dish passive repeater to the first east link station at Kalepa Ridge. The second antenna connects via a microwave repeater at Grove Farm to the first west link station at Kukiolono Park. This location is close to the Dispatch Center, requires less cabling between antenna and control equipment (thus minimizing signal loss), and situated away from driveways and traffic lanes in the parking lot.

A 15 KW emergency generator, above-ground 250 gallon LPG tank, and a compressor for the air conditioning system will be located outside the center adjacent to the monopole. This exterior area is approximately 560 square feet. A 6-foot high wall will be erected around the outside facilities to conceal them from view and to protect them being damaged by passing vehicles.

C. Affected Environment

The Dispatch Center will be located on a city block in the center of [the]Lihue, the largest urban place on Kauai. Lihue is the gateway to Kauai for practically all of the island's visitors, the center of the island's business community, and the County seat. Downtown Lihue is organized around commercial and financial activities primarily along Rice Street and the existing civic center which consists of State and County government facilities.

Unlike other planned County radio sites in uninhabited and generally undeveloped areas, the Lihue site has been developed and put to a high intensity urban use for many years. Thus, there are no natural environmental features to report on. The site is devoid of native flora and fauna; there are no archaeological features on the premises; the site is not prone to flooding; and the site has been graded relatively level and the land exhibits no unusual physiographic characteristics.

The Albert Spencer Wilcox Building (the Kauai Museum), which is a registered feature on the State and National Registers of Historic Places, is located about 150 feet from the proposed dispatch center at the corner of Rice and Eiwa Streets. The building sits on a separate parcel from the project site. A second feature on both the State and National Registers of Historic Places, the Lihue Civic Center Historic District, is located to the east of the dispatch center across Eiwa Street.

The site is zoned Mixed Use and General Commercial by the County. Class IV Zoning and Use Permits are required by the County as part of their approval process.

The site is well served by the adjoining street network and water, sewer, communication, and power systems are adequate and available. Ample off-street parking surrounds the Civic Center on three sides.

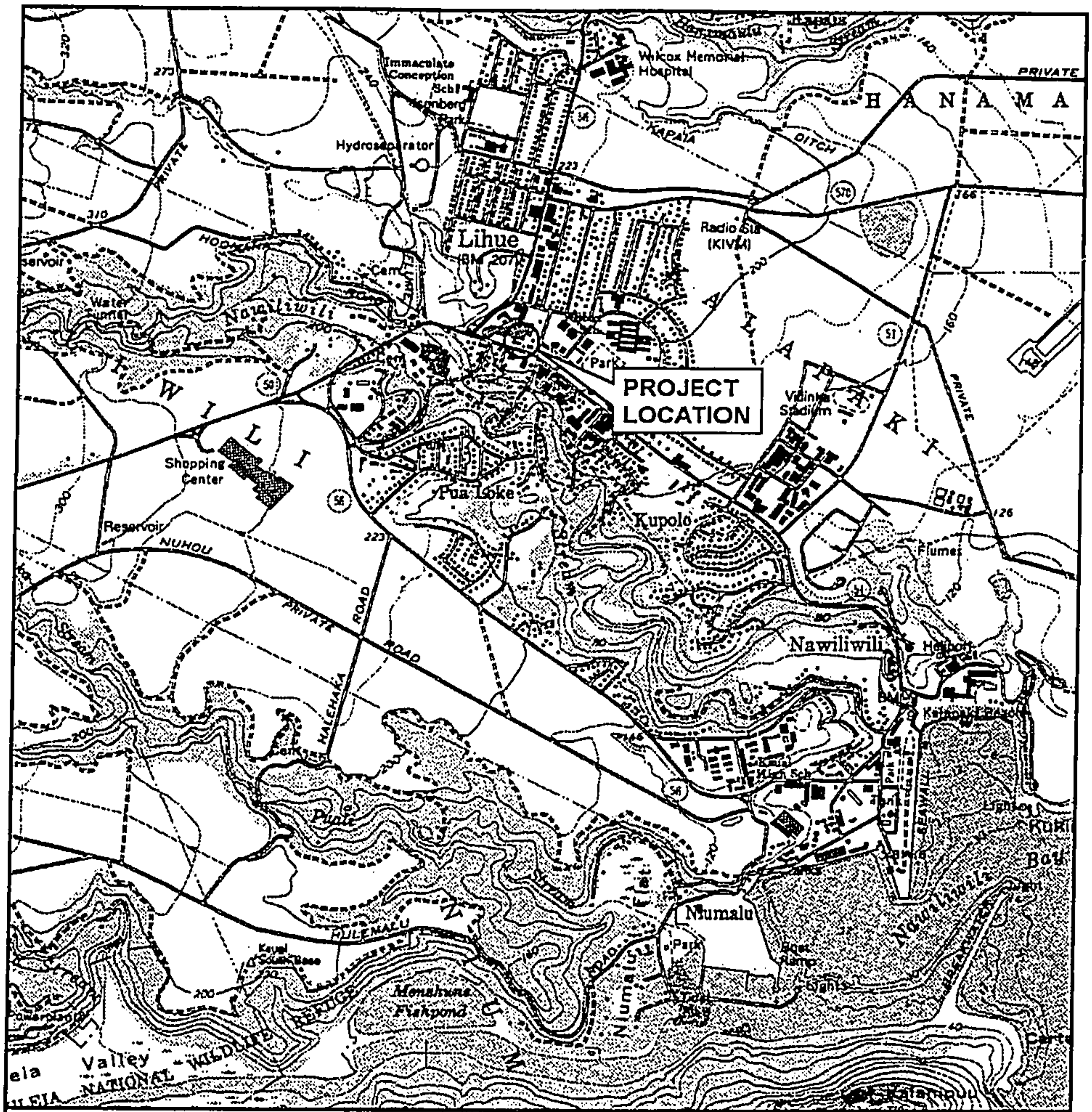
D. Potential Environmental Impacts

Most of the planned improvements for the Dispatch Center will be confined to an interior area and geared towards accommodating the various transmitters, controllers, terminals,consoles and personnel needed to operate the entire system. Existing power, communication, and air conditioning systems will be upgraded to accommodate the additional loading. The interior will be designed to provide an efficient layout and suitable work environment for equipment and staff.

A slender monopole was selected for this site because of visual concerns. The 50-foot antenna is the minimum height necessary to clear above grade obstructions for microwave radio and voice radio transmission/reception northeast to Kalepa Ridge and southwest to Grove Farm.

The monopole is not anticipated to obstruct views across the new Civic Center from any locale near the Civic Center. The antenna will appear as a new object in the Lihue skyline and will be seen from various places in downtown Lihue and from areas outside the city. This impact cannot be avoided.

The 6-foot high wall will shield support facilities from public view although the monopole will rise above the wall. The wall will be constructed of materials to match the exterior of the main building.



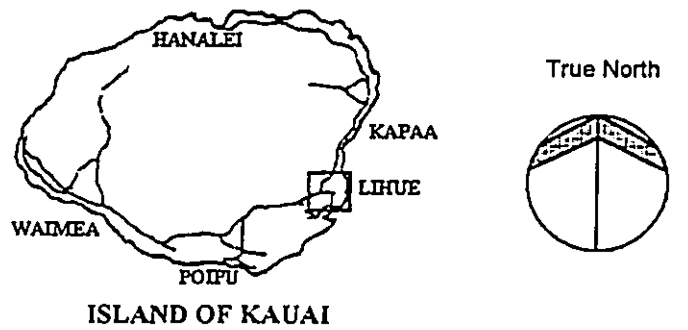


Figure 1
Location Map

LIHUE DISPATCH CENTER

County of Kauai 800 Mhz Trunked Radio Communications Upgrade
Source: USGS Lihue Quadrangle
Scale: 1"=2000'

GERALD PARK URBAN PLANNER

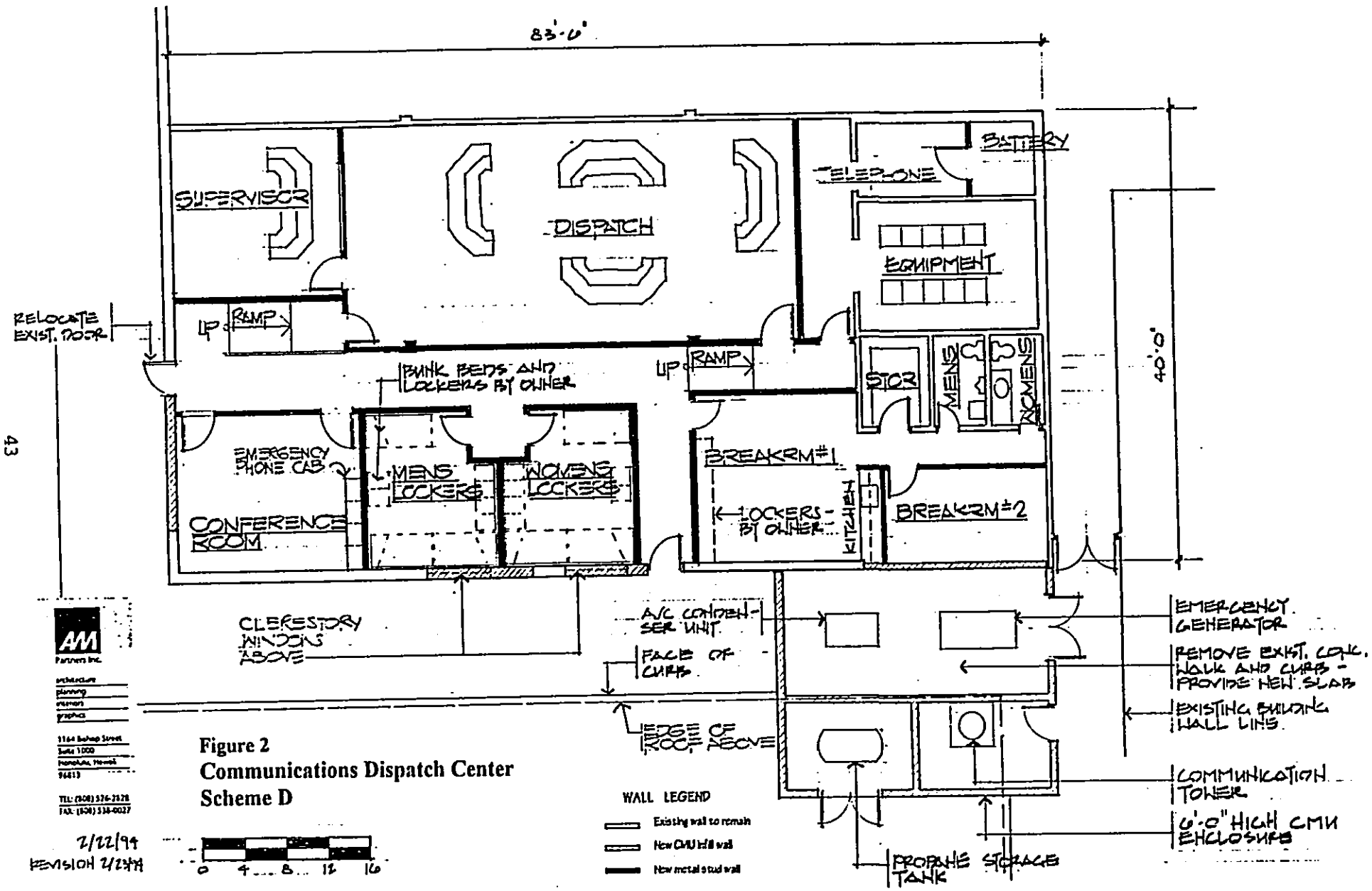


Figure 2
Communications Dispatch Center
Scheme D

2/22/94
REVISION 2/24/94

AM Partners Inc.
architecture
planning
interiors
graphics
1164 Bishop Street
Suite 1000
Honolulu, Hawaii
96813
TEL: (808) 526-2928
FAX: (808) 538-0027

Grove Farm (Laaukahi Peak)
Site Profile

TAX MAP KEY:	2-8-01: por. 1,2, 5
LAND AREA:	782 acres
Area of Use:	5 square feet (Interior space)
LANDOWNER:	Grove Farm Co. Ltd.
Lessee:	Motorola Communications and Electronics, Inc.
EXISTING USE:	Communication Facility
NEAREST TOWN:	Lihue
PROPOSED USE:	Radio Tower
STATE LAND USE DISTRICT:	Conservation
Conservation District Subzone:	Protective
COUNTY ZONING:	None
SPECIAL MANAGEMENT AREA:	Not Located in SMA

A. Location and Existing Use

The proposed Grove Farm station will be located atop the summit of Laaukahi Peak which overlooks the Lihue Plain and the Koloa-Poipu areas (See Figure 1). The site is leased to and the existing station operated by Motorola Communications and Electronics, Inc. A 50-foot tall tower, antennas belonging to several commercial users, an equipment shed, generator pad, and helicopter landing (60 sf) area are the primary improvements atop the summit.

B. Proposed Improvements

No major site improvements are proposed. A weatherproof cabinet housing a battery system will be installed inside an existing equipment building atop the summit (See Figure 2). The battery system is required to operate an amplifier repeater that will be housed in the existing equipment shed.. Two 8' diameter microwave dish antennas will be mounted on the tower to link with Lihue Dispatch to the west and Kukuiolono Park to the east.

C. Affected Environment

Laaukahi Peak was originally developed as a private telecommunications facility in the early 1960's by Grove Farm Co. Ltd. In 1976 Motorola secured the lease to the site and has since used the site for commerical communication purposes. In 1986 conservation district use approval was given to the lessee to construct an equipment building and to relocate power lines leading to the

summit. A similar approval was received in 1989 to expand the existing facilities, replace an existing tower, and to build a helicopter landing area. In 1992 the site was damaged by Hurricaine Iniki. Conservation district use approval was given in 1993 to allow emergency repairs to the damaged facilities.

The summit of Laaukahi Peak stands at the 1,388 foot elevation and is inaccessible by motor vehicle. There is no road to the site and access is primarily by helicopter; however, the site can be gained from below by hiking a steep winding dirt trail to the summit.

There are no rare, threatened, or endangered flora on the premises. A botanical survey of the summit area conducted in 1986 noted the presence of louegrass (*Eragrostis variablis*), guava (*Psidium guajava)*, and the shrubs *Jamaica verbian* and *Verbena utoralis*. Below the summit, lauhala (*Pandanus odoratissimus)*, lantana (*Lantana camara*), kukui (*Aleurites moluccana*), paperbark (*Melaleuca leucandendra*), koa (*Acacia koa)* and melastoma were observed (Kauai Nursery and Landscaping, 1986).

There are no recorded historic features atop the summit.

Laaukahi Peak is classified Conservation by the State Land Use Commision and placed in the Limited subzone on Conservation District maps. A Conservation District Use Application is required to construct the proposed improvements.

There are no on-site water, sewer, and telephone systems. Power to the communication station is provided by a 12KV line.

D. Potential Environmental Impacts

The improvements proposed for the station requires no alteration to the site. The battery system and charger will be installed inside an existing equipment building.

The dish antennas will not adversely affect existing views of Laaukahi. These additions generally should go unnoticed and fit in with similar facilities and uses already in place.

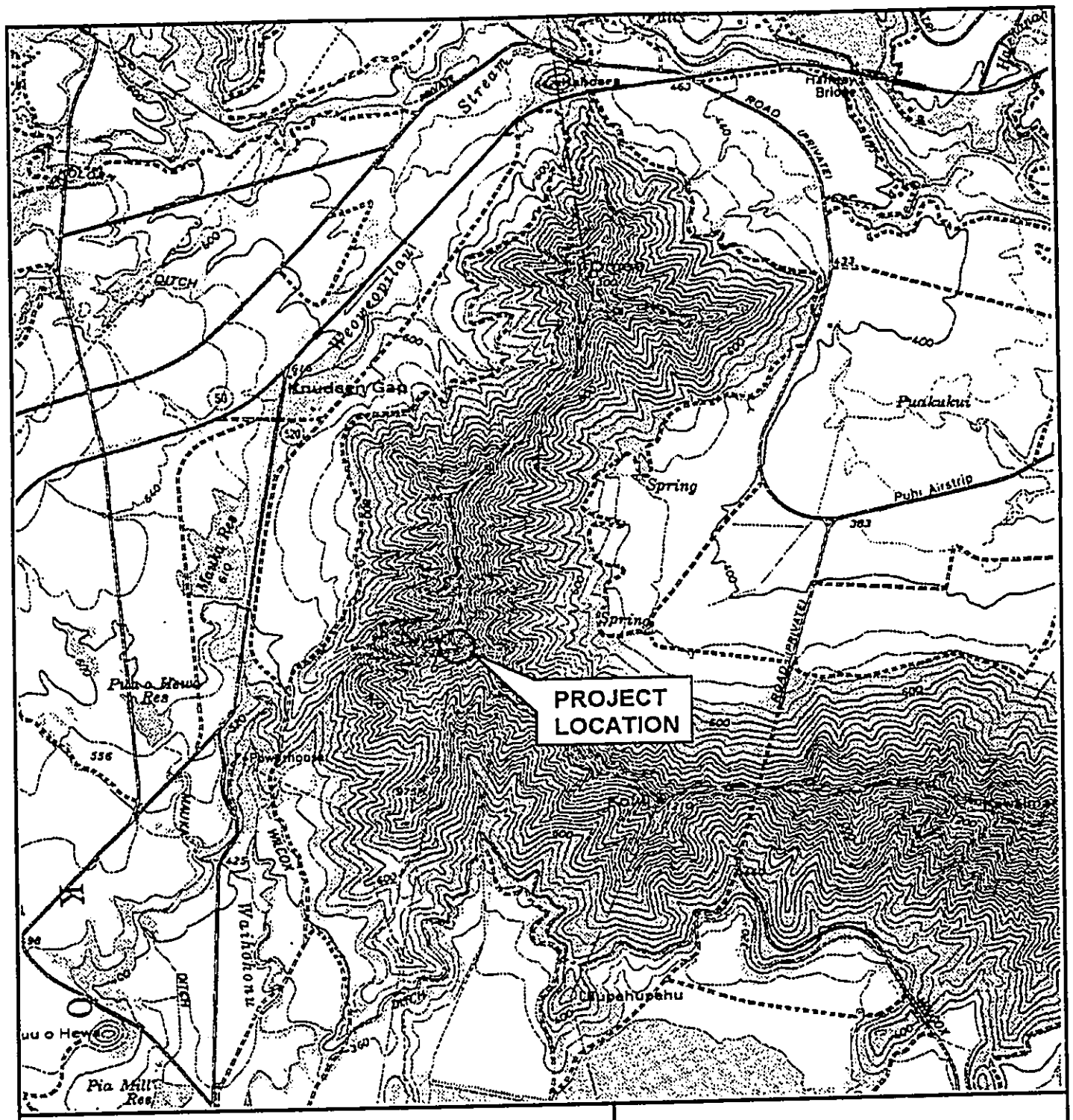


Figure 1
Location Map

GROVE FARM

County of Kauai 800 Mhz Trunked
Radio Communications Upgrade
Source: USGS Koloa Quadrangle
Scale: 1"=2000'

GERALD PARK URBAN PLANNER

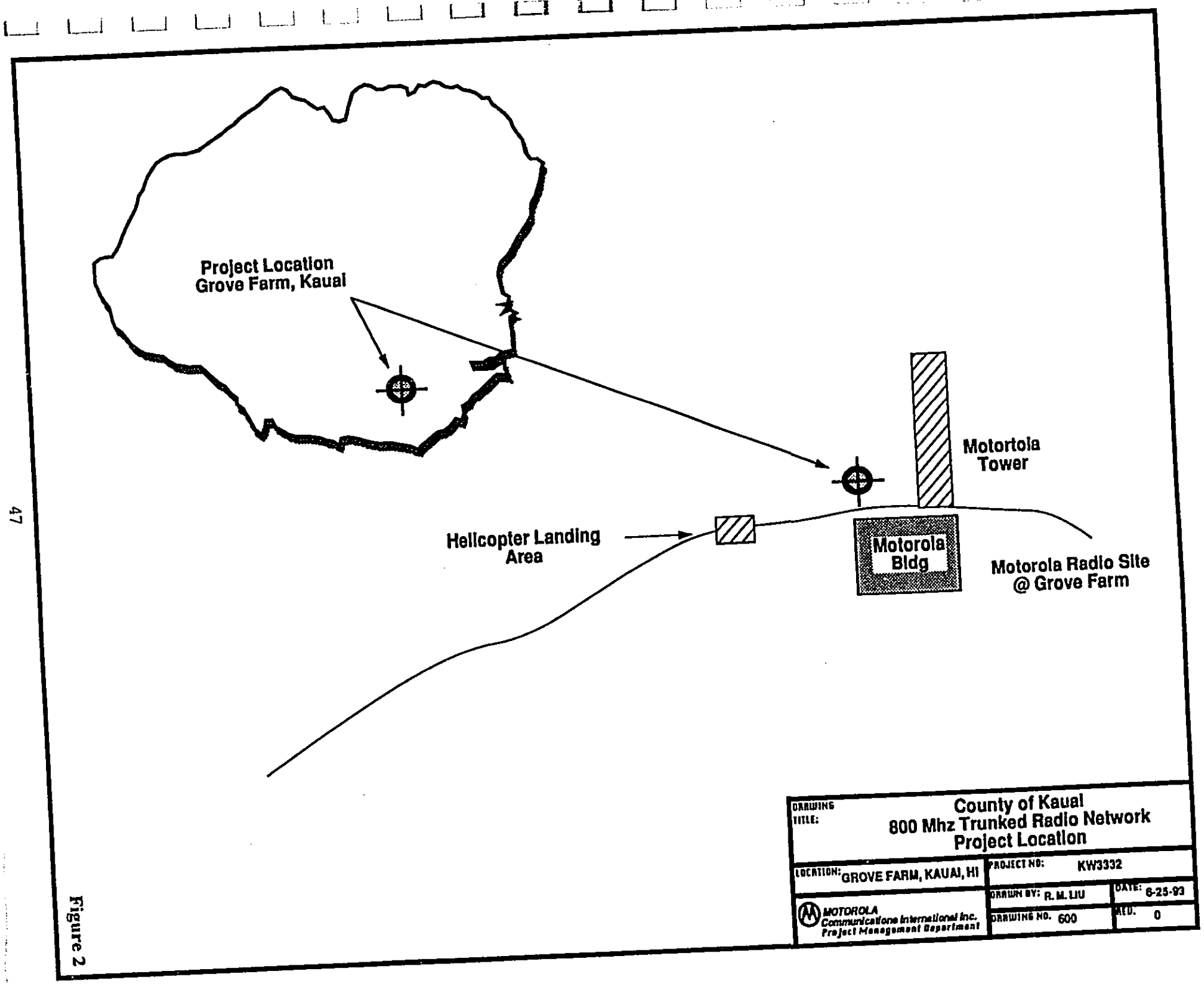

Project Location
Grove Farm, Kauai
Motortola
Tower
Hellcopter Landing
Area
Motorola
Bldg
Motorola Radio Site
@ Grove Farm
DRAWING TITLE:
County of Kauai
800 Mhz Trunked Radio Network
Project Location
LOCATION: GROVE FARM, KAUAI, HI
PROJECT NO: KW3332
DRAWN BY: R. M. LIU
DATE: 6-25-93
MOTOROLA
Communications International Inc.
Project Management Department
DRAWING NO. 600
REV. 0

Figure 2

Kukuiolono Park
Site Profile

TAX MAP KEY:	2-3-05: por. 10
LAND AREA:	28.205 acres
Area of Use:	[2,800] 2,280 square feet
LANDOWNER:	McBryde Trust
EXISTING USE:	Golf Course
NEAREST TOWN:	Kalaheo
PROPOSED USE:	Communication Facility
STATE LAND USE DISTRICT:	Conservation
Conservation District Subzone:	General
COUNTY ZONING:	None
SPECIAL MANAGEMENT AREA:	Not Located in SMA

A. Location and Existing Use

The existing County radio site is located adjacent to an existing Department of Water water storage reservoir on the north side of the Kukuiolono Park Golf Course (See Figure 1). The radio facility consists of a 6'W X 8'L X 8'H equipment shed, an above ground propane gas tank, antennas mounted atop a 40-foot high timber pole, and a generator. The facility occupies an approximately 150 square foot area in the northeast corner of the reservoir. The equipment shed is attached to the exterior wall of the reservoir. Currently, the County[s] Police, Fire, Public Works, and Water Departments and the State of Hawaii Department of Transportation, Department of Land and Natural Resources (Forestry Division), and Emergency Medical Services operate from the site.

A new radio site will be developed approximately [1,500] 750 lineal feet to the south of the existing radio station. The site is located adjacent to the golf course on flat land downslope and behind the greens of Hole Nos. 1 and 8. This part of the golf course is marked by out of bounds stakes at the bottom of the receding slope behind both greens. The site is vacant and covered with trees and brush. The County will acquire the site from the McBryde Trust.

B. Proposed Improvements

The Kukuiolono Radio Relay is the main 800 MHz propagation station for the west/south leg of the County radio system. Equipment at this station coordinates transmissions with Grove Farm to the east, Radio Station Kukui to the northwest, and Kokole Point to the west.

The planned facility [is a radio microwave repeater with] **includes a microwave system and 800 MHz trunked radio station for** two-way communication.[equipment.] The facility will be located on a 7**6**[0]' X [4[**3**0' building site ([2,800] **2,280** square feet) as shown on the attached site plan (Figure 2).

The site will be grubbed of vegetation and some of the taller trees trimmed. Limited grading is necessary to achieve design elevations.

All radio equipment will be housed in a prefabricated fiberglass building (See Figure 3). The building measures 28' L X 12' W X 9' H and will be secured on the southeast portion of the site. A 15 KW emergency generator will be housed in a separate compartment inside the buiding. A 250 gallon LPG above ground fuel tank will be placed outside and 10 feet away from the building. Exposed areas will be covered by a layer of gravel for erosion and weed control.

A [60] **70**-foot high monopole will be installed on the site. The monopole rises [slightly] above the *treeline and will provide unobstructed transmission and reception between Radio Station Kukui,* Kokole Point, and Grove Farm. **The increase in height of the antenna is necessitated by the need to provide adequate radio coverage from the station site. Although a 60-foot monopole is of sufficient height for transmitting/receiving radio signals from the aforementioned radio stations, a radio coverage study revealed that some shading in the Kalaheo area and out to Eleele and Hanapepe could occur. To mitigate this potential shortcoming in radio coverage, the Department of Public Works has decided to increase the height of the monopole antenna to 70-feet.**

Primary power is available from existing Kauai Electric Company distribution lines. Power lines will be brought to the site from a power pole approximately [1,500] **760** lineal feet away. **A 10-foot wide utility easement will be established and** [T]the power line will be buried in a 4" wide by 18-24" deep trench and housed in conduit. A 200 foot section will cross the 9th fairway just forward of the mens 9th tee. Placing the line underground requires excavation and stockpiling dirt and the open trench will be clearly marked for the safety of golfers. This phase of work will be coordinated with the golf course superintendent to minimize any inconvenience to golfers and to negate any interruptions to play.

The communications building comes equipped with an emergency 15 KW LPG generator that will operate automatically during commercial power outages. Periodic maintenance testing will assure that the generator is in proper working condition.

An existing 50-foot long dirt road to the site off the main driveway to the golf course clubhouse will be improved to access the radio station. The station will be enclosed by a chain link fence with some landscaping around the enclosed compound. **Both the equipment building and fencing may be painted to blend with its background.**

When the facility is completely operational, the existing County of Kauai communications shed and equipment will be removed.

C. Affected Environment

The proposed Kukuiolono Park Radio Relay Facility will be located on the Kukuiolono Golf Course behind the Nos. 1 and 8 greens and the Number 9 womens tee. The 9-hole golf course is accessed from Papalina Road by a driveway that passes to the east of the new radio site.

Soil Conservation Service (1972) soil maps identify a single soil type---Puhi silty clay loam (PnB) ---covering the property. This soil is moderately permeable, runoff is slow, and the erosion hazard is slight.

Ground elevation is estimated at about 865 feet above sea level across the entire radio site. The golf course superintendent indicated that the site used to be a roadway which explains its flat grade. In comparison, the elevation of the green of Hole No. 1 is estimated at elevation 885 feet or about 20 feet higher than the radio site.

Kukuiolono Park does not lie in an identified flood hazard area.

There are no recorded archaeological features on the premises and none were observed during our field inspection.

The radio station site is covered by trees and brush. Trees include kukui *(Aleurites moluccana)*, swamp mahogany *(Eucalyptus robusta)*, and silver oak *(Grevillea robusta)*. Koa haole *(Leucaena leucocephala)*, *kalamona (Cassia glauca)*, and guinea grass *(Panicum maximum)* dominate the understory.

The radio station site as well as all of Kukuiolono Park is designated Conservation on State land use district boundary maps and classified General subzone on Conservation district maps.

Electrical power is available from overhead transmission lines along the golf course driveway.

There is no water service or liquid waste disposal system on the premises.

D. Potential Impacts

The building site will be graded slightly to accommodate the 12' X 28' prefabricated building. The site is relatively flat and has been previously modified by grading and use as a driveway.

Ambient air quality will be affected temporarily by combustion emissions and fugitive dust. Most construction equipment are diesel powered and emit exhaust emissions typically high in nitrogen dioxide and low in carbon monoxide. It is unlikely for State Department of Health air quality standard for nitrogen dioxide to be exceeded during construction. Emissions will be dispersed by the prevailing winds.

Fugitive dust will be raised during site preparation activities. Dust cannot be avoided but the small area required to site the new building and the use of standard construction dust prevention measures such as water sprinkling and planting exposed area with groundcover will negate potentially adverse impacts. Other control measures are stipulated in the County of Kauai Grading

Ordinance and State Department of Health air pollution control regulations (Chapter 60, Administrative Rules).

Temporary and unavoidable construction noises will occur during the 45-day construction period. Sound levels in the range of 85-96 dB(A) will be generated by heavy equipment, trucks, and hand held power tools. Construction noise will be audible to passersby and at different locations within the golf course. The No. 1 and 8 greens and No. 9 men and womens tees are closest to the construction site and golfers putting or teeing off may be disturbed by noise. Although construction noise cannot be eliminated entirely, construction work and hence noise will be limited to the hours between 7:00 am to 3:30 pm, Monday through Friday.

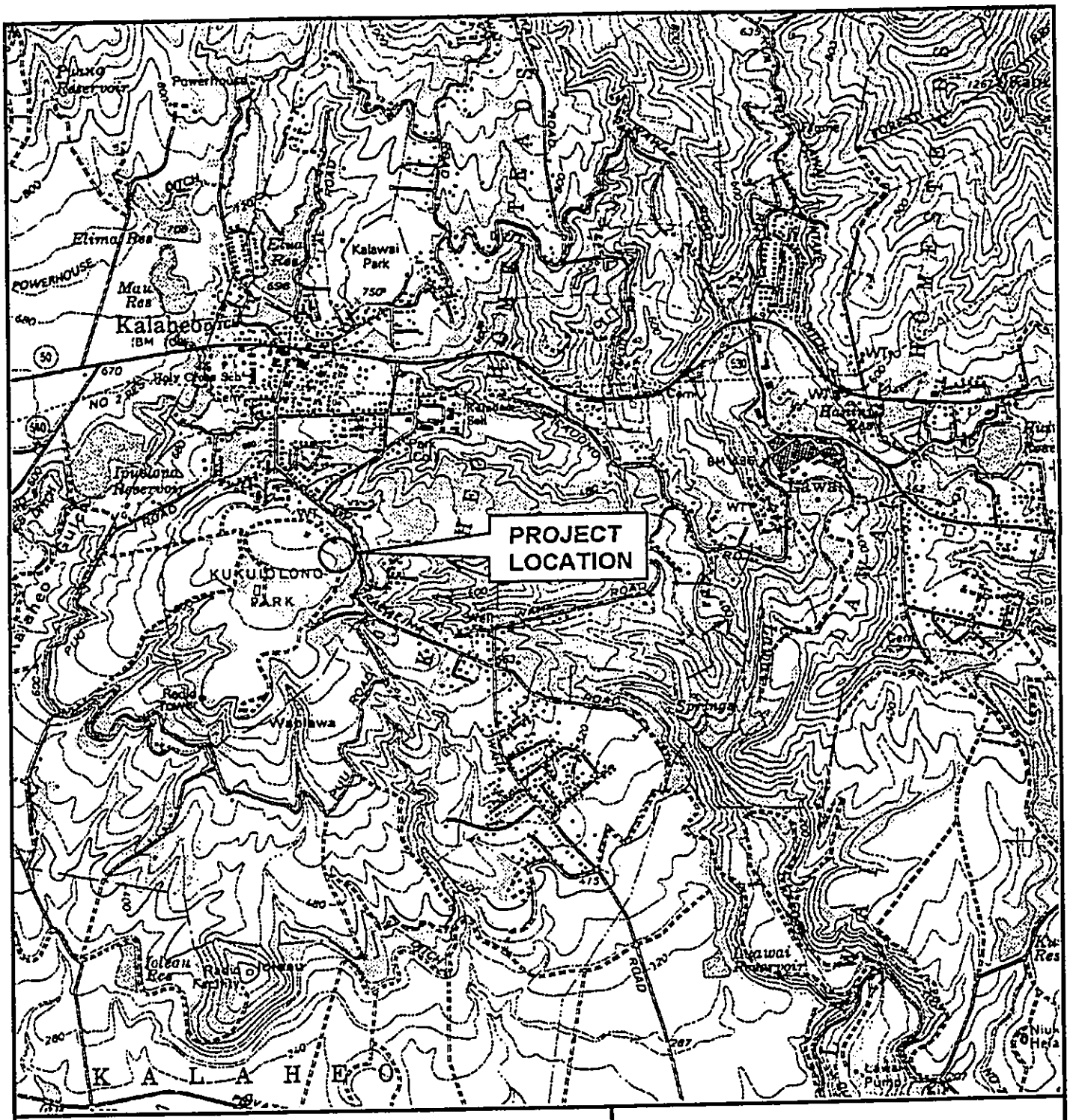
Should subsurface archaeological or cultural deposits be unearthed, work in the immediate area will cease and historic authorities notified for proper disposition of the finds.

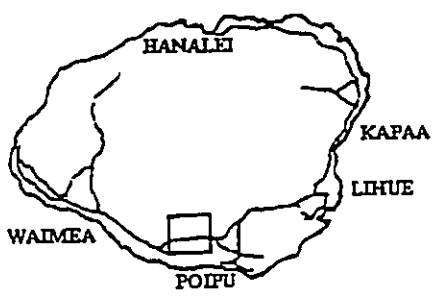
No significant increase in vehicle traffic is expected. The movement of men, equipment, and materials will be scheduled to minimize interference with golf course traffic.

Because of its downslope location, the equipment building will be visible from the surrounding tees and greens. Landscaping the perimeter will partially but not entirely screen it from view even when seen from the golf course driveway. On the other hand, the monopole and antennas mounted thereon will be visible from locations both on and off the golf course. From the golf course clubhouse (and depending on viewing angle), the [antenna may] **monopole will** be visible just above or between the stand of pine trees behind the No. 1 hole. The top of the [antenna] **monopole** will be clearly visible along the length of the No. 8 hole. Depending on the location of the [antenna] **monopole** behind the No. 8 green, [the antenna] **it** could be used as an aiming marker to assist golfers in playing the par 3 8th hole. The radio site will not interefere with play and both building and antenna will be painted to blend with the background. **The monopole and mounted antennas will be visible from several locations within the Kalaheo community and from surrounding areas primarily to the east of Kukuiolono Park. Tall trees planted along the eastern edge of the Park will partially screen the monopole from view. The slender shape of the monopole also makes it difficult to see from a distance and it will be painted to blend with its surroundings.**

The increase in height of the monopole is justified to mitigate potential shading problems in communities along the southwest coast. No signficant difference in visual impacts between a 60-foot and 70-foot monopole is anticipated. The increase in height, however, will provide for improved radio coverage and enhance the functioning of the system.

Existing communication facilities on and near Kukuiolono Park strongly suggest that the use of the site for radio communication purposes is an accepted use of conservation district lands. Applicant is not introducing a new use to the area but is seeking to locate an upgraded facility in an area of sufficient size to accommodate the proposed use and in a suitable location where natural and man-made features do not interefere with radio and microwave transmission and reception.





ISLAND OF KAUAI

True North

Figure 1
Location Map

KUKUIOLONO PARK

County of Kauai 800 Mhz Trunked Radio Communications Upgrade
Source: USGS Koloa Quadrangle
Scale: 1"=2000'

GERALD PARK URBAN PLANNER

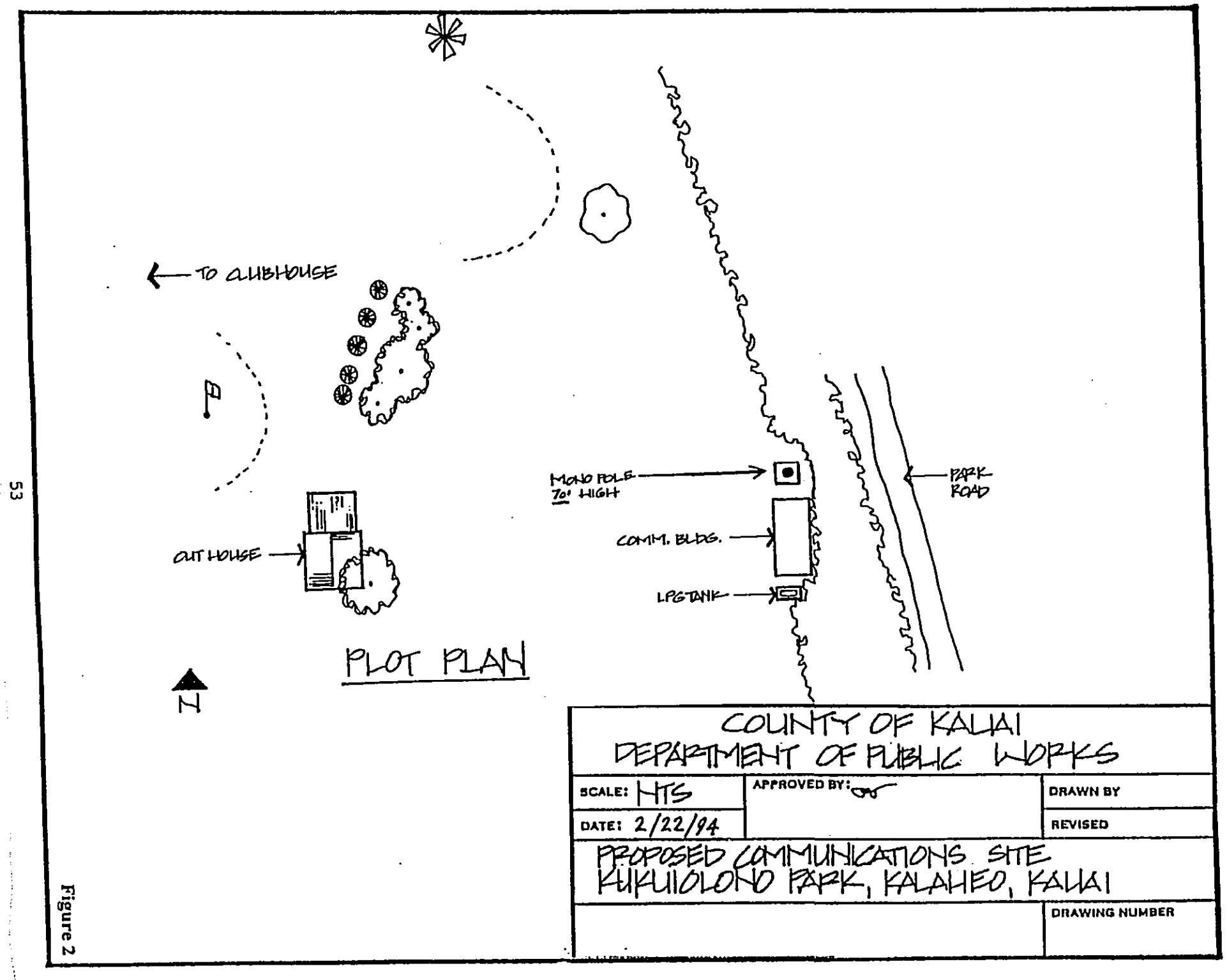

TO CLUBHOUSE
MONO POLE
70' HIGH
COMM. BLDG.
LPG TANK
PARK
ROAD
CUT HOUSE
N
PLOT PLAN
COUNTY OF KAUAI
DEPARTMENT OF PUBLIC WORKS
SCALE: NTS
APPROVED BY:
DRAWN BY
DATE: 2/22/94
REVISED
PROPOSED COMMUNICATIONS SITE
KUKUIOLONO PARK, KALAHEO, KAUAI
DRAWING NUMBER

Figure 2

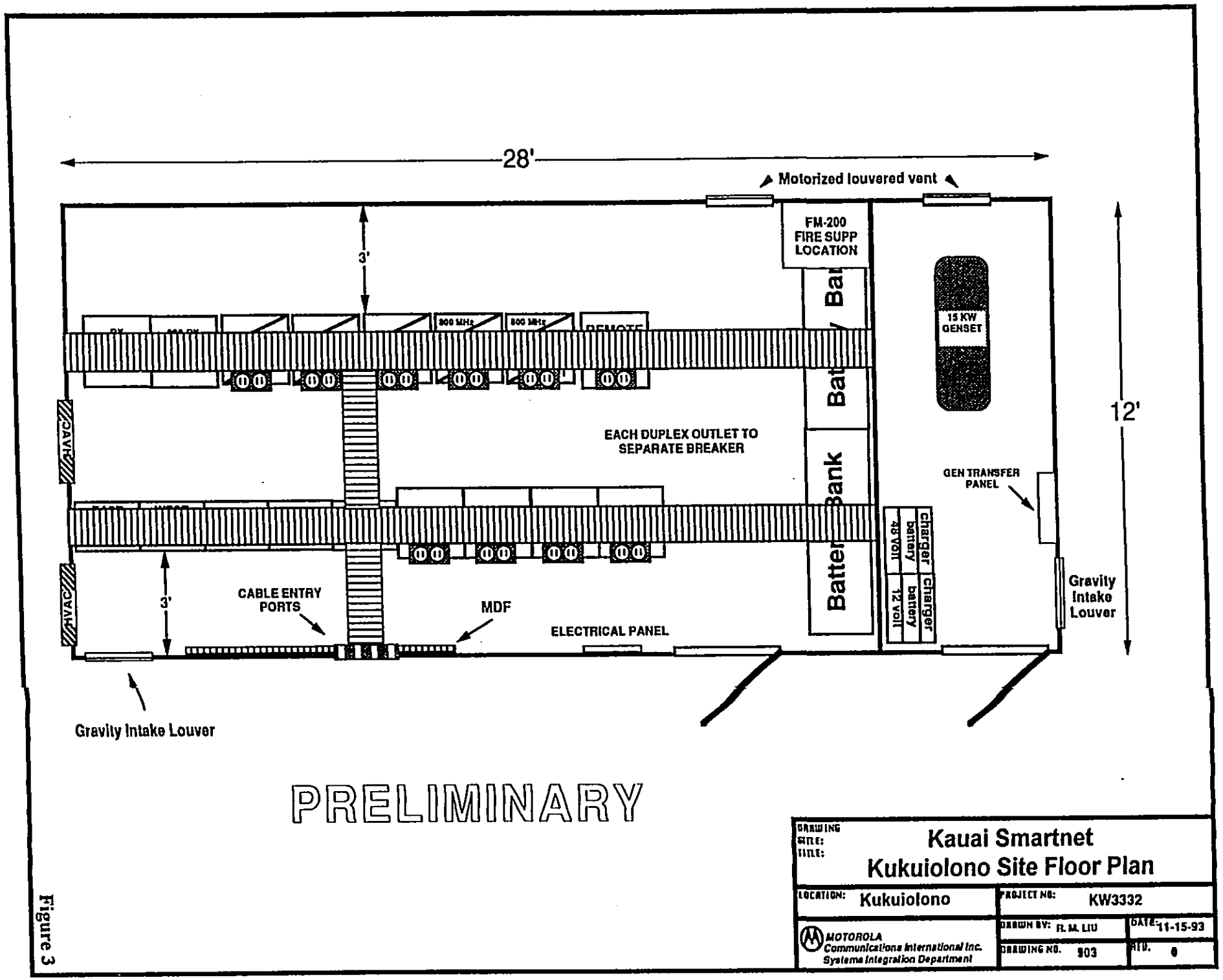

28'
Motorized louvered vent
FM-200
FIRE SUPP
LOCATION
3'
15 KW
GENSET
12'
EACH DUPLEX OUTLET TO
SEPARATE BREAKER
GEN TRANSFER
PANEL
Battery Bank
charger
battery
48 VOLT
battery
charger
12 VOLT
Gravity
Intake
Louver
CABLE ENTRY
PORTS
MDF
ELECTRICAL PANEL
3'
Gravity Intake Louver
PRELIMINARY
DRAWING TITLE:
Kauai Smartnet
Kukuiolono Site Floor Plan
LOCATION: Kukuiolono
PROJECT NO: KW3332
MOTOROLA
Communications International Inc.
Systems Integration Department
DRAWN BY: FL M. LIU
DATE: 11-15-93
DRAWING NO. 903
REV. 0

Figure 3

Kokee Air Force Station, Kukui Facility
Site Profile

TAX MAP KEY:	1-2-01: 9
LAND AREA:	1.251 acres
Area of Use:	675 square feet
LANDOWNER:	State of Hawaii
Lessee:	United States of America
EXISTING USE:	Communication Facility
NEAREST TOWN:	Waimea Town
PROPOSED USE:	Communication Facility
STATE LAND USE DISTRICT:	Conservation
Conservation District Subzone:	Resource
COUNTY ZONING:	None
SPECIAL MANAGEMENT AREA:	Not Located in SMA

A. Location and Existing Use

The Kokee Air Force Station, Kukui Facility comprises a 1.251 acre parcel situated within Waimea Canyon State Park (See Figure 1). The station consists of a 180-foot high communications tower, voice repeaters, and microwave repeaters. Communications equipment belonging to federal, state, and county agencies are located on the premises. The County of Kauai operates two repeater stations and antennas mounted atop the guyed tower. The stations are located in a 6' X 8' radio shed sited within a 16' X 13' fenced enclosure.

The radio site is located on the west side of and adjacent to Kokee Road (Highway 55) about nine miles inland from its intersection with Kauamualii Highway. Kokee Road is a two-lane, paved, all-weather surface road that connects Kaumualii Highway along Kauai's west coast with inland recreation and scenic areas at Waimea Canyon State Park, Puu Ka Pele Forest Reserve, Kokee State Park, and Kalalau Lookout.

The property is owned by the State of Hawaii but has been leased to the United States of America since 1969 (General Lease No. S-4259). There have been three supplemental agreements to the lease (1974, 1979, and 1984) to extend its terms. The current agreement expires on June 16, 1994.

In turn, the County of Kauai has a license from the United States Air Force to operate and maintain a radio repeater and antenna at Radio Station Kukui. The license, Contract No. DACA84-3-72-21 has been amended several times to extend its terms. The current agreement expires on June 16, 1994.

B. Proposed Improvements

Radio Station Kukui is the terminal site for the west/south leg of the transmission system. This station coordinates with the Kukuiolono Park station to the south.

The planned facility [is a radio microwave repeater with one] includes a microwave system and 800 MHz trunked radio system with two-way communication equipment that is the last leg of the west/south portion of the County backbone system. The facility will be located on a 45' X 15' building site (675 square feet) as shown on the attached site plan (Figure 2). The building site is an enlargement of the existing [15' X 21' (315 square feet)] 16' X 13' (208 square feet) site on which the County of Kauai Civil Defense communications shed is located.

The communications shed will be relocated elsewhere on the premises and the radio equipment will continue to operate until the project is completed. The site will then be grubbed of vegetation and graded. The site is relatively level with a slight slope thus only minimal grading is required. No retaining walls are required to retain fill material. Excess fill, if any, will be made available to the Division of State Parks.

All radio equipment will be housed in a prefabricated fiberglass building (See Figure 3). The building measures 28'L X 12'W X 9'H and will be secured on the southwest portion of the site. A 250 LPG above ground fuel tank will be placed on the north side of the site 10 feet from the building. Exposed areas surrounding the planned facilities or within the fenced area will be covered by a layer of gravel for erosion and weed control. The facility may be enclosed by an 8 [6]-foot high chain link fence. Except for landscape plantings, areas outside the fenced enclosure will be restored to pre-construction conditions.

Primary power is available from existing Kauai Electric Company distribution lines servicing the existing facilities. The new communications building comes equipped with an emergency 15 KW LPG generator that will operate automatically during commercial power outages. Maintenance testing will be performed periodically to assure that the generator is in proper working condition.

Through license with the United States Air Force, the County is permitted and will continue to use an existing 180 foot tall tower for its antennas.

When the facility is completely operational, the existing County of Kauai communications shed and equipment will be removed.

There is no water service to the site and service is not required for the proposed project.

The site is accessed from Kokee Park Road. There is no formal driveway except for a pullover onto an earthen parking area.

C. Affected Environment

Topography

Located approximately at elevation 2,900 feet, a substantial portion of the site has been graded to accommodate the communication station facilites and a compacted earthen parking area. The

parking area and tower are sited on level ground at about the same grade as the adjacent Kokee Road. The County communication shed is on relatively level ground but about 3 feet lower in grade than the radio tower. The slight grade difference is not a significant physical characteristic of the site.

Soils

According to the Soil Conservation Service (1972) the project area consists of Mahana silt clay loam a well-drained upland soil but one prone to erosion. Signs of erosions were not evident during our site inspection. The overall area showed signs of natural weathering but no rills which are indicative of severe erosion from runoff.

Flood Hazard

No flood hazard maps are available for the area. Discussions with maintenance personnel, however, indicate no significant incidents of flooding have occurred.

Archaeological Features

There are no recorded archaeological features on the premises and none were observed during our field inspection.

Flora and Fauna

The area around the tower and structures are generally devoid of vegetation. A young, spreading koa tree *(Acacia koa)* and *foxtail grass (Setaris glaucus)* grow[s] inside the radio shed security fence. The expansion area is covered by dead branches with scattered growth of koa seedlings, [California grass *(Brachiaria mutica)*, ?buffle grass *(Cenchrus ciliaris),and* lantana *(Lantana camara*] *a'alii (Dodonea viscosa), molasses grass (Melinis minutiflora), andropogon (A. virginicus), and foxtail).* All are common native or introduced species. **At the request of the Division of State Parks, the expansion area will be resurveyed by a botanist.**

Public Facilities

Electrical power is drawn from overhead transmission lines along Kokee Road.

There is no water service or liquid waste disposal system on the premises.

D. Potential Environmental Impacts

The building site will be graded slightly to accommodate the 12' X 28' prefabricated building. The site is relatively flat and already has been partially modified by grading and construction of the County of Kauai communication shed and structures belonging to other government agencies..

Temporary and unavoidable construction noises will occur during the 45-60 day construction period. Owing to the isolated and uninhabited site area, noise is not considered a significant environmental impact. Sound levels in the range of 85-96 dB(A) will be generated by heavy equipment, trucks, and hand held power tools. Construction noise will be audible to passersby and may be audible at different locations within Waimea Canyon State Park. Although construction

noise cannot be eliminated entirely, construction work and hence noise will be limited to the hours between 7:00 am to 3:30 pm, Monday through Friday.

Should subsurface archaeological or cultural deposits be unearthed, work in the immediate area will cease and historic authorities notified for proper disposition of the finds.

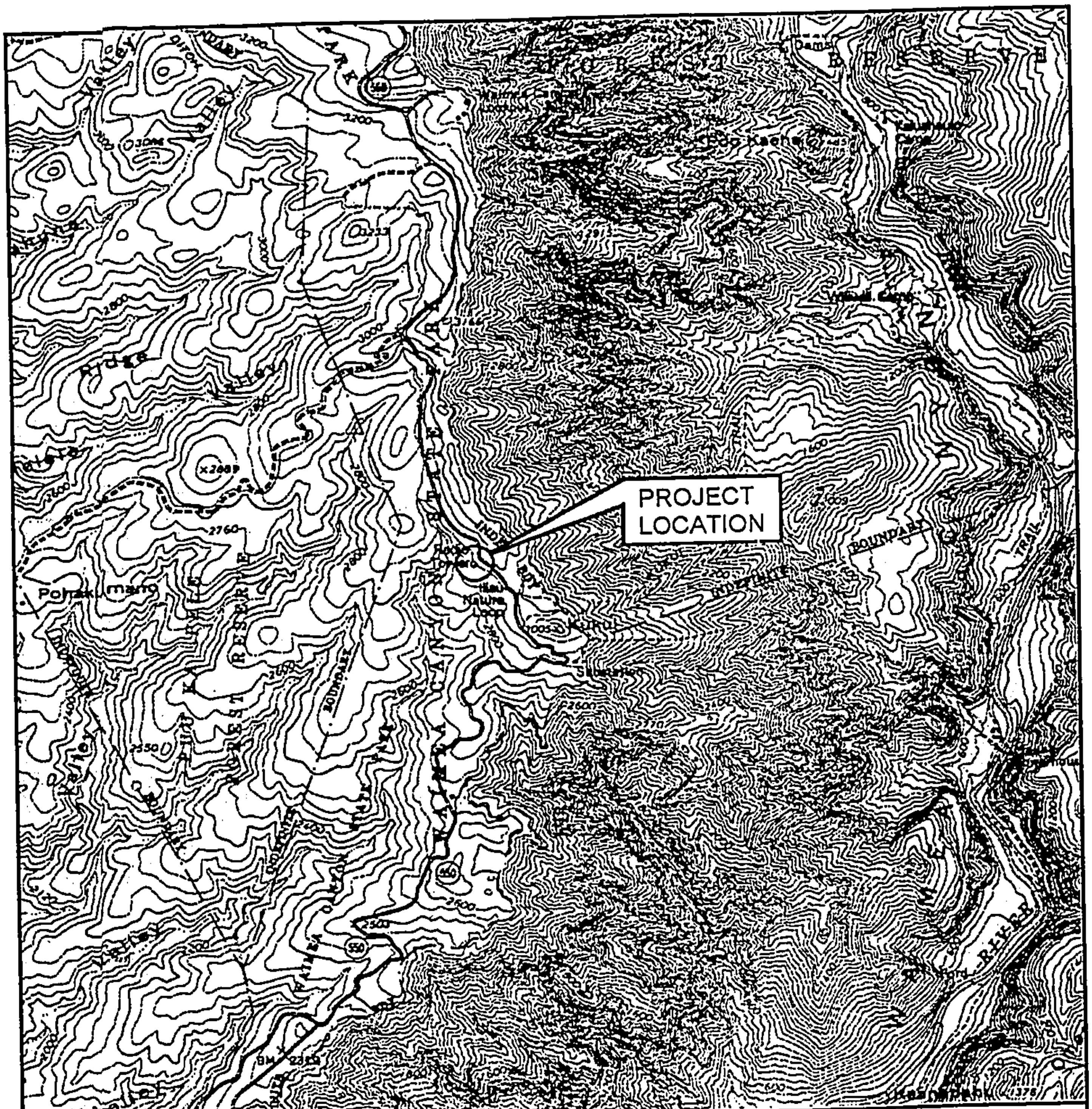
No significant increases in vehicle traffic on Kokee Road are expected. The movement of men, equipment, and materials can be scheduled to minimize interference with visitor traffic.

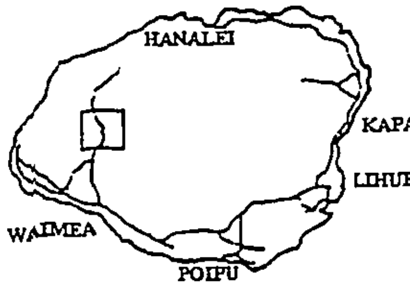
One does not expect to see radio facilities in this park setting and oftentimes the existing facilities cannot be seen. Roadside vegetation partially obstructs views of some of the small radio sheds and the green painted County facility blends with the dense background of trees. The new building will be partially visible from Kokee Road and may be painted to blend with its background. **If the facility is fenced, the fence will be painted to blend with the natural setting.**

Allowing communication facilities on the premises strongly suggest that the use of the site for radio communication purposes is an accepted use of conservation district lands. Applicant is not introducing a new use to the site but is requesting that they be allowed to expand the land area of their existing facility to accommodate a larger communications shed. The [360] 560 square foot expansion area is free of [natural and] cultural resources and a modest increase in land area to achieve a needed public purpose should not conflict with the objective of the resource subzone.

Native plants growing in the expansion area are a natural resource. The plants that will be removed during construction will be replanted around the enclosure. This will help to maintain the natural resources of the area and aid in screening the facility from view.

Man's presence on the site should be almost unnoticed. Aside from routine maintenance and trouble calls, there is no need to man the self-contained, remote-operated facility. Limiting the presence of man should maintain the intrinsic natural values of adjacent parklands and the objectives of the conservation district.





ISLAND OF KAUAI

True North

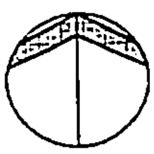


Figure 1
Location Map

KOKEE A.F. STATION, KUKUI

County of Kauai 800 Mhz Trunked
Radio Communications Upgrade
Source: USGS Waimea Canyon Quadrangle
Scale: 1"=2000'

GERALD PARK URBAN PLANNER

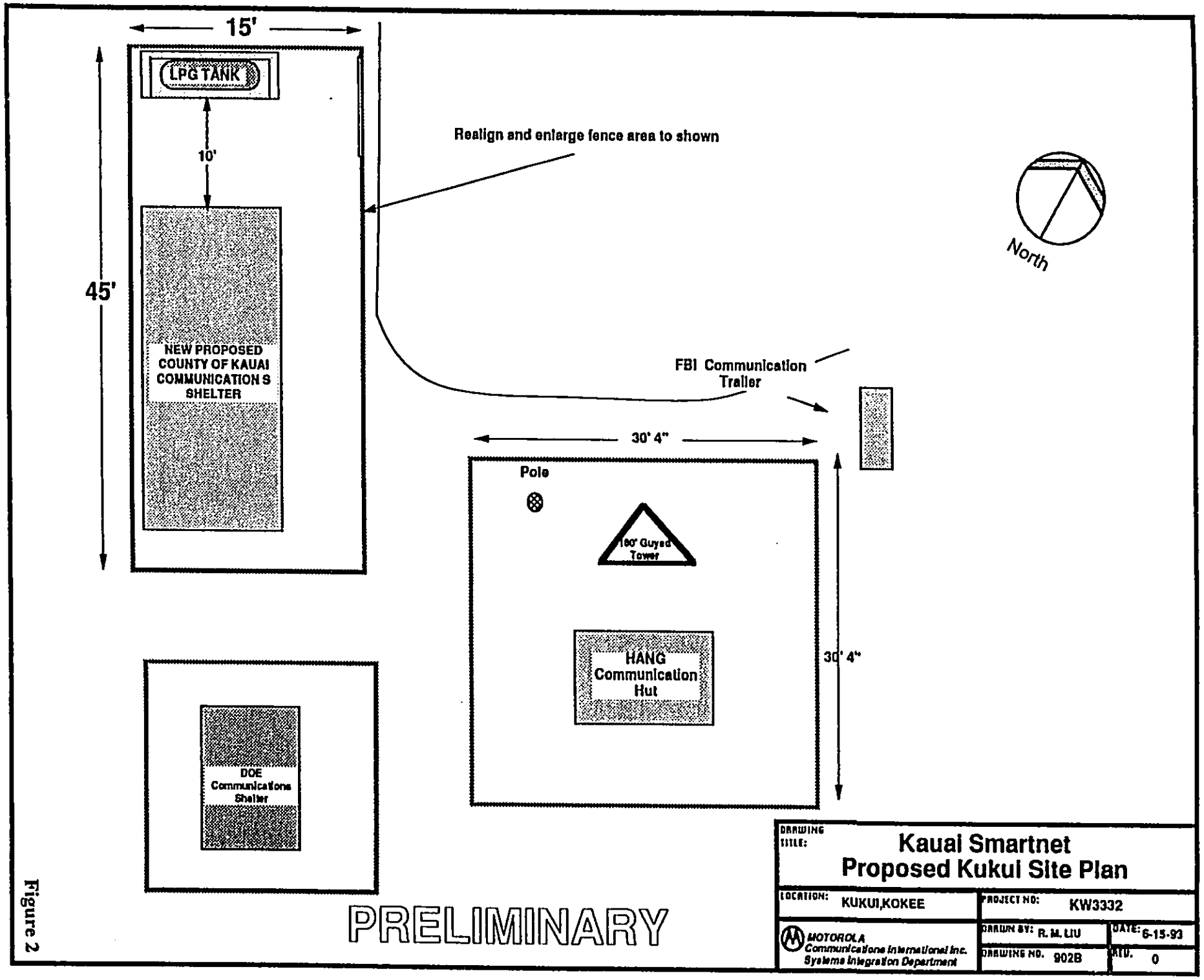

15'
LPG TANK
10'
45'
NEW PROPOSED COUNTY OF KAUAI COMMUNICATION S SHELTER
Realign and enlarge fence area to shown
North
FBI Communication Trailer
30' 4"
Pole
180' Guyed Tower
HANG Communication Hut
30' 4"
DOE Communications Shelter
PRELIMINARY
DRAWING TITLE:
Kauai Smartnet
Proposed Kukui Site Plan
LOCATION: KUKUI,KOKEE
PROJECT NO: KW3332
MOTOROLA
Communications International Inc.
Systems Integration Department
DRAWN BY: R. M. LIU
DATE: 6-15-93
DRAWING NO. 902B
REV. 0

Figure 2

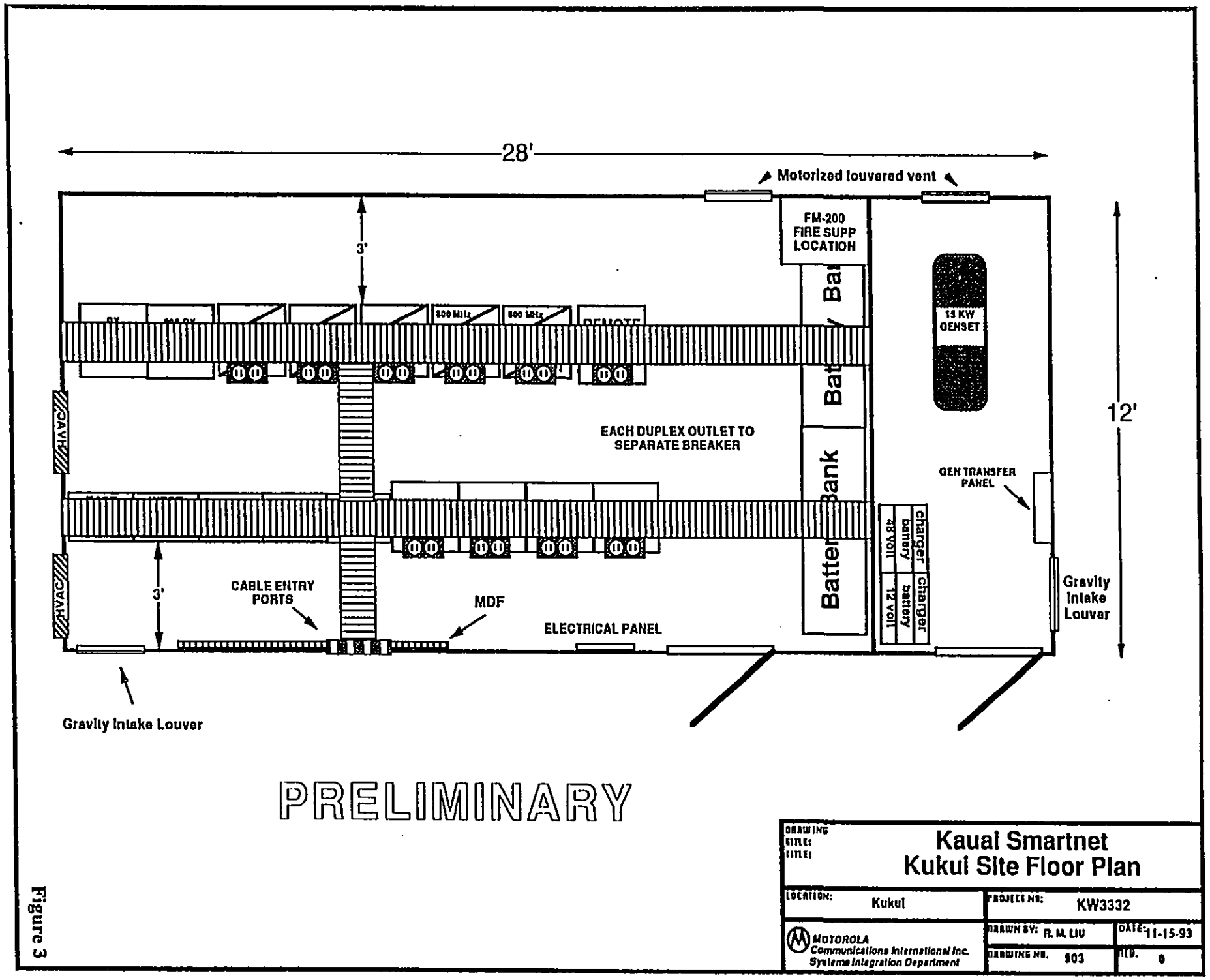

28'
Motorized louvered vent
FM-200
FIRE SUPP
LOCATION
3'
800 MHz
800 MHz
REMOTE
15 KW
GENSET
12'
EACH DUPLEX OUTLET TO
SEPARATE BREAKER
GEN TRANSFER
PANEL
Battery Bank
48 VOLT
charger
battery
12 VOLT
charger
battery
Gravity
Intake
Louver
3'
CABLE ENTRY
PORTS
MDF
ELECTRICAL PANEL
Gravity Intake Louver
PRELIMINARY
DRAWING TITLE:
Kauai Smartnet
Kukui Site Floor Plan
LOCATION: Kukui
PROJECT NO: KW3332
MOTOROLA
Communications International Inc.
Systems Integration Department
DRAWN BY: R. M. LIU
DATE: 11-15-93
DRAWING NO. 903
REV. 0

Figure 3

Kokole Point
Site Profile

TAX MAP KEY:	1-2-02: 13
LAND AREA: Area of Use:	1,925.09 acres 36 square feet
LANDOWNER:	United States of America
EXISTING USE:	Pacific Missile Range Facility Communication Facility
NEAREST TOWN:	Kekaha Town
PROPOSED USE:	Radio Antenna
STATE LAND USE DISTRICT: Conservation District Subzone:	Conservation Limited
COUNTY ZONING:	None
SPECIAL MANAGEMENT AREA:	Not Located in SMA

A. Location and Existing Use

Kokole Point is located on the grounds of a United States Navy radio communications facility inside the Pacific Missile Range Facility (PMRF) on the southwest coast of Kauai (See Figure 1). Access to the site is through the south gate of the PMRF from Kaumualii Highway (Highway 50). Public entry onto the facility is restricted.

The naval communications facility consists of two buildings, three timber poles, and an electrical transformer station. The facility occupies about 0.5 acre and is enclosed by a chain link fence. Communications equipment are housed in one building and emergency generators in the other. The timber poles are 65 feet in height and set in 6' X 6' concrete bases. An array of vertical antennas are mounted on each pole. The facility is manned 24 hours a day.

B. Proposed Improvements

No communication facilities will be constructed. Kokole Point will fuction as a propagation site for two conventional repeaters. Through agreement with the U.S. Navy, station equipment will be installed on "rack" space inside the existing naval communications building (Building 802). Two 800 MHz antennas (dual yagi-directional antennas) will be mounted on one of the existing 65' foot high wooden poles. Antenna assignments will be determined by the PMRF.

C. Affected Environment

In addition to the communication facilities cited previously, other ground improvements include concrete walkways, chain link fencing, and open areas covered with rock and gravel. No rare or endangered flora were observed during our field inspection. No archaeological features have been recorded on the premises.

Kokole Point is classified Conservation by the State Land Use Commision and designated Resource subzone on Conservation District maps. Because the site is on federal lands, the proposed action is exempt from state and county approvals.

Water, power, and telephone services are available on-site.

D. Potential Environmental Impacts

The environment to be affected by the proposed improvements has already been significantly modified. The improvements proposed for the facility will not require any ground disturbance and will not adversely affect the area's physical environment. Station equipment will be installed inside an existing building and the antennas mounted on an existing timber pole. The addition of two yagi antennas should not be distinguishable from the existing antennas.

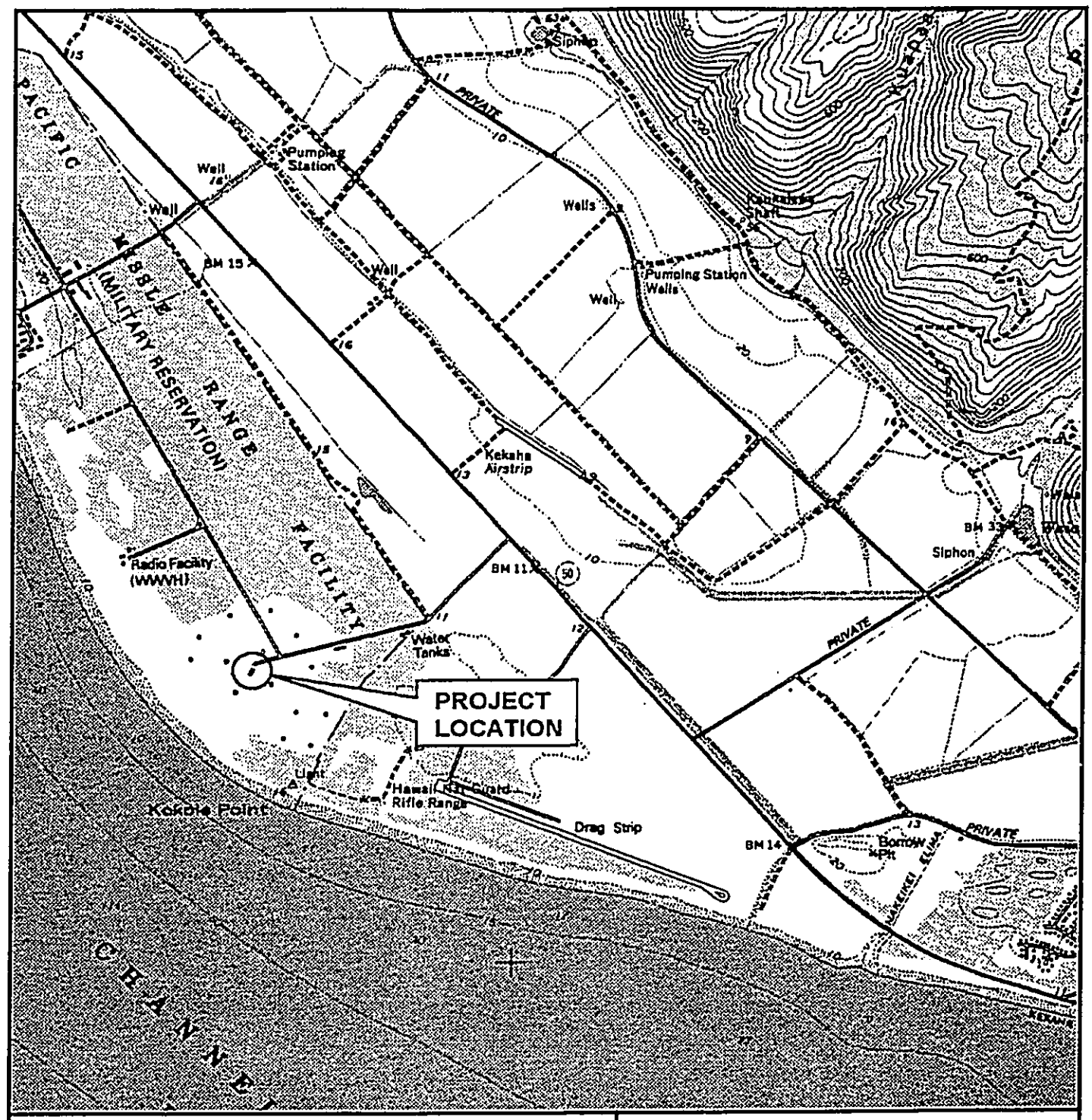


Figure 1
Location Map

KOKOLE POINT

County of Kauai 800 Mhz Trunked Radio Communications Upgrade
Source: USGS Kekaha Quadrangle
Scale: 1"=2000'

GERALD PARK URBAN PLANNER

SECTION 4 ALTERNATIVES TO THE PROPOSED ACTION

A. No Action

The no action alternative is unacceptable. Maintaining the existing radio communication system is not an acceptable alternative because the mode of communication is oudated, the equipment is prone to failure, and the system was severely damaged by Hurricaine Iniki. Repairing or replacing inoperable components with the same components will continue the "1950 communications technology" on which the system was built and continue to leave County services without adequate communication in many areas.

B. Alternative Sites

Several alternative sites were considered and may be developed in the future for communication purposes. The nine sites were selected from the alternatives to form the core of the new network. *Site selection* was based on radio coverage of the developed and populated areas around the island, each site to be an already developed and active communications site (including commercial use), all sites to minimize the requirement for new tall towers, and all sites to be accessible by 2-wheel drive vehicles. All sites meet the above criteria except Grove Farm (Laaukahi Peak) which is a "helicopter access" only facility. This is an existing communications site and will be maintained by the lessor, Motorola International Inc., under agreement with the County of Kauai.

The Kauai Historic Preservation Review Commission (KHPRC) questioned the site selection for the Lihue Dispatch Center and the impact the 50-foot monopole would have on the Kauai Museum, a nearby historic building. Several alternative locations for the Dispatch Center were evaluated during the lengthy planning process for the radio system. Initially, the Center was to be located in the basement of the Public Works Building and two nearby sites were considered for antenna locations. One alternative was to mount an antenna atop the nearby state office building. This location was rejected by the Department of Accounting and General Services, State of Hawaii. A second alternative was to erect the antenna in the parking lot behind the Public Works Building. This alternative was rejected because of its overall inappropriateness with the architecture of the government buildings and open space character of theLihue Civic Center, a registered historic district. In addition, the total cost to County for renovating the basement for a Dispatch Center was determined to be too costly.

SECTION 5 AGENCIES AND ORGANIZATIONS TO BE CONSULTED

Notice of availability of the Draft Environmental Assessment was published in the *OEQC Bulletin* by the Office of Environmental Quality Control on March 8, 1994. Agencies and organizations that were requested to review and comment on the Draft Environmental Assessment are listed below. Parties that responded in writing are identified with an asterik. Copies of their comment letters and responses are presented in Appendix A.

Federal

*U.S. Department of the Interior, U.S. Fish and Wildlife Service
Division of Refuges and Wildlife
*U.S. Army Engineer Division, Pacific Ocean
Real Estate Division
U.S. Air Force
*Real Property Office
U.S. Navy, Pacific Missile Range Facility
Federal Aviation Agency
Federal Communications Commission

State

Department of Agriculture
Department of Defense
*Civil Defense Division
Hawaii Air National Guard
*Department of Hawaiian Home Lands
*Department of Health
Department of Land and Natural Resources
*Historic Sites Division
*State Parks
Conservation and Environmental Affairs
*Department of Transportation
*Hawaii Public Television
Office of Environmental Quality Control
*Office of State Planning

County

Office of the Mayor
County Council
Office of the County Attorney
Planning Department
*Economic Development
*Water Department
Police Department
Fire Department
Civil Defense

*Finance

Others

Kauai Electric Company
GTE Hawaiian Telephone Company, Inc.
Cybertel Celluar Telephone
Grove Farm Co. Ltd.
Hawaiian Trust Co. Ltd.
Lihue Plantation Co. Ltd.
Walter D. McBryde Trust
*AMFAC/JMB Hawaii Inc.
Motoroloa International, Inc.
*Kauai Historic Preservation Review Commission
*Kilauea Neigborhood Association
Ms. Evelyn Olores
Anahola Homestead Native Hawaiian Association
Anahola Hawaiian Homes Association
Anahola Hawaiian Land Farms Association
Aboriginal Native Hawaiian Association
Kalaheo Community Association
Kalalea Farmers Association
Kekaha Hawaiian Homesteaders Association
Laulima o Hawaii
Reverend Kaleo Patterson
Honolulu Advertiser

SECTION 6 DETERMINATION OF SIGNIFICANCE

Chapter 200 (Environmental Impact Statement Rules) of Title 11, Administrative Rules of the State Department of Health, establishes criteria for determining whether an action may have significant effects on the environment (11-200-12). The relationship of the proposed project to these criteria is discussed below.

1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

   Cultural resources will not be lost or destroyed by the proposed action. The State Historic Preservation Division, Department of Land and Natural Resources, has indicated that the proposed project will have "no effect" on a burial platform at Kalepa Ridge (Site No. 50-30-08-1827) and a World War II Radar Station at Kilauea Crater Hill (Site No. 50-30-04-1810). Applicant will comply with the conditions recommended for each site by the State Historic Preservation Division.

   The expansion area for Radio Station Kukui was surveyed by a State Parks archaeologist. No evidence of surface features was found on the premises.

   Native plants that may be affected by site improvements will be removed prior to construction and replanted on-site or at alternative locations to be determined by appropriate autthorities.

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

   The nine radio sites that comprise the proposed radio system were selected because most of them already support communication facilities or have communication facilities located closeby. In addition, their locations are critical to provide adequate radio coverage to all parts of the island inhabited and frequented by the populace.

3) Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, Hawaii Revised Statutes, and any revisions thereof and amendments thereto, court decisions or executive orders;

   The project does not conflict with long-term environmental policies, goals, and guidelines of the State of Hawaii.

4) Substantially affects the economic or social welfare of the community or State;

   The upgraded radio system will enhance the public safety and social welfare of the Kauai. community.

5) Substantially affects public health;

   Public health will not be adversely affected by the radio system.

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

The project will not result in substantial secondary impacts such as population growth. The unmanned radio sites are accessible from existing primary and secondary roads and there is no need for water and sewer service. Electrical power is already available at each site to accommodate the planned radio stations.

The Lihue Dispatch Center will be manned 24 hours a day. Public facilities such as water and sewer are required and already provided to the Center

7) Involves a substantial degradation of environmental quality;

Environmental quality will not be substantially degraded. Environmental impacts at each site can be mitigated by measures described in this assessement and by mitigating measures specified in construction plans and documents.

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

Implementation of the project may entail a commitment for a larger action if necessary to further safeguard and assure the public health, safety, and welfare. The system is designed so that stations and facilities can be added without deleterious effects on the overall operating system. Physical expansion of the system would be subject to environmental assessment at the time the action is proposed.

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

Rare, threatened or endangered animals and plants will not be substantially affected by the project. Native plants occurring at several radio station sites will be transplanted prior to construction.

The endangered nene goose roams the grounds of the Kilauea Crater Hill radio site. Site work will be coordinated with the manager and staff of the Kilauea National Wildlife Refuge manager to keep the nene out of harms way during construction.

10) Detrimentally affects air or water quality or ambient noise levels; or

Ambient air quality will be affected by fugitive dust and combustion emissions but can be controlled by measures stipulated in this Assessment. Construction noise will be pronounced during site preparation work but should diminish once the equipment buildings and radio towers are erected. All construction activities will comply with air quality and noise pollution regulations of the State Department of Health.

11) Affects an environmentally sensitive area such as a flood plain, tsunami zone, erosion prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

The project is not proposed in an environmentally sensitive area as described above. Five sites, however, are located in the state conservation district and a sixth site is part of a

national wildlife refuge. Concerns have been expressed over two sites in the Conservation District---Kalepa Ridge and Kokee Air Force Station, Kukui Facility. The Historic Sites Division, Department of Land and Natural Resources, has given archaelogical clearance to the Kalepa Ridge site provided construction work does not disturb a historic feature located atop the southern summit of Kalepa Ridge.

The Division of State Parks has recommended that native vegetation removed during grading of the Kukui Facility be replaced in kind somewhere in Kokee State Park. Applicant will comply with both recommendations.

Based on the above criteria and comments received during the consultation period, the County of Kauai 800 MHz Radio Communications Upgrade project will not result in significant adverse environmental impacts and an Environmental Impact Statement is not be required.

REFERENCES

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Xamanek Researches. 1989. *An Archaeological Inventory Survey of Crater Hill and Mokolea Point Extent[sic]ion of Kilauea Point National Wildlife Refuge, Kilauea, Kauai, Hawaii.* Prepared for U.S. Government Fish and Wildlife Service.

APPENDIX A

COMMENT LETTERS AND RESPONSES

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING (PACAF)
HICKAM AIR FORCE BASE, HAWAII 96853

RECEIVED 3/4/94

3 Mar 94

MEMORANDUM FOR Mr Gerald Park
Gerald Park Urban Planner
1245 Young Street, Suite 201
Honolulu HI 96814

FROM: 15 CES/CERR
75 H Street
Hickam AFB HI 96853-5233

SUBJECT: County of Kauai 800 MHz Trunked Radio Communication Upgrade County and Island of Kauai, Hawaii (Your Ltr, 24 Feb 94)

Our Environmental Flight has reviewed the environmental assessment for subject project and found it to be sufficient. Contact our office at 448-7835 if you have any questions.

JANICE A. GOO
Acting Real Property Officer
15th Civil Engineer Squadron

RECEIVED 3/7/94

Letter to Gerald Park
Gerald Park Urban Planner
1245 Young Street, Suite 201
Hon, Hi 96814

ref: Draft Environmental Assessment
County of Kauai
800 MHz Trunked Radio Communications Upgrade
County & Island of Kauai, Hawaii

This is to confirm our telephone conversation of Mar 3, 1994, regarding the subject report, Kilauea (Crater Hill) Site Profile, Subpart A, Location and Existing Uses, omitting our facility, atop Crater Hill, Kilauea. The Hawaii Public Television Authority (HPBA), will complete equipment installation in the temporary wooden building atop Crater Hill in the very near future. Additionally, the report shows Hawaii Public Television in the new facility. Please see figure 3, page 20, Kauai Smartnet, Kilauea Site Floor Plan. Should you have any further question please contact me at 955-7878.

vsy

AD

cc: D.R.
Galen Nakamura, Deputy County Attorney, Kauai County

JOANN A. YUKIMURA
MAYOR

GLENN H. SATO
DIRECTOR

COUNTY OF KAUAI
OFFICE OF ECONOMIC DEVELOPMENT

4444 RICE ST., RM. 204
LIHUE, KAUAI, HAWAII 96766
TELEPHONE (808) 241-6300
FAX (808) 241-6399

RECEIVED
3/9/94

March 8, 1994

Mr. Gerald Park
Urban Planner
1245 Young Street, Suite 201
Honolulu, HI 96814

Dear Mr. Park:

RE: County of Kauai 800 MHz Trunked Radio Communications Upgrade
County and Island of Kauai, Hawaii

Thank you for the opportunity to review the environmental assessment for the subject project. Our review has concluded that the project is sound and will benefit Kauai tremendously, as the completion of the project will enhance public health and safety.

We commend you on providing a very thorough description of the project areas through very clear and understandable maps and site plans.

Sincerely,

Glenn Sato
Director

MAILING ADDRESS 4444 RICE STREET, ROOM 230, LIHUE, HAWAII 96766

JOANN A. YUKIMURA
MAYOR

THOMAS O. BATEY
ADMINISTRATIVE ASSISTANT

COUNTY OF KAUAI
DEPARTMENT OF FINANCE
4396 RICE ST., SUITE 103
LIHUE, KAUAI, HAWAII 96766-1399

MICHAEL D. VEITH
DIRECTOR OF FINANCE

DOROTHY R. BEKEART
DEPUTY DIRECTOR OF FINANCE

RECEIVED
3/9/94

March 7, 1994

Gerald Park Urban Planner
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

RE: Environmental Assessment for 800 MHz Radio System

I have reviewed your draft copy for the subject and note that the cost of the system as reported in Section 1, Item G. is low. The total cost of the system will be approximately $7.2 million. The State will be contributing $2.0 million toward this cost; the County will be paying the balance of $5.2 million.

I have no further comments to add. Thank you for your good work.

Sincerely,

Michael D. Veith
Director of Finance

MDV/jnc
cc: Galen Nakamura, Deputy County Attorney
Dexter Takashima, Public Works

"An Equal Opportunity Employer"

AMFAC/JMB HAWAII, INC.
700 Bishop Street
P.O. Box 3230
Honolulu, Hawaii 96801
(808) 945-8111
Fax (808) 945-8153

Amfac

March 9, 1994

RECEIVED 3/11/94

Mr. Gerald Park
Gerald Park, Urban Planner
1245 Young Street
Suite 201
Honolulu, HI 96814

Subject: County of Kauai
800 MHz Trunked Radio Communications Upgrade
County and Island of Kauai, Hawaii

Dear Mr. Park:

This is in response to the County of Kauai 800 MHz Trunked Radio Communications Upgrade Draft Environmental Assessment dated February 1994 and prepared by Gerald Park, Urban Planner.

We have no comment on the above-mentioned Draft Environmental Assessment at this time.

We appreciate the opportunity to submit our comments.

Very truly yours,

Anne Lo-Shimazu
Manager, Land Administration

L0294012.jk

JOHN WAIHEE
GOVERNOR
STATE OF HAWAII

HOALIKU L. DRAKE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

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

RECEIVED 3/18/94

March 17, 1994

Mr. Gerald Park, Urban Planner
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

Subject: County of Kauai 800 MHz
Trunked Radio Communications Upgrade

As noted in the subject report, the Puu Alanakau communications facility is proposed on Hawaiian Home Lands at Anahola, Tax Map Key 4-4-8: 23.

Under our license agreement for use of the area, the County is responsible for obtaining all necessary approvals and permits from government agencies.

Should you have any questions, please feel free to call Carolyn Darr, Land Agent, at 586-3820.

Warmest aloha,

Hoaliku L. Drake, Chairman
Hawaiian Homes Commission

HLD:DY:JC:asy/3131L

DEPARTMENT OF WATER
COUNTY OF KAUAI
P.O. BOX 1706
LIHUE, HAWAII 96766-5706
PHONE NO: (808) 245-6986 FAX NO. 245-5813

March 18, 1994

Mr. Gerald Park
Gerald Park Urban Planner
1245 Young Street, Suite 201
Honolulu, HI 96814

Re: County of Kauai 800 MHz Trunked Radio Communications Upgrade, County and Island of Kauai, Hawaii

We reviewed the Environmental Assessment for the County of Kauai 800 MHz Trunked Radio Communications Upgrade and have no comments to offer.

Thank you for the opportunity to comment.

If there are any questions, please call Wayne Hinazumi at 245-6986.

3/11/94

Hurl T. Nielsen
Manager and Chief Engineer

WH:et

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

REPLY TO ATTENTION OF

Planning Division

March 29, 1994

Mr. Gerald Park, Urban Planner
1245 Young Street
Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the County of Kauai's 800 MHz Trunked Radio Communications Upgrade Project, Kauai. The following comments are provided pursuant to Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1960 and to issue Department of the Army (DA) permits under the Clean Water Act; the Rivers and Harbors Act of 1899; and the Marine Protection, Research and Sanctuaries Act.

a. A DA permit will be required for any work in rivers, streams or wetlands. Please contact our Operations Division at 438-9258 for further information and refer to file number PO94-055.

b. The flood hazard information provided on page 8 of the environmental assessment is correct.

Sincerely,

James R. Nelson for

Ray H. Jyo, P.E.
Director of Engineering

JOHN WAIHEE
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

RECEIVED 3/24/94

KEITH AHUE, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCE

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JOHN P. KEPPELER II
DONA L. HANAIKE

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

March 22, 1994

LOG NO: 11056
DOC NO: 9403NM28

Gerald Park
1245 Young Street
Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

SUBJECT: Historic Preservation Review -- Draft EA for 800 MHz Trunked Radio Communications Upgrade - Kauai:
TMK: 5-2-04: 103; 4-9-09: 22; 4-8-03: 23; 3-8-02: 5; 3-6-05: 6; 2-8-01: 1, 2, 5; 2-3-05: 10; 1-2-01: 9; 1-2-02: 13
Kauai

In general, we concur with this EA. The EA states our general concerns about each project location. For your information, the World War II Radar Station (Crater Hill) has been given an historic site number (50-30-04-1810). We believe this project will have "no effect" on significant historic sites with the following conditions attached to any approved permits:

1. The Kokee Air Force Station location: a State Park archaeologist should field check that project area prior to construction to insure no significant historic sites exist in the area, although an archaeological survey with subsurface testing has been conducted by Dowden and Rosendahl, 1993. No significant historic sites were found during this survey.

2. The summit of Laaukahi Peak (Grove Farm) has not been archaeologically surveyed. Therefore, prior to construction, a qualified archaeologist should check the area to determine if significant historic sites exist.

3. The platform base for the tower or monopole should be constructed out from the hill (Kalepa). No grading or staging of equipment shall take place on the Kalepa hill, which is a burial platform (50-30-08-1827).

If you have any questions please call Nancy McMahon at 587-0006.

Sincerely,

DON HIBBARD, Administrator
State Historic Preservation Division

NM:jen

JOHN WAIHEE
GOVERNOR

MAJOR GENERAL EDWARD V RICHARDSON
DIRECTOR OF CIVIL DEFENSE

ROY C. PRICE, SR.
VICE DIRECTOR OF CIVIL DEFENSE

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

PHONE (808) 734-2161

March 29, 1994

TO: Mr. Gerald Park
Gerald Park Urban Planner

FROM: Roy C. Price, Sr.
Vice Director of Civil Defense

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA): COUNTY OF KAUAI 800 MHz TRUNKED RADIO COMMUNICATIONS UPGRADE

State Civil Defense (SCD) appreciates this opportunity to comment on the DEA proposed by the County of Kauai, Department of Public Works, for the County of Kauai 800 MHz Trunked Radio Communications Upgrade, island of Kauai, Hawaii.

We do not have any negative comments specifically directed at this DEA. However, SCD does have general comments regarding the following:

1. Project location maps--the project area should be outlined on the island of Kauai inset. See example on attached copy of Figure 1, Location Map, page 18.

2. Evaluate the feasibility of the installation of the "antenna coax feed line" on the inside of the tower legs--this has common application throughout the system.

3. Evaluate the feasibility of placing the radio site batteries in a weatherproof enclosure. Proposed drawings for items 2 and 3 are attached.

4. Evaluate the feasibility of installing a fence around compounds without fencing to add to its physical security.

Section 2, GENERAL ENVIRONMENTAL IMPACTS, addresses Flood Hazards in paragraph D. There is no mention of the hazards of winds accelerated by terrain. With elevations as high as 2,900' above mean sea level (msl) and many sites on ridges or near cliff edges, the impact of terrain amplified tropical cyclone/hurricane force winds need to be seriously evaluated. The design and construction of the antenna and support facilities should be determined by this evaluation.

Our SCD planners and technicians are available to discuss this further if there is a requirement. Please have your staff call Mr. Hel Nishihara of my staff at 734-2161.

Attch.

c: Mr. Dexter Takashima
DPW, County of Kauai

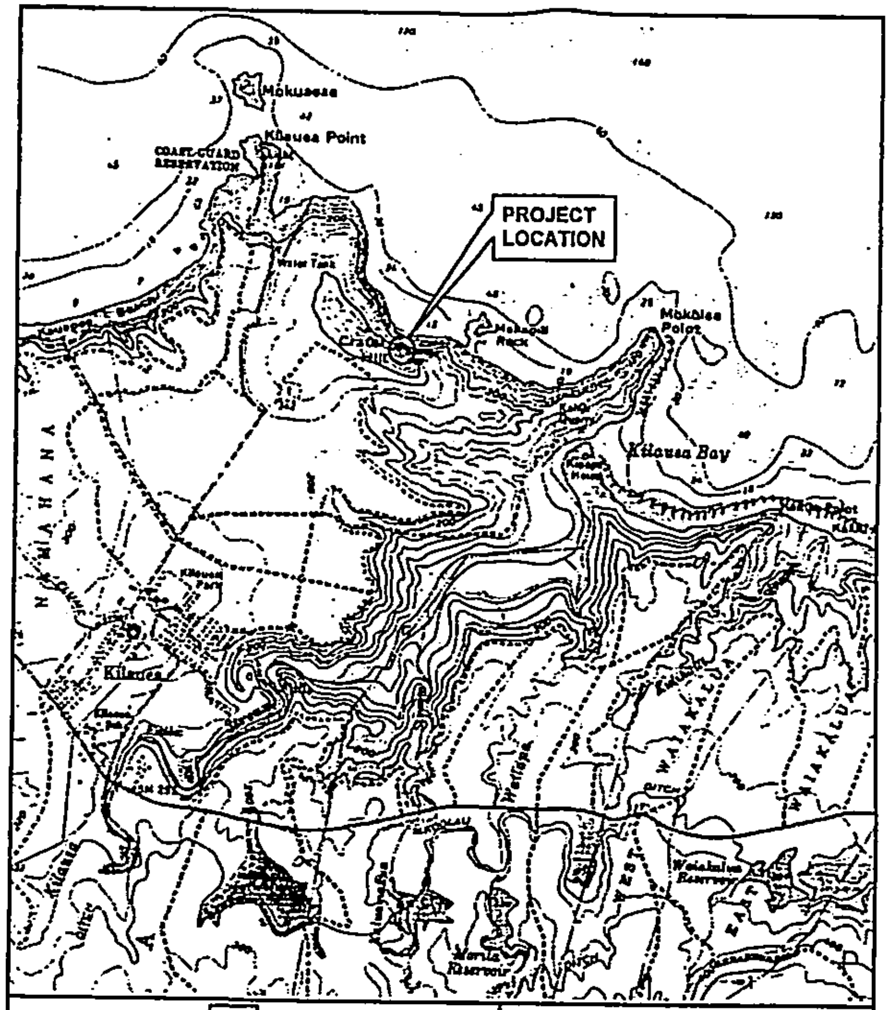

Figure 1
Location Map

KILAUEA CRATER HILL

County of Kauai 800 Mhz Trunked
Radio Communications Upgrade
Source: USGS Anahola Quadrangle
Scale: 1"=2000'

GERALD PARK URBAN PLANNER

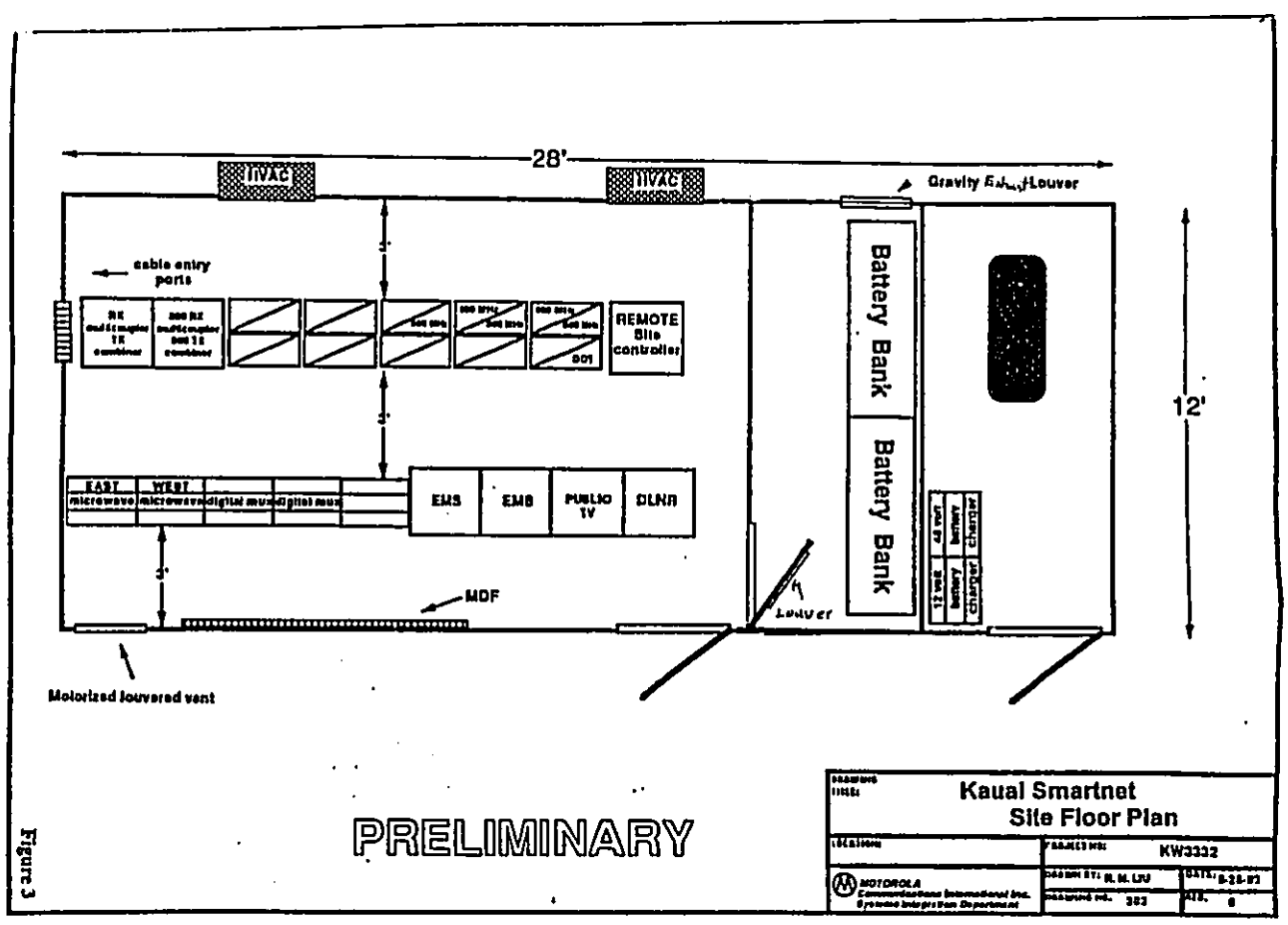

Figure 3

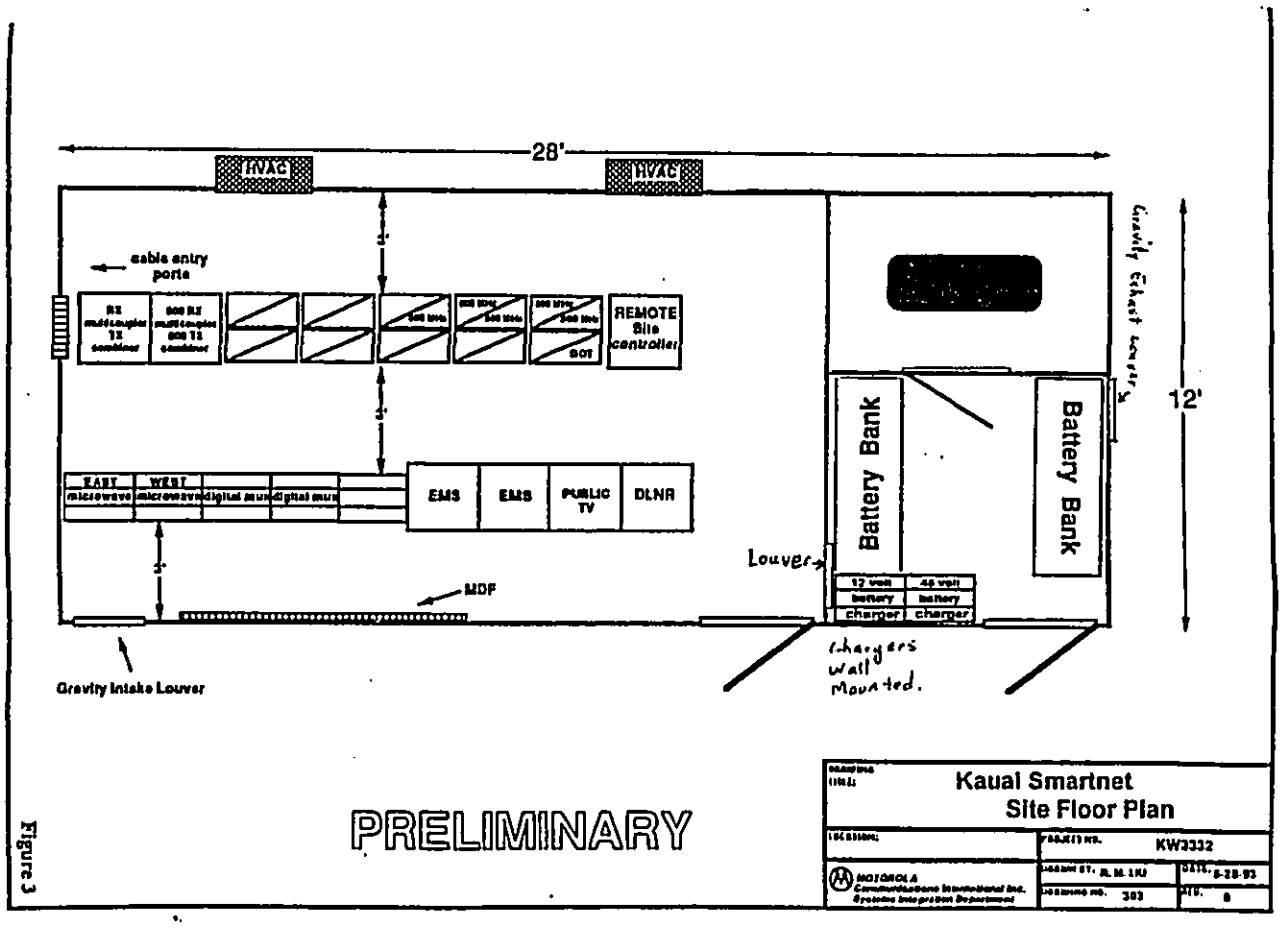

Figure 3

April 21, 1994

Roy C. Price, Sr.
Vice Director of Civil Defense
State of Hawaii, Department of Defense
Office of the Director of Civil Defense
3949 Diamond Head Road
Honolulu, Hawaii 96816-4495

Dear Mr. Price:

Subject: County of Kauai 800 MHz Radio Communication Upgrade

Thank you for reviewing the Draft Environmental Assessment prepared for the subject project. We offer the following responses to your comments.

1. Project areas will be outlined on the island of Kauai inset map for each radio station site.

2. We have forwarded this comment and your attached drawings to the radio contractor for consideration in their design plans.

3. All battery systems will be placed inside equipment buildings or housed in weather proof cabinets.

4. Chain link fencing will be placed around several but not all of the communication sites. The fencing will be painted to blend with its surrroundings.

5. Technical specifications for the radio system require equipment buildings to be designed to withstand 120 mph winds and towers to withstand 150 mph wind loadings. Based in part on soils analysis for each site and wind stress modeling, building and tower foundations will be designed and constructed to withstand the wind loadings cited above.

GERALD PARK urban planner

Please call me at 533-0018 or Dexter Takashima, County of Kauai Telecommunications Officer at 241-6635 if you have further questions.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

xc: D. Takashima, DPW

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Office
P.O. Box 50167
Honolulu, Hawaii 96850

TAKE PRIDE IN AMERICA

RECEIVED 4/11/94

In Reply Refer to: MWR

MAR 3 1 1994

Mr. Gerald Park, Urban Planner
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Re: Draft Environmental Assessment, County of Kauai, 800 MHz Trunked Radio Communications Upgrade, Kauai, Hawaii

Dear Mr. Park:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft Environmental Assessment (DEA) for the County of Kauai, 800 MHz Trunked Radio Communications Upgrade, Kauai, Hawaii. The proposed communications system will replace inadequate facilities and provide local government agencies with a reliable communications network. Eight of the proposed sites support existing communications facilities (buildings and/or towers). The final site, the Lihue Dispatch Center, will be located in the new Lihue Civic Center. The Service offers the following comments for your consideration.

The DEA adequately describes the existing environmental conditions and uses of the nine proposed sites. However, the DEA does not provide information on the federally endangered Hawaiian Petrel (Pterodroma phaeopygia), federally threatened Newell's Shearwater (Puffinus newelli), or candidate Band-rumped Storm-Petrel (Oceanodroma castro). All three of these seabird species nest on Kauai. Newell's shearwaters have the broadest distribution and have established nesting colonies in the northern, eastern, and southeastern portions of the island. Known nesting colonies of Hawaiian petrels are restricted to the Wainiha River Valley, while small colonies of Band-rumped storm-petrels probably occur in Waimea Canyon and Hanapepe Valley (Ainley and Podolsky, 1993; Harrison et al., 1990).

On Kauai, annual "fall-out" of shearwaters and petrels (exhaustion and/or collision with structures brought on by attraction to and disorientation from bright lights) is a serious problem. Fall-out primarily begins during the nesting season (summer) but increases significantly during the fledging season (fall). The majority of fall-out occurs at night and involves juvenile birds that are making their initial flight from nesting colonies to the sea. Major fall-out areas for each species correspond to flight paths from nesting colonies to the sea. Fall-out of Newell's shearwaters occurs along all but the western coast of Kauai and is particularly high in Lihue and between Wailua and Kealia. The majority of fall-out of Hawaiian petrels occurs in Hanalei and to a much lesser extent from Wailua to Kealia, while that of Band-rumped storm-petrels occurs from Waimea to Hanapepe (Ainley and Podolsky, 1993; Cooper and Day, 1993; Harrison et al., 1990).

The Service is concerned that some existing communications towers, particularly those located in urban areas and/or those that support bright lights, pose a hazard to seabirds when these species fly at night. Construction of additional towers may increase this hazard.

The Service recommends that the Final Environmental Assessment (FEA) include the above information on the distribution of shearwaters and petrels on Kauai. In addition, we suggest that project managers at the existing communications towers and Mr. Tom Telfer of the Department of Land and Natural Resources, Division of Forestry and Wildlife, be contacted for any available data on seabird collisions with the existing towers. Collision data provided by these individuals should be included in the FEA and used to assess the potential for seabird collisions with the proposed new towers. Mitigation measures to reduce or prevent seabird collisions with towers should be discussed in the FEA and implemented as a part of the proposed project. Appropriate mitigation would include a provision that lights on proposed towers, especially those in known and probable flight paths of shearwaters and petrels, be eliminated or shielded and aimed downward.

The Service has not identified any other significant impacts to fish and wildlife resources that will result from implementation of this project. We appreciate the opportunity to comment on the proposed project and DEA and would appreciate being advised of any recommendations that are implemented in order to minimize impacts to seabirds and other fish and wildlife resources. If you have any questions regarding these comments, please contact staff biologist, Michael Ritter at (808) 541-3441.

Sincerely,

Robert P. Smith

Robert P. Smith
Field Supervisor
Pacific Islands Office

cc: DOFAW, Kauai

REFERENCES CITED

Ainley, D. and R. Podolsky. 1993. *Kauai Seabird Study Task 2 - Ecological Study, Final Report Draft*. PRBO International Biological Research, Stinson Beach, CA. 35 pp.

Cooper, B.A. and R. H. Day. 1993. *Interactions of Dark-Rumped Petrels and Newell's Shearwaters with Utility Structures on Kauai, Hawaii: Results of 1993 Studies*. Alaska Biological Research, Inc., Fairbanks, AK. 151 pp.

Harrison, C. S., T. C. Telfer, and J. L. Sincock. 1990. *The status of Harcourt's storm-petrel (Oceanodrama castro) in Hawaii*. 'Elepaio 50:47-51.

April 21, 1994

Robert P. Smith
Field Supervisor
Pacific Islands Office
United States Department of the Interior
Fish and Wildlife Service
P. O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Smith:

Subject: County of Kauai 800 MHz Radio Communications Upgrade (MVR)

Thank you for reviewing and commenting on the Draft Environmental Assessment prepared for the subject project. We offer the following response to your comments.

The Environmental Assessment identified birds either observed or known to inhabit the planned communication sites. Only one specie, the nene which nests at Kilauea National Wildlife Refuge, is listed as endangered. None of the planned radio sites are located in the geographical areas where nesting colonies have been established by the three seabirds cited in your comment.

To have included information about all federally endangered avian species that reside or frequent Kauai, would have detracted from the purpose of the Environmental Assessment. In addition, if the EA were to include information about the distribution of endangered birds, it also should have included information about other endangered species such as plants and mammals that are found on Kauai.

As you suggested, we consulted with Mr. Tom Telfer of the Division of Forestry and Wildlife, Department of Land and Natural Resources, State of Hawaii. According to Mr. Telfer, his office has not found radio towers per se to be the cause of fall-outs. He indicated that bright lights (flood lights for example) and guy wires create problems for birds. Presumably, bright lights both attract and temporarily blind birds causing them to fly in a disoriented manner with sometimes fatal results and guy wires are too difficult for birds to see in the dark. He went on to say towers in general are not the problem and that the towers to be constructed as part of the County of Kauai radio system probably should not contribute to the fall-out problem. Most of the towers planned for the project are relatively low in height and will not be equipped with bright lights. At some locations

GERALD PARK urban planner

antenna will be attached to existing towers and will not contribute to the fall-out problem.

A 120-foot high, self-supporting tower is planned for the Puu Alanakau site. This tower will be equipped with aircraft obstruction lights meeting Federal Aviation Administration (FAA) standards. The tower lights will be red in color and flash at 1-2 second intervals. Based on our discussion with Mr. Telfer, we believe the Puu Alanakau tower and its aircraft obstruction lights should not pose a problem for seabirds. In addition, the freestanding tower will not be secured by guy wires thus negating potential bird fall out resulting from guy wires.

All equipment shelters and towers have a subdued exterior finish (similar to a matte finish) with no shiny or reflective surfaces that may attract birds.

We hope that these responses adequately address your concerns. We will incorporate the responses into the Final Environmental Assessment.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

xc: D. Takashima, DPW
T. Telfor, DOFAW, SOH

JOHN WAIHEE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS
P.O. BOX 621
HONOLULU, HAWAII 96809

RECEIVED
4/6/94

KEITH W. AHUE, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
JOHN P. KEPPELER, II
DONA L. HANAIKE

AQUACULTURE DEVELOPMENT PROGRAM
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CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION LAND
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION PROGRAM
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

April 04, 1994

Gerald Park
Gerald Park Urban Planner
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

SUBJECT: COUNTY OF KAUAI 800 MHz TRUNKED RADIO COMMUNICATIONS UPGRADE, COUNTY AND ISLAND OF KAUAI, HAWAII

We reviewed the draft environmental assessment (DEA) for the subject project and have several concerns regarding the Kokee Air Force Station, Kukui Facility. This facility is situated within Waimea Canyon State Park and within the resource subzone of the Conservation District. Our comments are as follows:

1. Any development within the state park that is not consistent with the park management objectives should demonstrate a greater public purpose and its design should serve that function. Is the fiberglass building structurally sound so that it can survive natural disasters such as hurricanes (e.g. falling trees and flying debris)? If it cannot, then it won't be able to meet its emergency function.

2. The archaeological survey needs to be conducted by a qualified archaeologist.

3. The botanical survey needs to be conducted by a qualified botanist. The description and listing of plants in the DEA is inaccurate, incomplete and misleading.

4. The proposed design of the structure does not preserve or improve upon the natural beauty and open space characteristics of the area, nor does it harmonize with the physical and environmental conditions (conditions for any use allowed in the Conservation District). The structure should be re-designed to blend in the natural environment and be rustic. If this is not possible, then there should be a strong, convincing justification as to why not and what mitigation actions will be undertaken. In addition, the color of the fencing material should be green.

5. Clearing and grubbing should be minimized. Your statement that the expansion area is free of natural resources is incorrect. The vegetation is one of the primary park resources. It is these plants that collectively make up the forest which provides the park's scenic and wildland values. Although the vegetation has been impacted by past construction projects and current operational activities, it is recovering as evident by the numerous young koa trees. To mitigate the adverse impact of the clearing and grubbing, a like number of plants should be successfully planted in Waimea Canyon State Park or the adjoining Kokee State Park for each tree and shrub damaged/destroyed; this planting should be done under the direction and to the satisfaction of the Division of State Parks.

6. Grading should be minimized and carried out only when the soil is seasonly dry. Any excess soil from the grading should be made available to the Division of State Parks to stockpile for future park needs.

7. The DEA does not mention soil from outside the park being brought in for the project, therefore, no foreign soil should be brought into the jobsite.

8. Graveled areas should be minimized. The covering of exposed areas with a layer of gravel should be limited to the immediate areas around the facilities or enclosed by fencing.

9. Upon completion of the construction activities, the disturbed area (other than proposed fenced areas) should be restored to its natural condition to the satisfaction of the Division of State Parks. In addition, the project area should be monitored and necessary control actions undertaken for invasive weeds through one rainy season.

10. Figure 2 - Kauai Smartnet Proposed Kukui Site Plan is not-to-scale or perhaps mislabelled. This figure needs to be corrected and drawn to scale. A north arrow should also be included.

If there are any questions regarding this matter, please call Wayne H. Souza, Kauai Parks District Superintendent, at 241-3446.

Yours very truly,

RALSTON H. NAGATA
State Parks Administrator

April 21, 1994

Ralston H. Nagata
State Parks Administrator
State of Hawaii
Department of Land and Natural Resource
Division of State Parks
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Nagata:

Subject: County of Kauai
800 MHz Trunked Radio Communications Upgrade

Thank you for reviewing and commenting on the Draft Environmental Assessment prepared for the subject project. We offer the following responses to your concerns.

1. and 4. The prefabricated equipment shelter is a fiberglass building used commonly for housing radio equipment and support facilities. The shelter is lightweight, air tight, water tight, and dust proof. The exterior is coated with a polyester resin and fiberglass composite. The resin is pigmented tan but can be colored as needed. As indicated in the EA (pg. 58) the shelter may be painted to blend with its background.

The shelter is designed to withstand wind speeds of 120 mph but it is not completely "damage proof". It is possible that it can be damaged by falling trees and/or flying debris. It is, however, a significant structural improvement over the existing wooden shed currently used by the County for its radio shelter. The shelter is of double wall construction with insulation between the walls. This feature will not prevent but should help to minimize damage to radio equipment inside the shelter.

It is of paramount importance that the radio system be able to function during emergency situations. Although external damage to shelters generally cannot be prevented, equipment redundancy has been built into the radio system to provide for continuous operations. If a commercial power failure should occur, each station is equipped with an emergency generator with 4-5 days fuel supply as well as a battery system that will allow the station to function for up to 8 hours after complete power loss.

Equally important is the need for this island-wide public safety radio system to function 24 hours a day. The system will handle all radio transmissions for public safety agencies, civil defense, and local government agencies throughout the island.

GERALD PARK, urban planner

1245

Although located in a state park, the 1.2 acre site has been used as a communication facility since the early 1970s. In addition to the County's radio shed, facilities including a 180-foot tall guyed tower and several equipment shelters belonging to federal, state, and county agencies operate from the Kokee AF Station. Of these several users, only the County has painted its shelter to blend with its background in consideration of the natural qualities of the area.

Damage caused by Hurricaine Iniki has rendered the existing County radio site at Kokee AF station inoperable and the County Police, Fire, and Civil Defense Agency have been unable to transmit from this site. Local government radio coverage is currently handled through the Kauai Police Department's overburdened VHF system. There is a pressing need to reestablish the radio station to provide adequate radio coverage for the upper areas of Kokee and Waimea Canyon State Parks, and to parts of Waimea, Kekaha, Hanapepe, Eleele, and shaded radio coverage areas near Kukuiolono Park, Kalaheo.

The equipment shelter and building site will be designed to minimize its obtrusiveness within the park area. A rustic-type equipment shelter is not proposed but the shelter will be painted to harmonize with its background, and as you suggest, the fence should be painted green. In addition, some of the native plants to be removed during construction can be used for landscaping. Koa seedlings and a'alii could be planted outside the fenced area to aid in concealing the radio station from view from Kokee Road.

2. Martha Yent, a state park archaeologist, has field checked the project area. She indicated that no archaeological or cultural features were observed.

3. A botanical survey will be conducted and the results forwarded to your office.

5. and 6. Limited grading is required to site the new equipment shelter. As you mentioned, construction work will be carried out when the ground is seasonally dry. The grading plan should balance the amount of soil material to be cut from the slight slope and excavated for the concrete pad on which the shelter will be placed and used to fill low areas. Any excess soil will be made available to the Division of State Parks.

7. Soil will not be brought in from the outside the park.

8. Only areas immediately surrounding the equipment building and LPG tank pad will be graveled. If the facility is fenced, only those areas within the fence will be graveled.

9. Disturbed areas will be restored to pre-construction conditions.

10. The site plan shown in Figure 2 is stamped preliminary and as you mentioned it is not a scale drawing. The site plan may be adjusted to accommodate changes in the placement of the communications building but the overall area (45' L X 15' W) and building (28' W X 12' L) dimensions are fixed.

We will incorporate your comments into the Final Environmental Assessment. Should you or your staff have further questions, please call me at 533-0018.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park

xc: D. Takashima, DPW
W. Souza, DLNR

JOHN WAIHEE
GOVERNOR OF HAWAII

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

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH

RECEIVED 4/5/94

In reply, please refer to:

March 31, 1994 94-033/epo

Mr. Gerald Park
Urban Planner
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

Subject: Draft Environmental Assessment (DEA)
County of Kauai 800 MHz Trunked Radio Communications Upgrade
Kauai, Hawaii

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

Hazard Evaluation and Emergency Response Office

The Department of Health (DOH) agrees with the conclusions in the Draft Environmental Assessment (DEA); that the Radio Communications Upgrade, as planned, will not endanger public health. However, this conclusion applies to the DEA dated February, 1994, as written. If any changes are made to the transmitter placements as described in the above DEA, then the DOH withdraws its agreement with the conclusions and would have to review a revised DEA.

If you should have any questions on this matter, please contact Leslie Au at the Hazard Evaluation and Emergency Office at 586-4249.

Very truly yours,

JOHN C. LEWIN, M.D.
Director of Health

c: Hazard Evaluation and Emergency Response Office

Kilauea Neighborhood Association Inc.

P.O. Box 328
Kilauea, Kauai, Hawaii 96754

RECEIVED 4/8/94

March 28, 1994

Dexter Takashima
Department of Public Works
3021 Umi Street
Lihue, Hi 96766

Dear Mr. Takashima,

Thank you for giving our Kilauea Neighborhood Association, Board of Directors, an opportunity to review the County plans for a new communication system. As you could tell from the comments, we are very supportive of this project. The Board had no objections to the new antenna site. It is a well designed installation. We are comfortable with the location and I would doubt that our community residents will even be able to see the antenna from the town area.

The Board voted unanimously to support this project.

Thanks again for your efforts in letting us review this project.

Sincerely,

Keith Hutchens
President

cc: Deputy County Engineer
Gerald Park, Urban Planner

OFFICE OF STATE PLANNING
Office of the Governor

JOHN WAIHEE
GOVERNOR

Ref. No. C-567

RECEIVED 4/8/94

April 6, 1994

Department of Public Works
County of Kauai
3021 Umi Street
Lihue, Kauai 96766

Gentlemen:

Subject: Draft Environmental Assessment for County of Kauai 800 MHz Trunked Radio Communications Upgrade

We have reviewed the Draft Environmental Assessment for the County of Kauai 800 MHz Trunked Radio Communications Upgrade and have no comments.

We appreciate very much the opportunity to review the document.

Sincerely,

Harold S. Masumoto
Director

cc: Gerald Park

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

RECEIVED 4/13/94

REX D. JOHNSON
DIRECTOR

DEPUTY DIRECTORS
KAHANI HOLT
GLENN M. OKIMOTO
JOYCE T. OMINE
CALVIN M. TSUDA

IN REPLY REFER TO
STP 8.5895

April 8, 1994

Mr. Gerald Park
Gerald Park Urban Planner
1245 Young Street, Suite 201
Honolulu, Hawaii 96814

Dear Mr. Park:

Subject: Draft Environmental Assessment - County of Kauai
800 MHz Trunked Radio Communications Upgrade
TMK: 1-2-01: 9; 1-2-02: 13; 2-3-05: por. 10;
2-8-01: por. 1, 2, & 5; 3-6-05: 6; 3-8-02: por. 5;
4-4-08: 23; 4-9-09: 22; 5-2-02: 103

The County of Kauai's proposal to upgrade their existing public safety radio communication system will not have an impact on our transportation facilities.

We appreciate the opportunity to provide comments.

Sincerely,

Rex D. Johnson
Director of Transportation