Draft Environmental Assessment

Zone Change From F-1 Military and Federal Preservation to Ag-2 Agricultural Mokuleia, Oahu, Hawaii

(Tax Map Key: (1) 6-8-003:021)

Prepared For:

Ralph Gray
3107 Oahu Avenue
Honolulu, Hawaii 96822

September, 2008

Prepared By:

Kane Environmental, Inc.
Seattle, WA 98103

OEQC BULLETIN PUBLICATION FORM

(Follow instructions on other side)

1. Project Name: Mokuleia Zone Change – F-1 to AG-2

Type of Document *(circle one)*: **Draft EA**, Final EA, EIS prep notice, draft EIS, final EIS, NEPA
check if applicable: _____revised document _____ supplemental document
Legal Authority: Chapter 343 HRS
Agency determination: Anticipated FONSI

Applicable sections:

___ Use of state or county lands or funds
___ Use of conservation district lands
___ Use of shoreline area
___ Use of historic site or district
___ Use of land in the Waikiki district
___ Amendment to county general plan
___ Reclassification of conservation lands
__x__ North Shore Sustainable Communities Plan Significant Zone Change

2. Island: Oahu
Judicial District: Honolulu
Tax Map Key Number: (1) 6-8-003:021

3. Applicant or applicant agency:
Mr. Ralph Gray
Address: 3107 Oahu Avenue
Honolulu, HI 96822

Contact: Ralph Gray Phone: (808) 295-0704

Note for EAs: When the applicant is a state or county agency, the applicant agency and approving agency are the same.

4. Approving Agency (EAs) or Accepting Authority (EISs):
City and County of Honolulu, Department of Planning and Permitting
Address: 650 South King Street
Honolulu, Hawaii 96813

Contact: Robert Reed Phone: 808-768-8056

5. Consultant: Analytical Planning Consultants, Inc.
Address: 928 Nuuanu Avenue Suite 502
Honolulu, Hawaii 96817

Contact: Don Clegg, President Phone: 808-536-5695

6. Public Comment Deadline: _____

7. Permits required prior to implementation: None

8. Project Summary (name of file): Mokuleia Zone Change – F-1 to Ag-2

9. Public Library Copy: Waialua_____(not required for final EAs)

10. This form was prepared by: Lauri Clegg Phone: 808-536-5695

Mokuleia Zone Change – F-1 to Ag-2
Property – Farrington Highway, Mokuleia, Oahu
TMK(1) 6-8-003: 021

PROJECT SUMMARY

The 40.59 acre property is located mauka and south of Farrington Highway at the base of the Waianae Mountains in the Waialua District of the City and County of Honolulu. Prior to 1944, the property was owned by Mokuleia Ranch and Land Company Ltd. within a larger parcel of agricultural land. In 1944, the Property was condemned for public use and used by the US Military. The applicant proposes to return the property to the original agricultural zoning, and is requesting a zone change from F-1 Military and Federal Preservation to Ag-2 Agricultural. There will be no further subdivision of the property. The applicant will maintain and develop the three existing lots of record for activities permitted in the AG-2 district by the Land Use Ordinance (LUO).

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1.0 INTRODUCTION

This Environmental Assessment (EA) is being prepared in conjunction with an Application for Zone Change for Tax Map Key (TMK) 6-8-003: 0021. The EA is prepared pursuant the requirements of Hawaii Revised Statutes Chapter 343. A Finding of No Significant Impact (FONSI) is requested.

1.1 General Information

The Applicant:	Ralph S. & Cathy M. Gray 3107 Oahu Avenue Honolulu, Hawaii 96822
Recorded Fee Owner:	Coastal View Properties, LLC 820 Mililani Street, Suite 711 Honolulu, Hawaii 96813 Contact: Mr. Greg Jones Ph. (714) 267-1207 Ralph S. & Cathy M. Gray 3107 Oahu Avenue Honolulu, Hawaii 96822 Ph. (808) 295-0704
The Applicant's Agent:	Analytical Planning Consultants 928 Nuuanau Avenue, Suite 502 Honolulu, Hawaii 96813 Contact: Mr. Donald Clegg Ph. (808) 536-5695
EA Preparer:	Kane Environmental Inc. 3831 Stone Way North Seattle, Washington 98103 Contact: Mr. John Kane Ph. (206) 691-0476
TMK:	(1) 6-8-003:021
Lot Area:	40.59 Acres
State Land Use Designation	Agricultural
North Shore Sustainable Communities Plan Boundary	Outside Rural Community Boundary in an area identified for agricultural use
Current Property Zoning	F-1 Military and Federal Preservation District
Coastal Zone Management Area	Outside the Special Management Area

Agencies Consulted:	Federal Army Corps of Engineers, Planning Division State of Hawaii Department of Health Department of Land and Natural Resources, State Historic Preservation Division Department of Land and Natural Resources, Office of Conservation and Coastal Lands Office of Environmental Quality Control State Commission on Water Resource Management Department of Agriculture City and County of Honolulu Department of Planning and Permitting Board of Water Supply Others Mokuleia Community Association North Shore Neighborhood No. 2 Mountain Edge Environmental
Accepting Authority:	City & County of Honolulu, Department of Planning and Permitting
Required Approvals:	Zone Change Application
Anticipated Determination	Finding of No Significant Impact

1.2 Background

The subject area to be re-zoned is a 40.59 acre parcel of land identified as Tax Map Key 6-8-003:021 and is composed of three lots of record.

Parcel 2-A (MF-58)	Portion of Royal Patent Grant 231	0.70 acres
Parcel 2-C (MF-57)	Portion of Royal Patent Grant 270	19.21 acres
Lot 2-B (MF-31)	Map 3 Land Court Application 824	20.68 acres

In 2002, Coastal View Properties, LLC acquired TMK 6-8-003:021 (the Property) from Mokuleia Land Company, consisting of 40.59 acres of land at the base of the Waianae Mountains. In 2005, Ralph and Cathy Gray acquired half interest in the Property. Prior to 1944, the Property was owned by Mokuleia Ranch and Land Company Ltd. within a larger parcel of agricultural land. In 1944, the Property was condemned for public use and used by the US Military. The Declaration of Taking filed in 1946 by the United States Government states that the subject property was acquired for public use for the military and other war purposes. Specifically, the property was acquired to provide for an ordinance storage area and related military uses as a support to the Dillingham Airfield. There still exist on site a number of former storage bunkers distributed along a paved looping road system. The storage bunkers are formed by earth and rock berms on three sides, with an open side toward the road.

Prior to 1962, a road was constructed from the Property up the mountain to a Nike Missile Tracking Station located off the Property. In 1966, the General Services Administration for Disposal of Federal

Property determined the Property to be surplus and sold it to the state of Hawaii for $110,000. The Property was offered to the State "As Is". There was no reference to any concerns regarding the condition of the Property in any of the documentation at the time. The deed document includes a road and cable easement in favor of the U.S. Government, the location of which may be changed with the permission of the U.S. Army. In 1989, the State entered into an agreement with the Mokuleia Land Company to exchange the Property for land to provide public access to the Mokuleia Forest Reserve (Peacock Flats). The Property is currently being used for ranching activities.

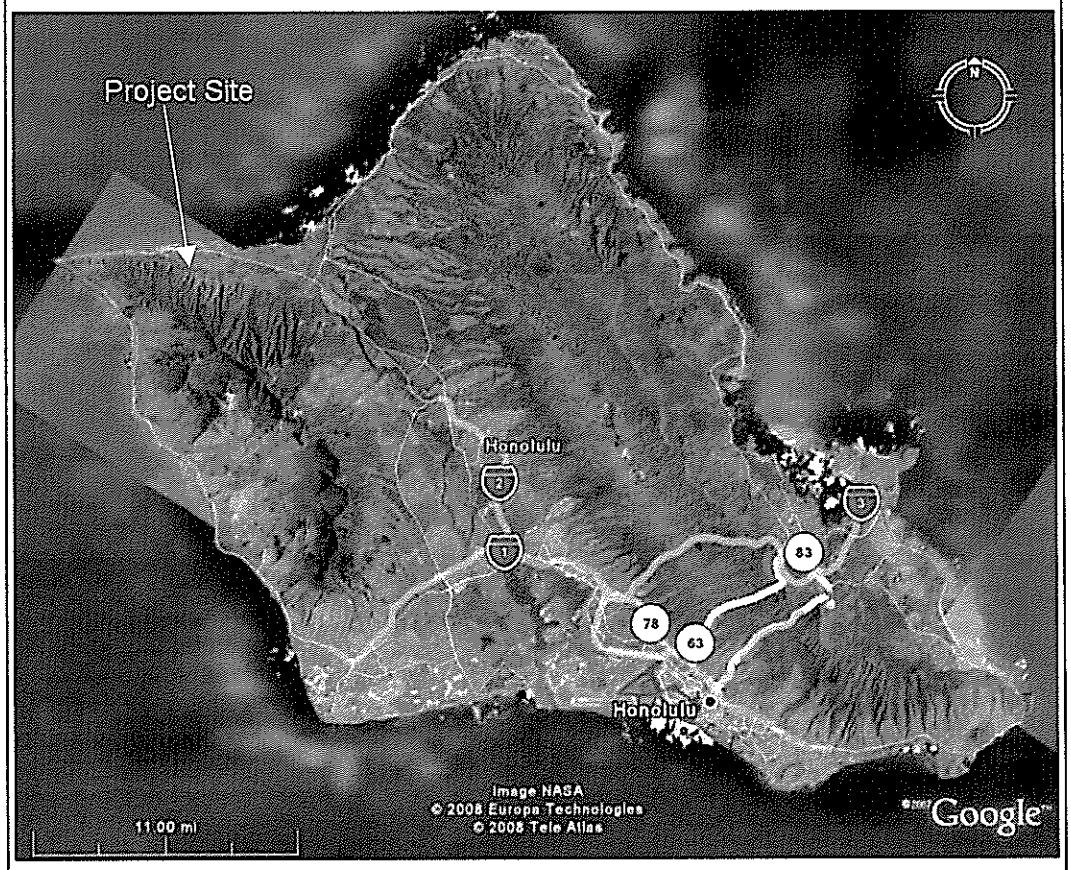
The Property is presently zoned F-1 Military and Federal Preservation due to its previous use by the military. Section 21-3.40 (d) of the Land Use Ordinance mandates that should lands be removed from either the state-designated conservation district or from federal jurisdiction, it shall be zoned F-1 and all uses, structures and development standards shall be as specified for the P-2 general preservation district. The purpose of designating land released from Federal use as P-2 is to put it into a limited use holding pattern until an appropriate use can be determined. The land under consideration has been in a holding pattern since 1966 when it was transferred to the State of Hawaii by the United States government.

The applicant proposes to return the Property to the original agricultural zoning, and is requesting a zone change from F-1 Military and Federal Preservation to Ag-2 Agricultural. There will be no further subdivision of the property. The applicant will maintain and develop the three existing lots of record for activities permitted in the AG-2 district by the Land Use Ordinance (LUO).

1.3 Project Location

The Property is located mauka and south of Farrington Highway and is centered between Kaena Point to the West and Thomson Corner to the East, at the base of the Waianae Mountains in the Waialua District of the City and County of Honolulu (Figure 1). The project site is at the end of a private paved access road that leads south from Farrington Highway. The Property is vegetated mainly with guiea grass, koa haole, and keawe and no structures are present (Figure 2).

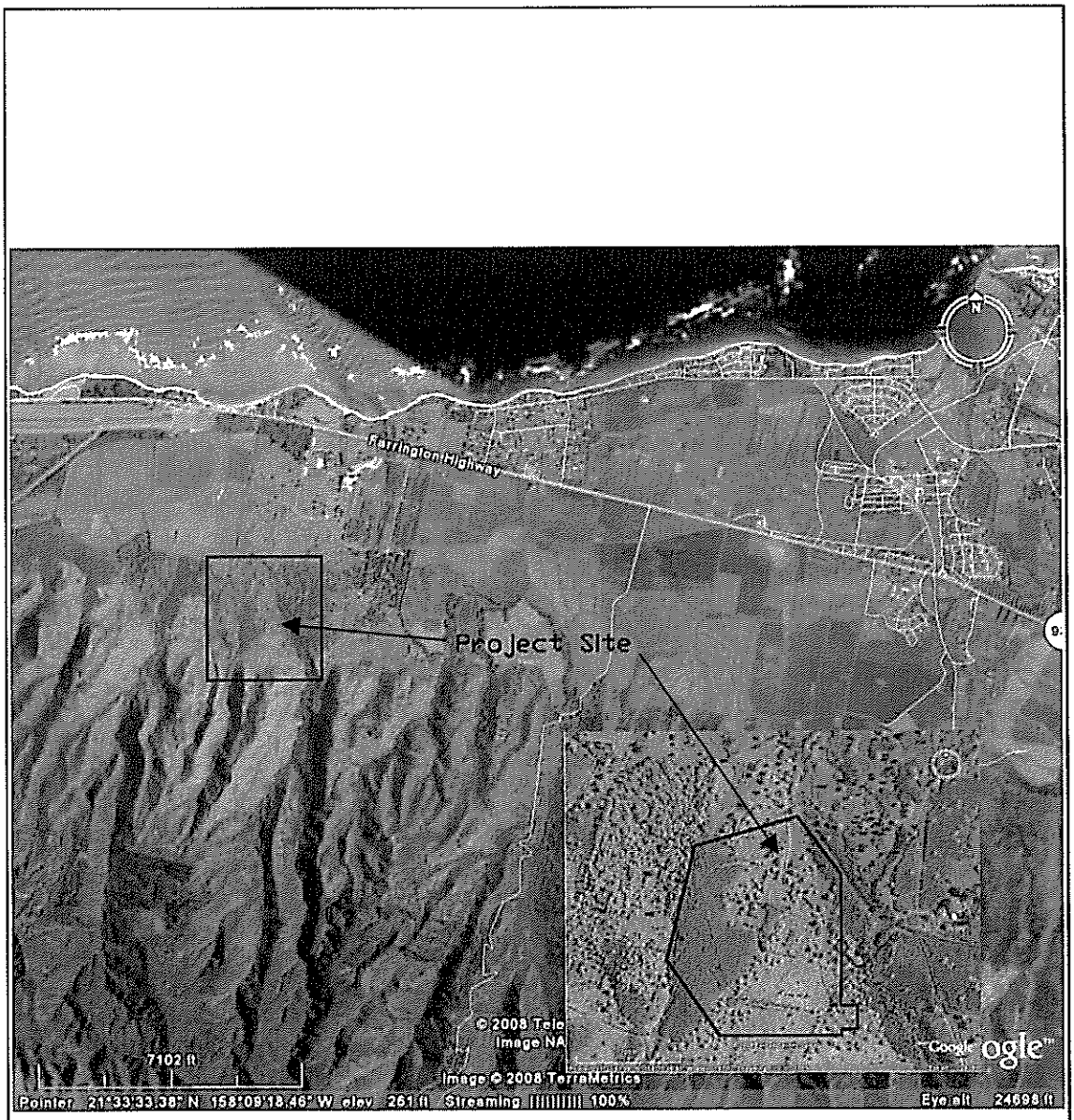
Figure 1: General Project Location



KANE ENVIRONMENTAL INC	Environmental Assessment Proposed Rezoning Farrington Highway Mokuleia, Hawaii	General Project Location

Figure 2: Project Site and Vicinity

(Project Boundaries are Approximate)



KANE ENVIRONMENTAL INC	Environmental Assessment Proposed Rezoning Farrington Highway Mokuleia, Hawaii	Project Site and Vicinity Map

Figure 2A: Existing Lots

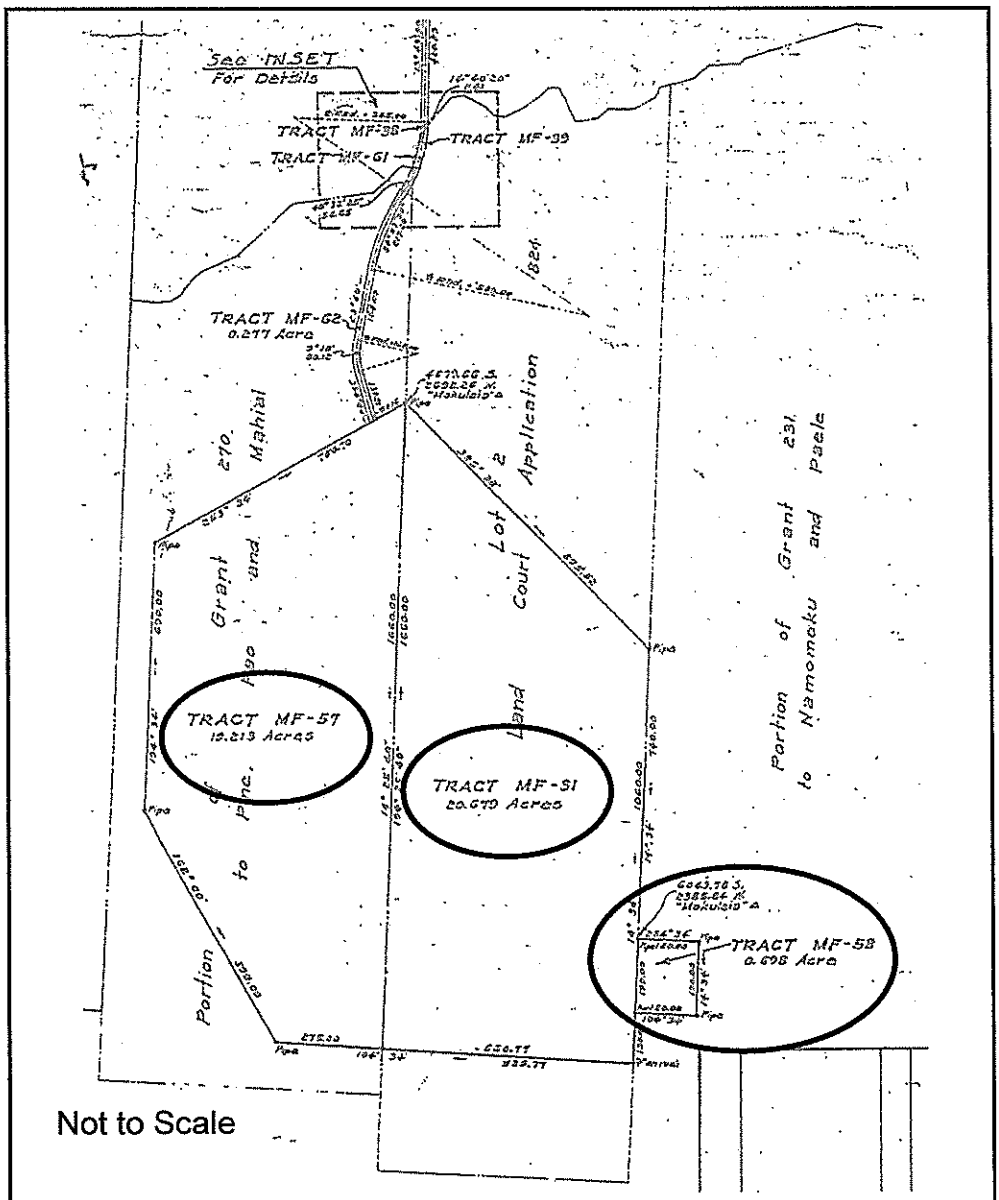


Figure 2A
Existing Lots

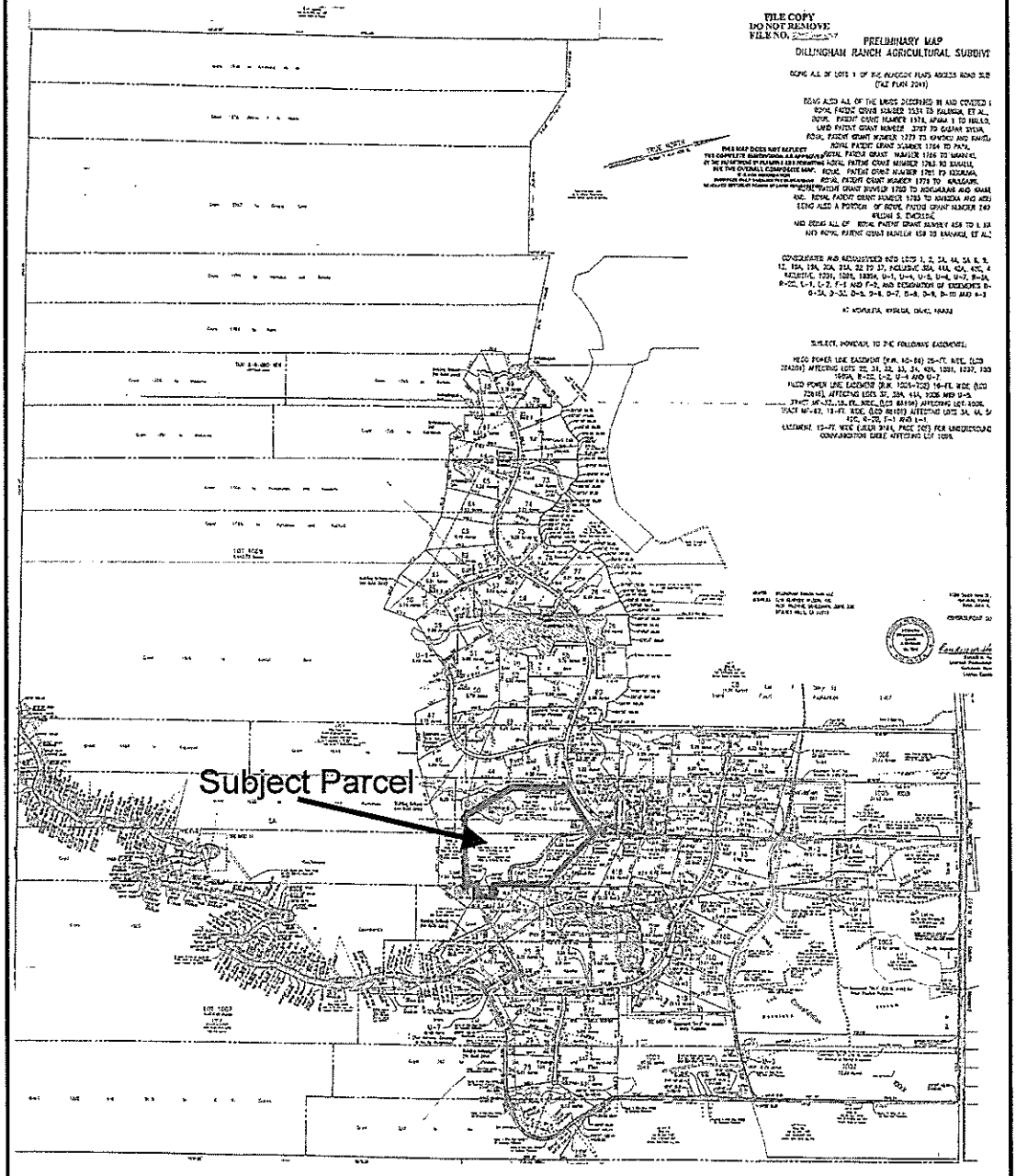


Figure 2B
Dillingham Ranch Aina Subdivision
Relationship to Subject Parcel 21

2.0 DESCRIPTION OF THE ACTION

2.1 Project Setting

The Mokuleia area is located along Oahu's north shore, east of Dillingham Airfield. It is a rural area characterized by agricultural and ranching land use, with recreational and residential uses nearer the shore. The Mokuleia area is bound to the south and southwest by the Mokuleia Forest Reserve. The Property is located within a State agricultural district and the surrounding land use includes palm tree farming, cattle ranching, sugarcane fields, taro farming and a banana plantation. Several farm dwellings, formerly associated with the Dillingham Ranch, are scattered throughout the areas near the Property. The nearest residential development is approximately one-mile to the northeast, at Laau Paina Place. The Property is approximately 5-miles southwest of Haleiwa and 1.25-miles southeast of Dillingham Airfield.

The Department of Planning and Permitting of the City and County of Honolulu has recently granted temporary approval to subdivide a portion of the surrounding Dillingham Ranch land into 77 agricultural lots (2007/SUB-167). The subdivision has an average lot size of 5.97 acres and surrounds the Property on the east, north and west. As a condition of approval, the State Department of Transportation in their review of the project stipulated that access be provided to the subject Property as a condition of approval.

2.2 General Description

The applicant is seeking to return the Property to the original agricultural zoning, and is requesting a zone change from F-1 Military and Federal Preservation to Ag-2 Agriculture to allow the Property to be used for agricultural uses, as it had historically been used, prior to its temporary use by the U.S. military. As permitted by the Land Use Ordinance, the Ag-2 zoning would allow construction of farm dwellings on the Property in conjunction with agricultural activities. The three existing lots would allow for 4-5 farm dwellings. No further subdivision of the Property is proposed. The present P-2 zoning allows for limited agricultural uses and does not allow farm dwellings which are vital for protection and management of crops and livestock. Loss of crops and equipment could be potentially devastating for the owner of a small privately owned farm than it would be for a large plantation type operation The surrounding land parcels are already zoned Ag-2 Agricultural, therefore this change would be consistent with land use in the area (Figure 3). The acreage under consideration is designated for Agricultural use under the State Land Use Laws and the proposed zoning change is consistent with this designation.

2.3 Relevant Features and Considerations

The Property is currently undeveloped, heavily vegetated and being used for cattle grazing, Prior to the Property's use as a military reservation, it was used for agriculture as part of the Dillingham Ranch, primarily for sugarcane production and horse ranching (Mountain Edge, 2002). Only portions of the Property are visible from Farrington Highway. The majority of the soils on the Property (Ewa) are rated as Prime farmland if irrigated (Attachment B, Farmland Classification). Under the University of Hawaii Land Study Bureau (LSB) classification system, the Property is rated "D" for marginal, however land rated as "A", "B" and "C" is in the vicinity (Attachment C). The Property is not part of Agricultural Lands of Importance to the State of Hawaii (ALISH), however most of the land bordering the Property is classified in the ALISH system (Figure 3). The Property is most likely not classified in the ALISH system due its prior use by the military. Based on the type of soils found on the Property, its historical use and the surrounding land classifications, a significant portion of the Property is suitable for agricultural operations. Based on the ALISH classifications, the land in the vicinity of the Property is also important agricultural land. The Property is also relatively near Farrington Highway and other farm properties, which will provide easy access for farm equipment, a ready supply of any needed farm supplies and allow vehicles carrying agricultural products an easy route for distribution. The Agricultural Feasibility Report done in 2007 for the adjacent Dillingham Ranch Aina LLC agricultural subdivision is included as Attachment F. The Report is applicable to the subject Property as geography and climate, topography, soil types and productivity are similar; and, historically, the properties were all formerly included within the Dillingham Ranch agricultural holdings. While the Property is most suitable for ranching activities, the agricultural operations suggested in the Report would most likely be feasible for the Property.

2.3.1 Technical Characteristics

There are no technical characteristics involved in the zoning change request. A summary of potential development of the Property into 4-5 farms is contained in the Project Master Plan Attachment D.

2.3.2 Economic and Social Considerations

The Property zoning and use over the past 60 years has resulted in no net gain or loss of jobs or other measurable economic impacts in the project area. The residential population was also unaffected. The Property is located within an active agricultural district and remains viable for agricultural use. The return to original zoning would not alter the overall rural/agricultural character of the area. Agricultural use would also provide a small number of farming jobs, helping employment in the local community. The value of TMK 6-8-003: 021 would be maintained or increased if the zoning change is granted because the Property would then be available for all uses allowed under the Ag-2 Agricultural designation.

Agricultural Feasibility

At this stage of the project, soil mapping and analysis have not yet been performed for the subject property, therefore detailed agricultural plans are not available. The Agricultural Feasibility Report done in 2007 for the adjacent Dillingham Ranch Aina LLC agricultural subdivision is included as Attachment F. The Report is applicable to the subject Property as geography, location, climate, topography, soil types and productivity are the same. Historically, the properties were included within the Dillingham Ranch agricultural holdings. The Report lists the following agricultural activities as compatible for the location and economically viable for the proposed Dillingham Ranch subdivision with an average size of 5.97 acres:

- Pasture Grazing – The area has traditionally been used for grazing of cattle and horses. Expected startup costs are limited to fencing and weed control. Costs in the first year may range from $1,000 to $5,000 /acre. Higher costs may be involved if the native guinea grass is replaced with more productive forage or if outside labour is required. On average, one acre of improved pasture would support one cow or horse. Fees earned from the grazing of horses in a managed paddock can range from $130 to $200 per month

- Natural Organic Farming - The largest organic farm on Oahu is 7 acres and there is a disproportionate need for more organic farms given Oahu's customer base. Small farms can usually manage organic farming concepts more effectively than large farms. Examples of products in demand are cucumber, tomato, peppers, melons, squash, broccoli, onions. In addition, seed production for natural crops commands a high price. Noni and Kawa are two crops that are easily cultivated and have had considerable interest as high-vlue Pacific specialty crops, The expected startup costs for an organic farms are not well documented.

- Specialty Orchards – Tropical fruits and specialty trees are perpetually suited to a wide range of landscapes in Hawaii. Citrus, mango, lychee and breadfruit have grown well in the area for many years with little or no maintenance. Cacao is currently being grown by Dole Foods in Waialua and is highly suited for the marginal soils found on the Property and can be processed on a small scale as a novelty business. There are no appreciable development costs unique to establishing specialty trees except for infrastructure and irrigation. Future crop production costs will be mostly labor.

- Landscape and Native – The landscape and native plant industries service growing markets and are commercially dynamic year-around. Significant start-up costs would be incurred for, materials, staging, nursery infrastructure, garden hardware, potting operations, watering and fertilizing. Available water would limit the size of the activity. Projected revenue for successful landscape supply centers may range from $10 to $100 per square foot per year depending on customer volume and the type of plants sold.

- Flower and Nursery - Flower and ornamental plant nurseries in Hawaii have enjoyed increasing sales for several years. Frangipani is highly recommended for this un-irrigated terrain and the flowers are in constant demand.

The Report concludes that the area has been historically grazed at minimal operating costs and with virtually no improvements and no agricultural development. The irregular, sloping, stony terrain does not support large scale agricultural ventures. Specialized, small-farm horticultural ventures are more likely to be suitable. Small-farm ventures are common in the surrounding Waialua-Mokuleia area, where a strong agricultural history began in the early years of sugarcane

2.3.3 Cultural and Historic Considerations

The applicant's pursuit of a zoning change involves no subsurface disturbance at this time. No cultural or archaeological resources were observed by the during the site inspection conducted for the Army Corp of Engineers December 17 and 18, 200. According to a letter dated, May 4, 2007, from Ms. Melanie Chinen, with the State Historic Preservation Division, it is the Department's understanding that no ground disturbing activities are proposed and therefore no historic properties will be affected. However, she states that if any subsurface excavation is planned some form of proactive archaeological mitigation (e.g., archaeological inventory survey, mitigation plan) may be required. The State of Hawaii Department of Land and Natural Resources has indicated that a 1992 archaeological survey of the former Dillingham Ranch (which included the Property) identified a total of 15 archeological sites. Four of these sites occur in the southwest portion of the Property as displayed in Figure 4. The applicant proposes to restrict groundbreaking activities to outside the area designated as containing archeological resources.

2.3.4 Environmental Considerations

There are two historical environmental considerations. A small, historical landfill is reportedly adjacent to the Property along the eastern border (Figure 4). The subject Property was reportedly used as an Ordnance Storage Area during and after World War II. In 1974 the Property was returned to the State of Hawaii. Such storage would have likely involved some sub-grade structures. On January 18, 2008 Kane Environmental performed a magnetometer survey of the Property to determine if any subsurface structures or objects were present. A ferro-magnetic metal detector was used, sensitive to depths of approximately ten feet. The survey did not reveal any metallic subsurface objects, such as those expected to be found in sub-grade storage or in a landfill.

To confirm previous Department of Defense use and determine any possible environmental impacts to the Property, Parsons conducted a Site Inspection of the Property during December 2007 on behalf of the Army Corp of Engineers. The Inspection consisted of qualitative visual reconnaissance and surface soil

sampling for munitions constituents. 50 soil samples were collected, no groundwater samples were collected because there are no drinking water sources on the Property and no surface water samples were collected because no permanent surface water is present on the Property. The soil samples were collected at approximately equally spaced intervals over the entire Property. At the time of the inspection no munitions or explosives of concern were observed, a number of former storage areas were observed. Soil analysis determined that munitions constituents copper, lead and zinc were present in the surface soil. The mean concentrations were below the Hawaii Department of Health Soil Action Levels; therefore no unacceptable risk to human health is expected. (See Attachment H –Final Site Inspection Report, Dillingham Air Force Executive Summary)

The Property contains topographical drainages in the center, from south to north, and along the southwestern edge of the parcel. The Property is also adjacent to a stream to the east and northeast. The proposed zoning change would not adversely impact these areas, however future construction of farm dwellings would control or mitigate possible water quality impacts using best management practices (e.g., silt fencing, compost berms, straw bales and sedimentation traps). According to EDR NEPA Check Radius Maps (Attachment A) there are no wetlands, endangered animal habitat, flood plains or other environmentally sensitive areas on the Property. According to the Natural Areas map, a Hawaii Game Management Area is present approximately one mile to the east and a Hawaii Managed Area is present approximately one mile to the south. Based on the topography of the area neither of these sites would be impacted by the proposed zoning change or future construction at the Property. A site inspection by Kane Environmental did not reveal any endangered species or endangered species' habitat on the Property. No long-term negative impacts are anticipated from the applicant's request for a zoning change or future construction of farm dwellings on the Property.

2.3.5 Positive Impacts

The current F-1 zoning of the subject Property does not provide any benefits to the North Shore community. A zoning change to Ag-2 would allow a diversity of agricultural uses on the Property, maintaining the North Shore's rural, farming character. Agricultural use would also provide a small number of farming jobs, helping employment in the local community. The construction of any farm dwellings and associated buildings would also provide employment to skilled laborers in the area. The construction of farm dwellings and use of the subject Property for agriculture would also increase the value of the Property, thereby providing additional tax revenue to the County of Honolulu.

Figure 3: Property Zoning in Vicinity

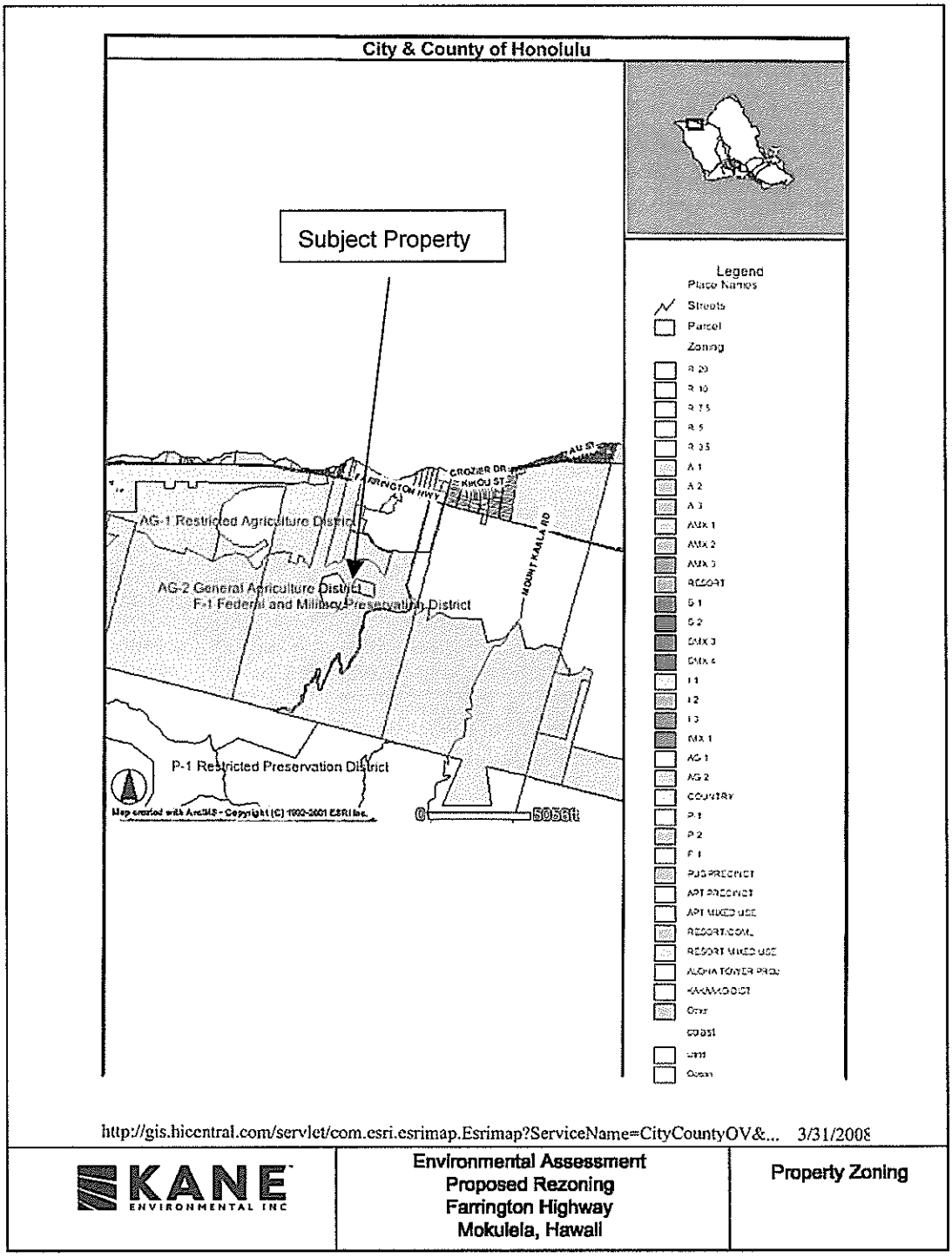


Figure 4: Location of Landfill and Archeological Site

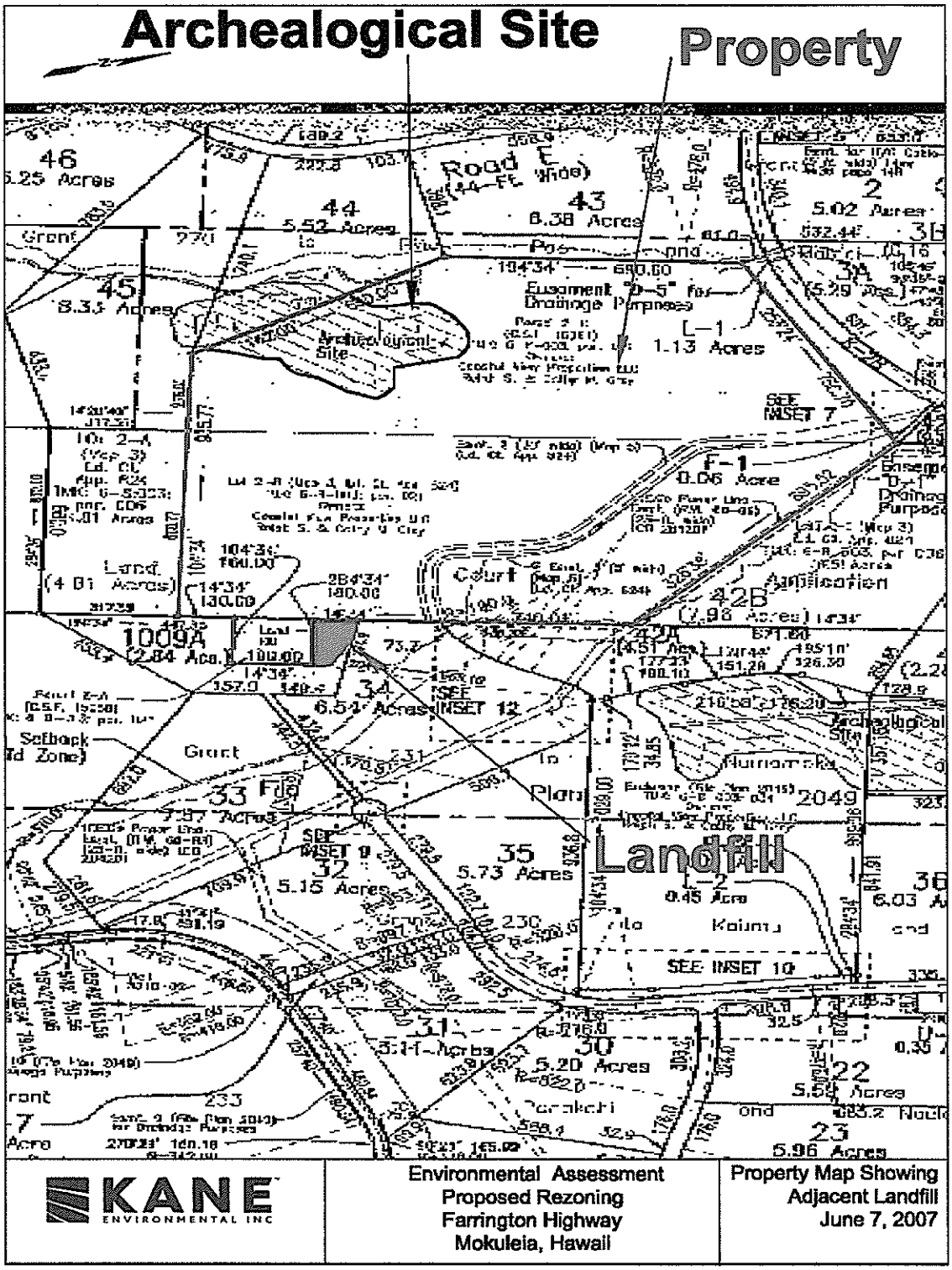


FIGURE 4A: LOCATION OF ARCHEOLOGICAL SITES

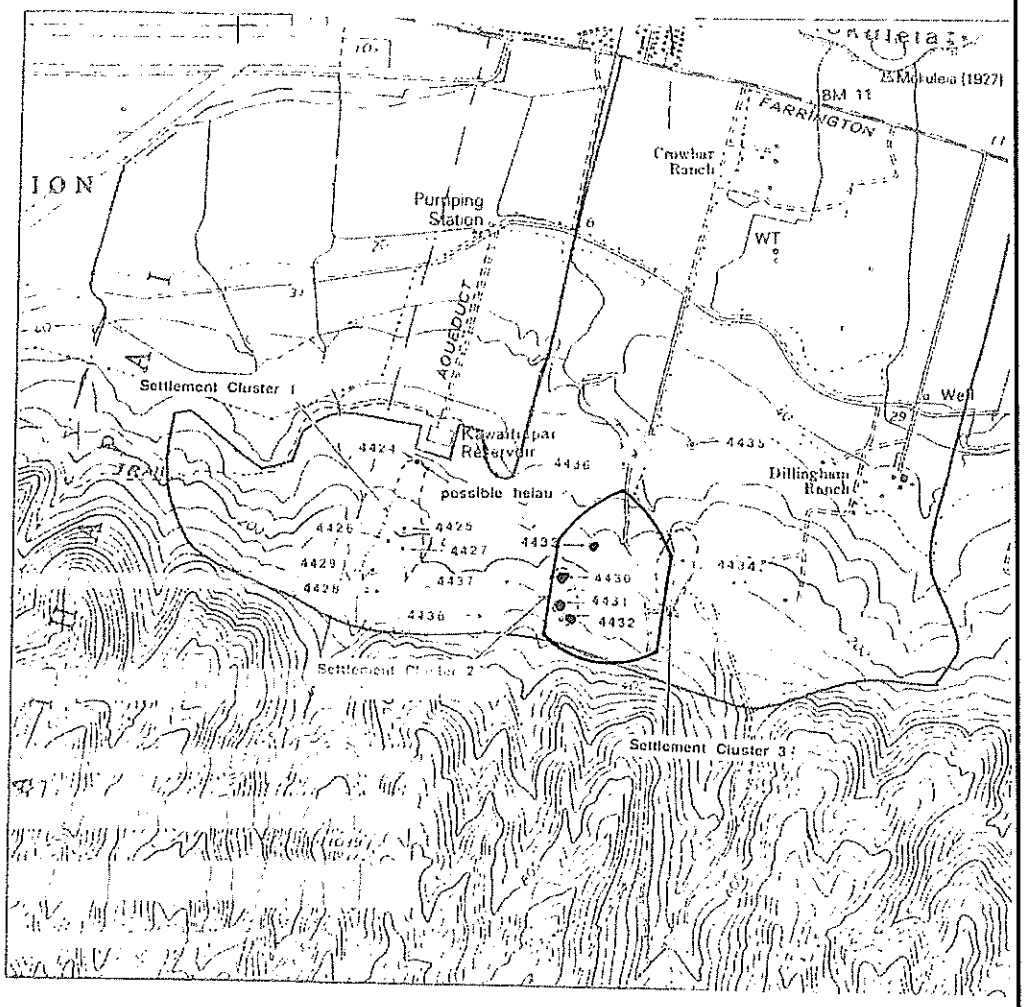


Figure 4A

1992 Location of Archeological Sites/Drolet & Schlitz

3.0 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION

3.1 Topography

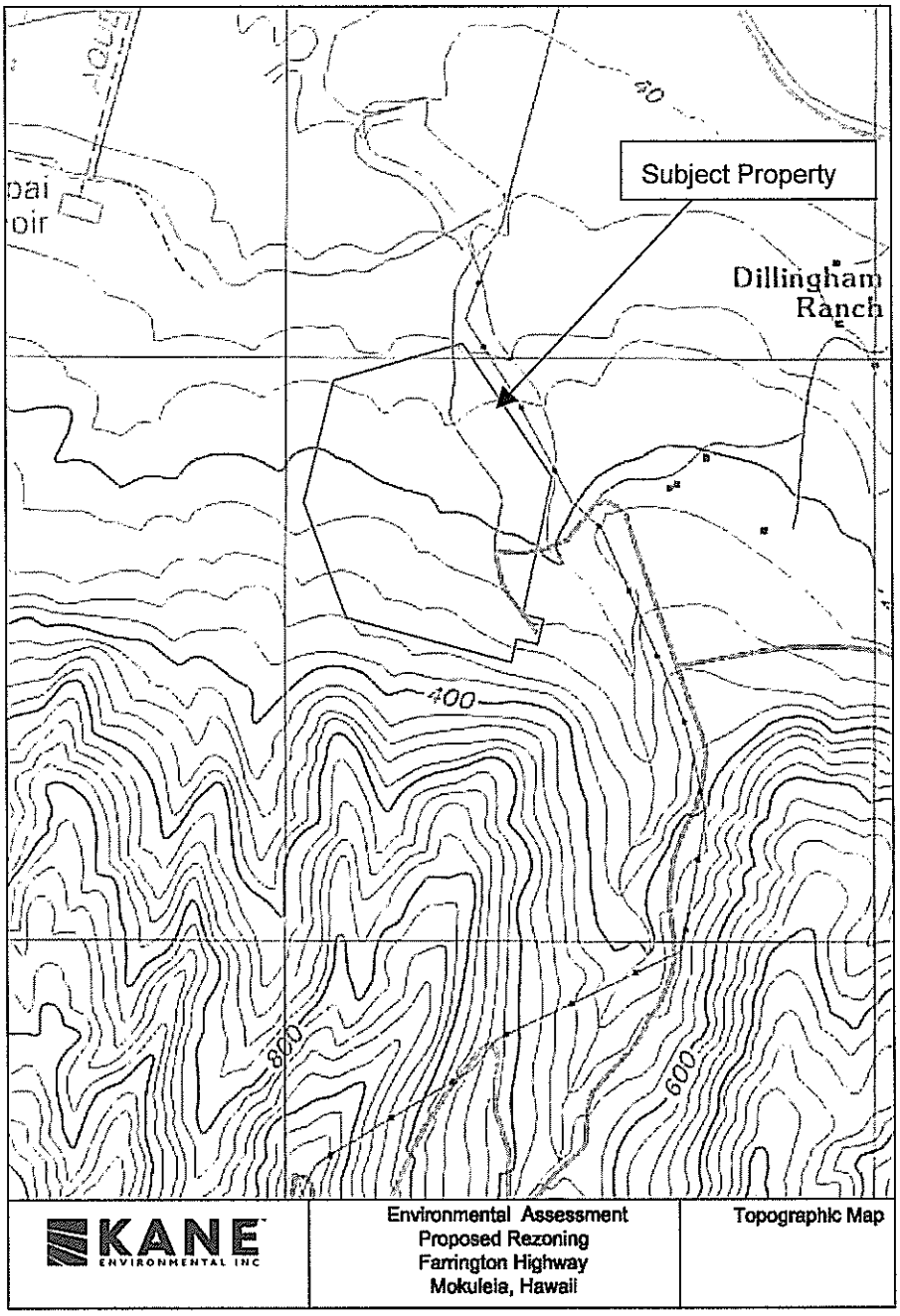
The U.S. Geological Survey (USGS), Kaena, Hawaii 7.5-Minute Topographic Quadrangle Map indicates that the ground surface in the immediate vicinity of the Property is sloped to the north and northeast, towards the adjacent stream and the Pacific Ocean. The Property elevation ranges from approximately 120 to 320 feet above mean sea level. The applicant's request for a zoning change does not currently involve any construction activities; however, a maximum of 4-5 farm dwellings would be permitted on the existing lots as well as accessory agricultural structures which would impact the topography in limited areas where foundations are required. Any upgrades to existing infrastructure including the access road and wastewater systems and any grading for agricultural purposes will require building permits and conformance with all regulations. There are no rock formations on the Property and the Property slope is less than 13%, therefore only minimal rockfall hazards are present on the Property (Figure 5).

3.2 Soils and Drainage

Soils in the vicinity of the Property are depicted on the online United States Department of Agriculture (USDS) Web Soil Survey. The dominant soils in the area are Ewa silty clay loam (6 to 12 percent slopes), Kaena clay (2 to 6 percent slopes), Kaena stony clay (2 to 6 percent slopes) and Kaena very stony clay (10 to 35 percent slopes). Ewa soils are deep, well drained and typically have moderate infiltration rates. Kaena soils are deep and poorly drained and typically have slow infiltration rates (USDS, 2008). A detailed soil map and soil series descriptions are included as Attachment B. Drainage at the site is fair to good, with no evidence of runoff problems.

The zoning change request and any future construction of accessory farm structures would have minimal impact on soils and drainage at the project site. Drainage and soil would be effected in the vicinity of the structures due to compaction and use of fill, however these areas of impacts can be mitigated with standard construction practices such as footing drains. Review of all building plans will occur at the appropriate time and no drainage mitigation is required at this time. Ewa and Kaena soils may be used for agricultural purposes, including pasture, irrigated sugar cane and truck crops such as tomatoes, melons, citrus and green vegetables (USDA 2003, 2006). Ewa soils are rated as Prime farmland if irrigated. Such use does not constitute a significant impact, therefore no mitigation is required.

Figure 5: Topographic Map of Property



3.3 Shoreline and Coastal Processes

The Property is located approximately one□mile from the shoreline. The zoning change request and proposed construction of farm dwellings would have no impact on shoreline and coastal processes. No mitigation is required.

3.4 Marine Resources

The Property is located approximately one-mile from the shoreline and associated marine resources. The zoning change request and proposed construction of farm dwellings, built in compliance with all state and local requirements, would have no impact on marine resources. No mitigation is required.

3.5 Water Quality

The Property is located adjacent to the west of a small stream and above an aquifer. According to the State Commission on Water Resource Management, the groundwater beneath the Property is part of the Mokuleia Aquifer System of the North Aquifer Sector. Water availability for the Mokuleia Aquifer is 12 million gallons per day with 3.975 mgd available. Prior to using the existing wells on the property, a State Application for a Water Use Permit must be approved by the Water Commission. For a new well, an Exploratory Well Drilling Permit is also required. For reference, the SCWRM calculates 13,000 gallons per day per 5 acres of agricultural land and 500 gpd for a single family. Staff at the State Department of Agriculture indicated that catchment is not commonly used to meet agricultural needs for Oahu and that most likely well water would be required for agricultural uses of the subject property. A supplementary water source would be necessary for agricultural uses whether the land is zoned P-2 or Ag-2.

There are no wells on the Property, however there are two capped wells east of the property formerly used for agricultural and domestic uses. These wells are across the stream and a significant distance from the Property. There is also a monitoring well located approximately 75 feet east of the Property, slightly uphill from the stream. Any farms will require sources for drinking water and onsite sewage disposal systems. Any wells or septic systems to be constructed would be in compliance with all Department of Health guidelines to protect groundwater quality. All designs would be reviewed by the Department of Health before construction to ensure groundwater quality is maintained. Construction of farm dwellings would result in clearing and grading activity that could impact nearby surface water quality. However, the appropriate use of sediment control Best Management Practices (BMPs) such as silt fencing, compost berms, straw bales and sedimentation traps should be sufficient to mitigate potential water quality impacts. As part of the construction permit process, a plan will be filed with the Clean Water Branch of the Department of Health for review showing the BMPs Plan and pollutant control measures.

These permits will be filed at the appropriate time for review and comment, no mitigation is required at this time.

3.6 Flood Considerations

The Property lies within Zone X and Flood Zone D on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). Zone X refers to areas determined to be outside the 100- and 500□year flood plain and Zone D refers to areas with undetermined flood hazards (FEMA, 2004). The zoning change request and future construction of accessory farm structures are not expected to affect the potential for flooding at the Property or at other nearby properties. No mitigation is required. If required for agricultural development within Flood Zone D, a flood survey will be completed by a licensed engineer.

3.7 Air Quality

The Property contains no stationary sources of air pollution. Background ambient air quality is of high quality due to the lack of development on the Property and surrounding land. Due to the distance, motor vehicle emissions along Farrington Highway are not likely to impact the Property. Proposed construction of the farm dwellings may cause a slight increase in exhaust emissions and fugitive dust from clearing activity and the use of construction equipment. Any future construction activities, built in compliance with all state and local requirements, would require only short term use of construction equipment, therefore any impact on air quality on the Property would be minimal and temporary. No mitigation is required.

3.8 Noise

Sources of low level background ambient noise in the vicinity of the Property are primarily attributed to motor vehicle traffic on Farrington Highway and agricultural activity on nearby properties. Noisy activities probably occurred during the Property's use by the U.S. military, however no noise impacts are currently associated with the Property. Any future construction would generate some noise impacts from the use of construction equipment. However, such impacts would be short term and minimal due to the limited size of the project. No mitigation is required.

3.9 Flora and Fauna

The Property is located in an agricultural area and down slope of general and protective conservation districts associated with the Mokuleia Forest Reserve. The Property is vegetated mainly with guinea grass, koa haole, and keawe. During the site inspection, Kane Environmental did not observe any terrestrial flora or faunal species that are protected under State or Federal environmental laws, including endemic bird and floral species. Agricultural use of the Property will cause additional impacts to the flora

and fauna at the Property. Agricultural use of the Property would be consistent with other current and historical impacts to the flora and fauna of surrounding area and is not undesirable. No impacts to the Mokuleia Forest Reserve are expected. No mitigation is required.

3.10 Archaeological, Cultural and Historic Resources

The State of Hawaii Department of Land and Natural Resources has stated that a 1992 archaeological survey, which included the Property, identified an archeological site on the Property. According to a letter dated, May 4, 2007, from Ms. Melanie Chinen, with the State Historic Preservation Division, it is the Department's understanding that no ground disturbing activities are proposed at this time and therefore no historic properties will be affected. However, she states that if any subsurface excavation is planned some form of proactive archaeological mitigation (e.g. archaeological inventory survey, mitigation plan) may be required. A survey done in 2007 for Dillingham Ranch Aina LLC indicates the small area of potential historic and archaeological significance is in the southwest portion of the Property (Figure 4). This area appears to contain relics of stone walls. Based on the communication with Ms. Melanie Chinen, an archaeological inventory survey and mitigation plan may be required in the future. Such plans would be put into place before any subsurface excavation takes place. The applicant proposes to restrict groundbreaking activities to outside the area designated as containing archeological resources.

Cultural Impact Assessment:

Mokuleia is one of the Hawaiian land divisions known as an *ahupuaa*. The land divisions run from the top of the mountains to the edge of the coral reef in the sea. The name Mokuleia came from the word *moku* which means Island and *leia* meaning encircled and is like a patterned map. The name probably originated from the cultivation patterns on the flat lands that resembled a patterned mat (Sterling and Summers,1979). Mokuleia has very few archaeological sites. The largest is a village at the base of the Waianae Range. Another is located on Dillingham ranch near the plantation reservoir. It is covered with dense growth and it is doubtful that it was ever a site of importance (Sterling & Summers,1979). The Property is not presently utilized for cultural or religious practices and in light of its past military and agricultural use no further cultural assessment is suggested.

3.11 Public Recreation Resources and Beach Access Points

The Property is north and downslope of the Mokuleia Forest Reserve. The Reserve's recreational uses are primarily hiking and biking. The Reserve is accessible in two places near the Property. The Mokuleia Forest Reserve Access Road is approximately ¼-mile to the east of the Property. The road is paved and approximately 4.2 miles long. While passing near the Property, the access road does not pass through or

adjacent to the Property. Therefore, any agricultural use of the Property would not be expected to impact the Mokuleia Forest Reserve Access Road. Kealia Trail and Access Road is present more than two miles to the west of the Property. The road is partly paved and is approximately 2.5 miles long. Neither access road to the Mokuleia Forest Reserve is associated with the Property. The Property is located approximately a mile from the shoreline and associated beach access points. Therefore, no impacts to public recreation resources or beach access points is expected. No mitigation is required.

3.12 Public Services, Roads, Access and Utilities

The requested zoning change and proposed agricultural uses, including 4-5 accessory farm dwellings, will have minimal effect on the demand or supply of public services such as police and fire protection. There will also be minimal increased demand placed on schools, medical services or recreational facilities in the area due to the zoning change. The Property is currently not serviced by any public utilities, including potable water, sewer, electric power and communication. No public roads serve the Property. According to a letter dated December 27, 2006, from Rodney K. Haraga of the State Department of Transportation, no significant impacts from the proposed zoning change are expected. When the Property is developed for agricultural purposes in the future then minimal effects on public services, roads and utilities may be expected. Wastewater disposal and drinking water will be supplied by onsite systems. These impacts will be studied and addressed as part of any development. No mitigation is required at this time.

According to the deed, there is no recorded access to the Property. Existing access is via a 50' wide, unpaved, privately owned roadway, which was used by Dillingham Ranch to service their agricultural properties, including the subject Property. The access roadway begins on the mauka side of Farrington Highway, across from the Mokuleia Polo Field and follows along the property boundary between TMK: 6-8-003:015 and 19 and across parcels 6, 30 and 31. All parcels are owned by Dillingham Ranch Aina, LLC. The Department of Planning and Permitting of the City and County of Honolulu has recently granted temporary approval to subdivide a portion of the surrounding Dillingham Ranch land into 77 agricultural lots (2007/SUB-167). As a condition of approval, the State Department of Transportation in their review of the project stipulated that access be provided to the subject Property as a condition of approval.

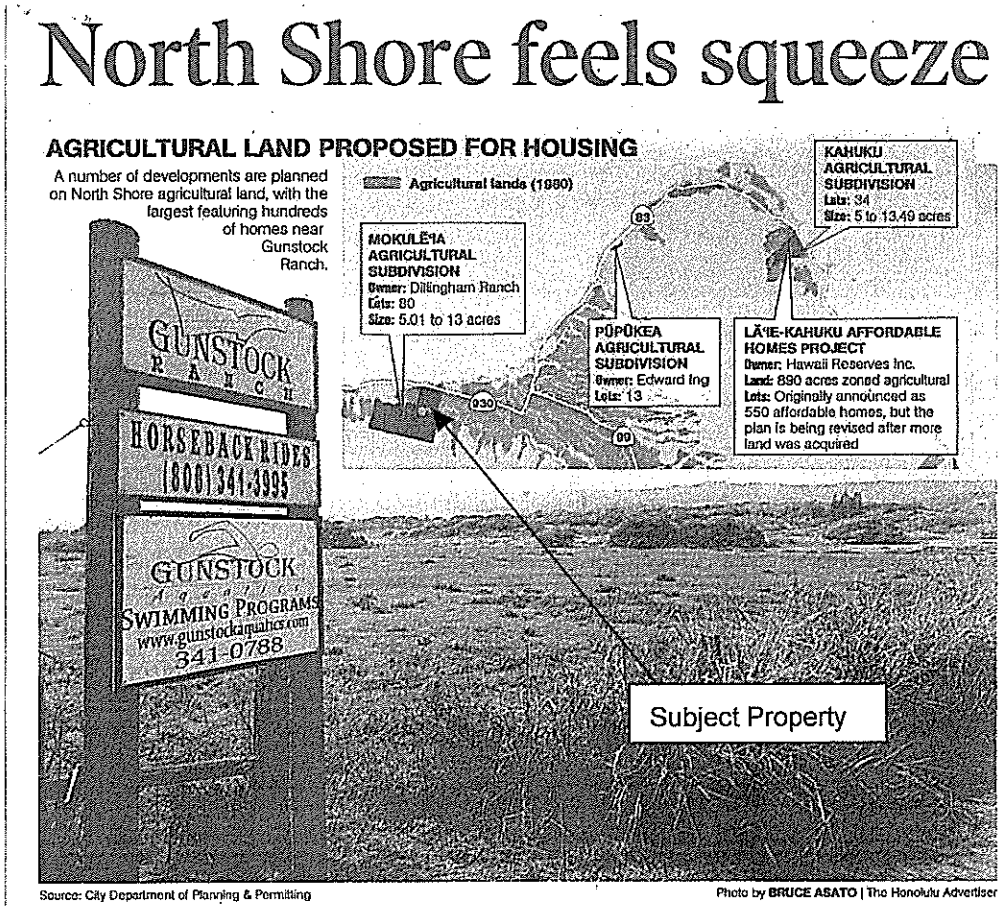
3.13 Views and Aesthetic Considerations

The Property lies at the base of the Waianae Mountains and is vegetated. Only small portions of the Property are visible from Farrington Highway. The requested zoning change and subsequent agricultural uses would not be expected to impact views of the Waianae Mountains. The zone change would make the Property's zoning consistent with surrounding properties and would not alter the overall aesthetic characteristics of the area. No mitigation is required.

3.14 Cumulative Impacts

The proposed zoning change aims to restore the Property to its previous agricultural use with no further subdivision planned. A maximum of 4-5 farm dwellings with accessory agricultural structures would be permitted on the existing three (3) lots. The scope of the proposed development will not contribute to cumulative development impacts on the North Shore. Residents of the North Shore are concerned about potential expansion of the Turtle Bay Resort and effects from a number of proposed subdivision projects. Current proposed projects include: Kahuku Agricultural Subdivision (34 lots), Pupukea Agricultural Subdivision (13 lots), Laie-Kahuku Affordable Homes Project (550 homes) and Mokuleia Agricultural Subdivision (77 lots). (As of April 2008, Laie-Kahuku Affordable Homes Project has been withdrawn by the developers.) The only proposed project in the vicinity of the Property is the 77-lot Af-2 Mokuleia Agricultural Subdivision (Dillingham Ranch), which was recently given Tentative Approval. In comparison the size and scope of the proposed project on the Property is very small. The proposed agricultural use of the 40-acre parcel, in compliance with all state and City development standards, would not contribute in any significant way to the potential cumulative impacts of these other much larger subdivisions and resort expansions.

Figure 6: Map of Nearby Housing Projects



Nearby Projects	
Project Name	**Distance from Property (Miles)**
Kahuku Agricultural Subdivision	16
Laie-Kahuku Affordable Homes Project *	16
Mokuleia Agricultural Subdivision	Adjacent
Pupukea Agricultural Subdivision	10

* As of April 2008, Laie-Kahuku Affordable Homes Project has been withdrawn by the developers.

KANE ENVIRONMENTAL INC	Environmental Assessment Proposed Rezoning Farrington Highway Mokuleia, Hawaii	Other Project Locations

3.15 Applicable Land Use Considerations

State Land Use law locates the property within the State Agricultural District. Chapter 205 describes the permitted uses which include various agricultural uses and farm dwellings where agricultural activity provides income to the occupant of the dwelling. Chapter 205-4.5(b) also permits construction of single-family dwellings on lots existing before June 4, 1976. The proposed zone change and subsequent agricultural use of the Property is in accordance with these statutes.

The **Land Use Ordinance** (LUO) of the City and County of Honolulu is used to "regulate land use in a manner that will encourage orderly development in accordance with adopted land use polices, including the Oahu general plan and development plans and to promote and protect the public health, safety and welfare". The LUO does this by:

1. Minimizing adverse effects resulting from inappropriate location, use or design of sites and structures; and
2. Assisting the public in identifying and understanding regulations affecting the development and use of land.

According to Sec. 21-3.40 (a) of the LUO, preservation districts (Zoned P-1, P-2 or F-1) are to preserve and manage major open space and recreation lands and lands of scenic and other natural resource value. Specifically, the purpose of creating the F-1 military and federal preservation district is to identify areas in military or federal government use and to permit the full range of military or federal government activities. According to Sec. 21-3.40 (d) of the LUO "Should lands be removed from either the state-designated conservation district or from federal jurisdiction all uses, structures and development standards shall be as specified for the P-2 general preservation district." This designation was intended to place the land in a "holding pattern" until an appropriate use could be determined. The Property is 40 acres of vegetated land surrounded by large tracts of agricultural zoned land. The Property is not a major open space or recreation area and has no scenic or natural resource value. The Property was zoned for agricultural use, prior to its use by the military.

According to Sec. 21-3.50 of the LUO, "the purpose of agricultural districts is to maintain a strong agricultural economic base, to prevent unnecessary conflicts among incompatible uses, to minimize the cost of providing public improvements and services and to manage the rate and location of physical development consistent with the city's adopted land use policies." The following guidelines are used to identify lands which may be considered for the Ag-2 general agricultural district:

1. Lands which are in the state-designated agricultural or urban district and designated agricultural by adopted city land used policies;

2. Lands which are predominantly classified as other under the agricultural lands of importance to the State of Hawaii system; and

3. Lands which are used or are suitable for agricultural purposes and where a substantial number of parcels are less than five acres in size.

The Land Use Ordinance permits a variety of uses in the AG-2 District that are not permitted in the P-2 Preservation District including but not limited to agribusiness activities and processing, roadside stands, storage of essential agricultural products, home occupations, farm dwellings, commercial kennels, neighborhood grocery stores, group living facilities, day care facilities, schools, wind machines. The Ag-2 zoning permits one farm dwelling located on and used in connection with a farm where agricultural activity provides income to the family occupying the dwelling, for each two acres of lot area. Each farm dwelling and any accessory farm dwelling uses must be contained within an area on the lot not to exceed 5,000 square feet. Any zoning lot which has at least twice the required minimum lot size for the underlying agricultural district may have a maximum of two detached farm dwellings.

The Property is no longer used for military purposes and is not a major open space or recreation land. The Property is within the State Agricultural District and is suitable for agricultural purposes and has been used in that capacity in the past. F-1 zoning is inconsistent and not compatible with agricultural zoning and the proposed zoning change is consistent with current land use policy under Sec. 21-3.50.

The **City General Plan** contains a relevant area of concern relating to the Property. The Economic Activity section of the General Plan states an objective "To maintain the viability of agriculture on Oahu". The two policies that support this objective propose to:

1. Support agricultural diversification in all agricultural areas of Oahu; and

2. Maintain agricultural land along the Windward, North Shore, and Waianae coasts for truck farming, flower growing, aquaculture, livestock production, and other types of diversified agriculture.

The proposed zoning change would allow agricultural uses on the Property, including truck farming and livestock production, and support agricultural diversity in accordance with the General Plan.

The **North Shore Sustainable Communities Plan** (NSSCP) has several elements that pertain to the proposed zoning change. Those elements which pertain to the proposed zone change are discussed.

A. The Vision Statement for the North Shore Sustainable Communities Plan (2.2) and the Rural Community Boundary (2.2.1) include the following elements:

- *Rural Community, Agricultural and Preservation Boundaries*
- *Support for the diversified agriculture industry*
- *Enhancement of the region's recreational and educational potential*
- *Haleiwa and Waialu towns as "country towns"*
- *Additional new housing limited to areas contiguous to Haleiwa and Waialua towns and establishment of rural design guidelines*
- *Adequate public infrastructure, facilities and services*
- *Retention of cultural and historic resources*
- *Adaption of the Ahupua'a concept in land use and natural resource management*
- *Residential subdivision with no bona fide agricultural activities should not be permitted in areas outside the Rural Community boundary*

Three types of boundaries were established by the NSSCP to guide development and aid in the preservation of agricultural land and open spaces. They are the Rural Community Boundary (RCB), the Agriculture Boundary, and the Preservation Boundary. The subject parcel is located within the Agriculture Boundary. While not presently classified according to the ALISH system (Agricultural Lands of Importance to the State of Hawaii), most likely due to its previous military usage, the Property is contained within a large tract of land in agricultural use and these adjacent areas of land are designated as either Prime Agricultural Land or Other Important Agricultural Land.

In contrast, the subject Property does not meet the criteria for designation within the Preservation Boundary (i.e., lands necessary for protecting watersheds, water resources, lands necessary for the conservation of significant historic, scenic or ecological sites, lands with topography, soils or climate not adaptable to rural or agricultural use, lands with slopes of greater than 20%, lands susceptible to floods or soil erosion, lands used for parks or suitable for recreation uses).

With the demise of the large plantations on Oahu, smaller more diversified farms are providing niche markets with Hawaiian agricultural products, allowing open areas to be retained in agricultural uses and encouraging agriculturally productive lands to be viable. The proposed zone change to Ag-2 would not allow subdivision of the property for residential use. The proposed use of the subject Property for several small, niche farms with accessory farm dwellings is bona fide agricultural activity that allows for accessory residential uses outside the RCB. . Any archeological sites associated with the site will be protected as prescribed by the State Historic Preservation Division. The applicant proposes to restrict groundbreaking activities to outside the area designated as containing archeological resources

The rezoning of the parcel from F-1 Military and Federal Preservation to Ag-2 Agriculture is in keeping with these elements of the NSSCP.

B. The following are general policies for the preservation of open space and the natural environment: (3.1.1)

- *Retain the North Shore's rural character*
- *Protect significant natural features*
- *Protect ecologically sensitive lands*
- *Preserve cultural and historic features*
- *Provide recreational resources*
- *Protect scenic views*
- *Define Community boundaries*

The proposed zone change is in no way contrary to any of these general policies. The return of the Property to an Agricultural designation supports the policy of retaining the North Shore's rural character.

C. Planning Principles: (3.1.2)

- *Ahupu'a Land Use and Resource Management*
- *Long-Range Protection of Agricultural Lands*
- *Preservation of Scenic Views*
- *Protection of Recreational Resources*
- *Accessibility of Recreational Open Space*
- *Protection of Ecologically Sensitive Lands*
- *Limit Impacts from Utility Installations*
- *Location of New Developments*

Mokuleia is one of the Hawaiian land divisions known as an *ahupuaa.* The land divisions run from the top of the mountains to the edge of the coral reef in the sea. Mokuleia has very few archaeological sites. The largest is a village at the base of the Waianae Range. Another is located on Dillingham ranch near the plantation reservoir. It is covered with dense growth and it is doubtful that it was ever a site of importance (Sterling & Summers,1979). There are no sites associated with the property registered on the National or State Registrar of Historic Places. The NSSCP recommends preservation of significant historic features and that intact sites with cultural or religious significance

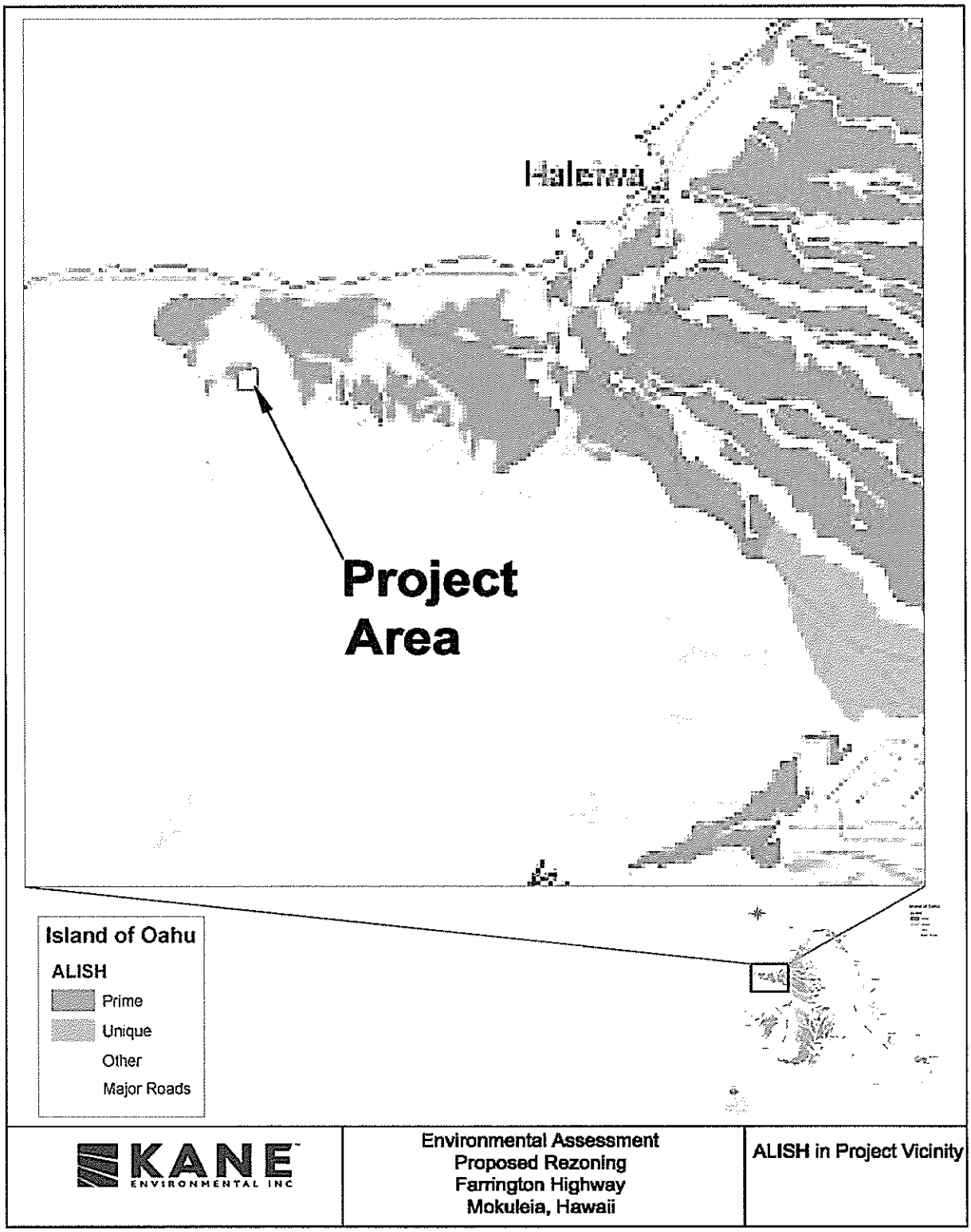
The proposed zone change will return the use of the subject Property to an agricultural designation in accordance with the principle of protecting agricultural lands by the continuation of agricultural uses on agricultural lands. Due to the topography of the land mauka of Farrington Highway, the Property is not visible from Farrington Highway or Crozier Drive and no scenic views of the Waianae Mountain Range will be diminished by agricultural development or use of the Property.

To address concerns that chemical runoff from agricultural practices could adversely affect aquatic and marine habitats agricultural best management practices (BMPs) will be used to protect nearby ecologically sensitive areas. These areas include the nearby stream and it's one-hundred flood plain. A vegetated buffer zone would be established and maintained along the subject Property boundary to reduce sediment, nutrient and chemical runoff into the stream. The size and type of buffer would be determined by working closely with the appropriate local and state agencies, including the State Department of Land and Natural Resources. To reduce sediment and nutrient runoff, tillage will be kept to a minimum, with no till practiced wherever possible and vegetated cover kept on agricultural areas when not in use. Integrated pest management systems and nutrient management plans will be put into place to prevent over□application of pesticides, herbicides and fertilizer.

D. Policies and Guidelines Pertaining to Agricultural Area: (2.2.1, 2.2.2, 3.2)

The protection of agricultural lands and agricultural uses is essential to protecting the rural character and scenic open space setting that are so valued by the North Shore residents and visitors. It is difficult to identify which lands and which crops or entrepreneurial efforts will be most successful and at what magnitude, but according to the NSSCP, it is important to maintain the availability of land and water for agriculture, protect agricultural lands from encroachment by incompatible uses and avoid uses that would undermine or otherwise irreversibly compromise their long-term agricultural potential. The NSSCP also states that conversion of agricultural lands to large□lot subdivisions with no agricultural activities is to be discouraged and that it is preferable that agricultural subdivisions be primarily based around agricultural activities with a preference for clustered housing. The rezoning of the subject Property from F-1 to Ag-2 is consistent with these policies. The rezoning will allow the construction of farm dwellings, clustered in an area of soils that are less suitable for agriculture. Property of this size will allow small-scale agriculture to the primary use of the site and will protect the land for future generations to utilize. Good farm management practices will maintain or improve the agricultural potential of the land. Therefore, the rezoning and construction of a small cluster of farm dwellings on the Property is consistent with the policies of the NSSCP.

Figure 7: Map of Nearby Agricultural Land of Importance to the State of Hawaii



3.16 Required Permits, Variances, and Approvals

Subsequent to issuance of a Finding of No Significant Impact, the applicant will submit a request for the zone change to Ag-2 to be reviewed by the Department of Planning and Permitting (DPP) City and County of Honolulu. The DPP will submit the zoning request, with comments and recommendations, to the Planning Commission for a Public Hearing. After the Public Hearing, the Planning Commission will submit the request, with their recommendation and comments, to the City Council for final action. The time frame for this process is six months to one year.

The proposed zone change does not require any permits, variances or approvals beyond the City and County of Honolulu Department of Planning and Permitting. Additional permits and approvals that would be required if further development and construction occurs on the Property, include: grading and building permits by the DPP, State Health Department approval of on-site sewage disposal systems and sediment control plan during construction, State Commission on Water Resource Management for a Water Use Permit or an Exploratory Well Drilling Permit. All permits and approvals will be sought as needed. No subdivision of the Property is proposed.

3.17 Summary of Short-Term and Long-Term Mitigation Measures

No significant mitigation has been identified or proposed with respect to the applicant's request to change the zoning of the Property (TMK 6-8-003:021) from F-1 Military and Federal Preservation (P-2) to Ag-2 Agricultural. Potential future mitigation measures may include sediment control BMPs and an archeological survey and mitigation plan.

3.18 Summary of Unavoidable Adverse Environmental Impacts

Prior use of the Property by the U.S. military and subsequent non-agricultural zoning has allowed the Property to return to a primarily natural state. There is a small, former landfill area adjacent to the Property, however according to a recent property survey it is not on the Property (Figure 4). There are no known environmental impacts to the area from the former landfill. The zoning change request is not expected to create any new significant adverse impacts on terrestrial and aquatic processes.

3.19 Irreversible and Irretrievable Commitments of Resources

Construction of the roads and the clearing of the Property did require asphalt, other construction materials, human effort and heavy machinery. Federal funds paid for those resources. Changing the zoning from F-1 Military and Federal Preservation to Ag-2 Agricultural would require no additional resources, except for the human effort required to apply for, review and process the variance and permit applications.

4.0 EVALUATION OF ALTERNATIVES

4.1 No Action

This alternative is not viable because it maintains the status quo. The Property would remain zoned as F-1 Military with all the uses allowed under a P-2 Preservation designation. This alternative would not cause any environmental, cultural, historic or other adverse impacts. According to minutes from the June 20, 2006 meeting of the Mokuleia Community Association and the June 27, 2006 meeting of the North Shore Neighborhood Board, this is the alternative supported by a majority of nearby property owners. However, the Property is no longer used for military purposes and is within the State Agricultural District. The purpose of Sec. 21-3.50 of the LUO is to prevent unnecessary conflicts among incompatible uses and maintain a strong agricultural base in agricultural districts. Leaving the zoning as F-1 Military is inconsistent with this current land use policy and does not allow the property to be used for agricultural purposes.

4.2 Change Property Zoning to non Ag-2 Designation

This alternative is not viable because before its use by the U.S. military the Property was used as agricultural land. The surrounding land is designated Ag-2 and any other designation for the Property would be inconsistent with the General Plan for the Island of Oahu. Objectives of this plan include; maintaining the viability of agriculture on Oahu and protecting and preserving the natural environment. Changing the zoning designation to a non-agricultural use would undercut both of these objectives. The NSSCP designates three types of boundaries; Rural Community Boundary, Agricultural Boundary and Preservation Boundary. The Property lies within the Agricultural Boundary. The Property is not classified according to the ALISH system (Agricultural Lands of Importance to the State of Hawaii), but it is within a large area of agricultural land designated as either Prime Agricultural Land or Other Important Agricultural Land. Due to the agricultural uses of adjacent lands it is not consistent to change the Property zoning to a non-agricultural designation.

4.3 Change Property Zoning to Ag-1 Designation

The surrounding land is designated Ag-2 and a change of the subject Property zoning to Ag-2 is proposed to keep the zoning in the area consistent. A change in the zoning of the subject Property to Ag-1 is not a viable alternative. Ag-1 zoning is primarily for large tracts of land and prime agricultural land. The subject Property is a relatively small tract of land and is not considered prime agricultural land under the ALISH or LSB systems. See section 4.4 for discussion of the appropriateness of agricultural zoning for the subject Property.

4.4 Change Property Zoning to Ag-2 Designation

This alternative is the most viable. The Property was historically used for agriculture, remains viable for agriculture and is surrounded by land primarily used for agriculture. The surrounding agricultural land is zoned Ag-2. There are currently no military uses on the Property and the Property lies within the State Agriculture District. Sec. 21-3.50 of the LUO specifies that the purpose of agricultural districts is to prevent conflict among incompatible uses and to maintain a strong agricultural economic base. Residents of the area are understandably concerned about the cumulative impacts of development of the North Shore. The scope of the project will not contribute in any meaningful way to potential cumulative impacts to the North Shore or the more immediate area by more widespread development. Therefore, changing the zoning of the Property to Ag-2 Agricultural and the potential establishment of a maximum of 4-5 small farms, built in compliance with all state and local requirements, is consistent with the purpose of the Land Use Ordinance.

5.0 FINDINGS AND ANTICIPATED DETERMINATIONS

As demonstrated by the information presented in this document, the proposed zoning change of the Property (TMK 6-8-003:021) will not have a significant effect on the environment. There are no significant environmental impacts associated with the requested zone change to Ag-2 Agriculture or future construction of accessory farm dwellings; therefore, the preparation of an Environmental Impact Statement is not required and a Finding of No Significant Impact is anticipated.

The "Significance Criteria" in Section 12 of Hawaii Administrative Rules Title 11, Chapter 200, "Environmental Impact Statement Rules" were used as a basis for the above findings and conclusions:

1. **No irrevocable commitment to loss or destruction of any natural or cultural resources has or will result.**

   The application is for a proposed zoning change from F-1 Military to Ag-2 Agricultural with construction of accessory agriculture structures. This action involves no irrevocable commitment, loss or destruction of natural and cultural resources.

2. **The proposed zoning change will not curtail the range of beneficial uses of the environment.**

   Granting the proposed zoning change will not disturb or curtail access to recreational opportunities in the area or impact surface and groundwater quality.

3. **The proposed zoning change will not conflict with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 343, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders.**

The proposed zoning change and subsequent agricultural activities does not conflict with the State's policies, goals or guidelines.

4. **The proposed zoning change will not substantially affect the economic or social welfare of the community or state.**

   Granting the requested zoning change is not expected to have any impact on the economic or social welfare of the community or State.

5. **The proposed zoning change will not substantially affect public health.**

   The requested zoning change involves no discharge activities and no impacts to public health. Any future construction will be built in compliance with all state and local requirements and will be designed according to Department of Health guidelines to protect the public health and minimize discharge activities.

6. **No substantial secondary impacts, such as population changes or effects on public facilities are expected.**

   Granting the proposed zoning change involves no substantial changes to demographics or construction and use of infrastructure. The increase of population or effects on public facilities from the possible five small farms, built in compliance with all state and local requirements, would be minimal.

7. **No substantial degradation of environmental quality has occurred or is expected due to the proposed zoning change.**

   The environmental quality of the Property has not been degraded from historical, agricultural or military use. Uses under the Ag-2 Agricultural designation would not be expected to significantly degrade environmental quality.

8. **No cumulative effects on the environment or commitment to larger actions have been or will be involved.**

   The zoning change request does not involve commitment to larger actions. The proposed project is limited to the subject Property. The project scope will not contribute in any significant way to potential cumulative impacts to the North Shore or the more immediate area by more widespread development.

9. **No rare, threatened or endangered species or their habitats are affected.**

   There are no known rare, threatened or endangered species or their habitats located at or near the Property.

10. **The proposed zoning change will not detrimentally affect air or water quality or ambient noise levels.**

    The request for a zoning change involves no new construction, therefore, there are no detrimental effects on air or water quality or ambient noise levels. Future construction may have temporary minimal impacts on air quality or noise levels in the immediate area of the Property. Potential water quality impacts from the construction would be mitigated by the use of Best Management Practices for sediment control.

11. **The proposed zoning change will not detrimentally affect environmentally sensitive areas, such as flood plains, tsunami zones, beaches, erosion-prone areas, geologically hazardous lands, estuaries, freshwaters, or coastal waters.**

    The project is not located in an environmentally sensitive area and has been used previously for military and agricultural uses. A small, freshwater stream is nearby to the north and east, however any water quality impacts from construction can be mitigate with the use of BMPs. The requested zoning change or proposed future construction will have no significant effect on any environmentally sensitive areas.

12. **The proposed zoning change will not substantially affect scenic vistas and view planes identified in county or state plans or studies.**

    The Property lies at the base of the Waianae Mountains and is vegetated. The proposed zoning change and proposed future construction will not significantly affect views of the mountains from Kam Highway.

13. **There will be no requirements for substantial energy consumption.**

    Other than minimal use of electricity for farming activities, the proposed project requires no substantial energy consumption.

6.0 ZONE CHANGE JUSTIFICATION

The applicant requests the Department of Planning and Permitting recommend to the Planning Commission that the proposed rezoning of the 40.59 acre Property (TMK 6-8-003:021) from F-1 Military and Federal Preservation to Ag-2 Agriculture be submitted to the Planning Commission and Honolulu City Council for approval. The applicant expects a Finding of No Significant Impacts. The applicant's request is justified by the following considerations:

1. The Property is within the State Agriculture District and the proposed use is consistent with the State land use policies for the Agricultural district: *Activities or uses as characterized by the cultivation of crops and orchards, uses related to animal husbandry and uses that support the agricultural activities of the owner including farm dwellings.*
2. The proposal conforms with the planning objectives of the North Shore Sustainable Communities Plan for the Agricultural Boundary, including: *to promote diversified agriculture on the North Shore, support development which enables sustainable usage of agricultural resources and basing any subdivision of productive agricultural lands on viable economic units for agricultural production.*
3. The intent of the Ag-2 general agricultural district is to conserve and protect agricultural activities on smaller parcels of land. The proposed zone change allows for all agricultural activities permitted by the Ag-2 zoning, including, but not limited to, *agribusiness practices that help support small, diverse farming activities, crop production, livestock grazing and accessory farm dwellings.*
4. The proposed zone change will have minimal impact on existing public facilities.
5. The proposal is consistent with the surrounding zoning and land use.
6. The proposed rezoning of the Property is consistent with the agricultural and rural character of the North Shore community.

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8.0 INDIVIDUALS AND AGENCIES CONSULTED

INDIVIDUALS

Clegg, Donald, Analytical Planning Consultants, Inc.

AGENCIES

Federal

Army Corps of Engineers, Planning Division

State of Hawaii

Department of Health

Department of Land and Natural Resources, State Historic Preservation Division

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

Office of Environmental Quality Control

State Commission on Water Resource Management
Department of Agriculture

City and County of Honolulu

Department of Planning and Permitting

Board of Water Supply

Others

Mokuleia Community Association

North Shore Neighborhood Board No. 2 – adjacent property owners notified

Sierra Club Hawai`i Chapter, Oahu Group
Mountain Edge Environmental

ATTACHMENT A

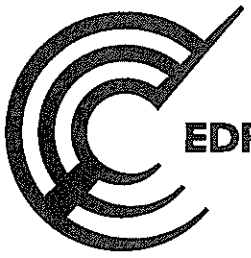
EDR NEPACHECK

EDR NEPACheck®

40 Acres
Farrington Highway
Mokuleia, HI 96791

Inquiry Number: 2123049.8s

January 17, 2008



EDR® Environmental
Data Resources Inc

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

FORM-ASH

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EDR NEPACheck® DESCRIPTION

The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies include in their decision-making processes appropriate and careful consideration of all environmental effects and actions, analyze potential environmental effects of proposed actions and their alternatives for public understanding and scrutiny, avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

The EDR NEPACheck provides information which may be used, in conjunction with additional research, to determine whether a proposed site or action will have significant environmental effect.

The report provides maps and data for the following items (where available). Search results are provided in the Map Findings Summary on page 2 of this report.

Section	Regulation
Natural Areas Map	
• Federal Lands Data:	
- Officially designated wilderness areas	47 CFR 1.1307(1)
- Officially designated wildlife preserves, sanctuaries and refuges	47 CFR 1.1307(2)
- Wild and scenic rivers	40 CFR 6.302(e)
- Fish and Wildlife	40 CFR 6.302
• Threatened or Endangered Species, Fish and Wildlife, Critical Habitat Data (where available)	47 CFR 1.1307(3); 40 CFR 6.302
Historic Sites Map	
• National Register of Historic Places • State Historic Places (where available) • Indian Reservations	47 CFR 1.1307(4); 40 CFR 6.302
Flood Plain Map	
• National Flood Plain Data (where available)	47 CFR 1.1307(6); 40 CFR 6.302
Wetlands Map	
• National Wetlands Inventory Data (where available)	47 CFR 1.1307(7); 40 CFR 6.302
FCC & FAA Map	
• FCC antenna/tower sites, AM Radio Towers, FAA Markings and Obstructions, AM Radio Interference Zones, Airports, Topographic gradient	47 CFR 1.1307(8)

Key Contacts and Government Records Searched

MAP FINDINGS SUMMARY

The databases searched in this report are listed below. Database descriptions and other agency contact information is contained in the Key Contacts and Government Records Searched section on page 34 of this report.

TARGET PROPERTY ADDRESS

40 ACRES
FARRINGTON HIGHWAY
MOKULEIA, HI 96791

Inquiry #: 2123049.8s
Date: 1/17/8

TARGET PROPERTY COORDINATES

Latitude (North):	21.566130 - 21° 33' 58.1"
Longitude (West):	158.176025 - 158° 10' 33.7"
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	585310.7
UTM Y (Meters):	2384890.2

Applicable Regulation from 47 CFR/FCC Checklist	Database	Search Distance (Miles)	Within Search	Within 1/8 Mile
NATURAL AREAS MAP				
1.1307a (1) Officially Designated Wilderness Area	US Federal Lands	4.00	YES	NO
1.1307a (2) Officially Designated Wildlife Preserve	US Federal Lands	4.00	YES	NO
1.1307a (2) Officially Designated Wildlife Preserve	HI Managed Areas	4.00	YES	YES
1.1307a (2) Officially Designated Wildlife Preserve	HI Game Management	4.00	YES	YES
1.1307a (3) Threatened or Endangered Species or Critical Habitat	County Endangered Species	County	YES	N/A
HISTORIC SITES MAP				
1.1307a (4) Listed or eligible for National Register	National Register Hist. Places	4.00	YES	NO
	Indian Reservation	4.00	NO	NO
FLOODPLAIN MAP				
1.1307 (6) Located in a Flood Plain	FLOODPLAIN	4.00	YES	YES
WETLANDS MAP				
1.1307 (7) Change in surface features (wetland fill)	NWI	4.00	YES	NO
	HI COASTAL ZONE	20.00	YES	YES
FCC & FAA SITES MAP				
	FCC Cellular	4.00	YES	NO
	FCC Antenna	4.00	YES	NO
	FCC Tower	4.00	YES	NO
	FCC AM Tower	4.00	NO	NO
	FAA DOF	4.00	YES	NO
	Airports	4.00	YES	YES
	Power Lines	4.00	NO	NO

Natural Areas Map

☆ Target Property	✣ Locations
Roads	Federal Areas
County Boundary	Federal Linear Features
Waterways	State Areas
Water	State Linear Features
Airports	

SITE NAME: 40 Acres	CLIENT: Kane Environmental Inc.
ADDRESS: Farrington Highway Mokuleia HI 96791	CONTACT: John Kane INQUIRY #: 2123049.8s
LAT/LONG: 21.5661 / 158.1760	DATE: January 17, 2008

NATURAL AREAS MAP FINDINGS

Endangered Species Listed for: HONOLULU County, HI.
Source: EPA Endangered Species Protection Program Database
REPTILE: TURTLE, GREEN SEA
REPTILE: TURTLE, HAWKSBILL SEA

Map ID Direction Distance Distance (ft.)			EDR ID Database
1 North 0-1/8 mi 0	Unit:	Not reported	HI10000022 HI Game Management
2 North 0-1/8 mi 0	Reserve Type: Reserve Name: Managed Area: Reserve Sub-section:	Undefined (code 1) Not reported 0 Not reported	HI20000030 HI Managed Areas
3 NW 1/2-1 mi 4101	Feature1: Feature2: Feature3: Agbur: Url: Name1: Name2: Name3: State: State fips:	Air Force DOD Not Reported Not Reported Department of Defense. Not Reported Dillinghan Air Force Base Not Reported Not Reported HI 15	CUSA147725 US Federal Lands
4 SSW 1-2 mi 7222	Unit:	Unknown	HI10000028 HI Game Management
5 SSW 1-2 mi 7249	Reserve Type: Reserve Name: Managed Area: Reserve Sub-section:	State Forest Reserve MOKULEIA FOREST RESERVE 557 Not reported	HI20000046 HI Managed Areas
6 South 1-2 mi 7314	Reserve Type: Reserve Name: Managed Area: Reserve Sub-section:	Natural Area Reserve PAHOLE NATURAL AREA RESERVE 656 Not reported	HI20000047 HI Managed Areas

NATURAL AREAS MAP FINDINGS

7 SSW 1-2 mi 7413	Unit:	Unknown	HI10000026 HI Game Management
8 SSE 1-2 mi 8530	Reserve Type: Reserve Name: Managed Area: Reserve Sub-section:	State Forest Reserve MOKUKEIA FOREST RESERVE 2838 Not reported	HI20000048 HI Managed Areas
A9 SW 1-2 mi 10148	Feature1: Feature2: Feature3: Agbur: Url: Name1: Name2: Name3: State: State fips:	Army DOD Not Reported Not Reported Department of Defense. Not Reported Makua Military Reservation Not Reported Not Reported HI 15	CUSA147726 US Federal Lands
A10 SW 1-2 mi 10369	Unit:	Not reported	HI10000022 HI Game Management
11 WSW 2-4 mi 13259	Reserve Type: Reserve Name: Managed Area: Reserve Sub-section:	State Forest Reserve KAUAKALA FOREST RESERVE 373 Not reported	HI20000043 HI Managed Areas
12 SE 2-4 mi 18492	Reserve Type: Reserve Name: Managed Area: Reserve Sub-section:	Natural Area Reserve KAALA NATURAL AREA RESERVE 1088 Not reported	HI20000050 HI Managed Areas
B13 SSW 2-4 mi 20103	Reserve Type: Reserve Name: Managed Area: Reserve Sub-section:	State Forest Reserve MAKUA KEAUU FOREST RESERVE 585 Not reported	HI20000051 HI Managed Areas
B14 SSW 2-4 mi 20165	Unit:	Unknown	HI10000030 HI Game Management

NATURAL AREAS MAP FINDINGS

C15 ENE 2-4 mi 20606	Unit:	Not reported	HI10000022 HI Game Management

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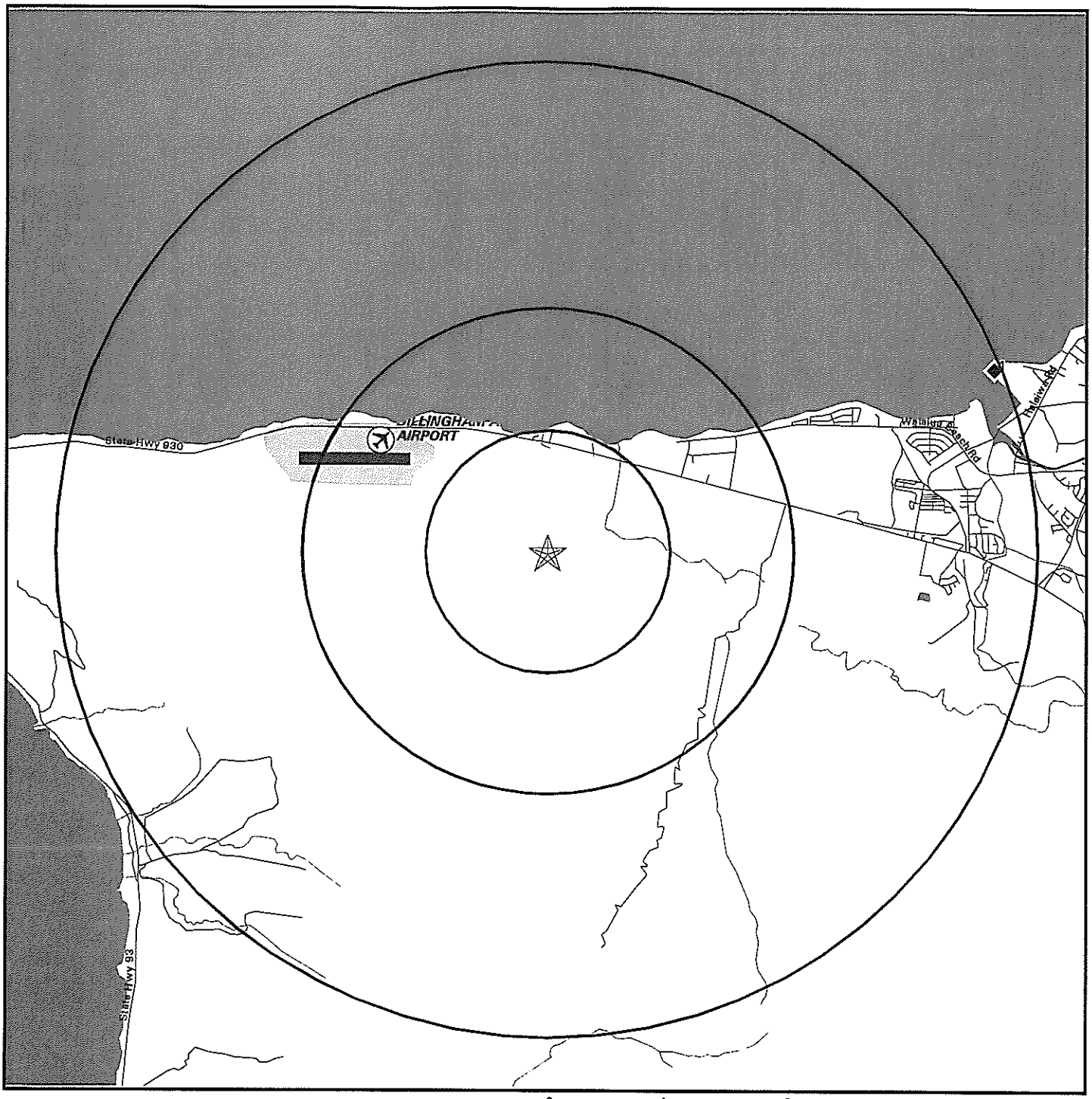
C16 ENE 2-4 mi 20606	Reserve Type: Reserve Name: Managed Area: Reserve Sub-section:	Undefined (code 1) Not reported 0 Not reported	HI20000030 HI Managed Areas

Historic Sites Map



- ☆ Target Property
- Streets
- County Boundary
- Waterways
- Water
- Airports
- ◆ Historic Sites
- Federal Historic Areas
- State Historic Areas
- US Indian Reservations
- Scenic Trail

SITE NAME: 40 Acres	CLIENT: Kane Environmental Inc.
ADDRESS: Farrington Highway Mokuleia HI 96791	CONTACT: John Kane
LAT/LONG: 21.5661 / 158.1760	INQUIRY #: 2123049.8s DATE: January 17, 2008

HISTORIC SITES MAP FINDINGS

Map ID Direction Distance Distance (ft.)					EDR ID Database
1 ENE 2-4 mi 20814	Resource Name:	Waialua School			80001271 National Register Hist. Places
	Alternate Name:	Not Reported			
	Resource Address:	66--505 Haleiwa Rd.			
	Resource Type:	Building			
	Location:	Haleiwa, HI			
	County:	Honolulu, HI			
	Primary Certification:	Listed in the national register			
	Certification Date:	19800811	Acreage:	10	
	Number of Buildings:	1	Number of Objects:	0	
	Number of Sites:	0	Num. of Structures:	0	
	Number of non-contributing Buildings:	0			
	Number of non-contributing Objects:	0			
	Number of non-contributing Sites:	0			
	Num. of non-contributing Structures:	0			
	Applicable Criteria:	Event, Person, Architecture/Engineering			
	Areas of Significance:	Education, Architecture, Social history			
	Current Function:	Vacant/not in use			
	Building Material:	Stucco, None listed, Wood			
	Other Names:	Haleiwa Elementary School			

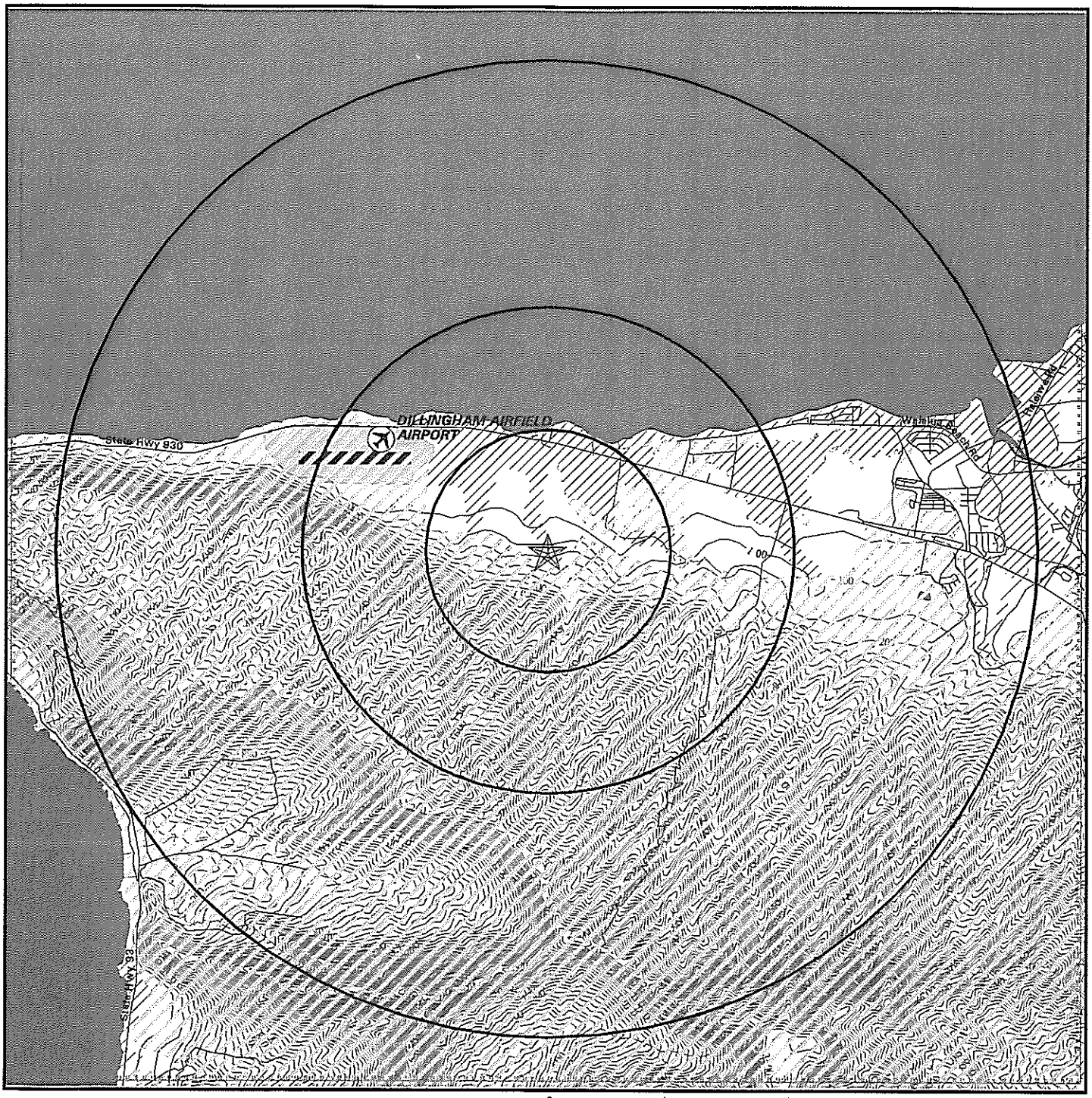
UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

	Status EDR ID Database

No unmapped sites were found in EDR's search of available government records.

Flood Plain Map



- Major Roads
- Contour Lines
- Waterways
- County Boundary
- Airports
- Power Lines
- Pipe Lines
- Fault Lines
- Water
- 100-year flood zone
- 500-year flood zone
- Electronic FEMA data available
- Electronic FEMA data not available

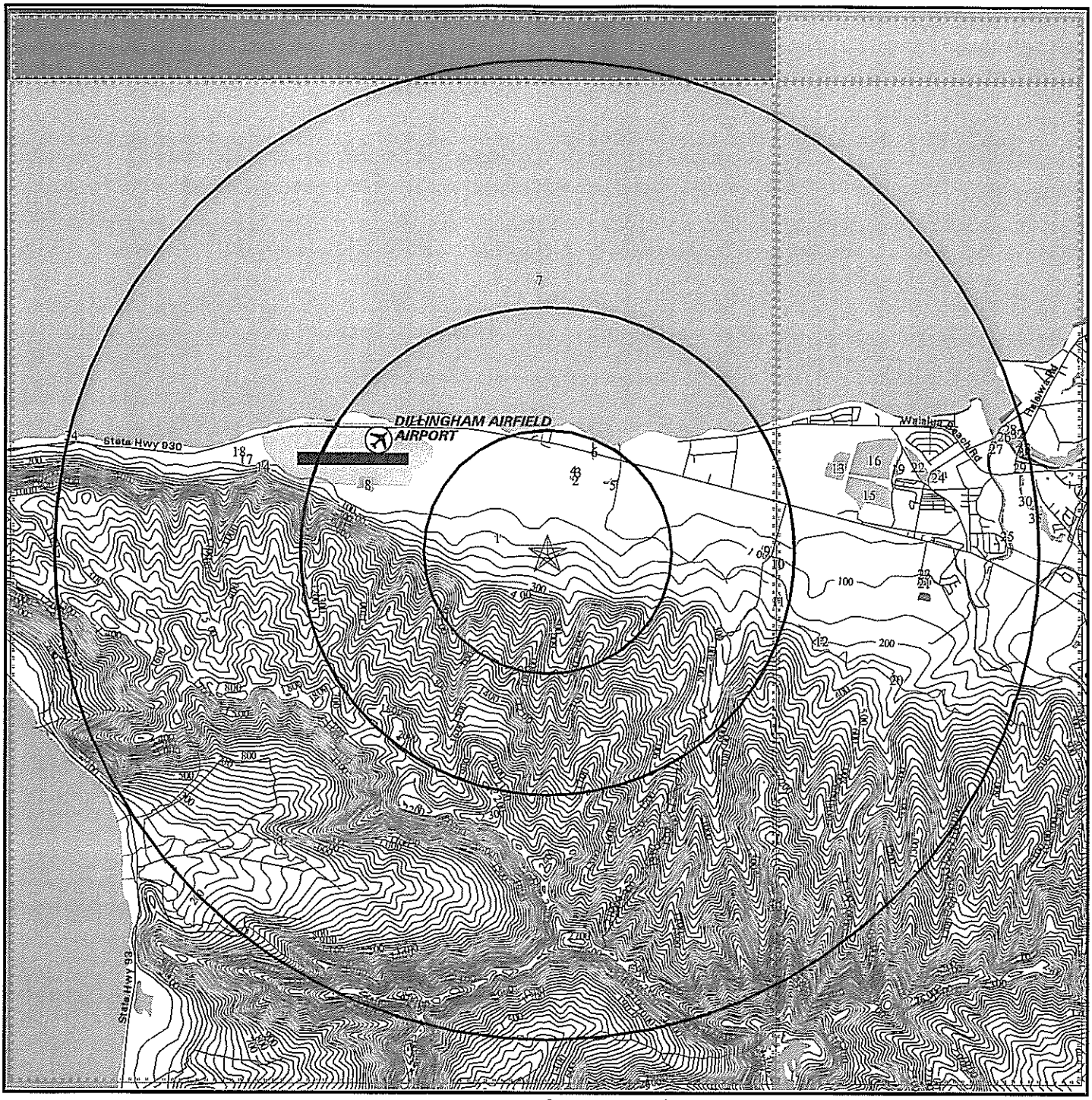
SITE NAME: 40 Acres	CLIENT: Kane Environmental Inc.
ADDRESS: Farrington Highway Mokuleia HI 96791	CONTACT: John Kane
LAT/LONG: 21.5661 / 158.1760	INQUIRY #: 2123049.8s DATE: January 17, 2008

FLOOD PLAIN MAP FINDINGS

Source: FEMA Q3 Flood Data

County	FEMA flood data electronic coverage
HONOLULU, HI	YES
Flood Plain panel at target property:	1500010035B
Additional Flood Plain panel(s) in search area:	
1500010020B	
1500010040B	
1500010065C	
1500010070A	

National Wetlands Inventory Map



- Major Roads
- Contour Lines
- Waterways
- County Boundary
- Airports
- Power Lines
- Pipe Lines
- Fault Lines
- Water
- National Wetland Inventory
- Electronic NWI data available
- Electronic NWI data not available

SITE NAME: 40 Acres	CLIENT: Kane Environmental Inc.
ADDRESS: Farrington Highway Mokuleia HI 96791	CONTACT: John Kane
LAT/LONG: 21.5661 / 158.1760	INQUIRY #: 2123049.8s
	DATE: January 17, 2008

WETLANDS MAP FINDINGS

Source: Fish and Wildlife Service NWI data

NWI hardcopy map at target property: West Kaena (OE)
Additional NWI hardcopy map(s) in search area:
Haleiwa

Map ID Direction Distance Distance (ft.)	Code and Description*	Database
1 WNW 1/4-1/2 mi 2108	POWHh [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [h] Diked/Impounded	NWI
2 NNE 1/2-1 mi 3296	POWHx [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [x] Excavated	NWI
3 NNE 1/2-1 mi 3733	POWHx [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [x] Excavated	NWI
4 NNE 1/2-1 mi 3735	POWHx [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [x] Excavated	NWI
5 NE 1/2-1 mi 3844	POWHx [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [x] Excavated	NWI
6 NNE 1/2-1 mi 4464	E2US2P [E] Estuarine, [2] Intertidal, [US] Unconsolidated Shore, [2] Sand, [P] Irregularly Flooded	NWI
7 North 1/2-1 mi 5144	M1OWL [M] Marine, [1] Subtidal, [OW] Open Water/Unknown Bottom (obs), [L] Subtidal	NWI
8 WNW 1-2 mi 7786	PEM1C [P] Palustrine, [EM] Emergent, [1] Persistent, [C] Seasonally Flooded	NWI
9 East 1-2 mi 9131	POWHh [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [h] Diked/Impounded	NWI

*See Wetland Classification System for additional information.

WETLANDS MAP FINDINGS

Map ID Direction Distance Distance (ft.)	Code and Description*	Database
10 East 1-2 mi 9700	POWHh [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [h] Diked/Impounded	NWI
11 ESE 1-2 mi 9890	POWHh [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [h] Diked/Impounded	NWI
12 ESE 2-4 mi 12176	POWHh [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [h] Diked/Impounded	NWI
13 ENE 2-4 mi 12315	PEM1KFh [P] Palustrine, [EM] Emergent, [1] Persistent, [K] Artificially Flooded, [F] Semipermanently Flooded, [h] Diked/Impounded	NWI
14 WNW 2-4 mi 12422	L1OWHx [L] Lacustrine, [1] Limnetic, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [x] Excavated	NWI
15 ENE 2-4 mi 13013	PEM1KFh [P] Palustrine, [EM] Emergent, [1] Persistent, [K] Artificially Flooded, [F] Semipermanently Flooded, [h] Diked/Impounded	NWI
16 ENE 2-4 mi 13367	PEM1KFh [P] Palustrine, [EM] Emergent, [1] Persistent, [K] Artificially Flooded, [F] Semipermanently Flooded, [h] Diked/Impounded	NWI
17 WNW 2-4 mi 13475	POWHx [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [x] Excavated	NWI
18 WNW 2-4 mi 13876	POWHx [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [x] Excavated	NWI
19 ENE 2-4 mi 15216	PEM1KFh [P] Palustrine, [EM] Emergent, [1] Persistent, [K] Artificially Flooded, [F] Semipermanently Flooded, [h] Diked/Impounded	NWI

*See Wetland Classification System for additional information.

WETLANDS MAP FINDINGS

Map ID Direction Distance Distance (ft.)	Code and Description*	Database
20 ESE 2-4 mi 15745	POWHh [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [h] Diked/Impounded	NWI
21 East 2-4 mi 15937	POWHh [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [h] Diked/Impounded	NWI
22 ENE 2-4 mi 16000	PEM1KFh [P] Palustrine, [EM] Emergent, [1] Persistent, [K] Artificially Flooded, [F] Semipermanently Flooded, [h] Diked/Impounded	NWI
23 East 2-4 mi 16044	POWHh [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [h] Diked/Impounded	NWI
24 East 2-4 mi 16689	PEM1KFh [P] Palustrine, [EM] Emergent, [1] Persistent, [K] Artificially Flooded, [F] Semipermanently Flooded, [h] Diked/Impounded	NWI
25 East 2-4 mi 18990	R2OWHx [R] Riverine, [2] Lower Perennial, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [x] Excavated	NWI
26 East 2-4 mi 19271	E1OWLx [E] Estuarine, [1] Subtidal, [OW] Open Water/Unknown Bottom (obs), [L] Subtidal, [x] Excavated	NWI
27 ENE 2-4 mi 19738	POWH [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded	NWI
28 ENE 2-4 mi 20311	PEM1C [P] Palustrine, [EM] Emergent, [1] Persistent, [C] Seasonally Flooded	NWI
29 East 2-4 mi 20450	PSS3A [P] Palustrine, [SS] Scrub-Shrub, [3] Broad-Leaved Evergreen, [A] Temporarily Flooded	NWI

*See Wetland Classification System for additional information.

WETLANDS MAP FINDINGS

Map ID Direction Distance Distance (ft.)	Code and Description*	Database
30 East 2-4 mi 20458	PEM1KFh [P] Palustrine, [EM] Emergent, [1] Persistent, [K] Artificially Flooded, [F] Semipermanently Flooded, [h] Diked/Impounded	NWI
31 ENE 2-4 mi 20720	R2OWHx [R] Riverine, [2] Lower Perennial, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded, [x] Excavated	NWI
32 ENE 2-4 mi 20796	POWH [P] Palustrine, [OW] Open Water/Unknown Bottom (obs), [H] Permanently Flooded	NWI
33 ENE 2-4 mi 20963	PEM1F [P] Palustrine, [EM] Emergent, [1] Persistent, [F] Semipermanently Flooded	NWI
34 WNW 2-4 mi 21006	M1RF1L [M] Marine, [1] Subtidal, [RF] Reef, [1] Coral, [L] Subtidal	NWI
35 East 2-4 mi 21020	PEM1KFh [P] Palustrine, [EM] Emergent, [1] Persistent, [K] Artificially Flooded, [F] Semipermanently Flooded, [h] Diked/Impounded	NWI

*See Wetland Classification System for additional information.

WETLANDS CLASSIFICATION SYSTEM

National Wetland Inventory Maps are produced by the U.S. Fish and Wildlife Service, a sub-department of the U.S. Department of the Interior. In 1974, the U.S. Fish and Wildlife Service developed a criteria for wetland classification with four long range objectives:

- to describe ecological units that have certain homogeneous natural attributes,
- to arrange these units in a system that will aid decisions about resource management,
- to furnish units for inventory and mapping, and
- to provide uniformity in concepts and terminology throughout the U.S.

High altitude infrared photographs, soil maps, topographic maps and site visits are the methods used to gather data for the productions of these maps. In the infrared photos, wetlands appear as different colors and these wetlands are then classified by type. Using a hierarchical classification, the maps identify wetland and deepwater habitats according to:

- system
- subsystem
- class
- subclass
- modifiers

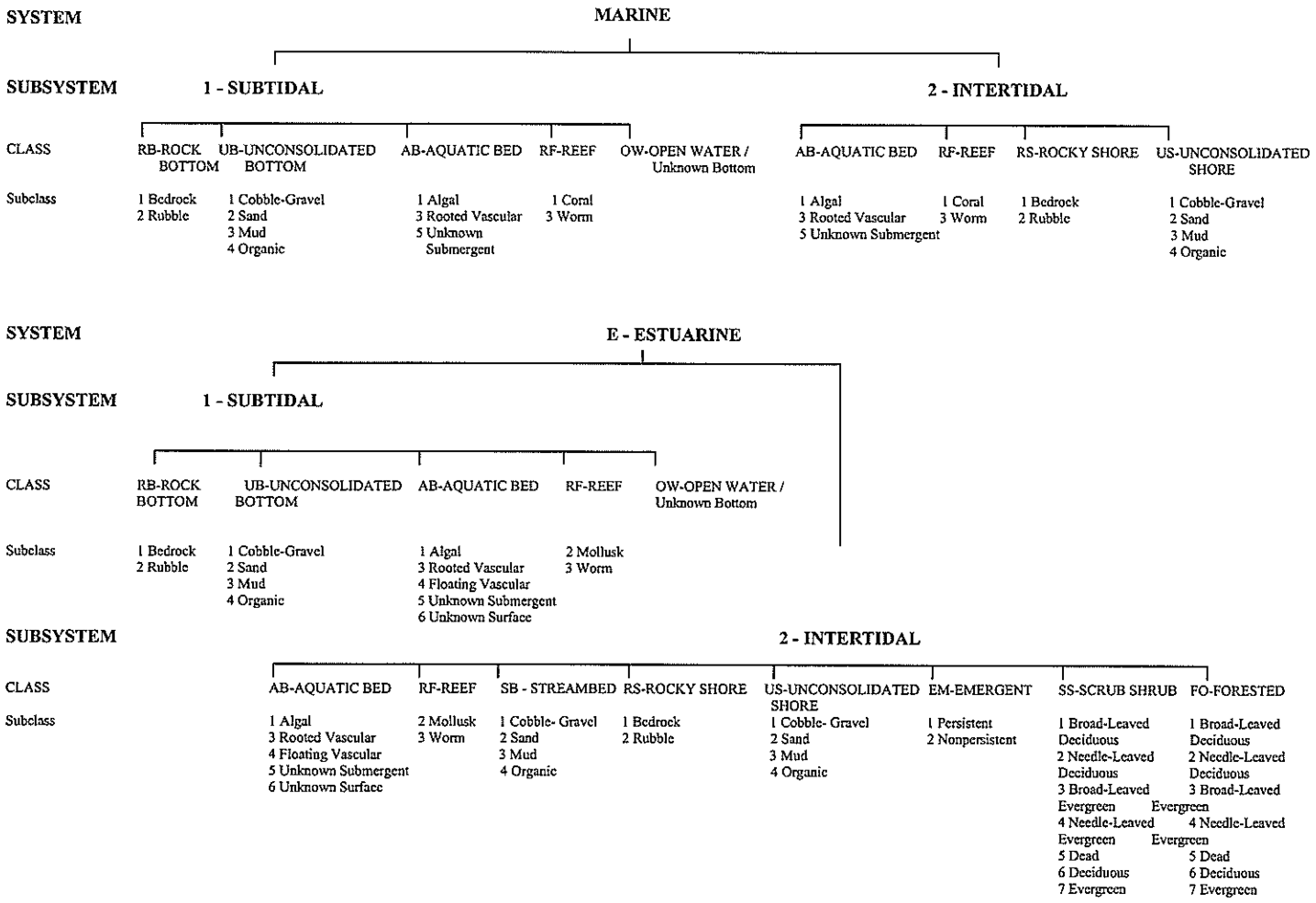
(as defined by Cowardin, et al. U.S. Fish and Wildlife Service FWS/OBS 79/31. 1979.)

The classification system consists of five systems:

1. marine
2. estuarine
3. riverine
4. lacustrine
5. palustrine

The marine system consists of deep water tidal habitats and adjacent tidal wetlands. The riverine system consists of all wetlands contained within a channel. The lacustrine systems includes all nontidal wetlands related to swamps, bogs & marshes. The estuarine system consists of deepwater tidal habitats and where ocean water is diluted by fresh water. The palustrine system includes nontidal wetlands dominated by trees and shrubs and where salinity is below .5% in tidal areas. All of these systems are divided in subsystems and then further divided into class.

National Wetland Inventory Maps are produced by transferring gathered data on a standard 7.5 minute U.S.G.S. topographic map. Approximately 52 square miles are covered on a National Wetland Inventory map at a scale of 1:24,000. Electronic data is compiled by digitizing these National Wetland Inventory Maps.


SYSTEM
MARINE
SUBSYSTEM
1 - SUBTIDAL
2 - INTERTIDAL
CLASS
RB-ROCK BOTTOM
UB-UNCONSOLIDATED BOTTOM
AB-AQUATIC BED
RF-REEF
OW-OPEN WATER / Unknown Bottom
AB-AQUATIC BED
RF-REEF
RS-ROCKY SHORE
US-UNCONSOLIDATED SHORE
Subclass
1 Bedrock
2 Rubble
1 Cobble-Gravel
2 Sand
3 Mud
4 Organic
1 Algal
3 Rooted Vascular
5 Unknown Submergent
1 Coral
3 Worm
1 Algal
3 Rooted Vascular
5 Unknown Submergent
1 Coral
3 Worm
1 Bedrock
2 Rubble
1 Cobble-Gravel
2 Sand
3 Mud
4 Organic
SYSTEM
E - ESTUARINE
SUBSYSTEM
1 - SUBTIDAL
CLASS
RB-ROCK BOTTOM
UB-UNCONSOLIDATED BOTTOM
AB-AQUATIC BED
RF-REEF
OW-OPEN WATER / Unknown Bottom
Subclass
1 Bedrock
2 Rubble
1 Cobble-Gravel
2 Sand
3 Mud
4 Organic
1 Algal
3 Rooted Vascular
4 Floating Vascular
5 Unknown Submergent
6 Unknown Surface
2 Mollusk
3 Worm
SUBSYSTEM
2 - INTERTIDAL
CLASS
AB-AQUATIC BED
RF-REEF
SB - STREAMBED
RS-ROCKY SHORE
US-UNCONSOLIDATED SHORE
EM-EMERGENT
SS-SCRUB SHRUB
FO-FORESTED
Subclass
1 Algal
3 Rooted Vascular
4 Floating Vascular
5 Unknown Submergent
6 Unknown Surface
2 Mollusk
3 Worm
1 Cobble- Gravel
2 Sand
3 Mud
4 Organic
1 Bedrock
2 Rubble
1 Cobble- Gravel
2 Sand
3 Mud
4 Organic
1 Persistent
2 Nonpersistent
1 Broad-Leaved Deciduous
2 Needle-Leaved Deciduous
3 Broad-Leaved Evergreen
4 Needle-Leaved Evergreen
5 Dead
6 Deciduous
7 Evergreen
1 Broad-Leaved Deciduous
2 Needle-Leaved Deciduous
3 Broad-Leaved Evergreen
4 Needle-Leaved Evergreen
5 Dead
6 Deciduous
7 Evergreen

SYSTEM — **R - RIVERINE**

SUBSYSTEM	CLASS	Subclass
1 - TIDAL	RB-ROCK BOTTOM	1 Bedrock 2 Rubble
	UB-UNCONSOLIDATED BOTTOM	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
2 - LOWER PERENNIAL	*SB-STREAMBED	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated
3 - UPPER PERENNIAL	AB-AQUATIC BED	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface
4 - INTERMITTENT	RS-ROCKY SHORE	1 Bedrock 2 Rubble
	US-UNCONSOLIDATED SHORE	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
5 - UNKNOWN PERENNIAL	**EM-EMERGENT	2 Nonpersistent
	OW-OPEN WATER/ Unknown Bottom	

* STREAMBED is limited to TIDAL and INTERMITTENT SUBSYSTEMS, and comprises the only CLASS in the INTERMITTENT SUBSYSTEM.
**EMERGENT is limited to TIDAL and LOWER PERENNIAL SUBSYSTEMS.

SYSTEM — **L - LACUSTRINE**

SUBSYSTEM	CLASS	Subclass
1 - LIMNETIC	RB-ROCK BOTTOM	1 Bedrock 2 Rubble
	UB-UNCONSOLIDATED BOTTOM	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
	AB-AQUATIC BED	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface
	OW-OPEN WATER/ Unknown Bottom	

SUBSYSTEM — **2 - LITTORAL**

CLASS	Subclass
RB-ROCK BOTTOM	1 Bedrock 2 Rubble
UB-UNCONSOLIDATED BOTTOM	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB-AQUATIC BED	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface
RS-ROCKY SHORE	1 Bedrock 2 Rubble
US-UNCONSOLIDATED SHORE	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
EM-EMERGENT	2 Nonpersistent
OW-OPEN WATER/ Unknown Bottom	

SUBSYSTEM — **P - PALUSTRINE**

CLASS	RB--ROCK BOTTOM	UB--UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	US--UNCONSOLIDATED SHORE	ML--MOSS-LICHEN	EM--EMERGENT	SS--SCRUB-SHRUB	FO--FORESTED	OW-OPEN WATER/ Unknown
Bottom									
Subclass	1 Bedrock 2 Rubble 3 Mud 4 Organic	1 Cobble-Gravel 2 Sand	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	1 Moss 2 Lichen	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6Deciduous 7 Evergreen	

MODIFIERS

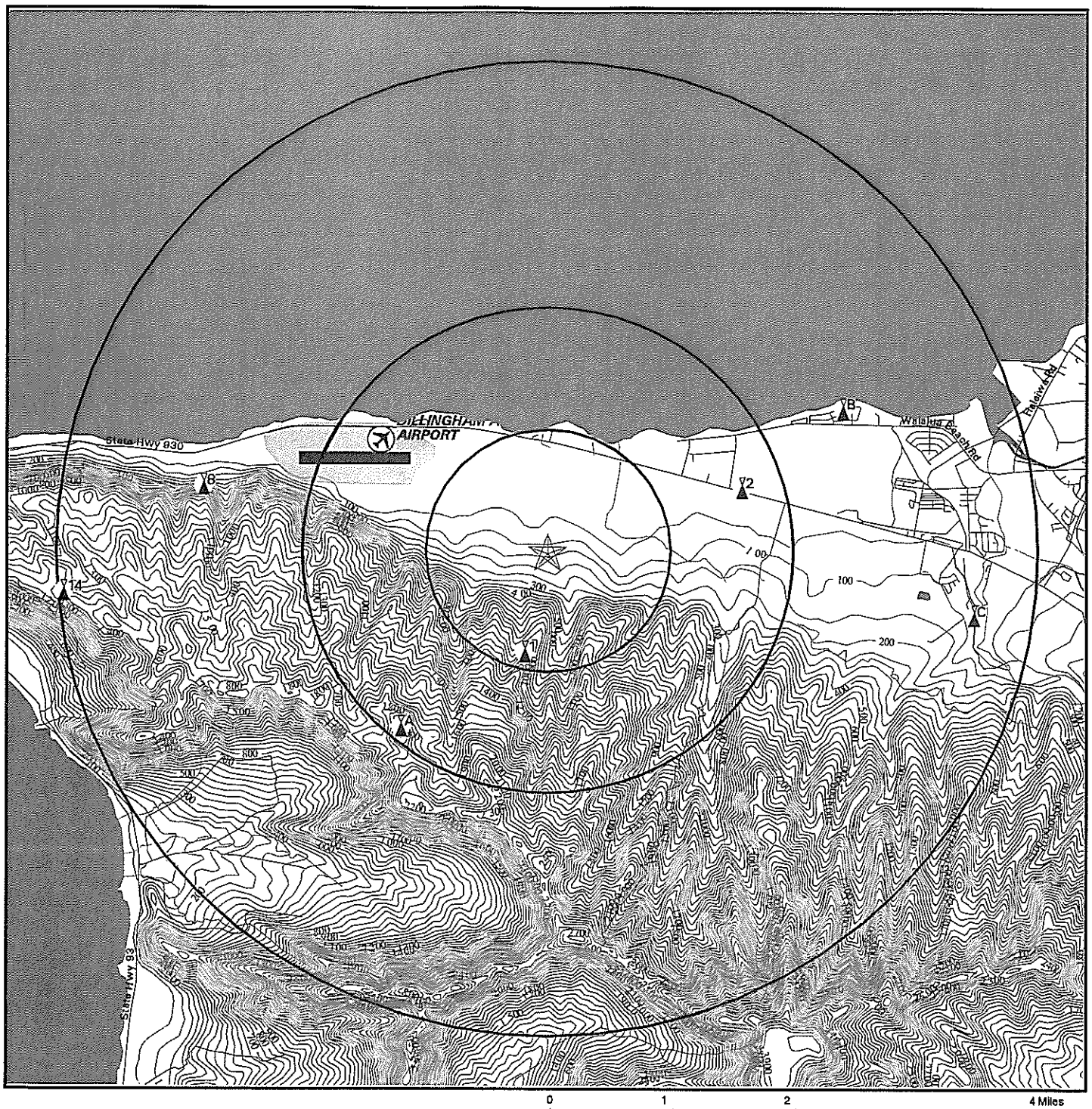
In order to more adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME				WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS
Non-Tidal	Tidal	CoastalHalinityInlandSalinitypHModifiersfor				all Fresh Water		
A Temporarily Flooded	H Permanently Flooded	K Artificially Flooded	*S Temporary-Tidal	1 Hyperhaline	7 Hypersaline		g Organic	b Beaver
B Saturated	J Intermittently Flooded	L Subtidal	*R Seasonal-Tidal	2 Euhaline	8 Eusaline	a Acid	n Mineral	d Partially Drained/Ditched
C Seasonally Flooded	K Artificially Flooded	M Irregularly Exposed	*T Semipermanent -Tidal	3 Mixohaline (Brackish)	9 Mixosaline	t Circumneutral		f Farmed
D Seasonally Flooded/ Well Drained	W Intermittently Flooded/Temporary	N Regularly Flooded	V Permanent -Tidal	4 Polyhaline	0 Fresh	i Alkaline		h Diked/Impounded
E Seasonally Flooded/ Saturated	Y Saturated/Semipermanent/ Seasonal	P Irregularly Flooded	U Unknown	5 Mesohaline				r Artificial Substrate
F Semipermanently Flooded	Z Intermittently Exposed/Permanent			6 Oligohaline				s Spoil
G Intermittently Exposed	U Unknown			0 Fresh				x Excavated

*These water regimes are only used in tidally influenced, freshwater systems.

Source: U.S. Department of the Interior
Fish and Wildlife Service
National Wetlands Inventory

FCC & FAA Sites Map



- Streets
- Contour Lines
- County Boundary
- Waterways
- Power Lines
- Water
- Airports
- Sites
- Omni Directional AM Interference
- Directional AM Interference

SITE NAME: 40 Acres	CLIENT: Kane Environmental Inc.
ADDRESS: Farrington Highway Mokuleia HI 96791	CONTACT: John Kane
LAT/LONG: 21.5661 / 158.1760	INQUIRY #: 2123049.8s DATE: January 17, 2008

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)	EDR ID Database
1 SSW 1/2-1 mi 4493	TOW100000076226 TOWER

Tower ID:	71029		
Tower Owner Name:	TEL-PAGE CORPORATION		
1.5 MILES NORTH OF, DILLINGHAM, HI			
Latitude:	21 33' 77606"	Latitude (in seconds):	77606
Longitude:	158 10' 54"	Longitude (in seconds):	569454
Transmitter Latitude:	213326	Transmitter Longitude	1581054
Construction Date:	99/99/1999	Activation Date:	Aug 1 1986
FAA Date:	Jun 20 1986	FCC Date:	Sep 24 1985
File Number:	24788-CD-P/L-4-85	FAA ID:	86-AWP-636-OE
Antenna Height:	0.0000	Antenna Height (M):	0.0000
Beacon Height:	0.0000	Beacon Height (M):	0.0000
Elevation:	1075.0000	Elevation FAA:	1075.0000
Elevation FAA (M):	327.7000	Elevation (M):	327.7000
Structure Height:	30.0000	Structure Height (M):	9.1000
Structure Height FAA:	30.0000	Structure Height FAA (M):	9.1000
Supporting Struct Hgt:	0.0000	Supporting Struct Hgt (M):	0.0000
Tower Height:	0.0000	Tower Height (M):	0.0000
Structure Type:	TOW	Tower Type:	E
Key Remarks:		Date:	
Key Site:	710	Record Action:	ADD
ID Exam:		ID_ASB_ACC:	C
Paint and Lighting Specs:			
Special Conditions/Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID
Direction
Distance
Distance (ft.)

EDR ID
Database

2
ENE
1-2 mi
8810

ANT100000021898
ANTREG

Tower ID:	1022327		
Address:	MOKULEIA 1300 FT E JCT CROZIER DR & FARRINGTON, WAIALUA, HI		
Lat (NAD 27):	213437	Lon (NAD 27):	1580915
Lat (NAD 83):	213426	Lon (NAD 83):	1580905
Construction Date:		Dismantled Date:	
Nepa Flag:	N	FAA ID:	97-ASW-1500-OE
Structure Type:	POLE	Elevation (M):	4.87
Structure Hgt (M):	30.50	Hgt Above Ground:	30.48
Hgt Above Ground (M):	30.4799995	Hgt Above Mean Sea Level (M):	35.3499984
Date Activated:	Jul 11 1997	License Issue Date:	Jul 11 1997
Date Keyed:	May 29 1997	Date Printed:	Jul 14 1997
Date Processed:	Jun 5 1997	Date Received:	May 27 1997
Licensee Signature	THOMAS J JEZIERNY		
Nature of Modification:		Purpose:	N
Company (DBA) Name:			
Owner Name:	HAWAIIAN ELECTRIC CO		
Attention:	DEBBY SHIN		
Owner Address:	820 WARD AVE, HONOLULU, HI 96814		
Owner PO Box:		Phone Number:	8085417991
E-Mail Address:	DSHIN@HEI.COM		
Internet Domain:	HEI.COM		
Painting & Lighting Specs:		Date of Last Remarks:	
Special Conditions #1:			
Special Conditions #2:			
Key Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID
Direction
Distance
Distance (ft.)

EDR ID
Database

A3
SW
1-2 mi
9764

ANT100000005533
ANTREG

Tower ID:	100578		
Address:	MOKULEIA RIDGE 8.05 KM WS, MOKULEIA, HI		
Lat (NAD 27):	213256	Lon (NAD 27):	1581151
Lat (NAD 83):		Lon (NAD 83):	
Construction Date:	99/99/1999	Dismantled Date:	
Nepa Flag:		FAA ID:	95-AWP-2185-OE
Structure Type:	BTW	Elevation (M):	642.2000
Structure Hgt (M):	24.4000	Hgt Above Ground:	
Hgt Above Ground (M):		Hgt Above Mean Sea Level (M):	
Date Activated:	Feb 7 1996	License Issue Date:	
Date Keyed:		Date Printed:	
Date Processed:		Date Received:	
Licensee Signature			
Nature of Modification:		Purpose:	
Company (DBA) Name:			
Owner Name:	HONOLULU, CITY AND COUNTY OF		
Attention:			
Owner Address:	, ,		
Owner PO Box:		Phone Number:	
E-Mail Address:			
Internet Domain:			
Painting & Lighting Specs:		Date of Last Remarks:	
Special Conditions #1:			
Special Conditions #2:			
Key Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID
Direction
Distance
Distance (ft.)

EDR ID
Database

A4
SW
1-2 mi
9764

TOW100000000289
TOWER

Tower ID:	100578		
Tower Owner Name:	HONOLULU, CITY AND COUNTY OF MOKULEIA RIDGE 8.05 KM WS, MOKULEIA, HI		
Latitude:	21 32' 77576"	Latitude (in seconds):	77576
Longitude:	158 11' 51"	Longitude (in seconds):	569511
Transmitter Latitude:	213256	Transmitter Longitude	1581151
Construction Date:	99/99/1999	Activation Date:	Feb 7 1996
FAA Date:	Jan 12 1996	FCC Date:	Jan 10 1996
File Number:	D012998-F	FAA ID:	95-AWP-2185-OE
Antenna Height:	10.0000	Antenna Height (M):	3.0000
Beacon Height:	0.0000	Beacon Height (M):	0.0000
Elevation:	2107.0000	Elevation FAA:	2107.0000
Elevation FAA (M):	642.2000	Elevation (M):	642.2000
Structure Height:	80.0000	Structure Height (M):	24.4000
Structure Height FAA:	80.0000	Structure Height FAA (M):	24.4000
Supporting Struct Hgt:	0.0000	Supporting Struct Hgt (M):	0.0000
Tower Height:	70.0000	Tower Height (M):	21.3000
Structure Type:	BTW	Tower Type:	E
Key Remarks:		Date:	
Key Site:	709	Record Action:	MOD
ID Exam:	PRB0	ID_ASB_ACC:	C
Paint and Lighting Specs:			
Special Conditions/Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID
Direction
Distance
Distance (ft.)

EDR ID
Database

A5
SW
1-2 mi
10254

TOW100000068426
TOWER

Tower ID:	569		
Tower Owner Name: , MOKULEIA, HI			
Latitude:	21 32' 77569"	Latitude (in seconds):	77569
Longitude:	158 11' 50"	Longitude (in seconds):	569510
Transmitter Latitude:	213249	Transmitter Longitude	1581150
Construction Date:	99/99/1999	Activation Date:	Jul 14 1972
FAA Date:	Jun 19 1972	FCC Date:	
File Number:	355-PL-73	FAA ID:	72-PC-29-OE
Antenna Height:	0.0000	Antenna Height (M):	0.0000
Beacon Height:	0.0000	Beacon Height (M):	0.0000
Elevation:	2180.0000	Elevation FAA:	2180.0000
Elevation FAA (M):	664.5000	Elevation (M):	664.5000
Structure Height:	80.0000	Structure Height (M):	24.4000
Structure Height FAA:	80.0000	Structure Height FAA (M):	24.4000
Supporting Struct Hgt:	0.0000	Supporting Struct Hgt (M):	0.0000
Tower Height:	0.0000	Tower Height (M):	0.0000
Structure Type:	TOW	Tower Type:	E
Key Remarks:		Date:	
Key Site:	708	Record Action:	OLD
ID Exam:		ID_ASB_ACC:	C
Paint and Lighting Specs:			
Special Conditions/Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)			EDR ID Database
B6 ENE 2-4 mi 14137			CEL100000033498 CELLULAR

Low Frequency:	870.03000000	High Frequency:	879.99000000
Callsign:	KNKA373	Radio Code:	CL
DBA Name:	HONOLULU CELLULAR TELEPHONE COMPANY		
Contact:	Not Reported		
Licensee:	HONOLULU CELLULAR TELEPHONE COMPANY Not Reported MILILANI, HI 967893938		
Transmitter Address:	68-055 AKULE STREET MOKULEIA, HI		
County:	HONOLULU		
Latitude:	213511	Longitude:	1580829
Elevation:	00000	Height:	00000
Height Average:	00000	Effective Height:	00010
Structure Height:	00000	Class Code:	FB
ERP:	00000000	Database ID:	Y
License Date:	940922	Emissions:	40K0F3E 40K0F1D
Issue Date:	940831	Expiration Date:	951001
Mobile Vehicles:	Not Reported	Total Units:	Not Reported
Control Point Auth:	00	Authorization Type:	L

This record is for a license, and it may or may not indicate a site which has been built.

B7 ENE 2-4 mi 14137		CEL100000005536 CELLULAR

Low Frequency:	825.03000000	High Frequency:	834.99000000
Callsign:	KNKA373	Radio Code:	CL
DBA Name:	HONOLULU CELLULAR TELEPHONE COMPANY		
Contact:	Not Reported		
Licensee:	HONOLULU CELLULAR TELEPHONE COMPANY Not Reported MILILANI, HI 967893938		
Transmitter Address:	68-055 AKULE STREET MOKULEIA, HI		
County:	HONOLULU		
Latitude:	213511	Longitude:	1580829
Elevation:	00000	Height:	00000
Height Average:	00000	Effective Height:	00010
Structure Height:	00000	Class Code:	MO
ERP:	00000000	Database ID:	Y
License Date:	940922	Emissions:	40K0F3E 40K0F1D
Issue Date:	940831	Expiration Date:	951001
Mobile Vehicles:	Not Reported	Total Units:	Not Reported
Control Point Auth:	00	Authorization Type:	L

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID
Direction
Distance
Distance (ft.)

EDR ID
Database

8
West
2-4 mi
15032

DOF000000023839
FAA DOF

Unique ID:	120010	Obstruction #:	0010
City:	KAENA POINT	State:	Hawaii
Verification Status:	verified	Obstruction Type:	TOWER
Latitude:	21 34 38N	Longitude:	158 13 20W
Frequency:	Not Reported	Type of Lighting:	Not Reported
Above Ground Level Height (Ft.):		0125	
Above Mean Sea Level Height (Ft.):		00175	
Horizontal Accuracy:	Not Reported	Vertical Accuracy:	Not Reported
Painted/Marked:	Not Reported	FAA Study #:	Not Reported

C9
East
2-4 mi
18355

ANT100000001116
ANTREG

Tower ID:	1001143		
Address:	STATE HWY 930 & 803, WAIALUA, HI		
Lat (NAD 27):	213344	Lon (NAD 27):	1580731
Lat (NAD 83):	213333	Lon (NAD 83):	1580721
Construction Date:	Jan 1 1996	Dismantled Date:	
Nepa Flag:	N	FAA ID:	96-AWP-1114-OE
Structure Type:	MAST	Elevation (M):	28.60
Structure Hgt (M):	57.90	Hgt Above Ground:	60.90
Hgt Above Ground (M):	60.9607391	Hgt Above Mean Sea Level (M):	89.6122894
Date Activated:	Feb 22 1999	License Issue Date:	Feb 22 1999
Date Keyed:	Feb 11 1999	Date Printed:	Feb 23 1999
Date Processed:	Feb 11 1999	Date Received:	Feb 11 1999
Licensee Signature	JOAN ROBBINS		
Nature of Modification:	H	Purpose:	M
Company (DBA) Name:			
Owner Name:	GTE WIRELESS OF THE PACIFIC INCORPORATED		
Attention:	REGULATORY DEPT. GA3B1REG		
Owner Address:	245 PERIMETER CENTER PARKWAY, ATLANTA,, GA 30346		
Owner PO Box:		Phone Number:	6783394273
E-Mail Address:	JRROBBINS@MOBILNET.GTE.COM		
Internet Domain:	MOBILNET.GTE.COM		
Painting & Lighting Specs:		Date of Last Remarks:	
Special Conditions #1:			
Special Conditions #2:			
Key Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID
Direction
Distance
Distance (ft.)

EDR ID
Database

C10
East
2-4 mi
18355

CEL100000043045
CELLULAR

Low Frequency:	880.02000000	High Frequency:	889.98000000
Callsign:	KNKA250	Radio Code:	CL
DBA Name:	GTE MOBILNET OF HAWAII INCORPORATED		
Contact:	Not Reported		
Licensee:	GTE MOBILNET OF HAWAII INCORPORATED Not Reported ATLANTA, GA 30346		
Transmitter Address:	0.65 MI. WEST-SOUTHWEST OF INTERSECTION WAIALUA, HI		
County:	HONOLULU		
Latitude:	213344	Longitude:	1580731
Elevation:	00000	Height:	00000
Height Average:	00000	Effective Height:	00540
Structure Height:	00000	Class Code:	FB
ERP:	00000000	Database ID:	Y
License Date:	940922	Emissions:	40K0F3E 40K0F1D
Issue Date:	940725	Expiration Date:	951001
Mobile Vehicles:	Not Reported	Total Units:	Not Reported
Control Point Auth:	00	Authorization Type:	L

This record is for a license, and it may or may not indicate a site which has been built.

C11
East
2-4 mi
18355

CEL100000018218
CELLULAR

Low Frequency:	835.02000000	High Frequency:	844.98000000
Callsign:	KNKA250	Radio Code:	CL
DBA Name:	GTE MOBILNET OF HAWAII INCORPORATED		
Contact:	Not Reported		
Licensee:	GTE MOBILNET OF HAWAII INCORPORATED Not Reported ATLANTA, GA 30346		
Transmitter Address:	0.65 MI. WEST-SOUTHWEST OF INTERSECTION WAIALUA, HI		
County:	HONOLULU		
Latitude:	213344	Longitude:	1580731
Elevation:	00000	Height:	00000
Height Average:	00000	Effective Height:	00540
Structure Height:	00000	Class Code:	MO
ERP:	00000000	Database ID:	Y
License Date:	940922	Emissions:	40K0F3E 40K0F1D
Issue Date:	940725	Expiration Date:	951001
Mobile Vehicles:	Not Reported	Total Units:	Not Reported
Control Point Auth:	00	Authorization Type:	L

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID
Direction
Distance
Distance (ft.)

EDR ID
Database

C12
East
2-4 mi
18355

TOW100000080431
TOWER

Tower ID:	77815		
Tower Owner Name:	GTE MOBILNET OF HAWAII INC		
.65 MI W, WAIALUA, HI			
Latitude:	21 33' 77624"	Latitude (in seconds):	77624
Longitude:	158 7' 31"	Longitude (in seconds):	569251
Transmitter Latitude:	213344	Transmitter Longitude	1580731
Construction Date:	99/99/1999	Activation Date:	May 15 1996
FAA Date:	Apr 30 1996	FCC Date:	May 13 1996
File Number:	854-2474	FAA ID:	96-AWP-1114-OE
Antenna Height:	0.0000	Antenna Height (M):	0.0000
Beacon Height:	0.0000	Beacon Height (M):	0.0000
Elevation:	294.0000	Elevation FAA:	294.0000
Elevation FAA (M):	89.6000	Elevation (M):	89.6000
Structure Height:	200.0000	Structure Height (M):	61.0000
Structure Height FAA:	200.0000	Structure Height FAA (M):	61.0000
Supporting Struct Hgt:	0.0000	Supporting Struct Hgt (M):	0.0000
Tower Height:	0.0000	Tower Height (M):	0.0000
Structure Type:	TOW	Tower Type:	E
Key Remarks:		Date:	
Key Site:	711	Record Action:	MOD
ID Exam:	PRB4	ID_ASB_ACC:	C
Paint and Lighting Specs:			
Special Conditions/Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

C13
East
2-4 mi
19470

DOF000000005057
FAA DOF

Unique ID:	120341	Obstruction #:	0341
City:	WAIALU	State:	Hawaii
Verification Status:	verified	Obstruction Type:	TOWER
Latitude:	21 33 33N	Longitude:	158 07 21W
Frequency:	Not Reported	Type of Lighting: No Lights	
Above Ground Level Height (Ft.):		0200	
Above Mean Sea Level Height (Ft.):		00305	
Horizontal Accuracy:	+-500'	Vertical Accuracy:	+-125'
Painted/Marked:	No	FAA Study #:	96WP1114

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID
Direction
Distance
Distance (ft.)

EDR ID
Database

14
West
2-4 mi
20868

TOW100000068477
TOWER

Tower ID:	570		
Tower Owner Name: , WAIANAE, HI			
Latitude:	21 33' 77632"	Latitude (in seconds):	77632
Longitude:	158 14' 24"	Longitude (in seconds):	569664
Transmitter Latitude:	213352	Transmitter Longitude	1581424
Construction Date:	99/99/1999	Activation Date:	Jun 10 1981
FAA Date:	Apr 29 1981	FCC Date:	Mar 9 1981
File Number:	273-M-L-31	FAA ID:	81-APC-26-OE
Antenna Height:	0.0000	Antenna Height (M):	0.0000
Beacon Height:	0.0000	Beacon Height (M):	0.0000
Elevation:	1373.0000	Elevation FAA:	1373.0000
Elevation FAA (M):	418.5000	Elevation (M):	418.5000
Structure Height:	31.0000	Structure Height (M):	9.4000
Structure Height FAA:	31.0000	Structure Height FAA (M):	9.4000
Supporting Struct Hgt:	0.0000	Supporting Struct Hgt (M):	0.0000
Tower Height:	0.0000	Tower Height (M):	0.0000
Structure Type:	TOW	Tower Type:	E
Key Remarks:		Date:	
Key Site:	713	Record Action:	OLD
ID Exam:		ID_ASB_ACC:	C
Paint and Lighting Specs:			
Special Conditions/Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
AIRPORTS

EDR ID
Database

AIR04435
AIRPORTS

Site Number:	52430.*A	State:	HAWAII
Airport Type:	AIRPORT	City:	MOKULEIA
County:	HONOLULU	Owner type:	MR
Facility Name:	DILLINGHAM AIRFIELD	Owner:	US ARMY
Use:	PU	City/State:	HONOLULU, HAWAII 96819
Owner Address	USARPAC	Mgmt Name:	STANFORD MIYAMOTO
Phone:	808-656-1027	Mgmt City/St:	HONOLULU, HI 96819-1897
Mgmt Address:	300 RODGERS BLVD NR 12	Latitude:	21-34-46.105N
Mgmt Phone:	808-836-6533	Lat Method:	E
Longitude:	158-11-50.213W	Elev method:	S
Elev (ft):	14	Dist from Business:	02
Aero chart:	HAWAIIAN ISLANDS	Date Active:	Not Reported
Dir from Business:	W	Fed agreements:	NGY
Certified Date:	Not Reported	Is Customs Airport?:	N
Is Int'l Airport?:	N	Inspected by:	S
Inspection Method:	F	Attendance:	ALL/MON-FRI/0900-1700,ALL/SAT-SUN/0800-
Last inspected:	03032000	Has ATC Tower:	N
Lighting:	Not Reported	Landing fee:	N
Beacon Color:	Not Reported	Multi engine:	002
Single engine:	025	Helicopters:	002
Jet engines:	Not Reported	Military:	Not Reported
Gliders:	015	Commercial:	Not Reported
Ultralights:	004	Local ops:	059514
Air taxis:	Not Reported		

Runway id:	08/26	Length:	9007
Width:	75	Surface:	ASPH-G
Lights Intensity:	Not Reported	Base End Id:	08
Markings:	BSC	Latitude:	21-34-46.557N
Longitude:	158-12-37.925W	Elevation:	14.2
Approach lights:	Not Reported	End Lights:	N
Centerline Lights:	N	Touchdown Lights:	N
Recip End ID:	26	Recip markings:	BSC
Recip Lat:	21-34-45.650N	Recip Long:	158-11-02.501W
Recip Elev:	10.2	Recip App Lgts:	Not Reported
Recip End Lgts:	N	Recip Ctr Lgts:	N

FCC & FAA SITES MAP FINDINGS
POWERLINES

EDR ID
Database

No Sites Reported.

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Various Federal laws and executive orders address specific environmental concerns. NEPA requires the responsible offices to integrate to the greatest practical extent the applicable procedures required by these laws and executive orders. EDR provides key contacts at agencies charged with implementing these laws and executive orders to supplement the information contained in this report.

NATURAL AREAS
Officially designated wilderness areas
Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 12/31/2005

Federal Contacts for Additional Information

National Park Service, Pacific West Region
600 Harrison Street, Suite 600
San Francisco, CA 94107
415-427-1300

USDA Forest Service, Pacific Southwest
630 Sansome Street
San Francisco, CA 94111
415-705-2557

Fish & Wildlife Service, Region 1
Eastside Federal Complex 911 NE 11th Avenue
Portland, OR 97232-4181
503-231-6188

Officially designated wildlife preserves, sanctuaries and refuges
Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 12/31/2005

HI Game Management: Game Management Areas
State Game Management areas for islands of Kauai, Oahu, Molokai, Lanai, Maui and Hawaii
Source: Dept. of Land and Natural Resources.
Telephone: 808-587-0166

HI Managed Areas: Managed Areas
Managed areas (e.g. refuges, preserves, etc.) for islands Kauai, Oahu, Maui, Molokai, Lanai and Hawaii. Such areas include, but are not limited to, private and public wildlife refuges, preserves, sanctuaries and reserves. Also includes state forest reserves and some state parks
Source: Dept. of Land and Natural Resources.
Telephone: 808-587-0166

Federal Contacts for Additional Information
Fish & Wildlife Service, Region 1
Eastside Federal Complex 911 NE 11th Avenue
Portland, OR 97232-4181
503-231-6188

State Contacts for Additional Information
Dept. of Land & Natural Resources 808-587-0100

Wild and scenic rivers
Government Records Searched in This Report
FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 12/31/2005

Federal Contacts for Additional Information
Fish & Wildlife Service, Region 1
Eastside Federal Complex 911 NE 11th Avenue
Portland, OR 97232-4181
503-231-6188

Endangered Species

Government Records Searched in This Report
Endangered Species Protection Program Database
A listing of endangered species by county.
Source: Environmental Protection Agency
Telephone: 703-305-5239

Federal Contacts for Additional Information
Fish & Wildlife Service, Region 1
Eastside Federal Complex 911 NE 11th Avenue
Portland, OR 97232-4181
503-231-6188

State Contacts for Additional Information
Natural Heritage Program, The Nature Conservancy of Hawaii 808-537-4508

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

LANDMARKS, HISTORICAL, AND ARCHEOLOGICAL SITES

Historic Places

Government Records Searched in This Report

National Register of Historic Places:

The National Register of Historic Places is the official federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. These contribute to an understanding of the historical and cultural foundations of the nation.

The National Register includes:

- All prehistoric and historic units of the National Park System;
- National Historic Landmarks, which are properties recognized by the Secretary of the Interior as possessing national significance; and
- Properties significant in American, state, or local prehistory and history that have been nominated by State Historic Preservation Officers, federal agencies, and others, and have been approved for listing by the National Park Service.

Date of Government Version: 03/23/2006

Federal Contacts for Additional Information

Park Service; Advisory Council on Historic Preservation
1849 C Street NW
Washington, DC 20240
Phone: (202) 208-6843

State Contacts for Additional Information

Dept. of Land & Natural Resources 808-587-0401

Indian Religious Sites

Government Records Searched in This Report

Indian Reservations:

This map layer portrays Indian administrated lands of the United States that have any area equal to or greater than 640 acres.
Source: USGS
Phone: 888-275-8747
Date of Government Version: 12/31/2005

Federal Contacts for Additional Information

Department of the Interior- Bureau of Indian Affairs
Office of Public Affairs
1849 C Street, NW
Washington, DC 20240-0001
Office: 202-208-3711
Fax: 202-501-1516

National Association of Tribal Historic Preservation Officers
1411 K Street NW, Suite 700
Washington, DC 20005
Phone: 202-628-8476
Fax: 202-628-2241

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

State Contacts for Additional Information
A listing of local Tribal Leaders and Bureau of Indian Affairs Representatives can be found at:
http://www.doi.gov/bia/areas/agency.html

FLOOD PLAIN, WETLANDS AND COASTAL ZONE

Flood Plain Management

Government Records Searched in This Report
Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

Federal Contacts for Additional Information
Federal Emergency Management Agency 877-3362-627

State Contacts for Additional Information
Department of Defense, Emergency Mgmt. 808-733-4300

Wetlands Protection

Government Records Searched in This Report
NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2004 from the U.S. Fish and Wildlife Service.

Federal Contacts for Additional Information
Fish & Wildlife Service 813-570-5412

State Contacts for Additional Information
Dept. of Land & Natural Resources 808-587-0100

Coastal Zone Management

Government Records Searched in This Report
CAMA Management Areas
Dept. of Env., Health & Natural Resources
919-733-2293

Federal Contacts for Additional Information
Office of Ocean and Coastal Resource Management
N/ORM, SSMC4
1305 East-West Highway
Silver Spring, Maryland 20910
301-713-3102

State Contacts for Additional Information
Office of Planning, Coastal Zone Management Program 808-587-2875

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

FCC & FAA SITES MAP
For NEPA actions that come under the authority of the FCC, the FCC requires evaluation of Antenna towers and/or supporting structures that are to be equipped with high intensity white lights which are to be located in residential neighborhoods, as defined by the applicable zoning law.

Government Records Searched in This Report

Cellular
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

Tower
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

Antenna Registration
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

AM Tower
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

FAA Digital Obstacle File
National Oceanic and Atmospheric Administration
Telephone: 301-436-8301
Describes known obstacles of interest to aviation users in the US. Used by the Federal Aviation Administration (FAA) and the National Oceanic and Atmospheric Administration to manage the National Airspace System.

Airport Landing Facilities
Federal Aviation Administration
Telephone (800) 457-6656
Private and public use landing facilities.

Electric Power Transmission Line Data
PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Excessive Radio Frequency Emission
For NEPA actions that come under the authority of the FCC, Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities, require the determination of whether the particular facility, operation or transmitter would cause human exposure to levels of radio frequency in excess of certain limits.

Federal Contacts for Additional Information

Office of Engineering and Technology
Federal Communications Commission
445 12th Street SW
Washington, DC 20554
Phone: 202-418-2470

OTHER CONTACT SOURCES

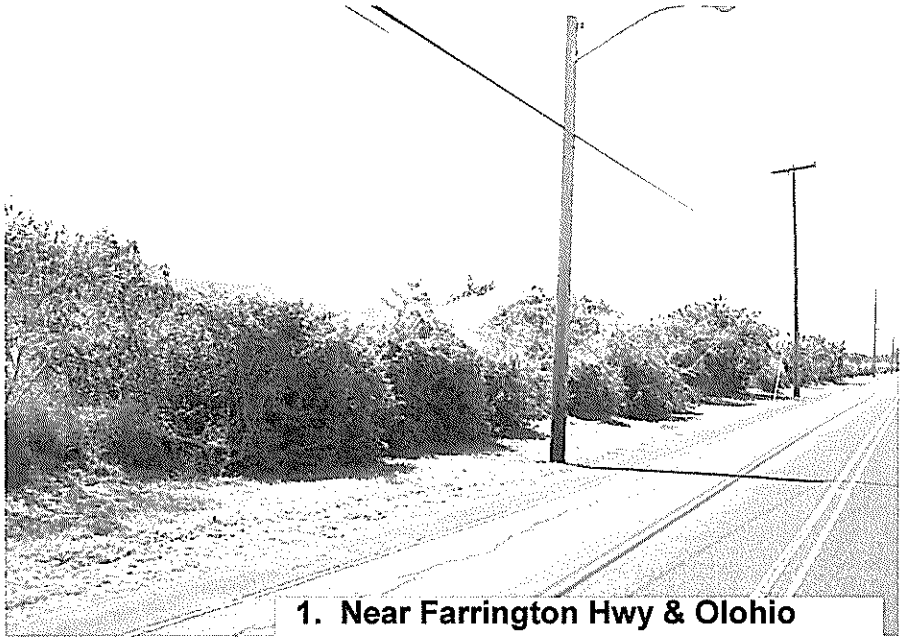
STREET AND ADDRESS INFORMATION

ATTACHMENT B

SITE PHOTOGRAPHS

Zone Change Environmental Assessment
Farrington Highway
Mokuleia, Oahu, Hawaii
April 1, 2008

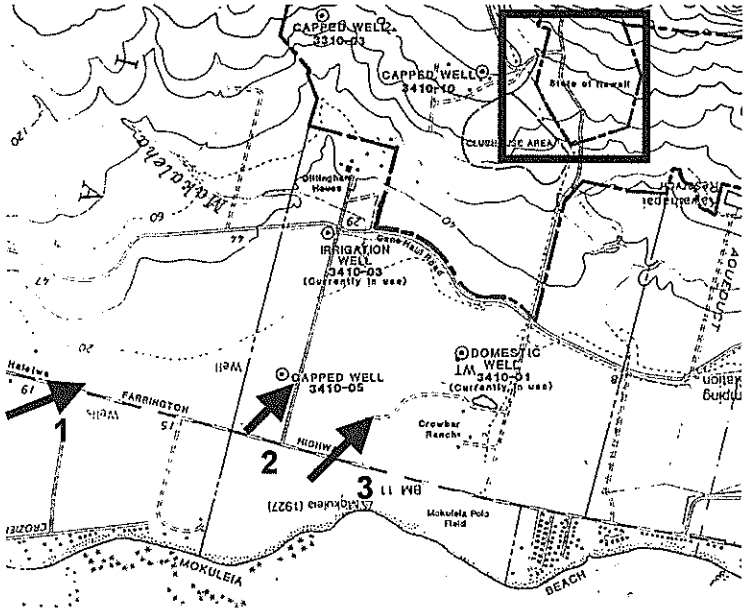
Zone Change Environmental Assessment
Farrington Highway
Mokuleia, Oahu, Hawaii
April 1, 2008



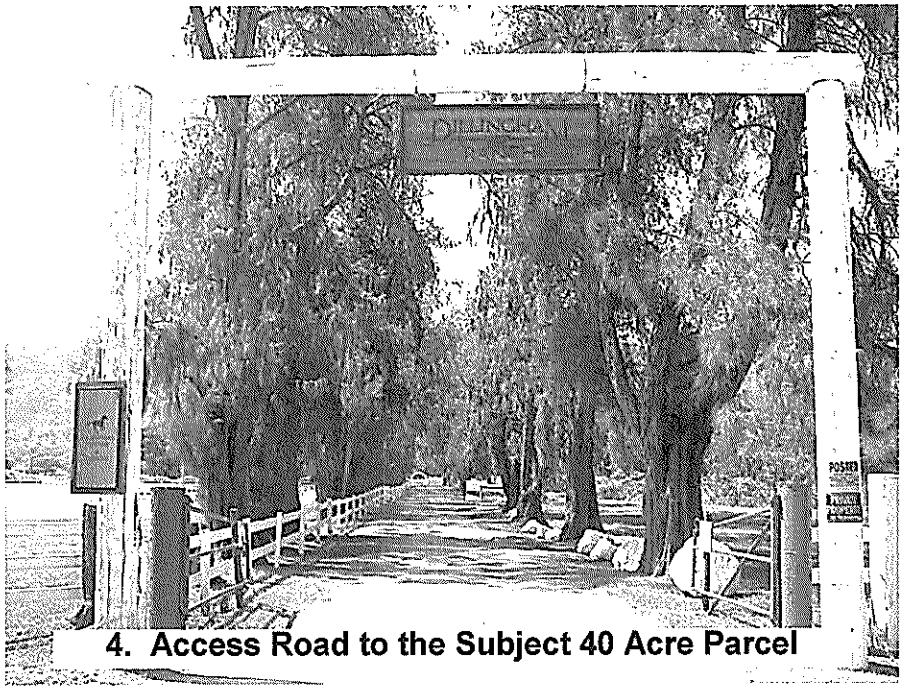
1. Near Farrington Hwy & Olohio

2

3

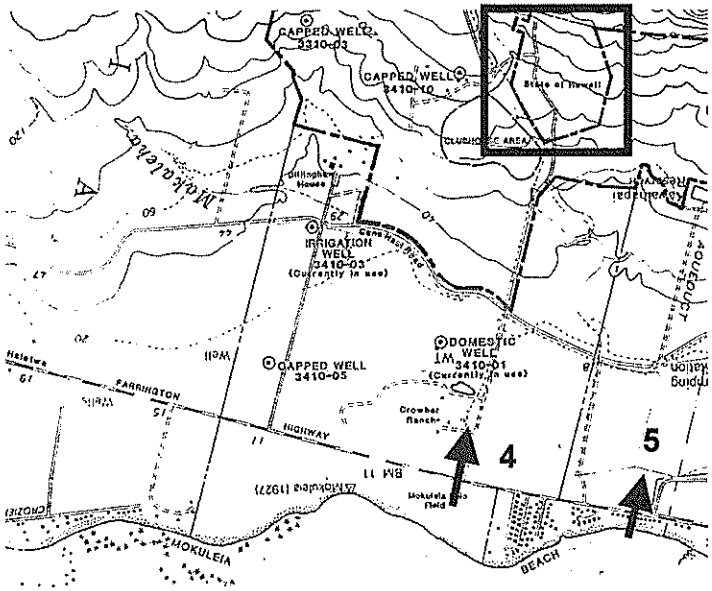


Mokuleia Zone Change
Photographs from Farrington Highway



4. Access Road to the Subject 40 Acre Parcel

5



Mokuleia Zone Change
Photographs from Farrington Highway

ATTACHMENT C

SUPPORTING DOCUMENTS

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

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

IN REPLY REFER TO:

STP 8.2366

December 27, 2006

Mr. Donald Clegg
Analytical Planning Consultants, Inc.
928 Nuuanu Avenue, Suite 502
Honolulu, Hawaii 96817

Dear Mr. Clegg:

Subject: Proposed Zone Change, 40.59 acre parcel, Mokuleia, Oahu
F-1 (Military) to Ag-2 (Agriculture)
TMK: 6-8-003: 021

We have the following preliminary comments on the subject change of zoning for a proposed agricultural subdivision:

1. The desired access route and connection to Farrington Highway needs to be identified, mapped, and submitted to our Highways Division, through the Highways Planning Branch, for necessary reviews and approvals by the appropriate highway offices. The highways staff will specify the requirements, conditions and documentation steps to formalize a permitted access, including driveway standards, for the affected parcel.

2. As part of the submittal to our Highways Division, the proposed subdivision of the affected parcel into eight (8) agricultural lots needs to be described, including any development and construction of agricultural businesses or residential uses on the lots. A traffic assessment needs to accompany the subdivision description so that the additional traffic to and from Farrington Highway as a result of the development can be accounted for and reviewed by our highways staff.

3. No additional storm water runoff from the proposed development of the affected parcel will be allowed onto the highway right-of-way.

4. Construction plans for the proposed subdivision, particularly for drainage and for work at and around the desired access at Farrington Highway, will need to be submitted to our Highways Division, through the Highways Planning Branch, for necessary reviews and approvals

5. The affected parcel is in close proximity to Dillingham Airfield/Military Reservation. Various civilian aviation and military activities occur at Dillingham. The landowner should provide the necessary disclosures to prospective tenants and occupants of the subdivision on the possible overflights and noise due to powered aircraft, glider and parachute operations, as well as daytime and night training exercises by military units.

6. The landowner should be made aware that Dillingham Airfield/Military Reservation was designated as one of the possible training locations in the Army's environmental impact statement (EIS) for the Stryker Brigade. The Army's EIS described a proposal for the military to construct a road for military vehicle use, identified as Dillingham Trail, that would run from a mauka location of Dillingham Airfield/Military Reservation, eastward and relatively parallel with Farrington Highway towards Waialua. If and when such a road is constructed, the road may intersect with the desired access for the proposed agricultural subdivision development, as well as possibly create a path where noise may come from when used by military vehicles.

We reserve the right to offer additional comments and prescribe conditions for impacts to our transportation facilities when further submissions on the proposed zone change and subdivision are transmitted to our Department.

We appreciate the advance notification about the proposed action and for the opportunity to provide our initial comments.

Very truly yours,

Francis Paul Keeno

for RODNEY K. HARAGA
Director of Transportation

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

May 4, 2007

Donald Clegg, President
Analytical Planning Consultants, Inc.
928 Nu'uanu Avenue, Suite 502
Honolulu, Hawai'i 96707

LOG NO: 2006.4139
DOC NO: 0702aj14
Archaeology

Dear Mr. Clegg:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Proposed Zone Change from F-1 Military to AG-2 for a 40.59 Acre Parcel
Mokulē'ia Ahupua'a, Waialua District, Island of O'ahu
TMK: (1) 6-8-003:021

Thank you for the opportunity to comment on the aforementioned project, which we received on December 1, 2006. We apologize for the delay in responding. The applicant is requesting a change in zoning from F-1 Military to Ag-2 Agriculture for the above referenced parcel.

We determine that **no historic properties will be affected** by this undertaking because:

- ☐ Intensive cultivation has altered the land
- ☐ Residential development/urbanization has altered the land
- ☐ Previous grubbing/grading has altered the land
- ☐ An accepted archaeological inventory survey (AIS) found no historic properties
- ☐ SHPD previously reviewed this project and mitigation has been completed
- ☒ Other: *It is our understanding that this is a paper transaction and thus, no ground disturbing activities are proposed at this time.*

However, a review of our records indicates that an archaeological inventory survey which included the subject property identified 15 archaeological sites, including a probable *heiau* (SIHP No. 50-80-03-4772) (Drolet and Schilz. 1992. *Archaeological Inventory Survey and Evaluation, Mokulē'ia, Waialua District, O'ahu.* Rpt No. O-850). Therefore, if any subsurface excavation whatsoever is planned for the development of the subject parcel, some form of proactive archaeological mitigation (*e.g.* archaeological inventory survey, mitigation plan) may be required.

Please contact me at 692-8015 if you have any questions or concerns regarding this letter.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

aj:

MOKULE'IA COMMUNITY ASSOCIATION
68-411 Farrington Highway
Waialua, HI 96791

June 23, 2006

The Honorable Mufi Hannemann
Mayor of the City & County of Honolulu
Honolulu Hale, Honolulu, HI 96813

Dear Mayor Hannemann

At the Mokule'ia Community Association's June 17, 2006 meeting, the forty+ attendees were presented a request to upzone 40.59 acres of land from P-2 to AG-2.

During the meeting, attending residents reported that the land in question had been the site of the U.S. Army's ammunition storage during World War II and the site for Nike missile storage during the Cold War and they expressed concern about the chemicals that might be present in the earth. They also noted that since the property was completely within the Dillingham Ranch, but not owned by the ranch's owners, there was no separate access to or egress from the property. Further, the residents noted that the requested upzoning was not in accordance with the vision and stipulations of the North Shore Sustainable Communities Plan which called for the preservation of open spaces, view planes and a rural quality of life for the area.

A resident also pointed out that there was no legal right to upzone the property, but once rezoned to AG-2, there was a legal right to subdivide the property.

For all the foregoing reasons, the Mokule'ia Community Association voted without dissent to oppose the request to rezone the land from P-2 to AG-2.

Sincerely,

Michael Dailey
President

Copy to: Director, Department of Planning and Permitting
Chair, City Council of the City & County of Honolulu
North Shore Neighborhood Board No. 27

ATTACHMENT D

PROJECT MASTER PLAN

Environmental Assessment

Project Master Plan

For a Zone Change From F-1 Military and Federal Preservation to Ag-2 Agricultural Mokuleia, Oahu, Hawaii

(Tax Map Key: (1) 6-8-003:021)

Prepared For:

Ralph Gray
3107 Oahu Avenue
Honolulu, Hawaii 96822

September, 2008

Prepared By:

Analytical Planning Consultants, Inc.
928 Nuuanu Avenue, Suite 502
Honolulu, Hawaii 96817

PROJECT SUMMARY INFORMATION

The Applicant:	Ralph S. & Cathy M. Gray 3107 Oahu Avenue Honolulu, Hawaii 96822
Recorded Fee Owner:	Coastal View Properties, LLC 820 Mililani Street, Suite 711 Honolulu, Hawaii 96813 Contact: Mr. Greg Jones Ph. (714) 267-1207 Ralph S. & Cathy M. Gray 3107 Oahu Avenue Honolulu, Hawaii 96822 Ph. (808) 295-0704
The Applicant's Agent:	Analytical Planning Consultants 928 Nuuanau Avenue, Suite 502 Honolulu, Hawaii 96813 Contact: Mr. Donald Clegg Ph. (808) 536-5695
EA Preparer:	Kane Environmental Inc. 3831 Stone Way North Seattle, Washington 98103 Contact: Mr. John Kane Ph. (206) 691-0476
TMK:	(1) 6-8-003:021
Lot Area:	40.59 Acres
State Land Use Designation	Agricultural
North Shore Sustainable Communities Plan Boundary	Outside Rural Community Boundary in an area identified for agricultural use
Current Property Zoning	F-1 Military and Federal Preservation District
Coastal Zone Management Area	Outside the Special Management Area

INTRODUCTION TO THE PROJECT MASTER PLAN

The North Shore Sustainable Communities Plan (NSSCP) requires that a Project Master Plan be included as part of an EA for a significant zone change involving 10 acres or more of land. A "significant zone change" is defined as development which could have a major social, environmental, or policy impact or major cumulative impact due to a series of applications in the same area. The Project Master Plan is reviewed to determine whether the project supports the vision, policies, principles and guidelines of the Sustainable Communities plan for the area.

PROJECT OVERVIEW

The applicant is requesting the City and County of Honolulu Department of Planning and Permitting to recommend a change in zoning from F-1 Military and Federal Preservation to Ag-2 Agriculture for a 40.59 acre parcel of land identified as Tax Map Key 6-8-003:021 and located in Mokuleia, Oahu, Hawaii. The subject property is composed of three lots of record. Parcel 2-A is 0.70 acres, Parcel 2-C is 19.21 acres, and Lot 2-B is 20.68 acres.

The Property is presently zoned F-1 Military and Federal Preservation due to its previous use by the military. Section 21-3.40 (d) of the Land Use Ordinance mandates that should lands be removed from either the state-designated conservation district or from federal jurisdiction, it shall be zoned F-1 and all uses, structures and development standards shall be as specified for the P-2 general preservation district. The purpose of designating land released from Federal use as P-2 is to put it into a limited use holding pattern until an appropriate use can be determined. The land under consideration has been in a holding pattern since 1966 when it was transferred to the State of Hawaii by the United States government.

The applicant is seeking to return the Property to the original agricultural zoning, to allow the Property to be used for agricultural uses, as it had historically been used, prior to its temporary use by the U.S. military. As permitted by the Land Use Ordinance, the Ag-2 zoning would allow construction of farm dwellings on the Property in conjunction with agricultural activities. The three existing lots would allow for 4-5 farm dwellings. No further subdivision of the Property is proposed. The present P-2 zoning allows for limited agricultural uses and does not allow farm dwellings which are vital for protection and management of crops and livestock. Loss of crops and equipment could be potentially devastating for the owner of a small privately owned farm than it would be for a large plantation type operation. The surrounding land parcels are already zoned Ag-2 Agricultural and the proposed use is consistent with State land use laws, the NSSCP, the City and County of Honolulu General Plan, and the Land Use Ordinance.

Initially the property will be kept as open space. In the future, 4-5 farm dwellings may be constructed, in accordance with the applicable zoning regulations, and all state and local regulations. Each farm dwelling and any accessory uses must be contained within an area not to exceed 5,000 square feet

Existing access is via a 50' wide, unpaved, privately owned roadway, which was used by Dillingham Ranch to service their agricultural properties, including the subject Property. Subdivision documents for of Dillingham Ranch Aina stipulate that access to the subject property be provided. Existing off-site wells and/or a new well on-site will provide potable and non-potable water. No additional utilities are required at this time. As this phase of the project concerns the proposed zone change to AG-2 and does not include any additional development, no design theme or additional details are available at this time.

KEY ELEMENTS

Consistency with the North Shore Sustainable Communities Plan

The project supports the vision, policies, principles, and guidelines of the North Shore Sustainable Communities Plan. Those key elements which pertain to the proposed zone change are discussed as follows:

A. The Vision Statement for the North Shore Sustainable Communities Plan (2.2) and the Rural Community Boundary (2.2.1) include the following pertinent elements:

- *Rural Community, Agricultural and Preservation Boundaries*
- *Support for the diversified agriculture industry*
- *Retention of cultural and historic resources*
- *Residential subdivision with no bona fide agricultural activities should not be permitted in areas outside the Rural Community boundary*

Three types of boundaries were established by the NSSCP to guide development and aid in the preservation of agricultural land and open spaces. They are the Rural Community Boundary (RCB), the Agriculture Boundary, and the Preservation Boundary. The subject parcel is located within the Agriculture Boundary. While not presently classified according to the ALISH system (Agricultural Lands of Importance to the State of Hawaii), most likely due to its previous military usage, the Property is contained within a large tract of land in agricultural use and these adjacent areas of land are designated as either Prime Agricultural Land or Other Important Agricultural Land.

In contrast, the subject Property does not meet the criteria for designation within the Preservation Boundary (i.e., lands necessary for protecting watersheds, water resources, lands necessary for the conservation of significant historic, scenic or ecological sites, lands with topography, soils or climate not adaptable to

rural or agricultural use, lands with slopes of greater than 20%, lands susceptible to floods or soil erosion, lands used for parks or suitable for recreation uses).

With the demise of the large plantations on Oahu, smaller more diversified farms are providing niche markets with Hawaiian agricultural products, allowing open areas to be retained in agricultural uses and encouraging agriculturally productive lands to be viable. The proposed zone change to Ag-2 would not allow subdivision of the property for residential use. The proposed use of the subject Property for several small, niche farms with accessory farm dwellings is bona fide agricultural activity that allows for accessory residential uses outside the RCB. Any archeological sites associated with the site will be protected as prescribed by the State Historic Preservation Division. The applicant proposes to restrict groundbreaking activities to outside the area designated as containing archeological resources.

B. The following are general policies for the preservation of open space and the natural environment: (3.1.1)

- *Retain the North Shore's rural character*
- *Protect significant natural features*
- *Protect ecologically sensitive lands*
- *Preserve cultural and historic features*
- *Provide recreational resources*
- *Protect scenic views*
- *Define Community boundaries*

The proposed zone change is supportive of these general policies regarding preservation of open space. The return of the Property to an Agricultural designation supports the policy of retaining the North Shore's rural character. There are no significant natural features, ecologically sensitive lands, or recreational resources associated with the subject property, and no public views

along Kamehameha Highway will be impacted. Any ground breaking activities shall be limited to outside identified archeological sites.

C. Planning Principles: (3.1.2)

- *Ahupu'a Land Use and Resource Management*
- *Long-Range Protection of Agricultural Lands*
- *Preservation of Scenic Views*
- *Protection of Recreational Resources*
- *Accessibility of Recreational Open Space*
- *Protection of Ecologically Sensitive Lands*
- *Limit Impacts from Utility Installations*
- *Location of New Developments*

The proposed zone change will return the use of the subject Property to an agricultural designation in accordance with the principle of protecting agricultural lands by the continuation of agricultural uses on agricultural lands. Due to the topography of the land mauka of Farrington Highway, the Property is not visible from Farrington Highway or Crozier Drive and no scenic views of the Waianae Mountain Range will be diminished by agricultural development or use of the Property.

To address concerns that chemical runoff from agricultural practices could adversely affect aquatic and marine habitats agricultural best management practices (BMPs) will be used to protect nearby ecologically sensitive areas. These areas include the nearby stream and it's one-hundred flood plain. A vegetated buffer zone would be established and maintained along the subject Property boundary to reduce sediment, nutrient and chemical runoff into the stream. The size and type of buffer would be determined by working closely with the appropriate local and state agencies, including the State Department of Land and Natural Resources. To reduce sediment and nutrient runoff, tillage will be kept to a minimum, with no till practiced wherever possible and vegetated cover kept on agricultural areas when not in use. Integrated pest management

systems and nutrient management plans will be put into place to prevent over□application of pesticides, herbicides and fertilizer.

D. Policies and Guidelines Pertaining to Agricultural Area: (2.2.1, 2.2.2, 3.2)

The protection of agricultural lands and agricultural uses is essential to protecting the rural character and scenic open space setting that are so valued by the North Shore residents and visitors. It is difficult to identify which lands and which crops or entrepreneurial efforts will be most successful and at what magnitude, but according to the NSSCP, it is important to maintain the availability of land and water for agriculture, protect agricultural lands from encroachment by incompatible uses and avoid uses that would undermine or otherwise irreversibly compromise their long-term agricultural potential. The NSSCP also states that conversion of agricultural lands to large lot subdivisions with no agricultural activities is to be discouraged and that it is preferable that agricultural subdivisions be primarily based around agricultural activities with a preference for clustered housing. The rezoning of the subject Property from F-1 to Ag-2 is consistent with these policies. The rezoning will allow the construction of 4-5 farm dwellings, clustered in an area of soils that are less suitable for agriculture with no subdivision of the property proposed. Property of this size will allow small-scale agriculture to the primary use of the site and will protect the land for future generations to utilize. Good farm management practices will maintain or improve the agricultural potential of the land. Therefore, the rezoning and construction of a small cluster of farm dwellings on the Property is consistent with the policies of the NSSCP.

Site Analysis

Site Features

Site features including topography, soil conditions and existing drainage are described in the Environmental Assessment.

View Analysis

The NSSCP lists scenic resources as including the Waianae and Koolau Mountain Ranges, coastal pali, the coastline, and the Pacific Ocean. The project site is not visible from Kamehameha Highway and any construction of any accessory agricultural structures including farm dwellings will not impact these scenic resources.

Surrounding Urban Areas

There are no surrounding urban areas associated with the project site.

Land Use

The project proposes to change the zoning of the Property from F-1 Military to Ag-2 in order to use the property for those uses permitted in the Ag-2 Agricultural zoning designation by the Land Use Ordinance. Specifically the applicant is proposing to establish 4-5 small farms on the existing 3 lots with no further subdivision. This land use is in keeping with the land use in the area.

Open Space

Construction of 4-5 farm dwellings would result in a total building area of 20,000 to 25,000 square-feet of land area out of a total lot area of 40.59 acres with the remainder of the area in open space or developed with agricultural structures (greenhouses, barns, etc.) in accordance with the NSSCP open space vision.

Circulation

Existing access is via a 50' wide, unpaved, privately owned roadway, which was used by Dillingham Ranch to service their agricultural properties, including the subject Property and is owned by owned by Dillingham Ranch Aina, LLC.. The access roadway begins on the mauka side of Farrington Highway, across from

the Mokuleia Polo Field. The Department of Planning and Permitting of the City and County of Honolulu has recently granted temporary approval to subdivide a portion of the surrounding Dillingham Ranch land into 77 agricultural lots (2007/SUB-167). As a condition of approval, the State Department of Transportation in their review of the project stipulated that access be provided to the subject Property as a condition of approval. The proposed action does not involve any development which requires circulation patterns, pedestrian or bicycle routes.

Design Theme

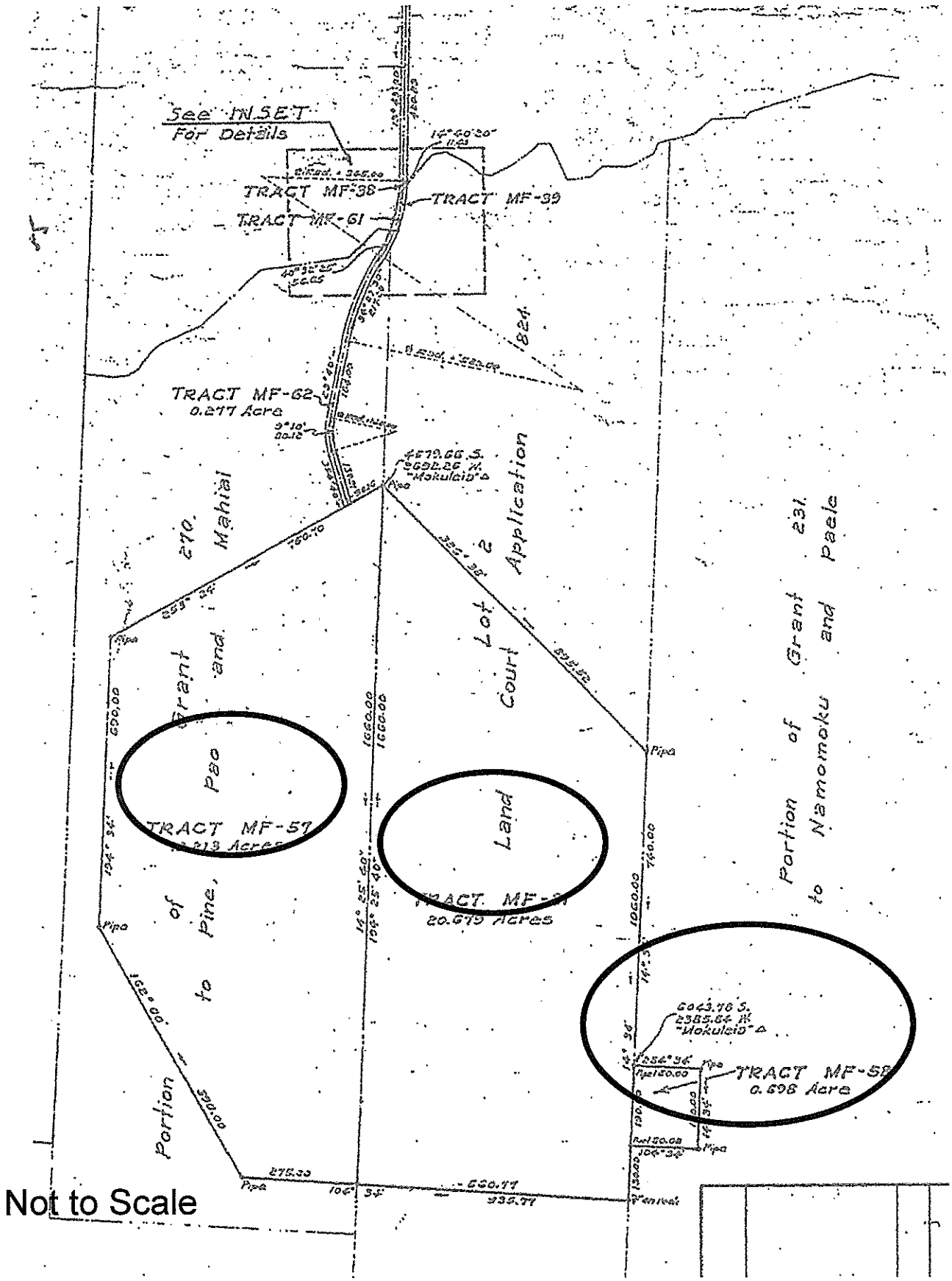
No urban design is proposed. Any proposed development will be designed to support the agricultural use of the property.

Telecommunications

No telecommunication infrastructure needs are anticipated.

CONCLUSION

The proposal to re-zone the 40.59 acre property from F-1 Military and Federal Preservation to AG-2 Agricultural will return the property to its original agricultural use. The Project Master Plan has described the scope of the project and how it supports the vision, policies, principles and guidelines of the North Shore Sustainable Communities Plan. The surrounding land parcels are already zoned Ag-2 Agricultural and the proposed use is consistent with State land use laws, the NSSCP, the City and County of Honolulu General Plan, and the Land Use Ordinance.



Existing Lots

ATTACHMENT E

AGRICULTURAL FEASIBILITY STUDY

DILLINGHAM RANCH AINA, LLC

AGRICULTURAL FEASIBILITY REPORT

DILLINGHAM RANCH SUBDIVISION

MOKULEIA, OAHU, HAWAII

DRAFT 09 – prepared 4 June 2007

Prepared for:

Dillingham Ranch Aina, LLC
c/o Kennedy Wilson
Attn: Mary Ricks
9601 Wilshire Blvd Ste 220
Beverly Hills CA 90210

Prepared by:

Avalon Development Co., LLC
Davies Pacific Center
841 Bishop St Ste 1601
Honolulu HI 96813

Agronomics by:

Tropical Crops Services
94-350 Punono St
Mililani HI 96789

INTRODUCTION

Dillingham Ranch Aina, LLC is the fee owner ("Owner") of ten contiguous parcels of land comprising 2,288.84 acres and one detached parcel comprising 433.41 acres, for a total land area of 2,722.25 acres of land that span the North-West Oahu ahupua'a of Kealia, Kawaihapai, and Mokuleia on the mauka (toward the mountain) side of Farrington Highway. The eleven parcels ("Property") are located in the State Land Use Agriculture District; they bear the City & County of Honolulu Zoning designations AG-1 Restricted Agriculture, and AG-2 General Agriculture; and they are identified on Hawaii Tax Maps by the Tax Map Keys shown in Table 1.

The Owner proposes to consolidate the Property (Table 1) and then re-subdivide the consolidated parcel into a new Agricultural Subdivision comprising 100 entities, including the existing Dillingham Ranch Palm Tree Farm, the existing Dillingham Ranch Stables and Equestrian Center, the existing Cattle Grazing operation, several Historic Preservation sites, new subdivision roadways, and the proposed new "80 Five-Acre Lots" (the term "80 Five-Acre Lots" refers to that portion of the Subdivision formed by 80 lots whose sizes range from 5.01 acres to 12.29 acres, and whose average lot size is approximately 5.97-acres).

Subdivision of agricultural land on Oahu is regulated by Section 1-115 of the Subdivision Rules & Regulations (Chapter 22, Revised Ordinances of Honolulu) and Section 205-4.5, Hawaii Revised Statutes. Among the provisions of Sections 1-115 is the requirement for the submission of an Agricultural Feasibility Report (present "Report") to demonstrate the Subdivided Lots can be used for viable agricultural activities.

This Report describes how the proposed Agricultural Subdivsion will improve the Property's feasibility by including a contiguous planned 477-acre portion consisting of "80 Five-Acre Lots." Four of the present parcels that are to be consolidated will form a 477-acre geographic intersection with the 80 Five-Acre Lots as follows:

PARCEL	CURRENT AREA OF PARCEL FROM TABLE 1 (ACRES)	EIGHTY (80) FIVE-ACRE LOTS FROM TABLE 1 (ACRES)	PARCEL AREA REMAINING AFTER SUBDIVISION (ACRES)
(1) 6-8-002:006	1,023.66	83.03	940.63
(1) 6-8-003:006	927.75	308.82	650.65
(1) 6-8-003:015	72.98	31.87	44.38
(1) 6-8-003:031	57.40	53.28	4.12
TOTAL	2,081.79	477.0	1639.78

This Report describes the Property, its existing agricultural activities, and how the 80 Five-Acre Lots will increase the productive pasturage of cattle and horses and allow a diversification of agricultural ventures that enhance the overall agricultural usage of the Property. The 80 Five-Acre Lots are specifically planned to enable new (additional) owners to pasture horses and cattle and to begin suitable diversified ventures that are not presently cost effective on a large farm under single ownership. The 80 Five-Acre Lots will also allow greater access to the Property's interior and generally improve the infrastructure for the greater Property to the advantage of its existing horticulture, stable and pasture operations.

THE PROPERTY

Description of the Property

Location: The Property is located mauka (mountain side) and South of Farrington Highway and is centered between Kaena Point to the West (3.5 miles from the West side of Property) and Thomson Corner to the East (3.5 miles from the East side of the Property). Farrington Highway forms the Property's boundary to the far North in the Northeast "Leg." The Property's South-East boundary is one mile from Mt. Kaala Rd. and four miles from the Mt. Kaala summit (Figure 1).

Configuration: The layout of the Property and the 80 contiguous Five-Acre Lots is shown in Figure 2.

The entire Property is "L"-shaped. The Eastern and Southern boundaries of the Property are perpendicular to each other, and define the short and long legs of the "L" respectively. The Southern boundary is 2.69 miles long, lies 2.23 miles to the south of Farrington Highway and is parallel to Farrington Highway; it separates the Property from the Mokuleia Forest Reserve. The Peacock Flats Access Road (owned by the State of Hawaii DLNR) forms the straight, Eastern boundary of the Property for a distance of approximately 0.83 miles from Farrington Highway. At that point, the Peacock Flats Access Road winds uphill on an irregular path that describes the boundary between TMK:6-8-003:005, a 433 acre, landlocked parcel of land that forms the south-east corner of the Property, and TMK:6-8-003: 006. It provides vehicular access from Farrington Highway to Peacock Flats in the Mokuleia Forest Reserve. The entire Northern boundary of the short leg is a 0.9 mile segment of Farrington Highway. The Western boundary of the short leg is about 0.87 mile long, and separates the Property from its neighbor, Castle & Cooke, Inc. The Northern edge of the long leg is described by an irregularly shaped boundary between the Property and the adjacent Dillingham Military Reservation. The Western boundary of the long leg is about 1.29 miles long and separates the Property from its western neighbor, the State of Hawaii.

The Property surrounds and does not include two separate parcels (TMK:6-8-003:021 and -003:034) totaling 56 acres located to the West of Dillingham Ranch House and owned by Others (Coastal View Properties).

Area: The Property comprises 2,722.25 acres (Table 1). The portion known as the "80 Five-Acre Lots" is located at the geographic middle of the Property, south and west of the Dillingham Ranch House. The 80 Five-Acre Lots surround each of the excluded parcels (TMK:6-8-003:021 and -003:034) and the Kawaihapai Reservoir (Figure 2).

Uses:

The short Leg of the Property, starting from the Northern boundary (formed by Farrington Highway) includes all the lands on the Property that are zoned AG-1 Restricted Agricultural. This important Leg of the Property contains the soils that are designated by the Land Study Bureau as most favorable for agriculture and constitute prime agricultural land. This short Leg is designated on Hawaii Tax Maps as TMK parcels 6-8-003:019, :020, :030, :033, :035, and :040 and comprises about 207 acres. This prime agricultural land, plus an additional 64 acres of land (portions of the existing TMK parcels 6-8-003:006 and :015) comprise the existing 271 acre Dillingham Ranch Palm Tree Farm, and the existing Dillingham Ranch Stables and Equestrian Center. These two operations are intended to be preserved and enhanced in the future.

Immediately south of the Prime Agricultural Lands, along the Eastern edge of the Property is a 30 acre parcel of land, a portion of TMK 6-8-003:006 that comprise the grounds of the Dillingham Ranch House, the antique dwelling with spacious common rooms and sleeping quarters. The Dillingham Ranch House is currently hired out for special events. It is proposed to restore this House and its grounds, and maintain them as a link to the Property's history and past.

The 80 Five-Acre Lots lie West and South of the Ranch House, extending to an irregular East-to-West line that occurs about 1.14 miles south of Farrington Highway. This portion contains mostly irregular terrain and stony soils that are marginally suitable for agriculture. Although the Land Study Bureau deemed this land suitable for agriculture, the area has never been considered prime agricultural land. The area is zoned *AG-2 General Agricultural.*

The balance of the property, approximately 1,976 acres of land is also zoned *AG-2 General Agricultural*, and designated on the USDA Soil Survey maps as very stony or very steep or rock land. They are further described by the Land Study Bureau as most unfavorable for agriculture. A portion of this remaining property is proposed for use as part of the existing and ongoing cattle grazing operation; the grazing also helps to control the fire hazard posed by the uncontrolled growth of Guinea Grass.

Topography:

The Northeast Leg of the Property, within 4,000 ft of Farrington Highway, is generally flat. Elevations in the NE Leg range from about 10 ft along Farrington Highway to about 40 ft at the Dillingham House.

Because the ridge line to Mt. Kaala is to the South, the property becomes increasingly sloping and the terrain increasingly irregular from North to South (Figure 2). Slopes to the South of the 80-foot contour range from 5 to 25% until about 200 feet elevation. Continuing South from the 200-ft contour, slope increases dramatically over very rocky and irregular terrain. The southern most half of the Property has slopes that frequently exceed 100%.

The 80 Five-Acre Lots lie in the transition from flat (nearest Farrington Highway) to steep (in the Southern interior). The maximum elevation along the South perimeter of the 80 Five-Acre Lots is about 400 feet.

Flood Hazard:

All four Flood Insurance Rate Map (FIRM) zones are found on the Property and in the contiguous collection of 80 Five-Acre Lots (Figure 3). All elevations above 160 feet are in FIRM Zone D, an area of undetermined but possible flood hazards. The lowest elevations, beginning from Farrington Highway and the nearby ocean, are in FIRM Zone A, due to the exposure of the area to inundation from storm surges. FIRM Zone A has a 1% chance of flooding annually.

FIRM Zones X500 (0.2% annual chance of flooding) and X (outside the 0.2% and 1% chance) are both found along the lower elevations of the Planned 80 Five-Acre Lots Subdivision.

Existing Condition:

The condition of the Property varies from the extensively utilized equestrian areas near Farrington Highway, to the cattle grazing areas above Dillingham House, and to the difficult rocky or steep terrain. Difficult terrain dominates the mauka portion of the Property, much of which is forested. The dominant vegetation in the Subdivision includes guinea grass, koa haole, and keawe.

Cattle and horses have been the core of the agriculture at Dillingham Ranch for many years. Native guinea grass is the predominant pasture forage.

Adjacent Parcels:

The Property is bounded on the North by Farrington Highway, and lands owned by Castle & Cooke, Inc., the State of Hawaii, the United States of America, U.S.Military Reservation, and the Dillingham Airfield. The property known as Kaena North, a City and County of Honolulu Parks & Recreation property, and the Mokuleia Polo Field are located across Farrington Highway from the entrance to the Property. Kaena North is a 36 acre agriculture subdivision zoned AG-1. Kaena North has been historically pasture and is presently overgrown and idle.

The Property is bounded on the East by lands owned by Castle & Cooke Inc., and the J.P. Mendonca Trust Est. A portion of this neighboring property, with access to Farrington Highway is zoned AG-1, is flat and is identified as prime agricultural land. It is presently leased to Pioneer Seed Company, who grows corn for seed production. They currently have ___ acres of land in production.

The Southern boundary divides the Property from the State of Hawaii Mokuleia Forest Reserve.

The Western boundary and a portion of the Northern boundary divide the Property from lands owned by Castle & Cooke, Inc. Much of this land was historically sugarcane but has since been used intermittently for agriculture. Larry Jefts, who leases land from Castle & Cooke, Inc., farms some flat

portions at the lower elevations for the production of tomatoes, broccoli, and other cash crops.

Existing Entitlements

State Land Use: The Property is in the State Land Use Agricultural District (Figure 4). The provisions of Section 205-4.5, HRS, will require the recordation of covenants restricting use of the Property and the Subdivided Lots to agricultural activities.

Zoning: The Property includes parcels zoned *AG-1 Restricted Agriculture* and *AG-2 General Agriculture* (Table 1; Figure 5).

The entire area planned for the 80 Five-Acre Lots is zoned *AG-2 General Agriculture* (Figure 5), which is intended to conserve and protect agricultural uses on smaller parcels of land. AG-2 zoning permits a minimum lot size of 2 acres.

Community Plan: Under the North Shore Sustainable Communities Plan, the Property is located outside of the Rural Community Boundary.

Agricultural Considerations

The present status of the Property will continue into the future with its principal usage in pasture for the grazing of horses and cattle. The 80 Five-Acre Lots will improve the overall productivity of the pasture areas and also create incentives for other diversified agricultural ventures. The following agricultural considerations are relevant to the four parcels that intersect with the 80 Five-Acre Lots.

Soil Capability: The four parcels intersect twelve unique soil series named in the Soil Survey of Islands Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii (1972. USDA Soil Conservation Service). Table 2 summarizes the distribution of soil conditions among the parcels and the relative difficulty (qualitative scale from 0 to 5) to manage these soils. The range of suitability is extreme, from prime agricultural soil highly suitable for cultivation to steep rock land unsuitable for cultivation (Table 3 and Figure 6).

Eight soil series (Ewa, Halawa, Helemano, Kaena, Kawaihapai, Kemoo, Pearl Harbor, and Pulehu) are prominent among the 80 Five-Acre Lots. Chief considerations for cultivation are slope and stoniness (Figure 6), which vary considerably. However, all the soils are generally fertile for plant growth and have generally desirable combinations of clay, silt and loam.

The productive potential of pasture among the 80 Five-Acre Lots can also be inferred from the Soil Survey, which grouped soil series into Capability Classes (I to VIII) and Capability Subclasses (e, w, s, and c) to show the general suitability of the each soil series for agricultural production. The increasing Roman numerals I through VIII (Table 4) designate progressively

greater limitations (decreasing productivity) and narrower choices for practical use. The subclass letters designate the following soil limitations:

-e- denotes the risk of erosion unless a conservation plan is implemented and maintained. The Ewa soil series on the Property has this Subclass designation.

-w- denotes wetness from poor drainage that may interfere with plant growth and may warrant drainage management. The clay content imparts this limitation to the Kaena soil series, which dominates many of the Five-Acre Lots.

-s- denotes stoniness and other properties that are commonly associated with stoniness, such as shallowness and low water holding capacity.

-c- denotes limitations mainly due to climate, such as drought.

Table 4 summarizes the distribution of key soil series among all 80 Lots to form an index of their expected Capability, with the emphasis on the productive potential for ***unirrigated*** pasture on the dominant soil map unit. The predominant Capability Classifications among the Lots are IVe, IVw and VIs, belonging primarily to the marginally difficult or stony soils. Hence, uneven terrain and stones limit the productive potential of most Lots.

The vegetation on the 80 Five-Acre Lots is typically koa haole, native guineagrass, and keawe, which generally agrees with the Soil Survey. An examination of the site (and the last column of Table 4) indicates that Pasture Group 3 fairly represents the current condition and future potential of the soils among the 80 Lots. Unimproved, the soils of Pasture Group 3 are expected to produce 1,000 to 2,000 lbs air dry forage/acre/year – a fair estimate of the present productivity of the pasture within the 80 Five-Acre Lots. According to the Soil Survey (p144; Pasture Group 3), "Well-managed improved pasture produces 2,000 to 4,800 pounds of air-dry forage per acre per year."

Productivity Rating: The Land Study Bureau of the University of Hawaii prepared an inventory and evaluation of the State's land resources during the 1960's and early 1970's. A five-tier productivity rating system using the letters "A", "B", "C", "D" and "E" was based on climate, topography, local histories of crop production, and especially on soil properties such as texture, structure, depth, drainage, parent material, and stoniness. "A" represents the soils with the highest productivity rating and "E" lowest.

All five ratings are found within the Property (Figure 8). However, the dominant portion of the 80 Five-Acre Lots is rated "D" and "E." Hence, according to these LSB ratings, most of the area proposed for the Subdivision has been deemed poorly suited for profitable agriculture and requires considerable management effort. The uneven, stony, steep terrain contributes significantly to the "D" and "E" ratings.

The productive potential of pasture among the 80 Five-Acre Lots can be inferred from the Soil Survey for the respective soils. Hence, the above discussion of Soil Capability correlates strongly with the LSB productivity ratings.

ALISH Classes:

As the Soil Survey (1972. USDA Soil Conservation Service) was completed, the Hawaii State Department of Agriculture produced a complementary classification entitled The Agricultural Lands of Importance to the State of Hawaii. That classification used the following scale:

Class 1: Prime Agricultural Lands are those best suited for the production of food, feed, forage and fiber crops. The land has the soil quality, growing season and moisture supply necessary to economically produce sustained high crop yields when treated and managed in accordance with modern farming methods. Only a portion of the Property, near Farrington Highway, is classified as Prime Agricultural Land (Figure 9), due largely to the flat, stone-free soil.

Class 2: Unique Agricultural Lands are lands other than Prime Lands used for the production of specific high-value crops. Unique Lands have special qualities that make them ideal for the production of a specific crop of high quality and/or high yields when treated and managed using modern farming methods. In Hawaii, examples of such crops are coffee, taro, rice, watercress and non-irrigated pineapple. No part of the Property is Class 2.

Class 3: Other Important Agricultural Lands are lands, other than Prime or Unique Lands, of statewide or local importance for the production of food, feed fiber and forage corps. Lands in this classification are important to agriculture in Hawaii, but they are prone to limitations, such as seasonal wetness, potential for erosion, limited rooting zone, slope, flooding or impact from drought conditions that exclude them from the Prime or Unique classifications. These lands can be farmed through application of greater inputs of fertilizer and other soil amendments, drainage improvements, flood protection, erosion control, terracing and modern irrigation systems. About 200 acres of the 80 Five-Acre Lots and small areas near the Property's Southeast boundary and toward Peacock Flat are Class 3 (Figure 9).

Climate:

Average annual rainfall for the Mokuleia-Kawaihapai area ranges from 30 to 40 inches per year, about 30 to 40 inches/year short of the irrigation requirement for most year-around cultivated crops. Average maximum temperatures range from the mid-70s (Fahrenheit) to the mid-80-s with annual average maximum temperatures near 80 Fahrenheit. Average minimum temperatures range from the low- to mid-60s. Temperatures vary slightly between the extreme (low and high) elevations on the Property.

The climate details above are found in Juvik (Atlas of Hawaii, 3rd Edition). In addition, Figure 10 presents the average annual temperature and rainfall

data for Kawaihapai as found at <<http://hikawa.htohananet.com/climate-oahu/grids/waialua.html>>.

Prevailing Wind: The prevailing wind direction is from East to East/Northeast. These "trade winds" are typically 10 to 20 miles/hour. Although winds in the Waialua-to-Kaena regime are generally mild and favorable to most crops, strong trade winds and gusts can be cause for windbreaks in certain sensitive crops.

AGRICULTURAL SUBDIVISION

The subdivision application proposes to consolidate the existing 11 lots of record, which comprise the 2,722 acre Property, and to subdivide the resulting consolidated property to create a new Agricultural Subdivision. The new Agricultural Subdivision will be made up of the several entities including the 80 Five-Acre Lots comprising 477 acres of land located mauka of the existing Dillingham Ranch operation and the Dillingham Ranch House.

In addition to the 80 Five-Acre Lots, the following entities will be located within the boundaries of the Property: 1) The existing Dillingham Ranch Palm Tree Farm, Dillingham Ranch Stables and Equestrian Center, and Dillingham Ranch House; 2) Private Subdivision Roadways; 3) Five Historic Cultural Sites, designated by the State of Hawaii Preservation Division (SHPD) for Passive Preservation, comprising a total of about 25-acres of land; 4) Private wells and water storage tank sites. Furthermore, the State of Hawaii DLNR Peacock Flats Access Road, and two parcels of land owned by Other Owners (Coastal View Properties) comprising 56-acres of land, are physically located within the boundaries of the Property, but are not a part of the Agricultural Subdivision. All the foregoing are shown on the Dillingham Ranch Master Plan (Figure 11; facing pages 38 and 39)

The entire Property will continue under its present agricultural usage after re-subdividing, but with the 80 Five-Acre Lots enhancing or preserving the overall agricultural value as described below.

Planned 80 Five-Acre Lots

The 80 Five-Acre Lots will be an enhancement to the three commercially viable components of the existing Dillingham Ranch operations: 1) The Dillingham Ranch Palm Tree Farm, and the existing Dillingham Ranch Stables and Equestrian Center on the lower 271-acre parcel adjacent to Farrington Highway, and including the existing Ranch Office. 2) The existing Dillingham Ranch House and Ranch Foreman's residence, which are situated on a 30-acre parcel of land located immediately mauka of the tree farm. 3) The Cattle operation which will be concentrated on portions of the remaining mauka lands, which comprise about 2,000-acres of land.

Upon Final Subdivision Approval and approval of the Petition for the Land Court Map, the Subdivided Lots are to be sold in fee to other parties. It is anticipated that these purchasers may utilize portions of the Subdivided Lots for the construction of dwellings, subject to the provisions of the Land Use Ordinance.

The majority of land comprising each Subdivided Lot is intended for agricultural use. Pursuant to Section 205-4.5, HRS, the Subdivided Lots will be conveyed subject to recorded covenants requiring each Lot to be maintained in agricultural use in perpetuity. Notice of the restrictive covenants will be incorporated into all sales documents and instruments of conveyance.

Supporting Infrastructure

Roadway Access: Farrington Highway provides the primary access to the Property, and it will continue to do so in the future.

The primary entrance and egress for the Subdivision will be the new subdivision road, which will enter the property from Farrington Highway at the same location as the existing roadway that serves the existing Dillingham Ranch Stables and Equestrian Center. This new subdivision road will evolve into a network of roads, which will provide access to all of the 80 Five-Acre Lots. Three culs-de-sac are planned to extend to the boundary between the 80 Five-Acre Lots and the undeveloped, mauka properties, providing vehicular access, as well as access for livestock to these undeveloped lands.

The existing gravel road that serves the Dillingham Ranch Palm Tree Farm, and the Dillingham Ranch House will be extended and connect to the new subdivision roadway network, and will constitute a secondary entrance and egress for the Subdivision.

Water: Potable water is supplied to the Property by the existing Dillingham Ranch private water system, North Shore Water, LLC, which will continue to provide water to the Property in the future. Due to the sizing of the private water transmission facilities, fire protection considerations may be addressed by incorporating fire sprinkler systems into the design and construction of any dwellings on the Subdivided lots.

Ag Water: Non-potable water for agricultural use will be provided from the same private system. The laterals for the non-potable irrigation systems will be segregated from the laterals for potable water service. The non-potable irrigation systems will incorporate back-flow prevention devices to preclude contamination of the potable water supply.

Sewage Disposal: There is no regional wastewater treatment plant in the Waialua/Mokuleia area. Sewage Disposal for the existing Dillingham Ranch Palm Tree Farm, the Dillingham Stables and Equestrian Center, and the existing Dillingham Ranch House and foreman's residence, to remain, will continue to be provided by the existing Individual Wastewater Systems that service them now. Proposed development on the new 80 Five-Acre Lots will be served by a new, managed individual wastewater treatment system.

The 80 Five-Acre Lots are located above the Underground Injection Control Line for effluent disposal, in the No Pass Zone. As allowed by the State of Hawaii Department of Health Administrative Rules, for "developments consisting of one dwelling unit per acre or greater" the managed individual wastewater treatment system for the 80 Five-Acre Lots will be comprised of individual septic tank systems located on each of the 80 Five-Acre Lots. These systems will be connected by a collection system of pipes that will collect and discharge the effluent into a common leach field, to be located in the Pass

Zone, below the Underground Injection Control Line for effluent disposal. Maintenance of this managed individual wastewater treatment system, will be overseen by an Association of Lot Owners; this work will be contracted to a firm with a record of at least five years of successful, individual wastewater systems management experience

Drainage: Drainage of the Property will be controlled by a planned system of grading and other improvements, designed to manage and direct rainwater flows into naturally existing drainage ways in such a way as to preserve and protect the existing capacity and character of these existing drainage ways.

Electrical Power: Electrical power for the Property is provided by Hawaiian Electric Company (HECO) and will continue to be provided by HECO in the future. A 12 KV HECO distribution line runs along Farrington Highway. Based upon the minimal additional load required by the 80 Five-Acre Lots, it is anticipated that HECO will be able to provide the required service

AGRICULTURAL USE OF THE PROPERTY

The owner proposes to subdivide the consolidated parcels into a new Agricultural Subdivision comprising the several entities described in this Report, which will include a 428-acre, planned, contiguous area referred to in this Report as the 80 Five-Acre Lots (Figure 7).

Agricultural Proposal

The proposal is to encourage the pursuit of diverse agricultural activities on 428 acres of land that has historically been underutilized. The potential exists to increase productivity of the traditional pasture and to support other specialized ventures. In addition to encouraging new revenue-based agriculture ventures, the location of the 80 Five-Acre Lots between the more commercially active areas of the Property and the remote, steep, mauka interior offers operational and logistical advantages. Operationally, the commercially active Dillingham Ranch Palm Tree Farm, Dillingham Ranch Stables and Equestrian Center, and other Cattle ventures can be networked with the pasture and horticultural activities of the future owners of the 80 Five-Acre Lots. Logistically, Dillingham Ranch Aina, LLC, or a future Association of Lot Owners may become a facilitator of materials, maintenance, and other support functions for the future Lot owners. New roadways required for the 80 Five-Acre Lots will also improve the access to the Property's remote terrain, which the Owners need to manage.

This Report takes a critically important view that, while some irrigation will be important, intensive irrigation is not needed to successfully develop the 80 Five-Acre Lots for greater productivity. This is based on the history of un-irrigated pasture on the vast majority of the Property and other crops in the area that have been successful without irrigation, including the Owner's palms, which are grown on the makai portion of the Property for sale to the landscape industry. Moreover, the greater Property is either in production or overgrown, indicating that the productive potential does not necessarily depend on irrigation; rather, improving productivity necessarily depends on a greater level of management, with the Lot owners managing the allotted water.

Although an appreciable investment is expected to be made for infrastructure in the Agricultural Subdivision, irrigation sources will be called on only to renovate manageable portions of each Lot. The 80 Lots are each intended to protect and preserve the existing landscape (natural and economic) and the livelihood of its future residents. The agricultural pursuits of the Lot owners will not include irrigation-intensive farming strategies and, therefore, will not significantly alter the demands on the aquifer.

The Management Plan presented in this Report recognizes the limitations found in the stony, steep terrain. The existing usage -- pasture -- becomes the theme of the Subdivision because it has long been proven to be sustainable. The Management Plan also recommends supplementary ventures (niche crops) that are reasonably suitable for that environment. The credibility of each venture is determined by its known success in similar environments or in the general Waialua-Mokuleia area.

Resource Information and Economic Considerations

The Management Plan below takes the perspective that while many (diversified) crops are suitable for the Subdivided Lots, the diversification efforts will be subsidiary to the opportunity to improve

the pastures on the Lots and increase the productive grazing of cattle or horses. Grazing is a revenue-generating activity that is consistent with the use of surrounding lands. Therefore, individual Lot owners/tenants would have the capability and incentive to undertake pasture improvement on their respective Lots.

The general guidelines below direct Lot purchasers to helpful sources of information that can assist decisions on pasture management and crop selection. A chief resource and overall starting place for information is the College of Tropical Agriculture and Human Resources (CTAHR; http://www.ctahr.hawaii.edu) at the University of Hawaii Manoa. The University actively supports the agricultural community through its network of Cooperative Extension Service offices. Also important to prospective Lot owners is the long agricultural history of the Waialua-Mokuleia area, which is home to many growers, farm managers, and agriculture specialists.

The guidelines below coincide with ***pasture*** as the primary venture and recommended ***niche crops*** as subsidiary ventures. The niche crops recommended below are not comprehensive; rather they are reasonable examples with the expectation that individual Lot owners will have varied interests and varied horticultural specializations.

Pasture:

A chief contact for detailed information on pasture management is

Mark S. Thorne, PhD -- State Range Extension Specialist
Kamuela Extension Office
67-5189 Kamamalu Road
Kamuela HI 96743-8439
Tel: (808) 887-6183

Also recommended is ATTRA Publication #IP284/514 found at <<www.attra.org/attra-pub/sustpast.html>>

The expected startup costs for a new Five-Acre Lot owner would be limited to fencing and weed control in designated areas of pasture management. Costs in the first year may range from $1,000 to $5,000/acre. Higher costs may be involved if the native guineagrass is replaced with more productive forage, especially if outside labor is required.

The Soil Survey indicates a doubling of productivity is achievable under a well managed program of pasture improvement on these soil types. On average, one acre of improved pasture would support a carefully managed grazing rotation of one cow or horse. However, sufficient rainfall or irrigation is needed to sustain regrowth for at least 30-days during non-grazing intercycles. A variable duration of the grazing cycles is expected, as the growth of the forage will vary according to the rainfall in the area.

The incentive for pasture management would be the rental income to the Lot owner from Dillingham Ranch (or from other clients) to graze cattle or horses in a managed paddock. As a point of reference, commercial operations charge about $130 to $200 per month to pasture a horse.

Natural or Organic: Specialists in organic farming are easy to find. Foremost at the University is Dr. Hector Valenzuela, who has serviced the organic farming community with technical information for many years. Other relevant organizations include:

Hawaii Organic Farmers Association, www.hawaiiorganicfarmers.org
Hawaii Cooperative of Organic Farmers, asantoro@hawaii.rr.com
Organic Consumers Association, www.organicconsumers.org

The expected startup costs for an organic farm are not well documented, and the lead-time to establish the various alternative crops will vary considerably. Nevertheless, the demand for natural or organic farm products is increasing. Oahu's largest organic farm is 7 acres and there is a disproportionate need for more organic farms on Oahu, given Oahu's customer base (see Wanda Adams, "Pure Produce" *Honolulu Advertiser*, June 28, 2006, F1-2). Small farms can usually manage organic farming concepts more effectively than large farms. Examples of products in demand are cucumber, tomato, peppers, melons (all types), squash, cabbage, broccoli, onions, papaya and all the specialty orchard crops below. In addition, seed production for natural or organic crops commands a high price and organic seed can be sold outside the state.

Noni *(Morinda citrifolia)* and Kawa *(Piper methysticum)* are two crops that are easily cultivated and have had considerable interest as high-value Pacific specialty crops. Their market aims at nutritional, beverage, and pharmacology products.

Because the Planned 80 Five-Acre Lots Subdivision has never been subjected to conventional farming practices, it will qualify easily for certification under one of the natural or organic farm certification agencies.

Specialty Orchards: Tree crops have considerable research and extension support from the University. Two recommended contacts are H. C. "Skip" Bittenbender, PhD, Extension Specialist and Kent Flemming, PhD, Agriculture Economist.

Tropical fruits and specialty trees are perpetually suited to a wide range of landscapes in Hawaii. Citrus (orange, grapefruit, lemon), mango, lychee, and breadfruit have grown well on the Property for many years with little or no maintenance.

Cacao (*Theobroma cacao*) is currently being grown by Dole Foods in Waialua and is highly suited for the marginal soils of the 80 Five-Acre Lots. Cacao can be processed for chocolate locally on a small scale as a novelty business, or its beans can be fermented and sold to processors outside the state. (See Betty Shimabukuro, "Dole Food Co. turns former sugar acreage into stands of cacao" and Joan Namkoong, "The state's cacao industry explores options for growth" *Star Bulletin,* June 22, 2005).

There are no appreciable development costs unique to establishing specialty trees. The major development costs are for infrastructure, irrigation, and conservation. Future crop production costs will be mostly labor, which will be incurred by the owner/occupant.

Although specialty fruit can command premium prices of up to $3.00/lb for longan and lychee, the seasonality of the fruit grown and the challenging terrain of the property will limit the ultimate revenue potential for fruit trees. The steady state mix of harvestable fruit is hard to forecast. However, at peak production, 20 trees could produce $2,000 annual revenue as a general guideline for tropical fruits (various statistics by NASS at <<www.naas.usda.gov/hi/rlsetoc.htm>>).

Any one tropical tree fruit (excluding pineapple, banana, and papaya) accounts for much less that 1,000 acres in the state. According to NAAS, fruit other than pineapple, banana and papaya in 2004 were grown on about 4,500 acres statewide. Overseas competition is also an increasing concern for those who regard the income from specialty fruits as important (see Sean Hao, "Farmers wary of Thai plan" *Honolulu Advertiser*, August 25, 2006. C1-2). Nevertheless, production of specialty fruit of all kinds is a credible component of the tropical agriculture in the state, and organizations such as the Tropical Fruit Growers Association offer a credible network of expertise.

Landscape & Native: The landscape and native plant industries service growing markets and are commercially dynamic year-around. The Landscape Industry Council of Hawaii (LICH) has a growing membership and access to excellent information and boasts a successful annual conference and trade show. Its network of specialists is balanced across both trade industries and universities.

Start-up costs are difficult to assess for garden-centers or landscape-plant ventures that specialize in growing and supplying plants. Significant immediate costs would be incurred for, materials, staging, nursery infrastructure, garden hardware, potting operations, watering, and fertilizing. Available water would limit the size of this activity on any of the Lots and a customized business model based on square footage would be important to the Lot owner. Projected revenue for successful landscape supply centers may range from $10 to $100 per square foot per year, depending on customer volume and the type of plants sold. However, the overall viability among garden-center and landscape-supply ventures is unclear.

Flower & Nursery: A prominent and devoted specialist to the flower and nursery industry is Heidi Bornhorst, whose columns in the Honolulu Advertiser have been consistently informative (see, for example, "At last, a great book for Hawai'i plumeria fans," August 25, 2006. E4).

Flower and ornamental plant nurseries in Hawaii have enjoyed increasing sales for several years (see Sean Hao, "Hawaii flower sales top $100M" *Honolulu Advertiser*, July 8, 2006. C1). While this group overlaps considerably with Landscape & Native, it represents a significant niche opportunity. Typically, small flower growers have become important suppliers for much larger and well established nurseries.

Frangipani (genus *Plumeria*) is highly recommended for this un-irrigated terrain and can be planted in an orchard layout or as an augmented landscape. Plumeria flowers are in constant demand.

Management Plan

The 80 Five-Acre Lots will allow new owners of the smaller "management units" to improve the overgrown terrain for greater activity as pasture land and to introduce diversified agricultural ventures that are proven suitable for the Waialua-Mokuleia area. The presently existing large-acreage pasture is too irregular, too stony, and too overgrown for one owner to transform economically. A better risk/reward incentive would exist where the land is subdivided into smaller management units and made available to a number of owners who have the expertise to maintain cattle or horses. Individually, the smaller size of each management unit would make it easier to manage the native pasture, selectively renovate acres for greater productivity, control weeds, and conduct pasture maintenance.

It is anticipated that individual owners will select portions of their Lot for special (*niche*) crops that generate secondary income. In addition, each owner/grower would live on the Lot, so that the cost for shelter would not be in addition to the lease or mortgage on a separate agricultural parcel. Each of the management units would be part of a coordinated Management Plan for 80 Lots, designed to conserve the native soil, preserve the historical livelihood of ranching, and increase the agricultural activity of the Property.

The Management Plan contemplates that a Conservation Plan will be prepared for the entire Subdivision in conjunction with the West Oahu Soil and Water Conservation District ("SWCD"). Upon request, the Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service, will develop a detailed soil and water "Conservation Plan" for owners of agricultural lands in cooperation with the local SWCD.

SWCD Cooperator: A Conservation Plan will improve the integrity of the Subdivision for pasture management and enhance the suitability of the Subdivided Lots for diversified ventures. Given the irregular and stony terrain, this Conservation Plan will be important to the overall stewardship of the Subdivision and to its ultimate productivity.

Dillingham Ranch Aina, LLC (the Owner) will seek to place a Director or Associate Director in the West Oahu SWCD. The present Directors may be contacted for more information. They are Larry Jefts (Larry Jefts Farms), Richard McCormack (Pioneer Hybrid), John McHugh (Crop Care Hawaii), Eric Mitchel (proprietor), and Roger Johnson (Monsanto).

The Owner will also become a "Cooperator" in the West Oahu SWCD and will request a Conservation Plan for the Subdivision. The Cooperator status is recognized by NRCS as the authorization it needs to develop a detailed Conservation Plan. Gill Costa (SWCD Employee) or Mike Bajinting (NRCS District Conservationist) may be contacted for information (99-193 Aiea Heights Drive, Room 109, Aiea HI 93701; tel 808-483-8600)

All prospective owners of Subdivided Parcels (Lots) will need to understand and acknowledge that they will also become "Cooperators" in the West Oahu SWCD and that their cooperator status is recognized by NRCS as authorization for a detailed Conservation Plan.

The Conservation Plan would be based on an evaluation of the Property and its parcels and make recommendations to minimize the risk of soil erosion and maximize the productive capacity of each parcel or Lot. The West Oahu SWCD is among the most active in the State of Hawaii, with several successful conservation plans and projects to its credit and an active network of agricultural professionals.

Site Preparation:

Except as prescribed by NRCS, grading or cultivation of the soil on each Subdivided Lot is to be minimized. Where appropriate, terraces should be employed to create areas for cultivation, in lieu of large cuts and fills.

Infrastructure for a nursery on each Five-Acre Lot would be a consideration as cut flowers, nursery foliage, and ornamentals have an increasing demand on Oahu. Also, seedlings must be grown if trees or orchards are desired for the Subdivided Lot.

Nursery structures would vary from lot to lot, according to the objectives of each owner/grower, or the developer may determine a standard nursery design that accommodates the overall pasturage of animals and the covenants of the Subdivision. Every nursery structure shall comply with the restrictive covenants of the agricultural subdivision with respect to being "accessory structures."

Because the pasturing of cattle or horses is the core activity on the Property, each Lot will have a managed paddock, or other appreciably defined area for pasture improvement. Owners will need to determine the vegetation for their pasture, whether native guineagrass, giant bermudagrass, or other. Lot owners will need to remove weeds which threaten the vitality of the pasture, and they must maintain a valid weed control program for their respective pasture areas.

Giant bermudagrass is recommended for areas which will support intensive grazing. The stone-free soil found on limited areas of the Subdivision is capable of supporting giant bermudagrass at up to 4,000 lb dry forage/acre annually. Glyphosate can be used to remove native guineagrass and can be used for extended weed control in a renovated pasture. The native

guineagrass is persistent and will require frequent spot treatments with Glyphosate for effective control.

As noted above, the selective replacement of forage grasses will require intensive management that can become costly, especially if labor must be hired and extended weed control must be maintained. Pasture management for forage and grazing in general should be coordinated with the related interests of the owner(s) of the greater Property (Dillingham Ranch Aina, LLC).

Soil Improvement: Grading and harrowing shall be conducted only as needed to condition the soil for pasture renovation or the planting of specific crops. Stoniness and difficult terrain will limit harrowing. Despite the stony, sloping terrain, the soils of the Five-Acre Lots generally have deep profiles to allow deep rooting. Also, these soils generally have clay or loam compositions that sustain tilth and store moisture. The soils also have adequate levels of Ca, Mg, K and P for plant nutrition.

No major soil amendments are recommended at this time, although a starter fertilizer may be required for certain crops at planting. For example, 500 lb/acre of a starter fertilizer such as 16-16-16, 10-20-10, or 11-52-00 can promote the early establishment of a pasture and improve the vigor of the forage.

Depending on the production objectives for niche crops, a long term nutrient management program may be helpful, beginning with a comprehensive soil test for each soil type. Representative soil samples may be taken to the CTAHR Diagnostic Service Center, University of Hawaii at Manoa (tel: 808-956-6706) or sent to one of several agricultural soil testing laboratories in the country that are certified to received imported soil samples. Most soil testing laboratories also provide interpretations of the test results for the crops to be grown. No serious nutrient deficiencies are anticipated as these soils have been proven productive elsewhere in the Waialua-Mokuleia area.

Irrigation: Water for irrigation will be required to maintain nursery stock, to establish orchards, and to replant or regrow forage grasses. Irrigation may also be necessary to establish groundcover and other plant material as may be recommended by NRCS for a Conservation Plan. However, each Subdivided Lot, being about 5.0 acres, will regulate its water use to a maximum 3,000 gal/Lot/day.

During the summer (May to October), the water required for the recommended niche crops in the Five-Acre Lots may approach 1/5 inch per day (5,431 gal/ac daily). During the winter, much less irrigation is required due to rainfall, cooler temperatures and stored moisture in the subsoil.

Recognizing the significant variation in rainfall between the dry and wet seasons, supplemental irrigation would be required for the cultivation and

transplanting of trees during the summer months. Most tropical orchards would fit the topography of the Subdivision at 20 to 200 trees/acre. In the first two years, after transplanting from the nursery to the orchard, the trees would require 0.3 to 0.5 inches of water/week (about 1,200 to 2,000 gal/acre daily), assuming each tree seedling is trickle irrigated precisely. Once the orchard is established, the irrigation requirement may or may not change, depending on the type of tree, the soil profile, and the available soil moisture.

Individual Lot owners will need to determine the best irrigation design for their respective crop, soil, and terrain. Local expertise is available as irrigation vendors have become increasingly specialized toward small farms and landscapes since the decline of the large plantations.

Groundcover: Mulch and compost may aid the establishment and maintenance of orchard crops in the Subdivision. The NRCS Conservation Plan may include the use of mulches or live groundcovers.

The long term incentive to the agricultural use of the 80 Five-Acre Lots depends on a program of improved pasture management and on the adoption of best management practices for niche crops that are proven for the area. In order to be effective, the Management Plan will encompass all eighty Five-Acre Lots. Accordingly, a copy of the management Plan will be provided to each prospective purchaser of a Subdivided Lot as part of the package of sale material.

CONCLUSION

The 428 acres comprising the proposed 80 Five-Acre Lots have been historically grazed at minimal operating costs and with virtually no improvements and no agricultural development. The relatively large, the irregular, sloping, stony terrain does not support large scale agricultural ventures on these 428 acres. Specialized, small-farm, horticultural ventures are more likely to be suitable, as discussed in this Report. Small-farm ventures are common in the surrounding Waialua-Mokuleia area, where a strong agricultural history began in the early years of sugarcane.

For the 80 Five-Acre Lots to become more productive, incentive must exist for growers of niche crops that are suited to the varying topography. The size of the parcels must also be manageable by a family unit or a small enterprise. Unlike a large-area corporate farm (plantation), the Five-Acre Lots would create more intimate management units that maximize the productive capacity of each Lot. Collectively, the management units would be part of a coordinated Management Plan designed to improve the terrain, generate new revenue from specialized ventures, benefit the logistics of existing calving and grazing ventures on the greater part of the Property commonly known as Dillingham Ranch, encourage forestry stewardship projects in the difficult mauka portion of the Property, and enhance the integration of horticultural ventures in the Mokuleia-Waialua area.

This Report recommends that the new Agricultural Subdivision including the 80 Five-Acre Lots constitutes an improvement over the present condition of the land and should be undertaken as part of a master plan for the present Owner. The 80 Five-Acre Lots would support a more economically integrated and diversified agricultural community in the Mokuleia-Waialua area.

ATTACHMENT F

FINDINGS OF FINAL SITE INSPECTION REPORT

DILLINGHAM AIR FORCE BASE

EXECUTIVE SUMMARY

U.S. Army Corps of Engineers
Southeast and Pacific IMA Region

FINAL
Site Inspection Report
Dillingham Air Force Base
Mokuleia, Hawaii

FUDS Project No. H09HI006501
July 2008

In Support of
FUDS MMRP Site Inspections Project

Prepared by:
PARSONS
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Prepared For:

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and

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Huntsville, Alabama 35816-1822

Contract: W912DY-04-D-0005
Task Order: 0008

EXECUTIVE SUMMARY

ES.1 The Dillingham Air Force Base Ordnance Storage Area was used as an ordnance storage depot supporting Mokuleia Airfield during and possibly after World War II. The airfield was renamed Dillingham Air Force Base when it became United States Air Force property in 1948. The land was originally acquired by the United States Army in 1925 for the establishment of Kawaihapai Military Reservation. Additional acreage was acquired in 1941 and Mokuleia Airfield was activated in 1942. The airfield was used extensively in the training of Army Air Corps personnel. It consisted of two landing strips, one of which was the longest in Hawaii at that time. There were also taxiways, parking areas, a scramble runway, barracks, and mess halls, all designed for a population of 5,000. It was at this time that an approximately 40 acre parcel was set aside and used as an ordnance storage depot. Following the end of World War II, the site was maintained on caretaker status and was sometimes used for tactical operations by troops based at Wheeler Air Force Base. In 1974, approximately 248 acres were returned to the private landowners and the State of Hawaii. The Ordnance Storage Area is currently owned by Mokuleia Ranch Estates LLC and Coastal View Properties LLC. A Site Inspection, documented in this report, was conducted to determine whether the site warrants further munitions and explosives of concern or munitions constituents response action or a determination of No Department of Defense Action Indicated. The Site Inspection of the Dillingham Air Force Base Ordnance Storage Area munitions response site was performed to confirm known or suspected former storage locations, to evaluate evidence for the presence of munitions and explosives of concern at the site, and to evaluate evidence of contamination from munitions constituents. To accomplish this objective, qualitative reconnaissance and munitions constituent sampling were performed during December 2007.

ES.2 If a No Department of Defense Action Indicated status is recommended and approved after evaluation of the site inspection data, the process for closeout of the site from the Formerly Used Defense Site inventory will be initiated. If an imminent threat to the public or the environment is identified, a time-critical removal action may be performed as an interim action, or a remedial investigation and feasibility study will be initiated to evaluate feasible response actions for munitions and explosives of concern and/or munitions constituents.

ES.3 The technical project planning process identified that, in addition to qualitative reconnaissance, the collection of a multi-incremental soil sample comprised of 50 sample increments would be sufficient to meet the Site Inspection project objectives. The soil sample was collected in triplicate. No groundwater sample was collected because there is no drinking water source within the munitions response site. No surface

water samples or sediment samples were collected because there is no permanent surface water within the munitions response site. An ambient surface soil sample was collected in triplicate from within the munitions response site.

ES.4 The Site Inspection for the Dillingham Air Force Base Ordnance Storage Area included completing approximately 3.04 miles of walking qualitative reconnaissance and collecting the multi-incremental surface soil sample. The multi-incremental surface soil sample increments were collected on an unbiased, systematic random basis at approximately equally spaced intervals over the decision unit covering the munitions response site.

ES.5 The surface soil samples were sent to TestAmerica Inc. (formerly Severn Trent Laboratories) in Arvada, Colorado for analysis for explosives and selected metals. The analytical results from the soil sampling were evaluated using the Hawaii Department of Health Environmental Action Levels for Soil (Groundwater Potential Drinking Water Source; <150m to Surface Water).

ES.6 No munitions and explosives of concern and no munitions debris were observed in the Dillingham Air Force Base Ordnance Storage Area munitions response site during the Site Inspection conducted in December 2007. A number of open storage areas were found to confirm the historical record. The storage areas were surrounded on three sides by earthen berms or revetments and at least one had a concrete floor. The open side faced a paved road that traversed the entire Ordnance Storage Area munitions response site. A summary of the qualitative reconnaissance results are presented in Table ES.1.

Table ES.1
Summary of Site Investigation Qualitative Reconnaissance
Dillingham Air Force Base Ordnance Storage Area, Island of Oahu, Hawaii

Munitions Response Site	Munitions and Explosives of Concern Found	Munitions Debris Found	Munitions Related Structures Found
Ordnance Storage Area	None	None	Storage revetments and road system

ES.7 No explosive compounds were detected in the surface soil samples. Munitions constituents copper, lead and zinc were detected in the surface soil. The mean concentrations of lead and zinc were above the background concentration derived from the ambient soil sample collected from within Dillingham Air Force Base Ordnance Storage Area site. Therefore a human health screening level risk assessment was conducted. The mean concentrations of lead and zinc were below the Hawaii Department of Health Soil Action Levels. As a result, no unacceptable risk to human health is expected from exposure to lead or zinc in the surface soil at this munitions response site. These results are summarized in Table ES.2

Table ES.2
Soil Human Health Screening Level Risk Assessment
Dillingham Air Force Base Ordnance Storage Area, Island of Oahu, Hawaii

Analyte	Units	Maximum Detected Site Concentration	HDOH Environmental Action Levels (EAL) for Soil*	Exceeds Screening Level?
Metals:				
Lead	mg/kg	11	200	No
Zinc	mg/kg	92	600	No

*- Hawaii State Department of Health Environmental Action Levels for Soil (Groundwater Potential Drinking Water Source; <150m to Surface Water); dated August 2006

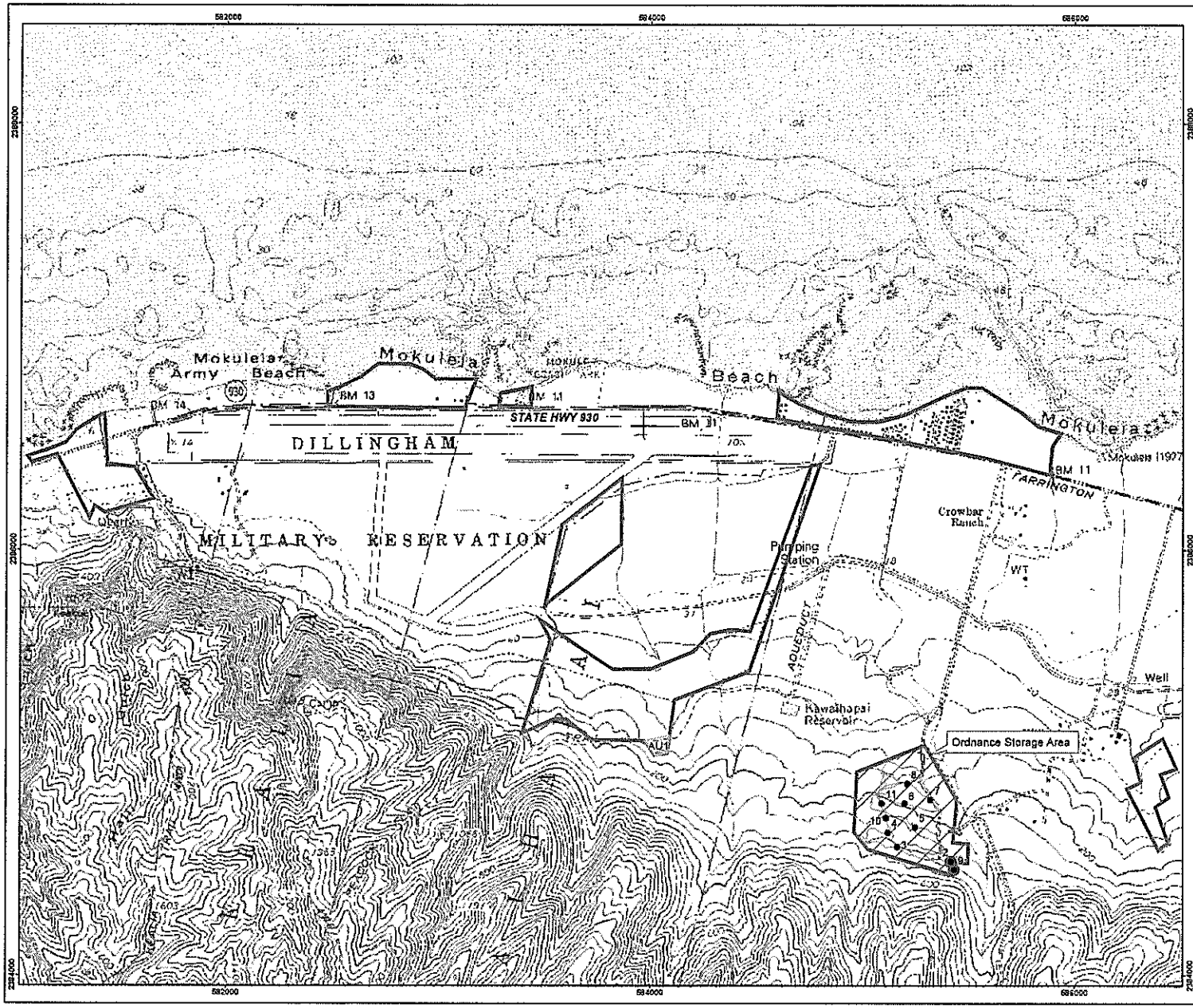
ES.8 The Dillingham Air Force Base Ordnance Storage Area was not considered to be an important ecological place. Therefore, ecological risk as a result of exposure to munitions constituents in the soil is not expected at the site.

ES.9 It is recommended that the Dillingham Air Force Base Ordnance Storage Area munitions response site proceed to a Remedial Investigation and Feasibility Study using geophysical investigation to locate potential munitions burial sites. This recommendation is based on finding evidence of Department of Defense activity at this site with a suspected potential for discarded military munitions. The recommendation is summarized in Table ES.3.

Figure ES.1

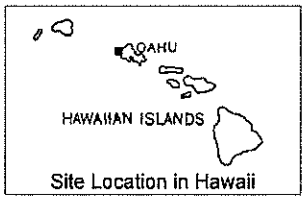
General Site Overview
Dillingham Air Force Base
FUDS Project No. H09HI006501

Honolulu County, Hawaii



Legend

- Field Observation Location
- Soil Sample Location
- Approximate FUDS Property Boundary
- Qualitative Reconnaissance Track
- Decision Unit
- AU — Ambient Multi- Incremental Sample (Not to Scale)



Site Location in Hawaii

N

Image: USGS Topo Map, 1983
Projection: UTM Zone 4 NAD83, Map Units in Meters

1,500 750 0 1,500 Feet

PARSONS	U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER
DESIGNED BY: BT	General Site Overview
DRAWN BY: BT	
CHECKED BY: LK	SCALE: As Shown — PROJECT NUMBER: 744647.24000
SUBMITTED BY: DS	DATE: July 2008 — PAGE NUMBER: ES-4
	FILE: X:\GIS\Site_Inspections_sel\Maps\dillingham_SI\FigES_1.mxd