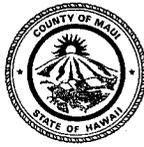


ALAN M. ARAKAWA  
Mayor



BRIANNE L. SAVAGE  
Interim Director

RECEIVED

2014 NOV 12 PM 2:49 (808) 270-7230  
FAX (808) 270-7934

**DEPARTMENT OF PARKS & RECREATION**  
700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793  
OFFICE OF THE MAYOR

November 7, 2014

Honorable Alan M. Arakawa  
Mayor, County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

RECEIVED  
2014 NOV 14 AM 11:25  
OFFICE OF THE  
COUNTY COUNCIL

For Transmittal to:

Honorable Don S. Guzman, Chair  
Economic Development, Energy, Agriculture  
and Recreation Committee  
200 South High Street  
Wailuku, Hawaii 96793

APPROVED FOR TRANSMITTAL

*Alan Arakawa* 11/14/14  
\_\_\_\_\_  
Mayor Date

Dear Chair Guzman:

**SUBJECT: KANAHA BEACH PARK RENOVATIONS (KAHULUI)  
(EAR-46)**

The following is in response to your letter dated August 21, 2014 regarding the Kanaha Beach Park Renovations:

1. Our Department is currently working with the Planning Department on the Request for Proposals to secure a consultant to assist us with the completion of the Master Plan and Environmental Assessment for the Kanaha Beach Park.
2. As indicated in Response No. 1, we have not contracted a consultant at this time to work on the revisions to the Master Plan.
3. We estimate to have the design consultant contracted by February 2015. Our Department will then be able to provide the anticipated timetable for the completion of the Master Plan and Environmental Assessment.

Attached is a copy of the draft Master Plan and Program Study for the Kanaha Beach Park prepared in March 2004.

Honorable Alan M. Arakawa, Mayor  
For Transmittal to:  
Honorable Don S. Guzman, Chair  
November 7, 2014  
Page 2

If you have any questions or require additional information, please feel free to contact me or Robert Halvorson, Chief of Planning and Development, at Ext 7387.

Sincerely,

A handwritten signature in black ink that reads "Brianne Savage". The signature is written in a cursive, flowing style.

BRIANNE L. SAVAGE  
Interim Director of Parks and Recreation

Attachment

c: Robert Halvorson, Chief of Planning & Development

BLS:RH:kp

**DRAFT**



**MASTER PLAN & PROGRAM STUDY**

for

**KANAHA BEACH PARK**

T.M.K.: 3-8-01: 119 and portion of 19

Amala Place, Kahului, Maui, Hawaii

County Job No. P01/025

**Department of Parks & Recreation  
County of Maui**

**March, 2004**

prepared by  
Hiyakumoto + Higuchi Architects Inc.

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## I. INTRODUCTION

Kanaha Beach Park, located on the makai and northeast of the Kahului Airport, was obtained from the State of Hawaii by Executive Order No. 2358 dated January 19, 1968 (66.10 acres on the east end) and by Executive Order No. 3727 dated February 24, 1998 (17.765 acres on the west end).

Since acquiring the initial 66 acres in 1968, the County has developed several elements on the easterly parcel. These include grading, landscaping irrigation/planting, a restroom building, signage, and paved parking for Phase I in 1975; grading, landscaping irrigation/planting, paved parking, and signage for Phase II in 1977; a restroom building for Phase II in 1981; a paved parking lot at the east end for Phase III in 1993; and a graveled parking lot in 1995. A canoe hale was erected in 19\_\_ and is managed by the Lae Ula O Kai Canoe and Cultural Club.

The westerly portion of the park site which was acquired by the County in 1998 has been largely left undeveloped. The Community Work Day program and community volunteers have been clearing and replanting native Hawaiian plants from the west end of the parcel adjacent to the County's Wastewater Reclamation Facility on Amala Street.

The public has been actively using both portions of the park as it is conveniently near the central urban areas of Central Maui. Activities include picnicking, fishing, diving, snorkeling, camping, swimming, surfing, windsurfing, and kite surfing. Wind and surf conditions are ideal for wind and kite surfing enthusiasts.

The County held several meetings with a group of park users from June through September 2001 coordinated by the Department of Parks & Recreation Community Volunteer Coordinator Sue Kiang.

In 2001, the County proceeded to procure the services of a consultant to prepare a master plan for the park including both parcels. Consultant proposals were received in early 2002 and a contract was awarded to Hiyakumoto + Higuchi in August of that year. Hoolawa Farms was later contracted to prepare a wetlands delineation survey in March 2003 and completed the survey in October. The survey was submitted to the Army Corps of Engineers for their review and acceptance. The master plan study incorporated community program input, environmental concerns (wetlands, flora & fauna, coastal erosion, flood and tsunami inundation), archaeological concerns, pertinent shoreline setbacks, building setbacks, and base flood elevation information.

## II. PROJECT DATA

### LOCATION

The project site is located in the Kahului area in central Maui, and toward the east of the town center, Kahului harbor, the Maui Electric Company power plant. It is situated on two parcels designated on the real property tax maps as T.M.K.: 3-8-01: 119 and portion of 19. Parcel 119 is located on the east end of the park site and a portion of 19 is located on the west end of the site. The site is bounded by the ocean on the north. To the west end is the County's Wastewater Reclamation Facility. Amala Place and Alahao Street run along the entire south boundary. Across those streets on the mauka side is the Kanaha Wildlife Preserve and undeveloped portions of the Kahului Airport site. At the east end of the site, is an undeveloped area at the end of the airport runway.

### OWNERSHIP

The ownership of the two parcels which are designated for Kanaha Beach Park were transferred to the County of Maui from the State of Hawaii by the following Executive Orders:

T.M.K.: 3-8-01: 119 (Executive Order No. 2358, January 19, 1968)

T.M.K.: 3-8-01: portion of 19 (Executive Order No. 3727, February 24, 1998)

### LAND AREA

The land area within the Kanaha Beach Park boundaries is as follows:

66.10 acres in the original east end (parcel 119)

17.765 acres in the west end (portion of parcel 19)

93.865 acres total in park

### ZONING INFORMATION

The State Land Use designation for the park parcels is (C) Conservation, (L) Limited Subzone.

The Wailuku – Kahului Community Plan designation is (PK) Park.

The Maui County Zoning is (A) Airport in which park is a permitted use.

The park is situated in the Special Management Area.

### PERMITS REQUIRED

An **environmental assessment** will be required by HRS Act 343 as this is a government funded project.

A **Conservation District Use Application (C.D.U.A.)** will also be required as a restroom and parking lot is proposed for the first phase of this project. Removal of existing plants and planting of landscaping may be an administrative approval if less than 10,000 square feet. If more than 10,000 square feet, Board of Land and Natural Resource approval may be required.

Since the park is situated within the Special Management Area, an **S.M.A. permit** is required.

For any structures which are regulated by the building code, a **building permit** will be required.

Any structures will also need to comply with the newly adopted **Shoreline Setback Rules** of the Maui Planning Commission and a request for a shoreline determination will be required. This will require a licensed surveyor's shoreline certification, topographic maps, development plans, photographs, and other data required by the rules.

## **EXISTING TOPOGRAPHY, INFRASTRUCTURE, & IMPROVEMENTS**

### **Topography**

Based on the aerial topographic survey provided by R.M. Towill taken in July 1995, the topography of the site ranges from 15.7' above mean sea level at the high point where Amala Place crosses over the existing concrete drainage channel down to sea level. The grades along Amala Place (about 2700' of street frontage) as it borders the park site varies from 5.1' to 7.4' above MSL and along Alahao Street (approximately 4000') from 2.8' to 7.9'. The interior of the park parcels vary considerably as there are several areas of dunes which rise up to 10' and 13' above MSL (especially on the west portion of the park); as well as low lying wetland areas which go down to as low as 0.1' above MSL.

### **Infrastructure**

Relative to infrastructure, the park site is developed on the east end and therefore there are available water, sewerage, recycled water for landscape irrigation, electrical, and telephone services in the area..

Water for the existing facilities at the east end are serviced from a \_\_\_\_\_" water meter located at the park at the intersection of Alahao Street and Kaa Street. This meter is off a 6" waterline which runs along Kaa Street and toward the airport area. There are not waterlines between Kaa Street and the Kahului Wastewater Treatment Facility. (See water line map in the Maps section of this report) There are no fire hydrants in the park or along Amala Place and Alahao Street. Existing structures may be under an exemption relative to fire protection. Any new structures or additions to the existing structures may be required to be non-combustible or require an exemption from fire flow requirements from the Water Department and the Fire Department.

There is an 18" gravity wastewater line along Alahao Street from the east corner of the park site to the Kaa Pump Station located on the east side of the Kaliialinui Gulch drainage channel. Wastewater is then pumped via forced main from the Kaa Pump Station to the Kahului Wastewater Treatment Facility along Amala Place. (See wastewater line maps in Maps section of this report). Wastewater laterals can connect to the gravity line but not the forced mains. The two existing restroom buildings in the developed portion of the park is connected to the 18" main via 8" p.v.c. wastewater lines.

A small (1 ½" or 2") line outlets at the east end of the Kahului Wastewater Treatment Facility and is being used for landscape irrigation in the west end of the park. The water line does not reach Kaliialinui Gulch at this time. Recycled water which is treated at the Treatment Facility may be used for irrigation purposes.

Maui Electric Company provides 3-phase power along Alahao Street and services the east end of the park.

Verizon Hawaii provides telephone service at the east end of the park via lines from Alahao Street and Kaa Street. Pay phones are available at the developed park areas.

### **Improvements**

The east end of the park (parcel 119) has been developed over the years since it was transferred via executive order from the state to the county in 1968. The improvements in this east end of the park include:

- landscaping planting / grassing and irrigation,
- paved and graveled parking and roadways with vehicle barriers,
- two restroom buildings,
- a canoe hale,

a cleared designated camp site area,  
signage,  
domestic water service,  
cesspools,  
electrical and telephone service (with pay phones),  
chain link fencing for Parks maintenance and lifeguard service areas,  
chain link fencing at one natural pond ("wetland"),  
outdoor showers,  
trash collection receptacles,  
barbeque grills, and  
concrete picnic tables and benches.

These improvements are located on the east (Paia) end of this portion of the park.

The west end of the park which was more recently transferred (1998), has been improved minimally. The Kalia Inui Channel concrete drainage channel project was completed prior to the transfer by the State of Hawaii as part of the airport improvements. The improvements after the acquisition of the west park parcel by the County include:

clearing of various areas of invasive vegetation and debris,  
replanting of native ground cover and coconut trees,  
installation of landscape irrigation system with a reclaimed and treated water service line from the  
neighboring County's Wastewater Reclamation Facility,  
paved and graveled parking areas, and  
installation of a vehicle barrier around parking areas and along the Amala Place road way.

Most of these improvements have been done by volunteers through the Community Work Day program in conjunction with private and County funding.

### **III. ENVIRONMENTAL CONCERNS**

#### **A. FLOOD INUNDATION AREA**

The park site is in the Flood Zone designated as V23 with a small portion adjacent and east of the Kalialinui Channel designated as A4 on the Flood Insurance Rate Maps (FIRM) Community Panel 150003 0190 D (revised March 18, 1995) prepared by the Federal Emergency Management Agency (FEMA).

The V23 zones are flood areas of 100-year coastal floods with velocities (wave action) and with base flood elevations and flood hazard factors determined. The A4 zones are flood zones of 100-year flood; base flood elevations and flood hazard factors determined. The base flood elevations (BFE) in the flood zones of the park vary from 18' to 20' above mean sea level (MSL). The Flood Zones and the Base Flood Elevations are shown on a Composite Shoreline Setback, Flood Zone, and Wetlands Delineation Map at the end of this section.

Any structures within this zone will be required to be built above the BFE or have "break away" walls complying with flood zone restrictions. As noted by Maui County Planning Zoning Administration and Enforcement Division staff, the lowest structural cross members (such as floor framing or roof beams and fascias) for these building will be required to be above the BFE. Based on this premise (and that the lowest structural cross member is the fascia) and assuming a 10' high fascia, the building pad will need to be located on grades between 8' to 10' above MSL. This is assuming also that all walls and slabs are "break away" construction. This restricts the buildable area to an area bounded to the east by the Kalialinui channel and to the west by the existing unpaved parking lot and close to the roadway. This seems to be the only area high enough with existing grades between 10' and 13' high.

All existing buildings (including their fascias) seem to be below the BFE in the areas they were built. The Planning staff also noted that only 6" of structural fill or cut could be approved by them. For larger cuts and fills, review and approval by FEMA. These existing building could be renovated with construction costs not to exceed 50% of the appraised value of the building. They will accept appraisals from professional appraisers. The renovations do not need to comply with the BFE according to Planning staff. They also noted that there is presently no requirement for a certain amount of time between the renovations.

#### **B. WETLANDS**

A wetlands delineation study included in the report titled "Wetland Delineation For Kanaha Beach Park Expansion Project Master Plan, East Maui, Hawai'i, TMK 3-8-01: 119, Por. 19" was prepared by Ho'olawa Farms (Anna Palomino and Jennifer Crummer) in October 2003 to determine the wetlands areas. A copy of this study is included in the Appendix of this report. This study was subsequently sent to the U.S. Army Corps of Engineers for their review and confirmation. Several wetland areas were delineated and mapped by geographical positioning. Some areas are as large as 4.5 acres in size. The development of these areas is planned to be passive and protective and with no buildings, grading, or paving. The Composite Shoreline Setback, Flood Zone, and Wetlands Delineation Map at the end of this section shows the wetlands determined in the study.

#### **C. FLORA AND FAUNA**

Xamanek Researches (David Paul and Erik Fredericksen) surveyed the park site and prepared the "Biological Resources Survey for the Kanaha Beach Park Expansion Project Master Plan, East Maui, Hawai'i (TMK 3-8-01: 119, Por. 19)" dated December 2002. A copy of this survey is included in the Appendix of this report.

The survey notes several rare plant species which were planted there and are being cultivated. They do not warrant any legal protection. An ongoing plant restoration project conducted by the

Community Work Day program and members of the public will be encouraged to continue and should be coordinated as part of the master planning effort.

The survey notes migratory shorebirds such as the *'ulili* (wandering tattler) and the least sand piper. There were also *ae'o* or Hawaiian stilt (a listed endangered species) and the *kolea* or Pacific golden plover. The habitat for the latter two birds is the wetlands which, as noted above, is planned to be protected. A feral cat population in the area was noted and should be removed for the protection of the protected species in the area.

#### **D. SHORELINE EROSION AND SETBACKS**

The County of Maui adopted late last year the revised Shoreline Rules for the Maui Planning Commission. These rules increased the depth of shoreline setbacks to buildable areas in several beach front areas including the setback in this park. Where originally it was set at 25% of the average lot width or 150' whichever was least, it is now (if greater) set by 50 times the Annual Erosion Hazard Rate (AEHR) plus 20'. The AEHR was set by a study done by the University of Hawaii Sea Grants program. The study shows as much as 4.18' per year of erosion at one transect of the Smoothed Erosion Rate maps for Kanaha and Kahului Harbor in the park's shoreline. A minimum 35' buildable area is allowed from the street frontage. For the west parcel of the park site this amounted to some setbacks up to 229'. Based on this, most of the area of the west parcel of the park site is within the setback area. The Shoreline Setback line was calculated and plotted on the Composite Shoreline Setback, Flood Zone, and Wetlands Delineation Map included at the end of this section.

A "Beach Management Plan For Maui" prepared by the University of Hawaii Sea Grant Extension Service and the County of Maui Planning Department in December 1997 outlines general recommendations for the development of shoreline areas of the county. These recommendations should be followed where applicable, feasible, and practical.

#### **E. COASTAL SCENIC RESOURCES**

The views from the park site are limited on the mauka side as the topography of the site is relatively flat and large trees block most of the view of Haleakala. However, there are numerous significant views from the shoreline to the West Maui mountains and the Waihee coastline. The "Maui Coastal Scenic Resources Study" prepared in 1990 by Environmental Planning Associates notes the West Maui mountains view as "noteworthy" from the Kanaha Park.

#### **F. ARCHAEOLOGICAL SIGNIFICANCE**

"An Archaeological Assessment of Kanaha Beach Park, a c. 75 acre Coastal Parcel of Land in Wailuku Ahupua'a, Wailuku District, Island of Maui" was prepared by Xamanek Researches (Erik Fredericksen) to review any possible archaeological significance of the park site. A walk through reconnaissance was done in late 2002 for this assessment. A copy of this report is included in the Appendix of this report. Two criterion noted for significance evaluation by the DLNR Rules Governing Procedures for Historic Preservation Review (Chapter 275) associated with this site are noted in the report. One is the World War II era building remains (concrete bunkers, rock groins, and the pavilion) and their association with World War II. The other is the possibility of pre-contact subsurface material cultural remains given the coastal location, the presence of freshwater springs, and some findings in surrounding areas.

The recommendation for any future development of the park is a phased archaeological inventory survey to be conducted in areas scheduled for development.

In other references of historic surveys of the site, it noted two buildings of World War II era. They are the group of four small arms magazines located along Alaheo Street near the middle of the park site; and an enlisted men's beach pavilion located on the shoreline near the area across the intersection of Alaheo and Kaa Streets.

The group of arms magazines consists of four 9.5' wide x 14' long x 8.5' high masonry structures with flat roofs and 1' overhangs. Each has one 2" thick tongue and groove wood doors covered with sheet metal and at least two small high openings on each side of the door.

The enlisted men's beach pavilion seems to have been built in 1945 and called "Helani". It was damaged by the tidal wave on April 1, 1946 and subsequently repaired. The remains of the building include twelve lava rock columns (24" square on the corners, 16" square at the interior, nearly 12' high) holding up a wood shingled, wood framed double pitched hip roof structure which has several holes. The dimensions of the building are 25' x 37' with only a remnant of the concrete floor on the mauka side. Lava rock stairs bordered by lava rock walls and piers exist on the west side of the building.



#### IV. CONCEPT DEVELOPMENT

##### A. SITE ANALYSIS

The first step in the master planning of this park site involved recognizing the various parameters which would restrict the developable areas of the park. These parameters are set by government zoning and environmental concerns and regulations.

The **governmental zoning** classifications of the two parcels in the project site include:

State land use designation of *Conservation (Limited sub-zone)*;  
Wailuku-Kahului Community Plan designation of *Park*; and  
County zoning of *Airport*.

The use of the two parcels as a public park is in compliance with the uses allowed within the designated governmental use zones. The parcels are also within the Special Management Area and will require an S.M.A. permit or request for exemption depending on the type and size of development planned in any phase.

The **environmental (and cultural) concerns** include: *shoreline setback rules* of the Maui Planning Commission which address the beach erosion and sand dunes preservation issues, *flood inundation areas* as noted in the Flood Insurance Rate Maps (FIRM) issued by the Federal Emergency Management Administration and regulated by the County Planning Department Zoning Administration and Enforcement Division; *wetland designations* regulated by the federal government through the Army Corps of Engineers, *natural fauna and flora* (native and endangered), and *archaeologically significant sites* (such as burials and cultural deposits).

The *shoreline setback* rules recently adopted in 2003 by the Maui Planning Commission as part of their Rules and Regulations, designated setbacks as follows:

The greater of:

- a. 50 times the "annual erosion hazard rate" (AEHR) plus 20', or
- b. the lesser of :
  - (1) 150', or
  - (2) 25% of the average lot depth

A maximum buildable area on the front property line is provided in these rules and therefore would override any shoreline setback.

The *flood inundation areas* are designated on the Flood Insurance Rate Map – Maui County Panel No. 150003 0190 D dated March 16, 1995. The map shows most of the park site in the V23 flood zone with a small portion on the west end of the east parcel near the drainage channel designated as A4. The base flood elevations (BFE) vary from 18' to 20' above mean sea level. With the existing grades ranging from 0 to 15.7' above Mean Sea Level (MSL), buildings with "break away" walls and fascia (or cross structural members) with maximum heights of 8' to 10' could be built within areas ranging in elevations 10' to 12' above mean sea level. The area west of the Kalialinui channel and bounded on the west by the existing parking area seems to be the only area high enough to meet this criteria. Existing buildings on the site seem to be on grades which are below the 18' and 20' BFE. However, according to Planning Department staff, they could be renovated to 50% of the appraised value of the existing building.

## B. COMMUNITY INPUT

The Parks Department in the summer and fall of 2001 gathered community input for the park planning at four public meetings coordinated by Sue Kiang of the Parks Department Recreation Division. The process of gathering the input included brainstorming of various ideas and elements desired, categorizing the elements, and ranking them in a prioritized list. The following elements were recorded as the higher priority items:

- Visitor center: a multi-use building possibly housing an information center/museum, bulletin board, a ranger/caretaker residence, a community police substation.
- Landscape irrigation system (automatic)
- Restroom and shower facilities: at least two more restroom buildings, improvements to the existing restrooms, and additional shower areas.
- Lifeguard facilities: lifeguard storage and station facility and more towers along beach.
- Lighting: around park, in parking lots and at restrooms.
- Picnic areas: barbeques, picnic tables, concrete ash receptacles, replacement or repair of existing.
- Expansion of park to Wastewater Treatment Facility
- Enhance landscape planting, remove kiawe, replace with endemic and "friendly" plant species, more open space grassed areas
- Concession stands
- Miscellaneous amenities: entrance signage, speed bumps, beach and park access trail, trash receptacles.
- Better planned campsite areas: Quiet, security, privacy, good tent sites, potable water.

## V. CONCEPTUAL MASTER PLAN

### A. GENERAL

The general concept for the development of Kanaha Beach Park is to have it conform to the varied uses of the park and the varied environments existing in the park while responding to the various environmental concerns and governmental restrictions. To accomplish this, this study has outlined the parameters into which the plan could fit.

The very linear park site with a 1.25+ mile long street frontage creates a difficult situation for a single main entrance as a focal point. The Amala Place / Alaheo Street frontage already has at least thirteen roadways into the park site. Some are access driveways to parking areas and others are remnants of old access roads to the beach. As the park is developed, more control of vehicular access is needed. The Community Work Day program has started a project to install vehicular barriers from the County's wastewater treatment facility to the Kalialinui channel. This should be continued either with similar post-and-rail barriers or means, to maintain control along the entire park frontage. Some driveways need to be gated and some need to be closed off.

The length of the park and the concrete Kalialinui channel structure creates a very segmented park. A pedestrian walking/jogging path running the entire park could tie the park together. If wide enough, it could serve as a internal maintenance road as well. Transverse paths could provide access from the parking areas to the beach front, picnic areas, or pavilions.

Based on the restrictive environmental and governmental criteria for buildings and buildable areas, the major focus of the development of the park will be the landscaping and smaller non-impacting amenities. These may include elements such as picnic tables and pads, campsites, pathways, outdoor shower areas, signage, and paved parking areas. A continuation of the project to replant native plants and trees should be continued and integrated into the plan.

The buildable area is very small relative to the park site and only in one area. Fortunately it is near the center of the park and could be planned as somewhat of a focal point for major elements which the community planning committee has envisioned. These included restroom facilities, a visitor center, lifeguard storage, and concession stand.

The existing buildings, whether they are historic (World War II era) or post 1970's, should be renovated as allowed by the present rules. The historic pavilion building with the stone columns and high roof structure could be restored back to a pavilion. The concrete arms magazines could be renovated to create a Parks storage facility for maintenance and / or life guards.

The wetland areas are significant and of considerable areas of the park. These areas are to be maintained as is and fenced to protect them. Educational signage should be provided around the perimeter to inform the public of the value of these areas to our environment.

The existing infrastructure (water, wastewater, power, telephone, etc.) will need to be upgraded to support future development.

Parking, although existing and partially unpaved, will need to be upgraded as well to be paved and in compliance to the parking ordinance. There could also be other parking lots located near the existing concrete bunkers, across the Kaa Street intersection close to the existing pavilion, or at Kaa Point.

### B. PARK AMENITIES

The existing park buildings including the restrooms and canoe hale on the developed east end should be kept and maintained on a regular basis. Renovations to these buildings will be restricted by the Flood Ordinance and that fact that they are all below the Base Flood Elevations. The existing World War II era buildings including the pavilion and the concrete bunkers should be restored and renovated for maintenance storage respectively.

The existing smaller amenities such as picnic tables, outdoor showers, vehicle barriers, trash receptacles, parking area lighting, concrete ash receptacles, and barbeque grilles should be upgraded or maintained. Additional similar amenities need to be added to other picnic and

camping areas as well as for recreational users of the park. As well as additional lifeguard towers along the beach,

A **new park building** or buildings are to be provided at the area west of the Kalialinui channel structure where allowed by the Flood Ordinance. This would be to house a visitor center including restrooms, information display, police office or park ranger office (or residence), and a concession as requested by the community planning committee.

A **paved path** for pedestrian access through out the entire length of the park will tie the park together and could serve as a maintenance roadway with limited vehicular access.

**Campsites** at the existing camp site area and at Kaa Point for permitted camping should be upgraded and provided. These areas should include a pad for portable restroom facilities (as flood regulations would not allow permanent structures), outdoor showers, drinking fountains, barbeques, ash receptacles, and hose bibbs.

**Signage** should be upgraded and provided at proposed developed areas. A signage program for the park should be provided to unify the signage for the park entrances and for directional and informational sign throughout the park.

### **C. LANDSCAPING**

*(RUSSEL GUSHI TO PROVIDE)*

### **D. INFRASTRUCTURE**

*(CARL TAKUMI TO PROVIDE)*

### **E. PARKING**

*(CARL TAKUMI TO PROVIDE)*

### **F. MASTER PLAN DRAWINGS**

#### **1. CONCEPTUAL MASTER PLAN MAP**

*(CALVIN TO PROVIDE)*

#### **2. CONCEPTUAL LANDSCAPE MASTER PLAN MAP**

*(RUSSEL GUSHI TO PROVIDE)*

#### **3. CONCEPTUAL INFRASTRUCTURE MASTER PLAN MAP**

*(CARL TAKUMI TO PROVIDE)*

**VI. PHASING AND BUDGETARY CONSIDERATIONS**  
*(CALVIN TO PROVIDE)*

**A. PRIORITIES FOR PHASING**

**B. PHASE I**

**C. PHASE II**

**D. PHASE III**

**E. PHASE IV**

**F. CONCEPTUAL PHASING MASTER PLAN MAP**  
*(CALVIN TO PROVIDE)*

**G. BUDGETARY COST CONSIDERATIONS**

**VII. MAPS AND PHOTOS OF EXISTING CONDITIONS**

**A. TAX MAP OF PROJECT SITE**

**B. AERIAL TOPOGRAPHIC MAP PREPARED BY R. M. TOWILL CORP.**

**C. MAP OF EXISTING WATER DEPT. OFF-SITE LINES**

**D. MAP OF EXISTING WASTEWATER DIVISION OFF-SITE LINES**

**E. PHOTO KEY MAP AND SITE PHOTOS**



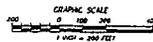


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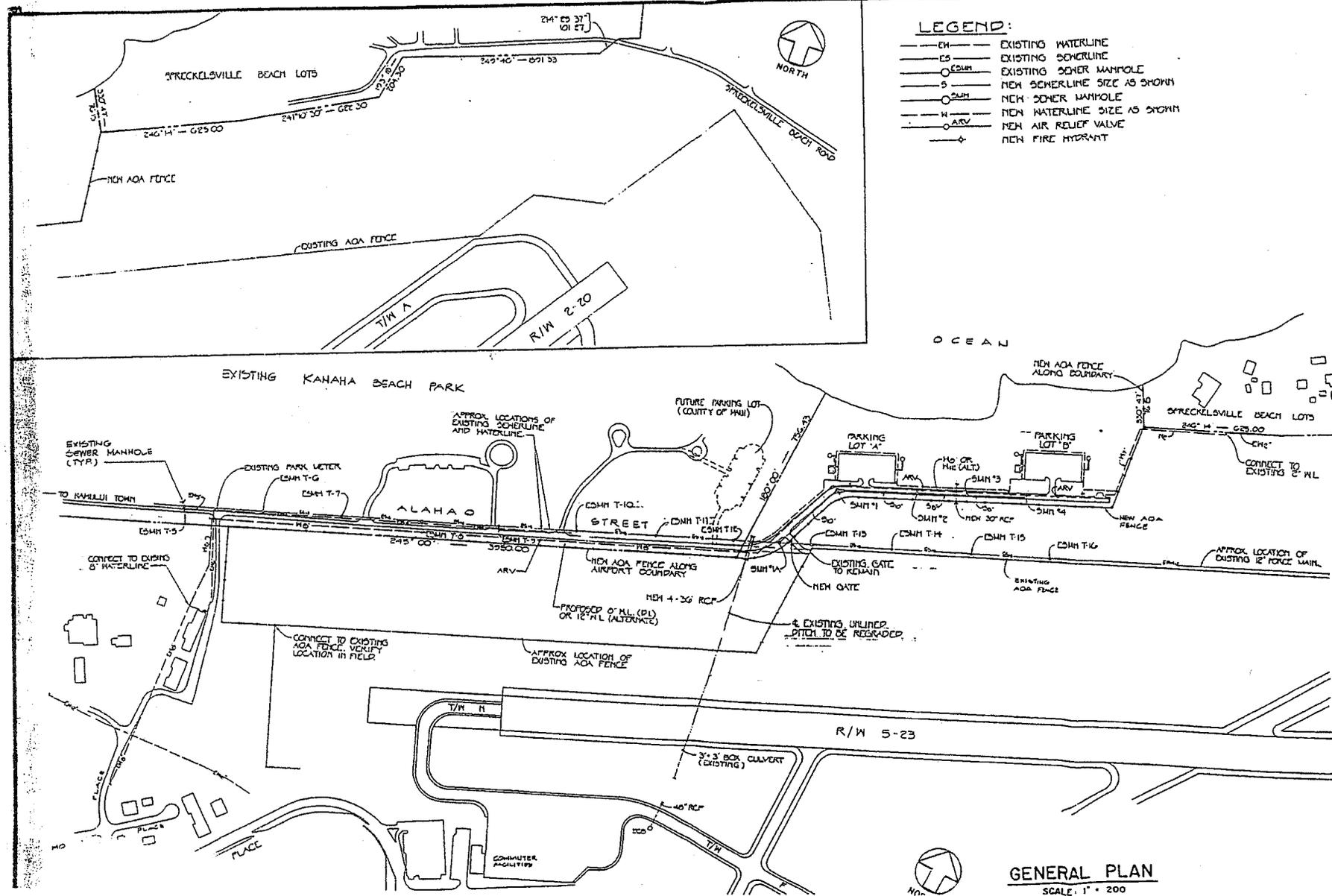
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4. CENTER OF GRAVITY: MEAN SEA LEVEL
5. SPOT ELEVATIONS: MEAN SEA LEVEL
6. PHOTOGRAPHIC DATA: 1958 AS SHOWN ON PHOTOGRAPHIC DATA

7. ALL CONTOURS IN AREAS WHERE NO DATA IS AVAILABLE ARE INTERPOLATED TO BE REPRESENTED AS FOLLOWS: (1) AND (2) SHOWN AS DOTTED LINES

Aerial Topographic Survey  
 Portion of Kaunoha Beach Park  
 at Kahului, Maui, Hawaii  
 TMK: (2) 3-8-01: 119 and Por 19



R. H. T. COMPANY



- LEGEND:**
- EH— EXISTING WATERLINE
  - ES— EXISTING SCHERLINE
  - EXISTING SCHER MANHOLE
  - S— NEW SCHERLINE SIZE AS SHOWN
  - NEW SCHER MANHOLE
  - W— NEW WATERLINE SIZE AS SHOWN
  - ARV— NEW AIR RELIEF VALVE
  - ♦— NEW FIRE HYDRANT



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

R. T. TANAKA ENGINEER  
 871 KOWA STREET, #2  
 HONOLULU, HAWAII

DSGN. DRWN. C

KEY PLAN /

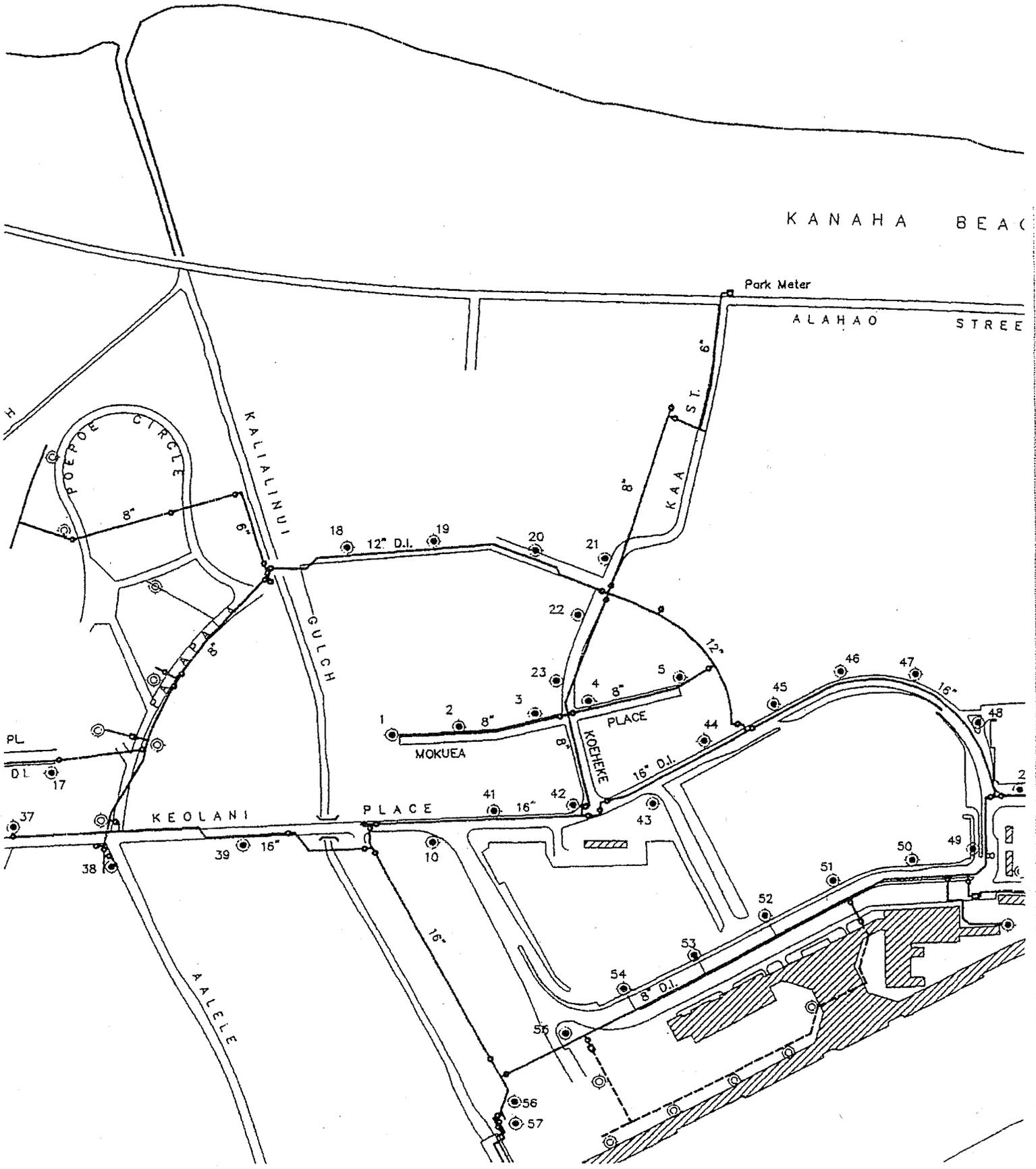
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**PROJECT M**  
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GENERAL

**GENERAL PLAN**  
 SCALE: 1" = 200'



KANAHA BEACH

Park Meter

ALAHAO STREET

KALIALINUI

GULCH

KAA ST.

POEPOE CIRCLE

KEOLANI PLACE

PLACE

PLACE

MOKUEA

KOHEHE

AALELE

PL

DL

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12" D.I.

8"

6"

8"

6"

8"

12"

8"

16" D.I.

16"

8"

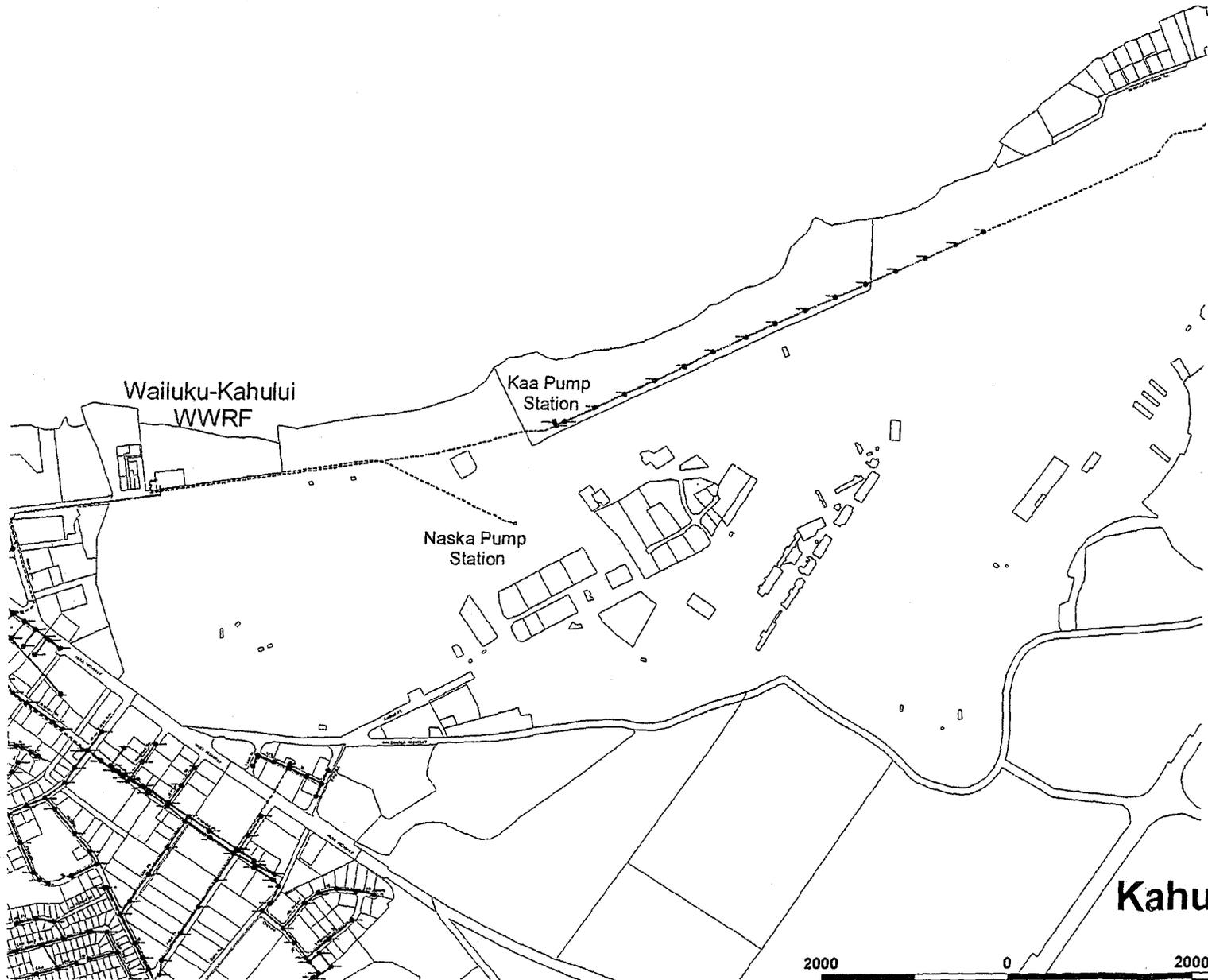
8"

16"

16"

8" D.I.

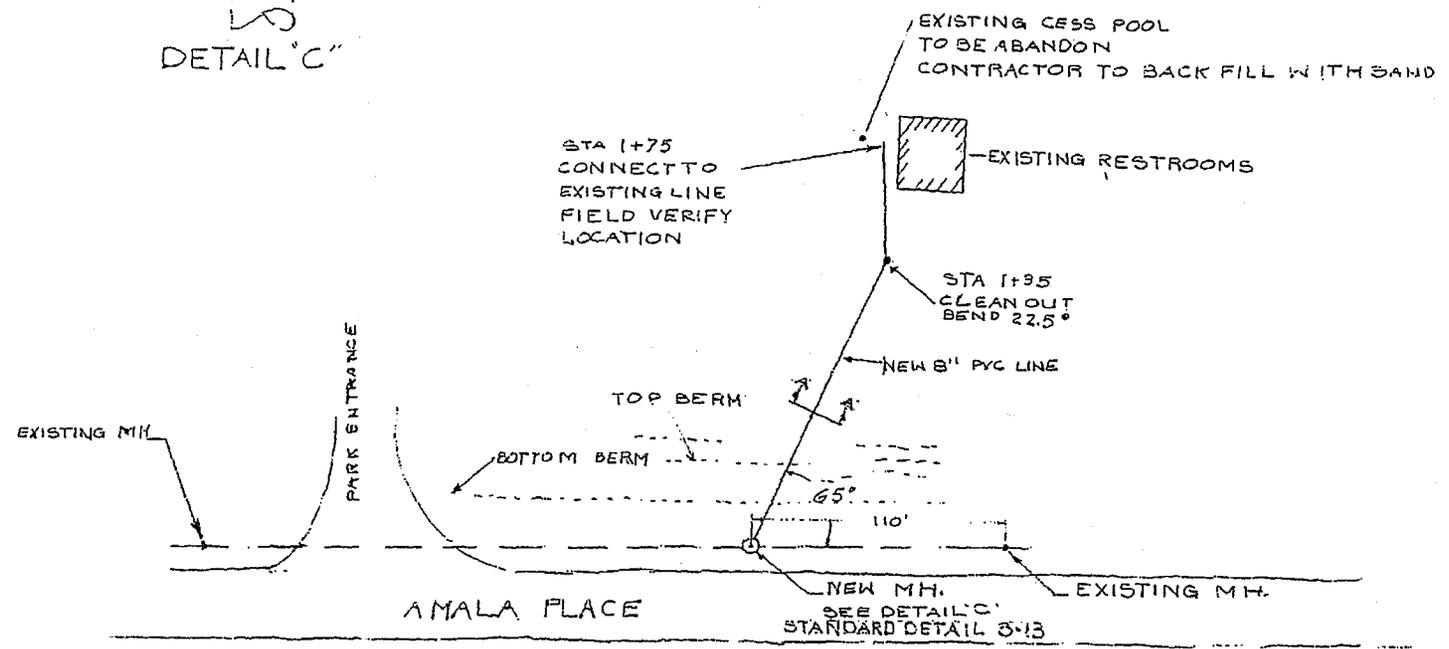
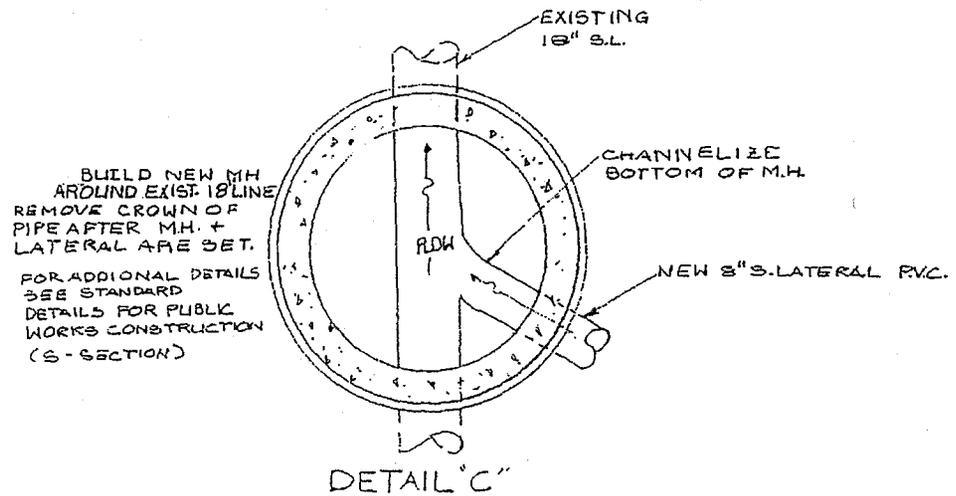
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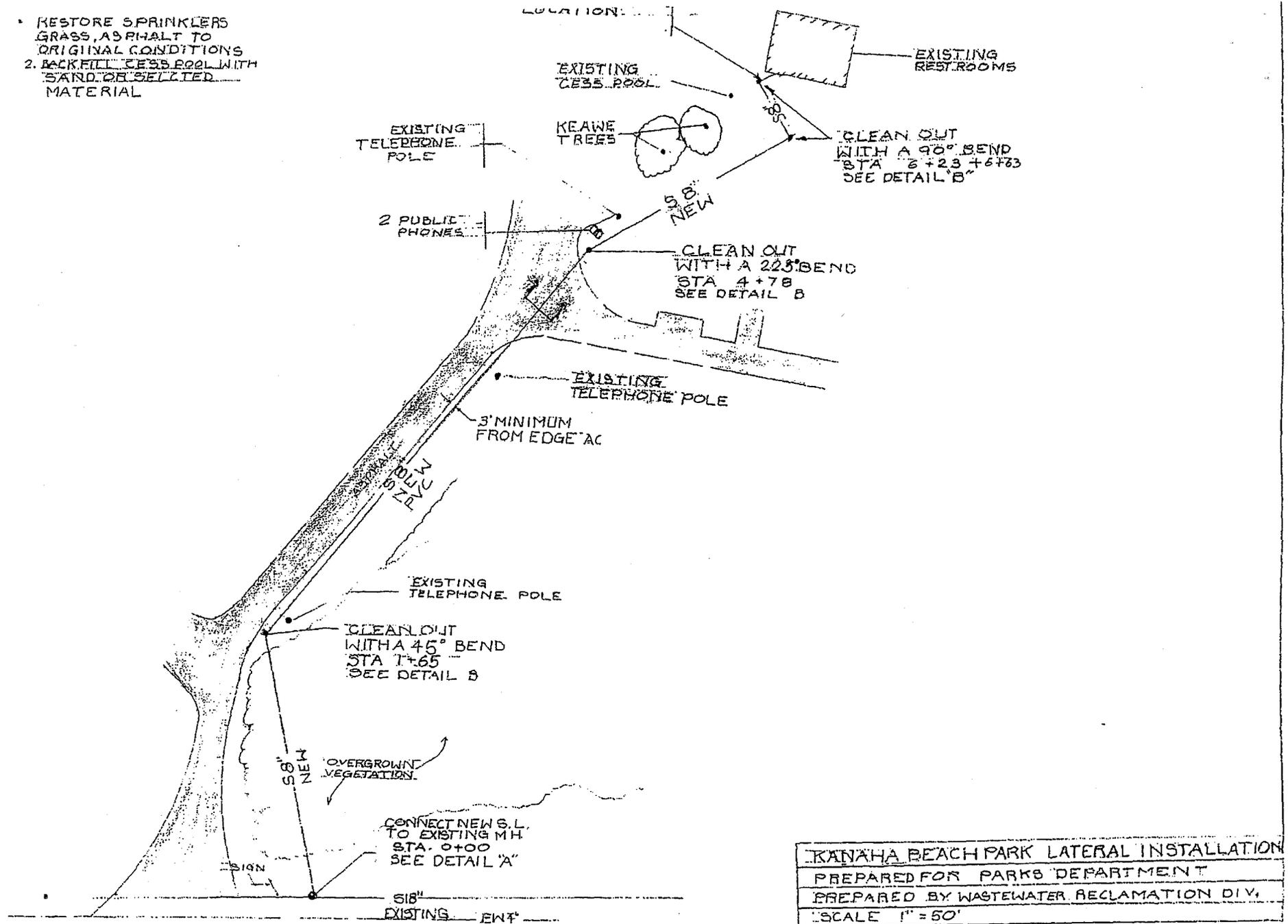
- Sewer Manhole
- Force Main
- - - Sewer line
- SEWER PLANS**
- ▲ Airport Industrial Subdivision, Kahului
- ▲ Alamaha Street Sewer Improvements, Kahului
- ▲ Field Verify
- ▲ First Hawaiian Bank Subdivision, Offsite Improvements
- ▲ Hawaiian Baptist Mission Sanitary Sewer System
- ▲ Kahului Industrial Park - Phase IB, Offsite Sewerline
- ▲ Kahului Industrial Park No. 2, Kahului
- ▲ Kahului Industrial Park, Phase IA, Maui Market Place
- ▲ Kahului Sewer System, Job No. 145
- ▲ Kahului Subdivision 1st Increment, Kahului
- ▲ Kahului Subdivision Fourth Increment, Kahului
- ▲ Kahului Subdivision Second Increment, Kahului
- ▲ Kahului Subdivision Third Increment, Kahului
- ▲ Kahului Town Development, Kūihelani Subdivision Unit
- ▲ Kahului Town Development, Kūihelani Subdivision, Kahu
- ▲ Kahului Town Development, Offsite Improvements, Sit
- ▲ Kamehameha Avenue Extension
- ▲ Kamehameha Parkway Subdivision No. 2, Kahului
- ▲ Kamehameha Parkway Subdivision, Kahului
- ▲ Maui Industrial Park No. 3, Kahului
- ▲ Maui Industrial Park, Kahului
- ▲ Sewerlines, Maui Beach Hotel, Kahului
- ▲ Store Village Subdivision, Kahului
- WW Pump Station or Treatment Plant





KANAHA BEACH PARK. LATERAL INSTALLATI
PREPARED FOR PARKS DEPT. BY WASTEWATER REC. D
WEST REST ROOMS

- RESTORE SPRINKLERS GRASS, ASPHALT TO ORIGINAL CONDITIONS
- BACKFILL CESS POOL WITH SAND OR BELTZED MATERIAL



KANAHA BEACH PARK LATERAL INSTALLATION
PREPARED FOR PARKS DEPARTMENT
PREPARED BY WASTEWATER RECLAMATION DIV.
SCALE 1" = 50'

**VIII. APPENDIX**

- A. ARCHAEOLOGICAL ASSESSMENT OF KANAHA BEACH PARK prepared by Xamanek Researches
- B. BIOLOGICAL RESOURCES SURVEY FOR THE KANAHA BEACH PARK prepared by Xamanek Researches
- C. WETLANDS DELINEATION STUDY prepared by Ho'olawa Farms (Anna Palomino)
- D. MINUTES OF COMMUNITY PARK PLANNING COMMITTEE MEETINGS prepared by Sue Kiang, Maui County Dept. of Parks & Recreation
- E. LIST OF OTHER REFERENCES
- F. PROJECT DIRECTORY

**AN ARCHAEOLOGICAL ASSESSMENT OF KANAHA  
BEACH PARK, A C. 75 ACRE COASTAL PARCEL OF  
LAND IN WAILUKU *AHUPUA*'A,  
WAILUKU DISTRICT, ISLAND OF MAUI  
(TMK: 3-8-01: 119 and Por. 19)**

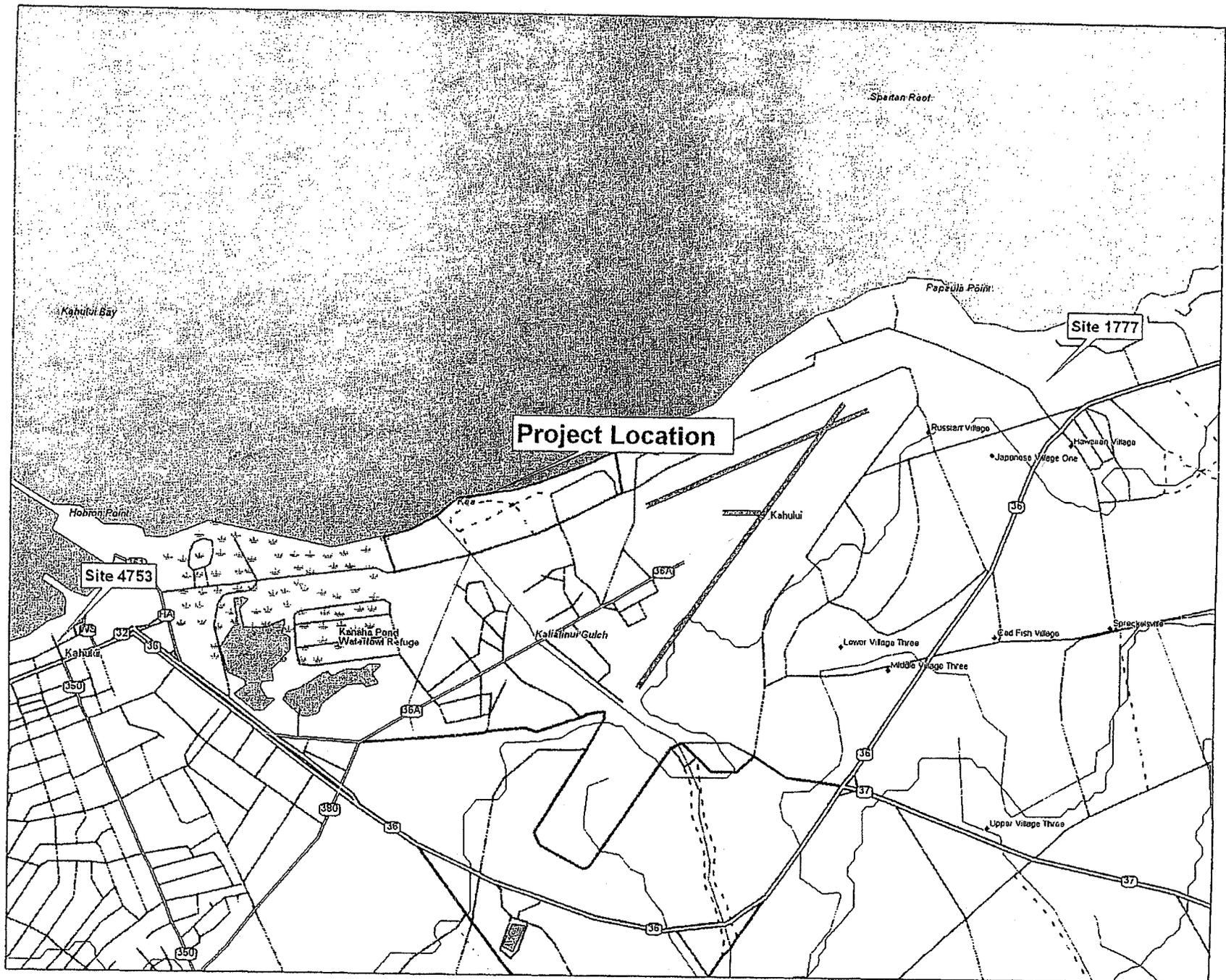
**Prepared for:**

**Mr. Calvin Higuchi, AIA  
Wailuku, Maui**

**Prepared by:**

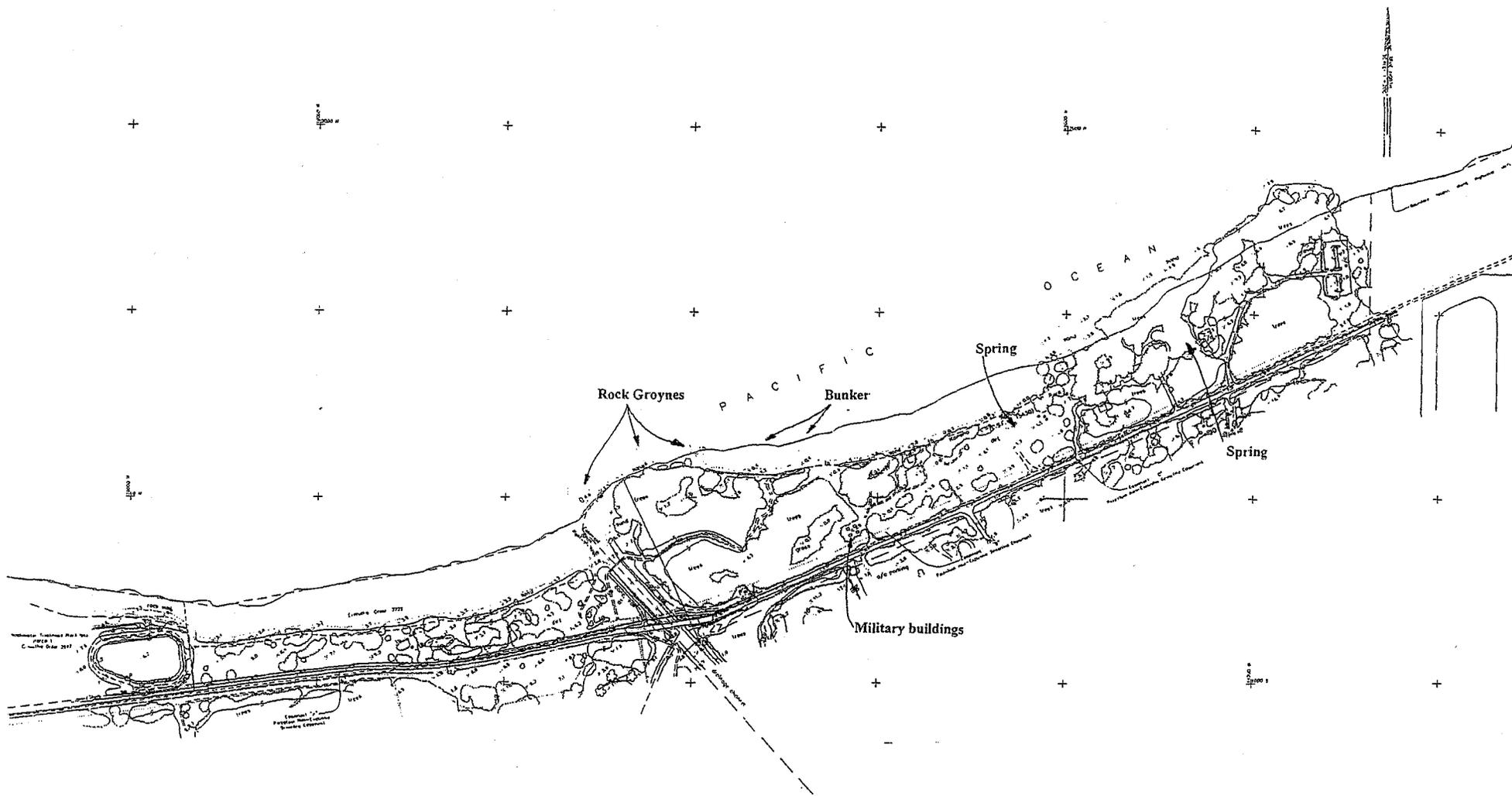
**Erik Fredericksen  
Xamanek Researches  
Pukalani, Maui**

**17 February 2003**



© 2001 DeLorme. Topo USA® 3.0  
 Scale: 1 : 28,125 Zoom Level: 12-7 Datum: WGS84 Map Rotation: 0° Magnetic Declination: 10.1°E

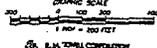
2,000 ft



- NOTES:
1. SCALE: 1"=100'
  2. CONTOUR INTERVAL: 5'
  3. HORIZONTAL DISTANCE: MEASURED AS SHOWN
  4. CURVES OF COORDINATES: MEASURED AS SHOWN
  5. COULDER FROM PHOTOGRAMMETRIC RECORDS
  6. THIS PHOTOGRAMMETRIC DATA IS TO BE USED AS A CHECK ON THE FIELD DATA

ALL CONTIGUOUS AREAS UNDER THE CONTROL OF THE BUREAU OF LAND MANAGEMENT, HONOLULU, HAWAII, ARE TO BE CONSIDERED AS BUREAU PROPERTY.

Aerial Topographic Survey  
 Portion of Konaha Beach Park  
 at Kahului, Maui, Hawaii  
 TMK: (2) 3-B-01: 119 and Por 19



U.S. GOVERNMENT PRINTING OFFICE: 1963 O 550-100

125 (Supplement) Aug. 1964 111  
 Hawaii, Hawaii, 96711  
 U.S. GPO: 1964 O 550-100

Figure 2: Plan view of the project area.



## INTRODUCTION

Mr. Calvin Higuchi, AIA, of Hiyakumoto Higuchi Architects, Inc. contacted Xamanek Researches in the Spring of 2002 about conducting an archaeological assessment of a c. 75 acre coastal parcel that is owned by the County of Maui. The purpose of this study would be to assess the cultural resources that are present on the project area. This assessment, along with a biological resources survey and a wet land determination would be used in the development of a long range plan—the Master Plan for the Kanaha Beach Park Expansion. We were asked to submit a proposal for the necessary work, and were subsequently awarded the contract to conduct the assessment study.

This elongated portion of coastal land lies in Wailuku *ahupua`a*, Wailuku District, Maui (Figures 1-3). This c. 75 acre portion of land is composed of the existing Kanaha Beach Park as well as vacant land that lies adjacent to and southwest of the developed beach park (TMK 3-8-01: 119 and Por. 19). Much of this vacant land is currently used for informal beach access as well as by windsurfing and kite surfing schools. This undeveloped coastal land lies *makai* of Alahao Street and extends southwest from Kanaha Beach Park to the County of Maui Wastewater Treatment Plant facility.

## ENVIRONMENTAL SETTING

As previously noted, the project area consists of a coastal portion of land on the North Shore of Maui. While there was no subsurface investigation undertaken, it is apparent that coastal beach and sand dune deposits are contained throughout the study area. Portions of the study area were modified during World War II, and several areas of reddish brown (5 YR 4/3) silty clay fill were noted. In addition, some more recently filled areas were also observed during the walkover. Some coastal areas contain what are interpreted as rock groynes that were built during World War II. However, much of the project area is comparatively undisturbed. Three biological communities were identified

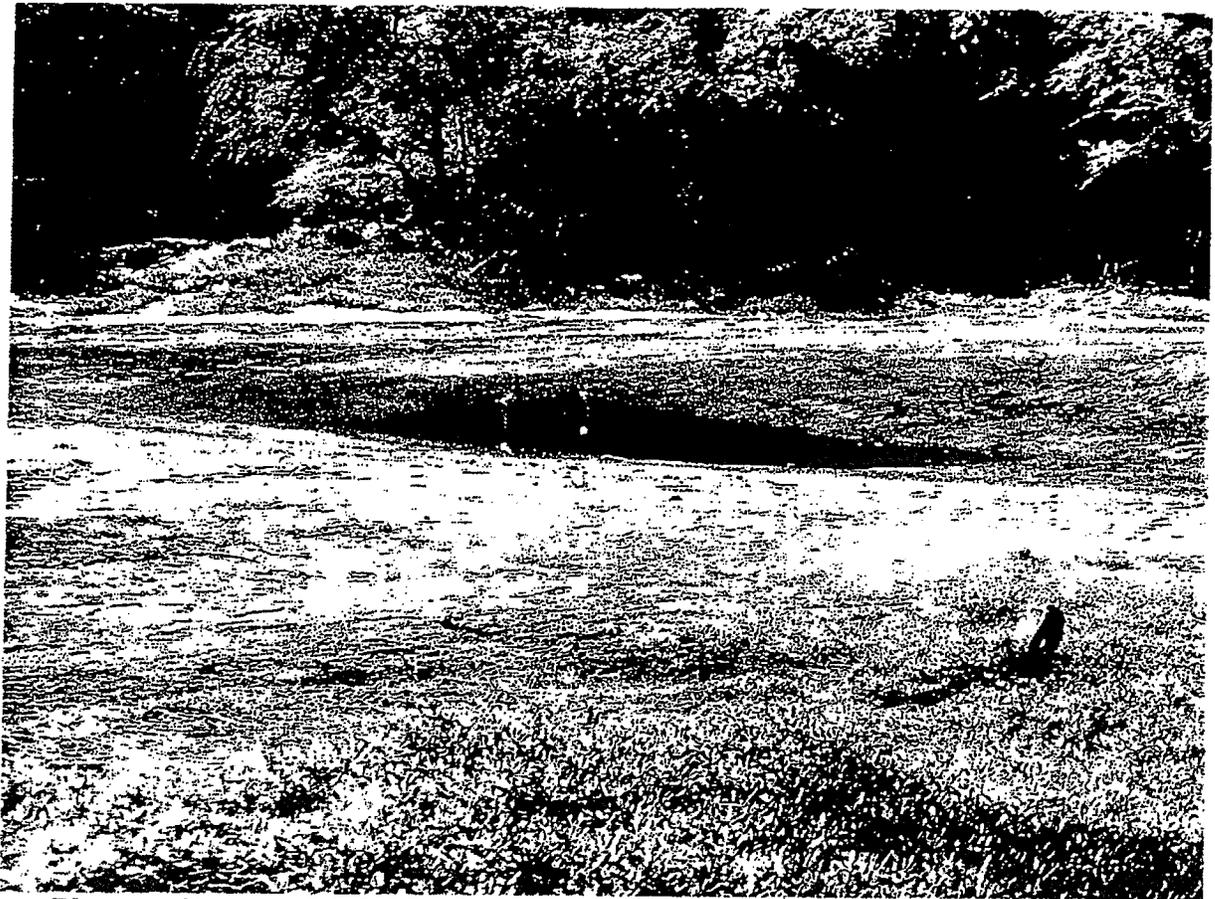
in the project area: Beach Strand, Salt Marsh, and Coastal Dry Forest (D. Paul, December 2002).

The Beach Strand community consists of a strip of land just behind the coastline along the entire project area. Vegetation in this area consists of salt tolerant species. The flora in this community is dominated by 'aki'aki (Sporobolus virginicus), an indigenous grass. Other vegetation noted included *naupaka kahakai* (Scaevola sericea), *pohuehue* (Ipomoea pes-caprae subsp. brasiliensis), 'akulikuli (Sesuvium portulacastrum) and 'ohelo kai (Lycium sandwicense). The Beach Strand community supports various migratory shorebirds, including the 'ulili or wandering tattler (Heteroscelus incanus) and the least sandpiper (Calidris minutilla).



**Photo 1 – Portion of beach strand—looking to the west.**

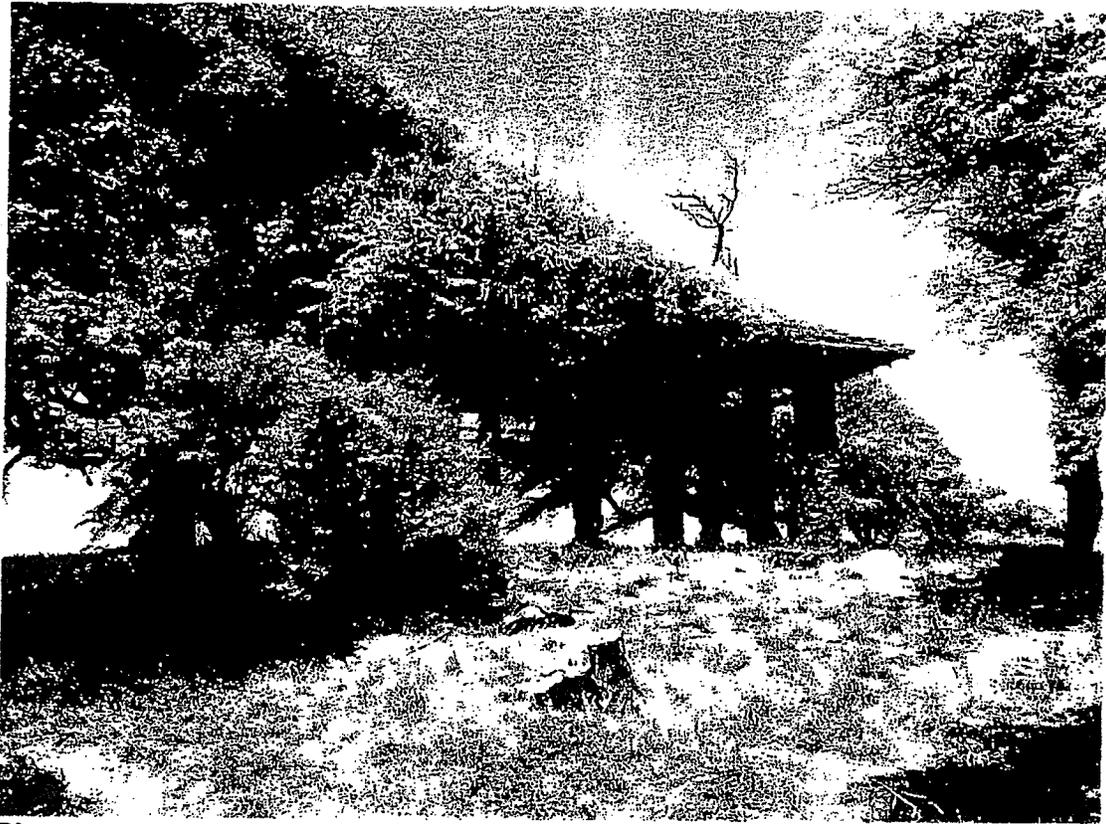
The Salt Marsh community occurs in the central part of the project area and is essentially a wetland habitat. Salt Marsh vegetation is dominated by 'akulikuli and the invasive alien pickleweed (Batis maritima). 'Ohelo kai and *nena* (Heliotropium curassavicum) were also found in some scattered patches here. This community lies inland of the Beach Strand.



**Photo 2 – Portion of Salt Marsh community. Note *ae`o* in pond at center.**

Coastal Dry Forest represents the largest community in the Kanaha Beach Park project area. The non-native *kiawe* (*Prosopis pallida*) tree dominates this community and essentially delineates its' extent. This community extends inland from the Beach Strand to the Kanaha Beach Road, skirting the Salt Marsh areas. Various non-native grasses and weeds are also contained in this area.

The coastal study area ranges from just above sea level in a probable wet land to nearly 13 feet AMSL in an area that appears to contain some imported fill. This windward portion of Maui receives an estimated 30 inches of annual rainfall.



**Photo 3 – Portion of Coastal Dry Forest community. Note abandoned Girl Scout pavilion in center.**

## **BACKGROUND INFORMATION**

### **Previous archaeology at Kanaha Beach Park**

There has been no systematic subsurface archaeological investigation conducted on this c. 75 acre coastal project area. While an estimated 1.75 acres of the developed western portion of the park was studied in the spring of 1993, there was no subsurface testing carried out at this time (Kennedy, et al., 1993). This earlier inventory survey consisted of only a surface walk over, and did not identify any surface site remnants.

While no above ground components of precontact coastal habitation areas were noted during the current assessment of the Kanaha Beach Park area, it is important to point out that it is quite possible that subsurface material culture remains and /or burials could be present. This possibility is based on the project's coastal location and the presence of dune and marine sand deposits on the study area.

## Settlement Pattern and Land Use

The project area lies in a portion of Wailuku *ahupua`a* that is somewhat isolated from the Iao Valley and Iao/Wailuku Steam area. Consequently, the typical *ahupua`a* settlement pattern, which would include coastal habitation areas with associated burials, inland agricultural areas including irrigated *kalo* fields near the stream, and dry land agricultural sites and habitation areas further inland does not directly apply. However, given the parcel's coastal location, the presence of two possible freshwater springs and the proximity of Kanaha Pond, it appears possible that the Kanaha Beach Park area may have been utilized for marine resource exploitation, habitation, burial and/or ceremonial functions.

## Possible site types contained in the project area

Given the subject parcel's coastal location, the presence of substantial dune and marine sand deposits, as well as what appear to be two freshwater springs, it is probable that the area was formerly utilized by precontact Hawaiians. Surface evidence of such usage has likely been altered by post-contact earth moving activities, most notably by the military during World War II. However, it is quite possible that remnants of subsurface cultural layers associated with former coastal occupation could be present. Two coastal studies in the near vicinity of Kanaha Beach Park—one to the southwest and one to the northeast—support the above hypothesis (Figure 1).

Xamanek Researches carried out an archaeological monitoring program on a parcel of land within 2 km to the southwest of the Kanaha Beach Park project area (Fredericksen and Fredericksen, 1999). This portion of land borders Kahului Harbor (TMK 3-7-08: Por. of 4 and 6). During the course of the monitoring program, a subsurface waterworn pavement with associated marine shellfish food remains and 2 artifacts was identified (Site 50-50-04-4753). This site was located near the County of Maui right-of-way during the installation of irrigation lines for a hedge. While it was not possible to obtain a charcoal sample for analysis, there were no recognizable post-contact trade goods located during the course of mitigation work, suggesting that this habitation area represented a precontact to early post-contact site, rather than a more recent feature.

The B. P. Bishop Museum conducted archaeological monitoring for a sewer line installation project for the Spreckelsville/Kuau area in 1987 (Clark and Toenjes, 1987). One previously unidentified precontact habitation area—Site 50-50-05-1777—was identified during the course of monitoring on the southwestern side of Spreckelsville,

which lies c. 2 km to the northeast of the Kanaha Beach Park project area.<sup>1</sup> Two radiocarbon samples were obtained from Site 1777, indicating mid-precontact to early post-contact use. One shallow (less than 15 cmbs) charcoal sample from this subsurface cultural layer returned a radiocarbon date range of 1420-1810, 1845-1885 and 1920-1950 (Ibid., p. 40). In addition, 4 volcanic glass flakes were analyzed and yielded date ranges of 1565-1585 and 1655-1735. Finally, a hearth feature from c. 25 cmbs yielded a precontact date range of A. D. 1340-1650. Recovered material culture remains consisted of marine shellfish, volcanic glass, lithic and coral artifacts, a sea urchin spine abrader, and a fishhook, indicating precontact marine resource use and habitation activities at Site 1777.

Both of the above projects lie in coastal settings similar to the Kanaha Beach Park study area. The Kahului Harbor area—Site 4753—has been heavily modified, while the Stables area—Site 1777—has been utilized to raise horses for many years. However, it is important to note that the Kahului Harbor and Stables parcels while they have been impacted by post-contact activities nevertheless contain remnants of subsurface habitation deposits. While the Kanaha Beach Park study area has been impacted by various post-contact activities, it remains possible that it may contain subsurface habitation components.

## Settlement Pattern and Land Use

The lower Iao Valley portion of Wailuku *ahupua'a* was a central political and religious area of West Maui. The Wailuku Stream was one of the *na wai 'eha*, or “the four waters”—the 4 major rivers which drain from the West Maui mountains. Because of its fertile taro lands and close proximity to the sea, the region supported a large population. In Hawaii wherever large population clusters are found, the social framework of chiefly importance and religious expression are typically present. This social and religious importance is supported by the existence of the 2 *heiau* (Haleki'i and Pihana) on the ridge of the northern dune system, as well as others reported by Walker (1931) and Keau (1992, oral communication) within the Iao/Wailuku Stream area. The middle and upper reaches of Iao Valley were also rich in *lo'i* and *'auwai*, which produced additional food to support political and religious activities, along with a larger population. Coastal habitation sites, such as Site 3120 and Site 5001 have been occupied since the 1200s (and possibly much earlier), and no doubt provided the population complex in the immediate area with marine resources.

The area to the southeast of Iao/Wailuku Stream—central Maui—is a part of the island that apparently was not used extensively in precontact times, because it was drier and less hospitable. Given such an arid climate and resultant poor soil conditions, one would not expect large permanent settlements to occur in these inland areas. A constant water supply was not available, which would provide for agricultural activities necessary to support permanent habitation. None of the archaeological studies conducted in the dry

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<sup>1</sup> Other coastal habitation areas as well as burials were located further to the northeast of Site 1777, but are not discussed in this assessment report.

inland portions of the Pu'uone dune complex that are isolated from freshwater resources have produced midden or architectural features that suggest habitation activities. In contrast, the literature is replete with references to human burials in the dry inland dune areas that are isolated from water sources.

Given the presence of what appear to be at least two freshwater springs on the Kanaha Beach Park study area, it appears probable that this portion of the coast could well have supported Hawaiian coastal fishing camps that harvested marine resources in precontact times. It is also interesting to briefly mention the concrete drainage channel that passes through Kanaha Pond and exits through a portion of the Park property. This drainage channel apparently partially caps a spring, which occasionally percolates through the concrete lining near the channel outlet at the ocean (Forest Starr, personal communication). The presence of this possible spring further reinforces the notion that this coastal area was not isolated from freshwater sources, and that the project area could have been utilized by Hawaiians in the past.

## FIELD METHODS

A pedestrian inspection of the entire project area was undertaken on 9 and 10 November 2002. This surface walkover utilized sweeps that were c. 5 meters apart and approximately paralleled the shoreline. Surface visibility tended to range from poor to good, and was dependent upon vegetative cover. In addition to pedestrian sweeps, the walkover also utilized inspections of wave cut coastal areas as well as any disturbed portions of the study area, where it was possible to inspect exposed stratigraphy. Erik Fredericksen and David Paul carried out the fieldwork. Notes were kept during the surface walk over, possible sites were located on a field map, and photographs were taken with a digital camera. Erik Fredericksen was also the project director for this assessment level study.

## RESULTS

One previously unidentified surface archaeological site was located during this archaeological assessment of the c. 75 acre project area. This site consists of several features associated with former World War II era activities that occurred on the study area (see Figure 2). These features include four small buildings that parallel Alahao Street. These buildings were being used as informal shelters by transients at the time of the walkover. Other noted World War II era features include 2 concrete bunkers that lie c. 10 meters *makai* of the existing shore line, as well as several rock groynes that extend c. 10-20 meters from the present beach (Photos 4 & 5). This complex likely qualifies for importance under multiple significance criteria.

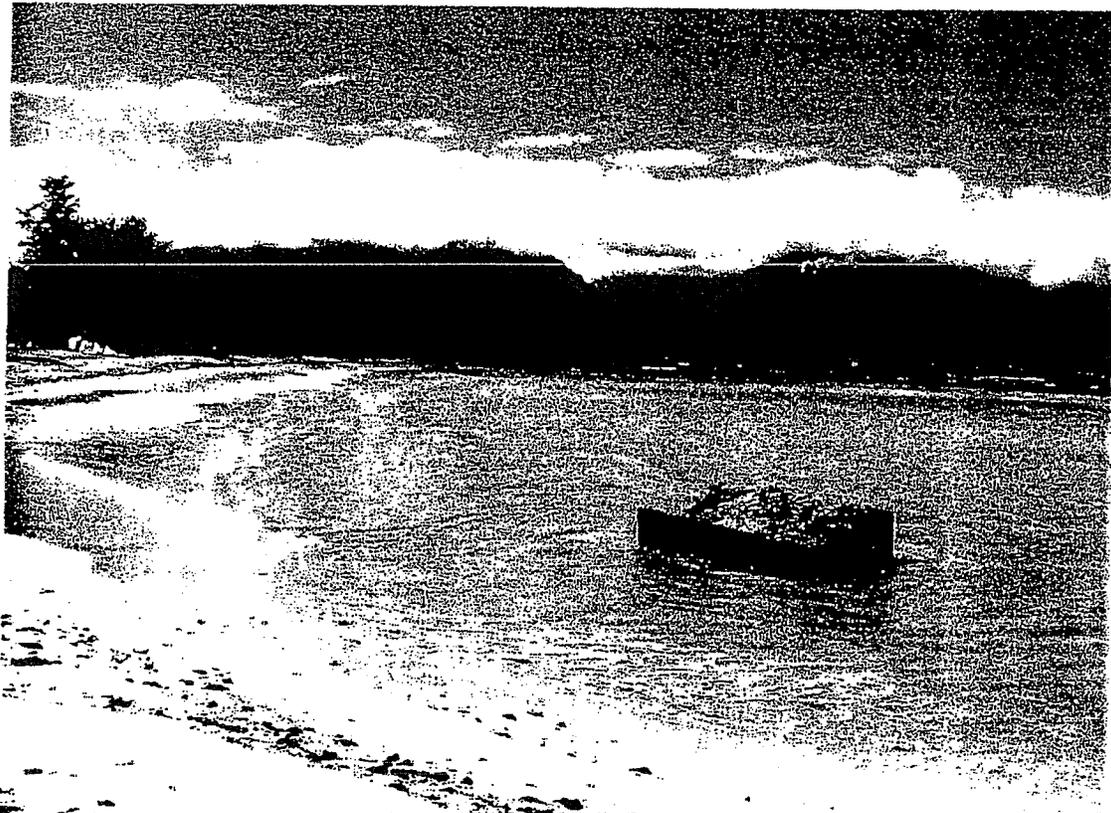
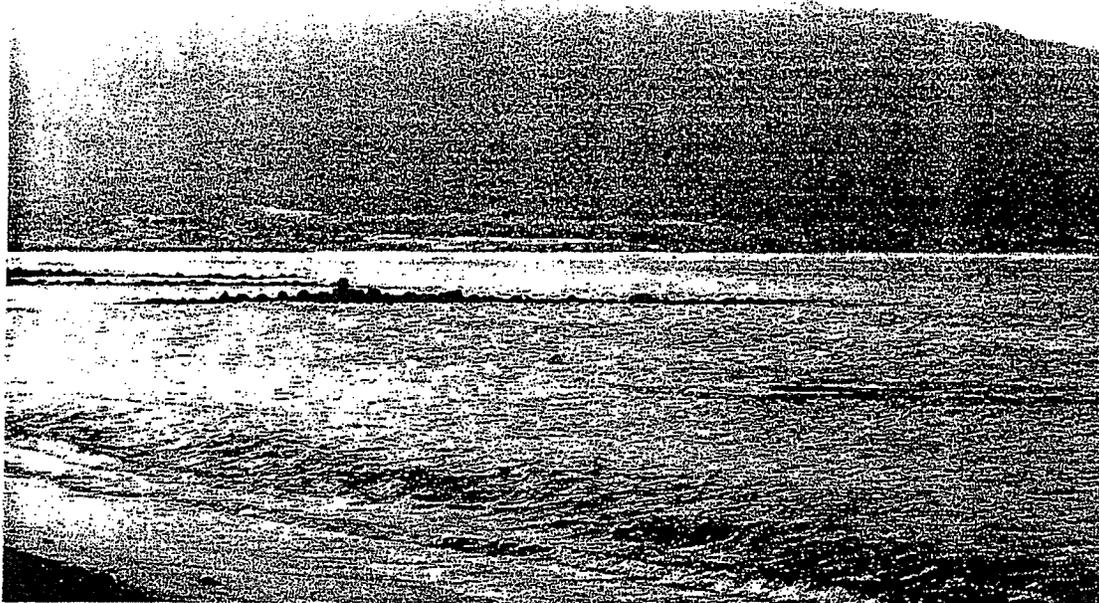


Photo 4 – Photograph of partially submerged bunker, view to the west.



**Photo 5 – Note rock groynes at left center and submerged bunker to the right.**

The following significance evaluations are based on the Rules Governing Procedures for Historic Preservation Review (DLNR 1996; Chapter 275). According to these rules, a site must possess integrity of location, design, setting, materials, workmanship, feeling and association and shall meet one or more of the following criteria:

**Criterion “a”**—Be associated with events that have made an important contribution to the broad patterns of our history;

**Criterion “b”**—Be associated with the lives of persons important in our past;

**Criterion “c”**—Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;

**Criterion “d”**—Have yielded, or is likely to yield, important information for research on prehistory or history;

**Criterion “e”**—Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts.

Sites can be considered no longer significant when they qualify only under Criterion "d" and sufficient information has been collected from them during inventory survey level investigation. Components of the Naval Air Station complex are significant under Criterion "a" because of their association with the war and Criterion "d" for their information content. Further work on this site is needed, however, including mapping and recordation.

While there was no subsurface investigation undertaken during this assessment survey, the presence of at least two probable freshwater springs strongly suggests that the project area had a supply of freshwater in the past as well. While it remains unknown if this water is potable at present, it is interesting to note that freshwater aquatic life such as guppies, Bufo tadpoles, various insects and plants were present in each of the probable springs at the time of our survey. Given the coastal location of the project area and the presence of these freshwater springs, it appears possible that there may be significant precontact subsurface material culture remains present in portions of the Kanaha Beach Park project area.

Given the possibility that significant precontact material culture remains may be present in portions of the project area as well as the existence of the World War II era site, it is recommended that a phased archaeological inventory survey be conducted in areas scheduled for future Park development. It should be possible to accommodate significant cultural resources that may be encountered, due to the configuration of this coastal area.

## References:

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- Paul, David  
December 2002 Biological Resources Survey for the Kanaha Beach Park Expansion Project Masterplan, East Maui, Hawaii (TMK: 3-8-01: 119, Por. 19), prepared for the County of Maui, Department of Parks and Recreation, by Xamanek Researches, Pukalani, HI.

**BIOLOGICAL RESOURCES SURVEY  
FOR THE  
KANAHA BEACH PARK EXPANSION PROJECT  
MASTER PLAN  
EAST MAUI, HAWAI'I (TMK 3-8-01: 119, POR. 19)**

**Prepared for:**

**County of Maui  
Department of Parks and Recreation  
Wailuku, Maui**

**Prepared by:**

**David Paul  
Xamanek Researches  
Pukalani, Maui**

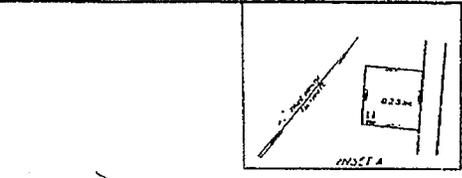
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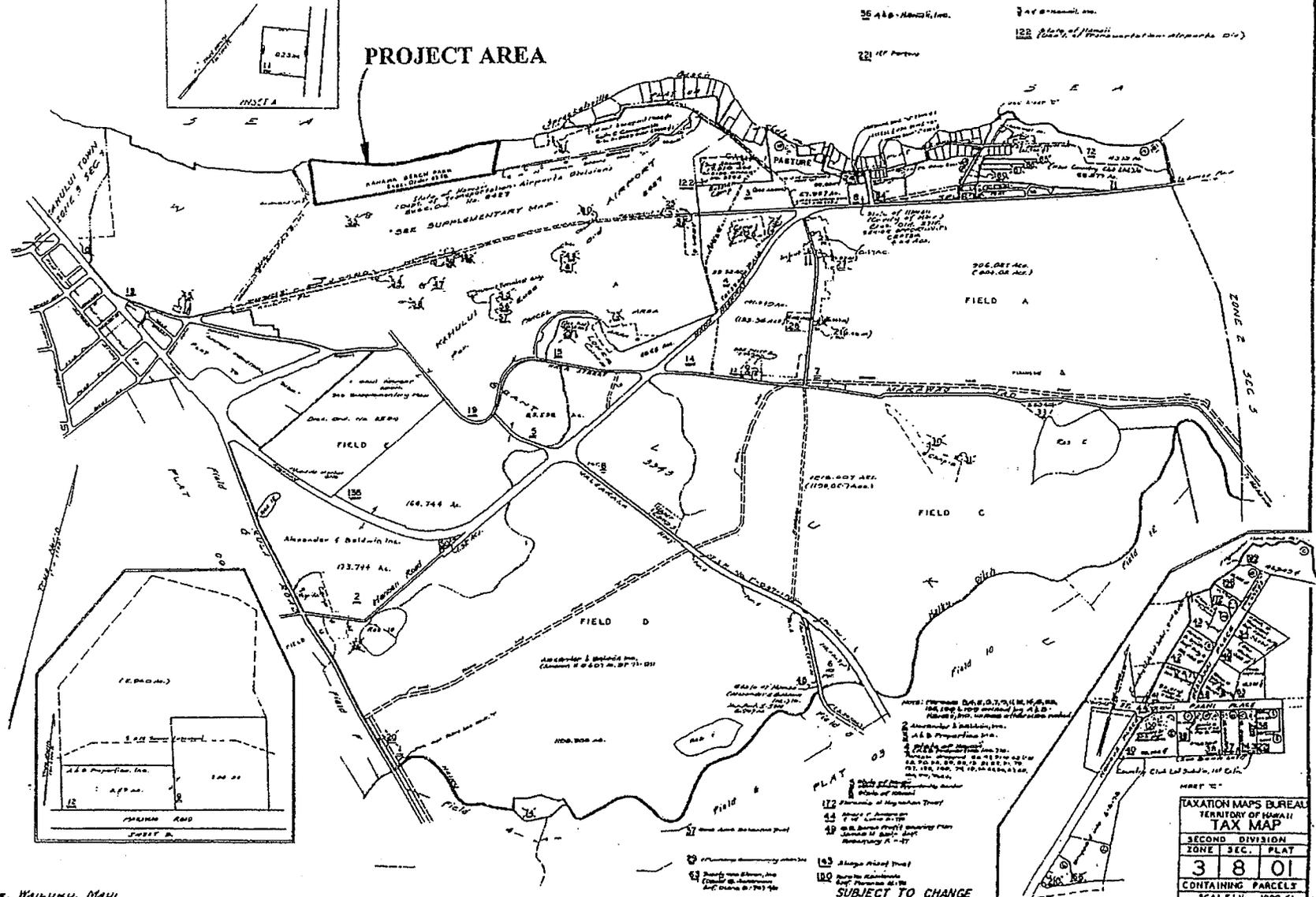
© 2001 DeLorme. Topo USA® 3.0  
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21 Approved by the Board of Taxation on 11/19/83  
By: D.E.C. & H.N. Jones, JRE



### PROJECT AREA



36 418 - Hawaii, Inc.  
747 - Hawaii, Inc.  
122 122 - Hawaii, Inc. (Hawaii State Airport Authority)

F.B. WAILUKU, MAUI

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TAXATION MAPS BUREAU		
TERRITORY OF HAWAII		
TAX MAP		
SECOND	DIVISION	
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CONTAINING PARCELS		
SCALE 1" = 1000 FT.		

SUBJECT TO CHANGE

## BIOLOGICAL RESOURCES SURVEY

### SUMMARY:

Three Unique Biological Communities occur in the project area: Beach Strand, which lies in the Special Management Area that borders the coastline and supports migratory shorebirds, including *ululi* or wandering tattlers (*Heteroscelus incanus*) and least sandpipers (*Calidris minutilla*); Salt Marsh, which is a Wetland habitat that supports the migratory *kolea* or Pacific golden plover (*Pluvialis fulva*) and the Listed Endangered *ae o* or Hawaiian stilt (*Himantopus mexicanus knudseni*); and Coastal Dry Forest, which is dominated by the alien *kiawe* tree (*Prosopis pallida*). The *kolea* or Pacific golden plover was found frequenting open areas throughout the project area.

The Beach Strand and Salt Marsh communities are protected habitats that support protected organisms, which will require consideration for planning in the actions of the project.

### INTRODUCTION:

On November 8 & 9, 2002, a Biological Resources Survey for the Master Plan of the Kanaha Beach Park Expansion Project in East Maui, Hawai'i, was conducted by David Paul and Erik Fredericksen of Xamanek Researches.

The survey provided information necessary to describe the vegetation and macrofauna in the area and determine if any species of vascular plant, animals or specific habitat found there is protected under Federal or State Law, and would require consideration for planning in the actions of the project.

### METHODS:

The survey was conducted by traversing the borders of the project area, and meandering through it. Every species of vascular plant and macrofauna encountered in the area were recorded. Each species of plant occurring there was placed into a Unique Biological Community. Identifying unique communities helps to locate areas that support legally protected species.

Each plant species was identified by using keys and descriptions from, *In Gardens of Hawai'i* (Neal, M.C., 1965) and *Manual of the Flowering plants of Hawai'i* (Wagner, W.L., et al, 1990).

Each avian species was identified by using descriptions from *Hawaii's Birds* (Hawaii Audubon Society, 1993)

Each mammalian species was identified by using descriptions from *Mammals in Hawai'i* (Tomich, P Q , 1986)

Damselflies and Dragonflies were identified by using descriptions from *Hawaiian Damselflies: A Field Identification Guide* (Polhemus & Asquith, 1996)

Fish and amphibians were identified by using descriptions from *Hawai'i's Invasive Species* (Staples & Cowie, 2001)

Unique Biological Communities were identified by using descriptions from *Vegetation* (Gagne & Cuddihy, 1990)

Plants which are given legal protection were reviewed from *Listed and Candidate Species, as Designated Under the U.S. Endangered Species Act Hawaiian Islands Plants – Updated July 10, 2002* (USFWS, 2002)

Animals which are given legal protection were reviewed from *Listed and Candidate Species, as Designated Under the U.S. Endangered Species Act Hawaiian Islands Animals – Updated December 23, 1997* (USFWS, 1997).

## **RESULTS:**

The species of vascular plants that were encountered during the Biological Resources Survey are members of Unique Biological Communities. Those communities may contain species that have protection under Federal or State Law. Therefore, each species encountered during the survey were placed into a *List of Vascular Plants* (Table 1), *List of Avians* (Table 2), *List of Mammals* (Table 3), *List of Dragonflies and Damselflies* (Table 4.), or *List of Fish and Amphibians* (Table 5.) to represent each distinct form of life and show if any legally protected species occurs in the project area which would require consideration for planning. The following sections describe the vegetation and macrofauna of the project area in detail.

### **Unique Biological Communities:**

Three communities were identified in the project area: Beach Strand, Salt Marsh, and Coastal Dry Forest

**Beach Strand** occurs as a strip just behind the coastline along the entire project area facing the ocean. Vegetation there is simple yet distinctive due to its' salt tolerance. The vegetation is dominated by 'aki'aki (*Sporobolus virginicus*), a sturdy indigenous grass. Other vegetation here includes *naupaka kahakai* (*Scaevola sericea*), *pohuehue* (*Ipomoea pes-caprae* subsp. *brasiliensis*), *akulikuli* (*Sesuvium portulacastrum*) and 'ohelo kai (*Lycium sandwicense*).

The Beach Strand community supports migratory shorebirds, including the 'ulili or wandering tattler (Heteroscelus incanus) and the least sandpiper (Calidris minutilla) which were seen at the time of the survey. The 'ulili or wandering tattler was seen gathering in small flocks on offshore rocks just before nightfall.

The Beach Strand lies within the Special Management Area (SMA) and is a protected habitat. Migratory birds are protected by Federal and State Law.

**Salt Marsh** occurs in the central part of the project area and is a Wetland habitat. Wetland habitats are protected by the U.S. Army Corps of Engineers, and this habitat will be delineated in the project area by Anna Palomino of Ho'olawa Farms.

The Salt Marsh vegetation is dominated by *akulikuli* and the invasive alien pickleweed (Batis maritima). *Ohelo kai* and *nenu* (Heliotropium curassavicum) are also found in scattered patches here.

Pickleweed is being eradicated from the area by an ongoing native plant restoration program involving the County of Maui Community Workday Program (Forest & Kim Starr and Mike Perry, personal communication).

The Listed Endangered *ae'o* or Hawaiian stilt (Himantopus mexicanus knudseni) was seen feeding in a pool in the Salt Marsh. In this pool a bufo toad tadpole (Bufo maurianus) was observed. Chinese dragonflies (Crocothemis servillia) and the bluet damselfly (Enallagma civile) were seen ovipositing in the pool.

Several *kolea* or Pacific Golden plovers (Pluvialis fulva) were scattered around the Salt Marsh and a single cattle egret (Bubulcus ibis) was seen foraging for insects there.

**Coastal Dry Forest** is the largest community in the project area and provides habitat for most of the vegetation and fauna. The alien *kiawe* tree (Prosopis pallida) dominates this community and delineates its extent, which starts from the Beach Strand and runs mauka, minus the Salt Marsh. Other trees found in this community are the ironwood (Casuarina equisetifolia), *milo* (Thespesia populnea), tree heliotrope (Tournefortia argentea), coconut (Cocos nucifera), banyan (Ficus microcarpa), Christmas berry (Schinus terebinthifolius), tropical almond (Terminalia catappa), *hau* (Hibiscus tiliaceus), and the date palm (Phoenix dactylifera). The tigers' claw tree (Erythrina variegata var. orientalis) is cultivated in the park proper and is naturalizing on a small scale. *Hala* (Pandanus tectorius), and *kamani* (Calophyllum inophyllum) are cultivated in the park but are not naturalized.

The endemic *'aheahea* (Chenopodium oahuense) is found commonly as an understory plant in this community. Other understory plants include panicgrass (Panicum spp.), slender mimosa (Desmanthus virgatus), *haole kou* (Leucaena leucocephala), lion's tail (Leonotis nepetifolia), castor bean (Ricinus communis), Indian fleabane (Pluchea

indica), sourbush (Pluchea symphytifolia), tree tobacco (Nicotiana glauca), ilima (Sida fallax), false 'ilima (Sida rhombifolia), and uhalou (Waltheria indica)

Dominant groundcovers found in the Coastal Dry Forest are aki aki grass and Chinese violet (Asystasia gangetica). Other common groundcovers in this community include calyptocarpus (Calyptocarpus vialis), khaki weed (Alternanthera pungens), false alena (Boerhavia coccinea), pigweed (Portulaca oleracea), buffelgrass (Cenchrus ciliaris), Bermuda grass (Cynodon dactylon), and wiregrass (Eleusine indica).

Kolea or Pacific golden plovers were commonly seen foraging in open areas across the extent of this community. Other avian species commonly seen here are the mynah (Acridotheres tristis), zebra dove (Geopelia striata), Northern cardinal (Cardinalis cardinalis), house sparrow (Passer domesticus), Japanese white eye (Zosterops japonicus), feral chicken (Gallus gallus), and gray francolin (Francolinus pondicerianus).

Two brackish ponds that appear to be spring fed were located in the project area. One is on the Eastern side of the park and is fenced. This pond contains a stand of kaluha (Scoenoplectus californicus) which is a large sedge to about 10 ft. or 3 meters tall. Guppies (Poecilia reticulata) and bufo toad tadpoles (Bufo marinus) were observed in the pond, and pondweed (Lemna perpusilla) was found floating on the surface. The other pond is located just past the western side of the park proper (near the camping area) and adjacent to the Salt Marsh. It contains guppies, bufo toad tadpoles, and duckweed as well.

To the western side of the project area is a drainage channel, along which several indigenous plants occur, including kaluha (Bolboschoenus maritimus), nanea (Vigna marina), and 'ae 'ae (Bacopa monnieri).

Just past the drainage channel is an area where windsurfers park their vehicles and ready their gear for their sport. At this site a barrier with a planting was placed by a local windsurfing business with the help of some area grade school students. This planting includes the following species:

<u>Cocos nucifera</u>	coconut / niu
<u>Cordia subcordata</u>	kou
<u>Cordyline fruticosa</u>	ki / ti
<u>Dodonea viscosa</u>	a'ali i
<u>Jacquemontia ovalifolia</u>	pa uohi iaka
<u>Myoporum sandwicense</u>	nai'o
<u>Pandanus tectorius</u>	hala
<u>Portulaca lutea</u>	'ihi
<u>Portulaca molokiniensis</u>	ihi
<u>Portulaca villosa</u>	ihi
<u>Pritchardia hillebrandii</u>	loulu
<u>Scaevola coriacea</u>	naupaka
<u>Sida fallax</u>	ilima papa

<u>Solanum nelsonii</u>	<i>popolo</i>
<u>Vitex rotundifolia</u>	<i>pohinahina</i>
<u>Wikstroemia uva-ursi</u>	<i>akia papa</i>
<u>Clusia rosea</u>	autograph tree
<u>Hibiscus calyphyllus</u>	yellow African hibiscus
<u>Vitex trifolia</u>	trifoliate vitex

The species in this planting are very vulnerable due to the high amount of traffic in the area. There are several rare species in the planting, but are not warranted legal protection, as they are unnaturally cultivated in the area. The autograph tree and yellow African hibiscus are invasive alien species that have the potential of becoming naturalized in the project area.

Due West of the planting and to the end of the project area is a section that is being turned from the alien *kiawe* forest into native Coastal Dry Shrub & Grassland by the native plant restoration program there. The area is dominated by 'aki aki grass and *pohuehue* and the following plants are being cultivated there:

<u>Abutilon menziesii</u>	<i>ko oloa ula</i>
<u>Gossypium tomentosum</u>	<i>ma'o</i>
<u>Heliotropium anomalum</u>	<i>hinahina</i>
<u>Hibiscus brackenridgei</u>	<i>ma'o hau hele</i>
<u>Ipomoea imperati</u>	<i>hunakai</i>
<u>Myoporum sandwicense</u>	<i>nai'o</i>
<u>Portulaca molokiniensis</u>	<i>ihi</i>
<u>Pritchardia hillebrandii</u>	<i>loulu</i>
<u>Scaevola coriacea</u>	<i>naupaka</i>
<u>Sida fallax</u>	<i>'ilima papa</i>
<u>Solanum nelsonii</u>	<i>popolo</i>
<u>Vitex rotundifolia</u>	<i>pohinahina</i>

The intention of the native plant restoration program is to return the area West of the drainage ditch to what it may have originally looked like; removing the alien vegetation. In similar fashion, doing the same to the Salt Marsh (Forest & Kim Starr and Mike Perry, personal communication).

Mongoose (*Herpestes auropunctatus*) were uncommonly seen hustling through the forest and there was evidence of rats (*Rattus rattus*) in the area, being that the date palms were cleaned of their seeds. The low occurrence of these animals in the area is likely due to the unusually high concentration of feral cats (*Felis catus*) there. Cats are found in wayside areas throughout the project area and look to be in healthy condition, which is partly due to their regular feeding by people who frequent the area. The cats are a threat to the avian life in the project area, including legally protected species.

### **Lists of Plants and Animals:**

The Lists of Plants and Animals are found at the end of this report. The List of Vascular Plants (Table 1) reflects the vegetation found in the project area that is native or naturalized. It does not reflect plants that are presently being cultivated. The Lists of Animals (Tables 2 – 5) reflect the species that were present at the time of the survey. There will certainly be a greater number of species which visit the area throughout the year, especially that of avians.

### **RECOMMENDATIONS:**

There are several rare plant species in the project area, but they were planted there and are being cultivated, and do not warrant legal protection.

The Beach Strand community supports migratory shorebirds, including the 'ulili or wandering tattler and the least sandpiper which were seen during the survey, and this community lies within the SMA.

The Salt Marsh community is a Wetland habitat. Wetland habitats are protected by the U.S. Army Corps of Engineers. This community supports the Listed Endangered *ae'o* or Hawaiian stilt, and the migratory *kolea* or Pacific golden plover, which were seen during the survey.

The Beach Strand and Salt Marsh communities are protected habitats that support legally protected organisms, which will require consideration for planning in the actions of this project.

The native plant restoration projects in the project area involve much community input and effort, and are highly deserving of merit. The results of the restoration project will leave the area with a low maintenance, highly ornamental landscape that is very cost effective for the County of Maui. The restored landscape will not only be an icon of community pride, but will be an invaluable asset to native and migratory wildlife seeking habitat in the area.

The feral cat population in the project area is a detriment to native and migratory wildlife. Their removal will be necessary for the safety of protected species in the area.

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**KEY TO SPECIES LISTS:**

- Genus / species - Binomial term given to a life form.  
Common Name - Locally used term for a life form  
Distribution - Geographical origin of a species
- A = Alien; introduced to Hawai'i after 1778 AD  
P = Polynesian; introduced to Hawai'i prior to 1778 AD  
I = Indigenous; native to Hawai'i and elsewhere.  
E = Endemic; unique to Hawai'i  
M = Migratory; referring to avian species

**Table 1.** **List of Vascular Plant Species**

DICOTYLEDONS

FAMILY	<u>Genus / species</u>	<u>Common Name</u>	<u>Distribution</u>
ACANTHACEAE		Acanthus Family	
	<u>Asystasia gangetica</u> (L.) Andrson	Chinese violet	A
AIZOACEAE		Fig-marigold Family	
	<u>Sesuvium portulacastrum</u> (L.) L.	<i>akulikuli</i>	I
AMARANTHACEAE		Amaranth Family	
	<u>Alternanthera procumbens</u> Kunth	khaki weed	A
	<u>Amaranthus spinosus</u> L.	spiny amaranth	A
	<u>Amaranthus viridis</u> L.	common amaranth	A
ANACARDIACEAE		Mango Family	
	<u>Schinus terebinthifolius</u> Raddi	Christmasberry	A
ASTERACEAE		Sunflower Family	
	<u>Bidens pilosa</u> L.	Spanish needles	A
	<u>Calyptocarpus vialis</u> Less.	-	A

<u>Conyza bonariensis</u> (L.) Cronq.	hairy horseweed	A
<u>Eclipta alba</u> (L.) Hassk	false daisy	A
<u>Pluchea indica</u> (L.) Less	Indian fleabane	A
<u>Pluchea symphytifolia</u> (Mill.) Gillis	sourbush	A
<u>Sonchus oleraceus</u> L.	sow thistle	A
<u>Synedrella nodiflora</u> (L.) Gaertn	nodeweed	A
<u>Tridax procumbens</u> L.	coat buttons	A
<u>Verbesina encelioides</u> (Cav.) Benth. & Hook.	golden crown-beard	A
BATACEAE	Saltwort Family	
<u>Batis maritima</u> L.	pickleweed	A
BORAGINACEAE	Borage Family	
<u>Heliotropium curassavicum</u> L.	<i>kena</i>	I
<u>Heliotropium procumbens</u> Mill	beach heliotrope	A
<u>Tournefortia argentea</u> L. fil.	tree heliotrope	A
CAPPARACEAE	Caper Family	
<u>Cleome gynandra</u> L.	spider flower	A
CASUARINACEAE	She-oak Family	
<u>Casuarina equisetifolia</u> L.	ironwood	A
CHENOPODIACEAE	Goosefoot Family	
<u>Atriplex semibaccata</u> R. Br.	saltbush	A
<u>Chenopodium carinatum</u> R. Br.	-	A
<u>Chenopodium murale</u> L.	goosefoot	A
<u>Chenopodium oahuense</u> (Mey.) Aellen	<i>'aheahea</i>	E
COMBRETACEAE	Indian Almond Family	
<u>Terminalia catappa</u> L.	tropical almond	A
CONVOLVULACEAE	Morning Glory Family	
<u>Convolvulus arvensis</u> L.	bindweed	A
<u>Ipomoea indica</u> (Burm.) Merr	<i>koali</i>	I
<u>Ipomoea pes-caprae</u> subsp. <u>brasiliensis</u> (L.) R. Br.	<i>pohuehue</i>	I
<u>Jacquemontia ovalifolia</u> subsp. <u>sandwicensis</u> <i>pa'uohi'iaka</i> (Chsy.) Hallr.		E
<u>Merremia aegyptia</u> (L.) Urb	<i>koali kua hulu</i>	I
CUSCUTACEAE	Dodder Family	
<u>Cuscuta sandwichiana</u> Choisy	<i>kauna'oa</i>	E
EUPHORBIACEAE	Poinsettia Family	
<u>Chamaesyce hirta</u> (L.) Millsp.	garden spurge	A
<u>Chamaesyce prostrata</u> (Aiton) Small	prostrate spurge	A

<u>Ricinus communis</u> L.	castor bean	A
FABACEAE	Bean Family	
<u>Desmanthus virgatus</u> (L ) Willd	slender mimosa	A
<u>Desmodium tortuosum</u> (Sw.) DC	Florida beggarweed	A
<u>Erythrina variegata</u> var. <u>orientalis</u> (L ) Merr.	tiger's claw	A
<u>Glycine wightii</u> (Wht & Arn ) Verdc	beggarweed	A
<u>Indigofera spicata</u> Forssk	creeping indigo	A
<u>Leucaena leucocephalla</u> (Lam ) de Wit	<i>haole koa</i>	A
<u>Macroptilium atropurpureum</u> (DC) Urb.	trailing cow pea	A
<u>Macroptilium lathyroides</u> (L ) Urb	cow pea	A
<u>Prosopis pallida</u> (Hm & Bn ex Wild )Kunth	<i>kiawe</i>	A
<u>Vigna marina</u> (Burm.) Merr.	<i>nanea</i>	I
GOODENIACEAE	Half-flower Family	
<u>Scaevola sericea</u> Vahl	<i>naupaka kahakai</i>	I
LAMIACEAE	Mint Family	
<u>Leonotis nepetifolia</u> (L ) R.Br	lion's tail	A
MALVACEAE	Hibiscus Family	
<u>Abutilon grandifolium</u> (Willd.) Sweet	hairy abutilon	A
<u>Hibiscus tiliaceus</u> L.	<i>hau</i>	I
<u>Malva parviflora</u> L.	cheese weed	A
<u>Malvastrum coromandelianum</u> (L ) Garcke	false mallow	A
<u>Sida fallax</u> Walp.	<i>ilima</i>	I
<u>Sida rhombifolia</u> L.	false 'ilima	A
<u>Thespesia populnea</u> (L.) Sol. ex Corr.	<i>milo</i>	I
MORACEAE	Fig Family	
<u>Ficus microcarpa</u> L. fil.	banyan	A
NYCTAGINACEAE	Four-o'clock Family	
<u>Boerhavia coccinea</u> Mill.	false <i>alena</i>	A
<u>Mirabilis jalapa</u> L.	four-o'clock	A
PORTULACACEAE	Portulaca Family	
<u>Portulaca oleracea</u> L.	pigweed	A
SCROPHULARIACEAE	Snapdragon Family	
<u>Bacopa monnieri</u> (L.) Wettst	<i>ae'ae</i>	I
SOLANACEAE	Tobacco Family	
<u>Lycium sandwicense</u> A. Gray	<i>ohelo kai</i>	I
<u>Lycopersicon pimpinellifolium</u> (Jusl ) Mill	currant tomato	A
<u>Nicandra physalodes</u> (L ) Gaertn.	apple of Peru	A
<u>Nicotiana glauca</u> Graham	tree tobacco	A

STERCULIACEAE	Chocolate Family	
<u>Waltheria indica</u> L.	<i>uhaloa</i>	I
ZYGOPHYLLACEAE	Creosote Bush Family	
<u>Tribulus terrestris</u> L.	puncture vine	A
MONOCOTYLEDONS		
ARECACEAE	Palm Family	
<u>Cocos nucifera</u> L.	coconut / <i>niu</i>	P
<u>Phoenix dactylifera</u> L.	date palm	A
CYPERACEAE	Sedge Family	
<u>Bolboscoenus maritimus</u> (L.) Palla	<i>kaluha</i>	I
<u>Cyperus rotundus</u> L.	nutgrass	A
<u>Schoenoplectus californicus</u> (Mey.) Palla	<i>kaluha</i>	I / A
LEMNACEAE	Duckweed Family	
<u>Lemna perpusilla</u> Torr	Duckweed	I / A
POACEAE	Grass Family	
<u>Cenchrus ciliaris</u> L.	buffelgrass	A
<u>Cenchrus echinatus</u> L.	sandbur	A
<u>Chloris divaricata</u> R.Br	star grass	A
<u>Chloris virgata</u> Sw	fingergrass	A
<u>Cynodon dactylon</u> (L.) Pers.	Bermuda grass	A
<u>Digitaria ciliaris</u> (Retz) Koeler	crabgrass	A
<u>Eleusine indica</u> (L.) Gaertn.	wiregrass	A
<u>Eragrostis tenella</u> (L.) Beau.ex Rm & Schlt	lovegrass	A
<u>Panicum coloratum</u> L.	blue panic grass	A
<u>Panicum maximum</u> Jacq	Guinea grass	A
<u>Sporobolus indicus</u> (L.) R. Br.	smutgrass	A
<u>Sporobolus virginicus</u> (L.) Kunth	<i>aki'aki</i>	I

**Table 2.****List of Avian Species**

<u>Genus / species</u>	<u>Common Name</u>	<u>Distribution</u>
<u>Himantopus mexicanus knudseni</u>	<i>ae o</i> / Hawaiian stilt	E
<u>Callidris minutilla</u>	least sandpiper	M
<u>Heteroscelus incanus</u>	<i>ulili</i> / wandering tattler	M
<u>Pluvialis fulva</u>	<i>kolea</i> / Pacific golden plover	M
<u>Acridotheres tristis</u>	mynah bird	A
<u>Bulbucus ibis</u>	cattle egret	A
<u>Cardinalis cardinalis</u>	Northern cardinal	A
<u>Fringilla monticola</u>	gray francolin	A
<u>Gallus gallus</u>	feral chicken	A
<u>Geopelia striata</u>	zebra dove	A
<u>Padda oryzivora</u>	Java sparrow	A
<u>Paroaria coronata</u>	Brazilian cardinal	A
<u>Passer domesticus</u>	house sparrow	A
<u>Streptopelia chinensis</u>	spotted dove	A
<u>Zosterops japonica</u>	Japanese white-eye	A

**Table 3.****List of Mammalian Species**

<u>Felis catus</u>	feral cat	A
<u>Herpestes auropunctatus</u>	mongoose	A
<u>Rattus rattus</u>	rat	A

**Table 4.****List of Dragonflies and Damselflies**

<u>Crocothemis servilia</u>	Chinese dragonfly	A
<u>Enallagma civile</u>	bluet damselfly	A

**Table 5.****List of Fish and Amphibians**

<u>Poecilia reticulata</u>	guppy	A
<u>Bufo marinus</u>	bufo toad	A

Wetland Delineation  
For  
Kanaha Beach Park Expansion Project  
Master Plan  
East Maui, Hawai'i  
TMK 3-8-01: 119, Por. 19



October 2003

**Prepared for:  
County of Maui  
Department of Parks and Recreation  
Wailuku, Maui**

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**October 2003**

WETLAND DETERMINATION FOR KANAHA BEACH PARK  
TMK: 3-8-01:119  
KANAHA, WAILUKU DISTRICT, ISLAND OF MAUI  
OCTOBER 2003

SURVEY CONDUCTED BY: ANNA PALOMINO AND JENNIFER CRUMMER

## INTRODUCTION

The project area is along the northern coast of central Maui, adjacent to the Kahului Airport. It is bounded by the central Maui wastewater treatment facility, the Kanaha Pond State Wildlife Sanctuary, the main Maui airport, and undeveloped lands. The project area is approximately 75 acres in size.

This property is owned by the County of Maui and is currently used as a County park. Developments on the property include various paved and unpaved parking lots, restrooms, maintenance facilities, and a canoe hale (pavillion). Some older structures exist including an old girl scout building, various jetties, and other old building sites.

## METHODS

Consultants followed methods from the 1987 Army Corps of Engineers Wetlands Delineation Manual. A routine wetland determination was done for the core project area. Consultants walked the entire project area and identified areas of low elevation, with vegetation characteristic of wetlands, and dug test pits to determine the presence or absence of wetland soils. A field observation form was filled out at each observation point. These data sheets are presented in Table 1. This data included detailed information on the presence/absence of hydrophytic vegetation, hydrological indicators, and hydric soils. A soil sample pit was dug using an auger at each of these sites. Soil samples were compared to the Munsell Color Chart. Wetland vegetation indicator status is based on information from the U.S. Fish and Wildlife Service's (USFWS) *National List of Plant Species that occur in Wetlands: Hawaii (Region H)*. A Garmin Global Positioning Unit (GPS) was used to pinpoint sample locations. These points were downloaded and mapped on a base map (Map 1). A wetland boundary was based on vegetation

community types, hydric soils, and hydrologic indicators. This map represents an approximate boundary.

## BACKGROUND INFORMATION

The project area is located adjacent to one of the largest wetlands in north Maui, Kanaha Pond. A channel that drains lands in and around the Kahului Airport also bisects the project area. Two permanent ponds are located on the site. These are rather obvious indicators of a low water table, and the probable occurrence of wetland conditions in the vicinity. The region is relatively flat, with the exception of coastal sand dunes along the beach. There is a fairly common occurrence of wetlands inland from coastal dunes in other parts of central Maui.

Soils maps from the *Soils Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* by the U.S. Department of Agriculture (1972) indicate JcC (Jaucas sand, saline 0 to 12 percent slopes) classification for the majority of site soils. This classification is described as:

“... soil occurs near the ocean in areas where the water table is near the surface and salts have accumulated. It is somewhat poorly drained in depressions but excessively drained on knolls. In the depressions there is normally a layer of silty alluvial material flocculated by the high concentration of soluble salts. The water table is normally within a depth of 30 inches.”

The other soil classification mapped in this region is DL (Dune Land) described as:

“hills and ridges of sand-sized particles drifted and piled by wind. The hills and ridges are actively shifting or are so recently fixed or stabilized that no soil horizons have developed.”

Consultants worked with a 2002 survey map of the area. This map included elevations and all but one site appeared true to the topography presented in the map. One location appeared to have been physically altered and/or presented incorrectly on the base map

This survey was conducted during an extremely dry period (a prolonged drought) between the months of May and September 2003.

## RESULTS

### Vegetation

The vegetation of the project area is dominated by the introduced kiawe (*Prosopis pallida*), which has taken over much of the lowland areas of Hawaii since it's introduction in 1828. Kiawe is an aggressive plant, which generally excludes the growth of other species. It is listed by USFWS as a facultative upland species; however, it has been known to invade areas with low water tables. For this reason, it should be considered to represent a plant species tolerant of wet conditions. Therefore, though technically not a hydrophytic species, this plant is found in wetland areas.

Quite a bit of the project area has been recently cleared of non-native vegetation, and it is likely that, with time, more wetland plant species will grow in low-lying areas. Several wetland plants were found on the site including ahuawa (*Cyperus javanicus*) and pickleweed (*Batis maritima*). It is also likely that seasonal species that are dependant on rains were not picked up during this survey, as it was conducted during a very dry period.

### Hydrology

As mentioned previously, there are a number of signs that the water table is low in the region. At least three locations had standing water at the time of the survey, including two permanent ponds. The elevations presented on the base map indicate little elevational variation inland of the coastal dunes. As a result, the category of "drainage patterns" was one of the most common primary indicators of wetland hydrology during the survey. Also, many of the test pits had soils that were saturated in the upper twelve inches. Campers stated the camping area flooded whenever there was rain.

### Soils

Soils from this area are mapped as Jaucas and Dune Land types as shown on the USDA soil survey maps of 1972 (Map 2). In the course of this survey, these two classifications were found; however, they did not always spatially match the locations given on the maps. Soils of the area consisted of the Jaucas soils, and included areas with low chroma colors, as well as Gleys. Many of these are poorly draining soils. The shoreline was flanked with sandy dunes, which in contrast, are a very well drained substrate.

The most interesting soils were found near the main road around test pit number 11, where a nearly black gley was found. These soils were very poorly drained and had a clay-like quality.

## DISCUSSION

There are a number of wetland areas within the project area, as well as areas subject to temporary flooding. Most of the local hydrology is likely influenced by the high amount of kiawe in the area. This drought-tolerant tree is believed to effectively lower the water table in places where it grows.

There appears to have been a great amount of disturbance to the natural conditions of the area in the last century. World War II-era buildings and modifications are found throughout the property, and it is likely that more dunes covered this area prior to that time. Roads and fill have further altered the natural state of the area.

Sand dunes present the highest elevation natural features along this coast. Dunes are still common along the beach portion of the site, and these features will naturally migrate over time. The work being done to restore the native coastal strand on these dunes will help to slow the movement of sand and stabilize them somewhat. Kiawe, since it often precludes other growth, is likely to have the reverse effects.

Much of the project area is not technically defined wetland (does not have all three of the hydrologic components needed to meet this status). However, the fact remains that this area still maintains a shallow water table. Much of the area will be subject to flooding during storm events and the flow of water should be seriously considered during any planning efforts.

It should be noted that there are relatively few natural wetlands on the island of Maui. This wetland has significant value in terms of wildlife habitat, cultural resources, open space, sediment filtration and the many other benefits wetland habitats provide.

## CONCLUSIONS

The majority of this coastal stretch consists of sand dunes backed by inland wetland patches. Various activities have altered the natural hydrology over the years, including the channelized drainage running through the center of the park, various fill activities, as well as changes brought about by introduced plants, such as kiawe. Hydrophytic vegetation, hydric soils, and hydrologic indicators were found in several areas throughout this site. The areas lacking these indicators were areas of 1) sand dunes along the coast, 2) areas of historic fill, and 3) certain higher elevation sites dominated by dense kiawe forest.

Much of the project site is disturbed by human use. Several areas have been recently cleared of non-native vegetation in an effort to replace it with native species. Several locations have unpaved roads, campsites, and other human disturbances.

## RECOMMENDATIONS

This site has several unique features, which could be enhanced and highlighted in future plans for the parcel. Natural dunes offer dramatic, clean white sands interspersed with distinctive native plants. Such native coastal plants are adapted to this environment, and therefore, need no long-term water or care, other than occasional weeding. Coastal dunes protect our shorelines and replenish beaches with clean, well-sorted sands.

Similarly, the wetland resources of the area should be enhanced and incorporated into the planning process. The low-lying areas can be expanded and planted with native vegetation to maximize the functional values of wetlands. These benefits include: flood storage, sediment and contaminant storage, open space, aesthetic value, and as wildlife habitat. Working to enhance areas of wetland within the site would develop them into an asset of the park.

With these natural resources featured as a central theme to the park area, this park could really be a gem among county facilities.

## REFERENCES

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- Wagner, W. L., Herbst, D.R. and S.H. Somer. 1990. Manual of the Flowering Plants of Hawaii. Bishop Museum Press, Honolulu, Hawaii.



**Table 1**

**Wetland Determination Data Forms**

**ROUTINE WETLAND DETERMINATION DATA FORM**

Project/Site: Kanaha - East  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/16/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 1

Do normal Circumstances exist on the site? YES  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

Dominant Plant Species	Stratum	Indicator
Pluchea odorata	Shrub 5%	FAC*
Brachiarla mutica	Grass 80%	FACW
Ludwigia octovalvis	Shrub 5%	OBL

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 90.00%

Hydrophytic Vegetation Present? YES

**REMARKS:**

NAD 83  
 0.001  
 N20,54,06.0  
 W156,26,07.9  
 Corner of parking lot

**HYDROLOGY**

**PRIMARY Indicators**  
 Inudated  
 ✓ Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 ✓ Drainage patterns in Wetlands

**FIELD OBSERVATIONS:**  
 Depth of Surface Water:  
 Depth to Free water in Pit:  
 Depth to saturated Soil: 0 In.

Wetland Hydrology Present? YES

**SOILS**

Map Unit Name: Jc C  
 Field Observations Confirm: YES

**PROFILE DESCRIPTION**

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-5 in.	10YR 3/2	10YR 6/3	50.00%	Sand
5-12 in.	10YR 4/3	10YR 6/3	100.00%	Sand
12+	10YR 2/2	10YR 6/3	100.00%	Sand

Hydic Soil Indicators:  
 Gleyed or Low-Chroma Colors  
 Organic Streaking in Sandy Soil  
 Hydic Soil Present? YES

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? YES  
 Wetland Hydrology Present? YES  
 Hydic Soil Present? YES

Sampling point a Wetland? YES

**ROUTINE WETLAND DETERMINATION DATA FORM**

Project/Site: Kanaha - East  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/16/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 2

Do normal Circumstances exist on the site? YES  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

Dominant Plant Species	Stratum	Indicator
Brachiarla mutica	Grass 100%	FACW

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100.00%

Hydrophytic Vegetation Present? YES

**REMARKS:**

NAD 83  
 0.002  
 N20,54,06.2  
 W156,26,07.1  
 Corner of parking lot

**HYDROLOGY**

**PRIMARY Indicators**  
 Inudated  
 ✓ Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 ✓ Drainage patterns in Wetlands

**FIELD OBSERVATIONS:**  
 Depth of Surface Water:  
 Depth to Free water in Pit:  
 Depth to saturated Soil: 0 In.

Wetland Hydrology Present? YES

**SOILS**

Map Unit Name: Jc C  
 Field Observations Confirm: YES

**PROFILE DESCRIPTION**

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-7 in.	10YR 3/2	10YR 6/3	>50%	Sand
7-16 in.	10YR 4/4	10YR 6/3	>50%	Sand
12+	10YR 4/2	10YR 6/3	>50%	Sand

Hydic Soil Indicators:  
 Gleyed or Low-Chroma Colors  
 Organic Streaking in Sandy Soil  
 Hydic Soil Present? YES  
 Very Sandy Soil

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? YES  
 Wetland Hydrology Present? YES  
 Hydic Soil Present? YES

Sampling point a Wetland? YES

**ROUTINE WETLAND DETERMINATION DATA FORM**

Project/Site: Kanaha - East  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/16/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 5

Do normal Circumstances exist on the site? YES  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

**VEGETATION**

Dominant Plant Species	Stratum	Indicator
Prosopis pallida	Tree 15%	FACU-
Bracharia mutica	Grass 20%	FACW
Cyperus javanicus	Grass 5%	FACW

Percent of Dominant Species that are  
 OBL, FACW or FAC (excluding FAC-) 40.00%

Hydrophytic Vegetation Present? YES

**REMARKS:**

NAD 83  
 0.005  
 N20,54,05.2  
 W156,26,010.1

**HYDROLOGY**

**PRIMARY Indicators**

Inundated  
 ✓ Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 ✓ Drainage patterns in Wetlands

**FIELD OBSERVATIONS:**

Depth of Surface Water:  
 Depth to Free water in Pit:  
 Depth to saturated Soil: 5 in.

Wetland Hydrology Present? YES

**SOILS**

Map Unit Name: JcC  
 Field Observations Confirm: YES

**PROFILE DESCRIPTION**

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-7 in.	10YR 4/3		>50%	Sand
7-12 in.	10YR 5/4		>50%	Sand
12-15	10YR 3/2		100.00%	Sand
15+	10YR 6/3		>50%	

Hydric Soil Indicators:  
 Gleyed or Low-Chroma Colors Sulfic Odor  
 Organic Streaking in Sandy Soil  
 Hydric Soil Present? YES

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? YES  
 Wetland Hydrology Present? YES  
 Hydric Soil Present? YES

Sampling point a Wetland?  
 YES

**ROUTINE WETLAND DETERMINATION DATA FORM**

Project/Site: Kanaha - East  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/16/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 6

Do normal Circumstances exist on the site? YES  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

**VEGETATION**

Dominant Plant Species	Stratum	Indicator
Prosopis pallida	Tree 10%	FACU-
Pluchea indica	Shrub 5%	FAC*
Cyperus javanicus	Grass 50%	FACW
Pluchea odorata	Shrub 10%	FAC*

Percent of Dominant Species that are  
 OBL, FACW or FAC (excluding FAC-) 75.00%

Hydrophytic Vegetation Present? YES

**REMARKS:**

NAD 83  
 0.006  
 N20,54,05.2  
 W156.26.11.6

**HYDROLOGY**

**PRIMARY Indicators**

Inundated  
 ✓ Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 ✓ Sediment Deposits  
 ✓ Drainage patterns in Wetlands

**FIELD OBSERVATIONS:**

Depth of Surface Water:  
 Depth to Free water in Pit:  
 Depth to saturated Soil: 2 in.

Wetland Hydrology Present? YES

**SOILS**

Map Unit Name: JcC  
 Field Observations Confirm: YES

**PROFILE DESCRIPTION**

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-2 in.	Sand/Organic matter			
2-8 in.	10YR 3/3		10.00%	Sand
8+	10YR 6/2			

Hydric Soil Indicators:  
 Gleyed or Low-Chroma Colors Sulfic Odor  
 Organic Streaking in Sandy Soil  
 Hydric Soil Present? YES

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? YES  
 Wetland Hydrology Present? YES  
 Hydric Soil Present? YES

Sampling point a Wetland?  
 YES

ROUTINE WETLAND DETERMINATION DATA FORM

Project/Site: Kanaha - East  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/16/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 9

Do normal Circumstances exist on the site? YES  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

VEGETATION

Dominant Plant Species	Stratum	Indicator
Cyperus javanicus	G 20%	FACW
Pluchea indica	S 30%	FAC*
Cynodon dactylon	G 10%	FACU
Leucaena leucocephala	T 5%	UPL

Percent of Dominant Species that are  
 OBL FACW or FAC (excluding FAC\*) 65.00%

Hydrophytic Vegetation Present? YES

REMARKS:

NAD 83  
 0.009  
 N20,54,04.9  
 W156,26,13.8

HYDROLOGY

PRIMARY Indicators

Inudated  
 ✓ Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 ✓ Drainage patterns in Wetlands

FIELD OBSERVATIONS:

Depth of Surface Water:  
 Depth to Free water in Pit:  
 Depth to saturated Soil: 6 in.

Wetland Hydrology Present? YES

SOILS

Map Unit Name: JcC  
 Field Observations Confirm: YES

PROFILE DESCRIPTION

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-3 in.	10YR 5/6	Sand		
3-9 in.	10YR 4/3	Sand		
9-12	10YR 3/2	Sand		
>12	10YR 4/1	Sand		

Hydric Soil Indicators:

Gleyed or Low-Chroma Colors High Organic Streaking in Surface Layer  
 Organic Streaking in Sandy Soil  
 Hydric Soil Present? YES

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES  
 Wetland Hydrology Present? YES  
 Hydric Soil Present? YES

Sampling point a Wetland?  
 YES

ROUTINE WETLAND DETERMINATION DATA FORM

Project/Site: Kanaha - East  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/16/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 10

Do normal Circumstances exist on the site? YES  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

VEGETATION

Dominant Plant Species	Stratum	Indicator
Schinus terebinthifolius	T 25%	FACU-
Prosopis pallida	T 25%	FACU-

Percent of Dominant Species that are  
 OBL FACW or FAC (excluding FAC\*) 50.00%

Hydrophytic Vegetation Present? YES

REMARKS:

NAD 83  
 10  
 N20,54,03.1  
 W156,26,14.3

HYDROLOGY

PRIMARY Indicators

Inudated  
 ✓ Saturated in Upper 12"  
 Water marks  
 Orift Lines  
 Sediment Deposits  
 ✓ Drainage patterns in Wetlands

FIELD OBSERVATIONS:

Depth of Surface Water:  
 Depth to Free water in Pit: 15 in.  
 Depth to saturated Soil: 7 in.

Wetland Hydrology Present? YES

SOILS

Map Unit Name: JcC  
 Field Observations Confirm: YES

PROFILE DESCRIPTION

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
1-8 in.	10YR 3/3	Sand		
>8 in.	10YR 7/2	Sand		

Hydric Soil Indicators:

Hydric Soil Present? YES

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES  
 Wetland Hydrology Present? YES  
 Hydric Soil Present? YES

Sampling point a Wetland?  
 YES

**ROUTINE WETLAND DETERMINATION DATA FORM**

Project/Site: Kanaha - East  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/16/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 13

Do normal Circumstances exist on the site? YES  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

**VEGETATION**

Dominant Plant Species	Stratum	Indicator
Thespesia populnia	T 10%	FAC+
Prosopis pallida	T 10%	FACU-
Schinus terebinthifolius	T 10%	FACU-
Cyperus javanicus	G 40%	FACW

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 70.00%

Hydrophytic Vegetation Present? YES

**REMARKS:**

NAD 83  
 13  
 N20,54,03.9  
 W156,26,10.7

**HYDROLOGY**

**PRIMARY Indicators**

Inudated  
 ✓ Saturated In Upper 12"  
 Water marks  
 Drift Lines  
 ✓Sediment Deposits  
 ✓Drainage patterns in Wetlands

**FIELD OBSERVATIONS:**

Depth of Surface Water:  
 Depth toFree water in Pit:  
 Depth to saturated Soil: 9 in.

Wetland Hydrology Present? YES

**SOILS**

Map Unit Name: J c C  
 Field Observations Confirm: YES

**PROFILE DESCRIPTION**

Depth	Matrix Color	Mottle	MottleAbundance	Texture
0-6 in.	7.5YR 4/3		>50%	Sand
6-13 in	7.5YR3/4		>50%	
>13 in	7.5YR 2.5/1			

**Hydric Soil Indicators:**

Sulfic Odor Organic streaking In Sandy Soils

Hydric Soil Present? YES

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? YES  
 Wetland Hydrology Present? YES  
 Hydric Soil Present? YES

Sampling point a Wetland? YES

**ROUTINE WETLAND DETERMINATION DATA FORM**

Project/Site: Kanaha - East  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/16/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 14

Do normal Circumstances exist on the site? YES  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

**VEGETATION**

Dominant Plant Species	Stratum	Indicator
Prosopis pallida	T 40%	FACU-
Schinus terebinthifolius	T 60%	FACU-

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100.00%

Hydrophytic Vegetation Present? NO

**REMARKS:**

NAD 83  
 14  
 N20,54,06.0  
 W156,26,06.5  
 Upland Point

**HYDROLOGY**

**PRIMARY Indicators**

Inudated  
 ✓ Saturated In Upper 12"  
 ✓Water marks  
 ✓Drift Lines  
 Sediment Deposits  
 ✓Drainage patterns in Wetlands

**FIELD OBSERVATIONS:**

Depth of Surface Water:  
 Depth toFree water in Pit:  
 Depth to saturated Soil: 6 in.

Wetland Hydrology Present? YES

**SOILS**

Map Unit Name: J c C  
 Field Observations Confirm:

**PROFILE DESCRIPTION**

Depth	Matrix Color	Mottle	MottleAbundance	Texture
0-9 in.	7.5YR 3/4		>50%	
9+ in.	7.5YR 4/6		>50%	

**Hydric Soil Indicators:**

Hydric Soil Present? NO

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? NO  
 Wetland Hydrology Present? YES  
 Hydric Soil Present? NO

Sampling point a Wetland? NO

ROUTINE WETLAND DETERMINATION DATA FORM

Project/Site: Kanaha - East  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/17/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 17

Do normal Circumstances exist on the site? NO  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

VEGETATION

Dominant Plant Species	Stratum	Indicator
Eclipta alba	S 20%	FACW
Alternanthera pungens	H 10%	NI
Cynodon dactylon	G 15%	FACU
Heliotropium curassavicum	H 15%	FAC
Indigofera suffrutcosa	S 5%	UPL
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-)		40.00%

Hydrophytic Vegetation Present? NO

REMARKS:

NAD 83  
 17  
 N20,54,00.0  
 W156,26,24.9  
 Low area  
 Upland Point

HYDROLOGY

PRIMARY Indicators

Inudated  
 Saturated in Upper 12'  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 ✓/Drainage patterns In Wetlands

FIELD OBSERVATIONS:

Depth of Surface Water:  
 Depth to Free water in Pit:  
 Depth to saturated Soil:  
 Floods seasonally  
 Wetland Hydrology Present? NO

SOILS

Map Unit Name: Jc C  
 Field Observations Confirm: YES

PROFILE DESCRIPTION

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-14 in.	2.5YR 2.5/4			
14+ in	7.5YR 4/6	Sandy		

Hydric Soil Indicators:

Hydric Soil Present? NO

WETLAND DETERMINATION

Hydrophytic Vegetation Present? NO  
 Wetland Hydrology Present? NO  
 Hydric Soil Present? NO  
 Sampling point a Wetland? NO

ROUTINE WETLAND DETERMINATION DATA FORM

Project/Site: Kanaha - Edge of roadside parking lot  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/17/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 18

Do normal Circumstances exist on the site? NO  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

VEGETATION

Dominant Plant Species	Stratum	Indicator
Sesuvium portulacastrum	H 40%	FACW
Alternanthera pungens	S 10%	NI
Chenopodium murale	H 10%	FACU

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-)  
 50.00%

Hydrophytic Vegetation Present? YES

REMARKS:

NAD 83  
 18  
 N20,53,57.4  
 W156,26,26.3  
 Disturbed site, subject to seasonal flooding

HYDROLOGY

PRIMARY Indicators

Inudated  
 ✓/Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 ✓/Drainage patterns In Wetlands

FIELD OBSERVATIONS:

Depth of Surface Water:  
 Depth to Free water in Pit:  
 Depth to saturated Soil: 8in.  
 Floods seasonally  
 Wetland Hydrology Present? YES

SOILS

Map Unit Name: Jc C  
 Field Observations Confirm: YES

PROFILE DESCRIPTION

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-8 in	5YR 3/4			
8-10 in.	5YR 4/3		40.00%	Sand
10-12 in.	7.5YR 4/4		> 50%	Sand
12+ in.	7.5YR 7/3		> 50%	Sand

Hydric Soil Indicators:

Sulfic Odor  
 Organic streaking In Sandy Soil  
 Hydric Soil Present? YES

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES  
 Wetland Hydrology Present? YES  
 Hydric Soil Present? YES  
 Sampling point a Wetland? YES

ROUTINE WETLAND DETERMINATION DATA FORM

Project/Site:  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/17/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 21

Do normal Circumstances exist on the site?  
 Atypical Situation?  
 Is the area a potential Problem Area?

VEGETATION

Dominant Plant Species	Stratum	Indicator
Thespesia populnea	T 40%	FAC+
Scaevola sericea	S 60%	FACU

Percent of Dominant Species that are  
 OBL FACW or FAC (excluding FAC-) 100.00%

Hydrophytic Vegetation Present? YES

REMARKS:

NAD 83  
 21  
 N20,53,58.4  
 W156,26,29.3

HYDROLOGY

PRIMARY Indicators  
 Inundated  
 -/Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 -/Drainage patterns in Wetlands

FIELD OBSERVATIONS:  
 Depth of Surface Water:  
 Depth toFree water in Pit:14 In.  
 Depth to saturated Soil:3In

Wetland Hydrology Present? YES

SOILS

Map Unit Name: JcC  
 Field Observations Confirm: YES

PROFILE DESCRIPTION

Depth	Matrix Color	Mottle	MottleAbundance	Texture
0-14 in.	7.5YR 4/4		>50%	
14+ in.	7.5YR 5/1		>50%	Sand

Hydric Soil Indicators:  
 Sulfic odor Organic streaking in Sandy soil  
 Gleyed Colors  
 Hydric Soil Present? YES

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES  
 Wetland Hydrology Present? YES  
 Hydric Soil Present? YES

Sampling point a Wetland?  
 YES

ROUTINE WETLAND DETERMINATION DATA FORM

Project/Site:  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/17/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 22

Do normal Circumstances exist on the site?  
 Atypical Situation?  
 Is the area a potential Problem Area?

VEGETATION

Dominant Plant Species	Stratum	Indicator
Sesuvium portulacastrum	H 45%	FAC+
Prosopis pallida	T 15%	FACU-

Percent of Dominant Species that are  
 OBL FACW or FAC (excluding FAC-) 60.00%

Hydrophytic Vegetation Present? NO

REMARKS:

NAD 83  
 22  
 N20,53,55.7  
 W156,26,30.0  
 Edge

HYDROLOGY

PRIMARY Indicators  
 Inundated  
 -/Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 -/Drainage patterns in Wetlands

FIELD OBSERVATIONS:  
 Depth of Surface Water:  
 Depth toFree water in Pit:  
 Depth to saturated Soil:10In.

Wetland Hydrology Present? YES

SOILS

Map Unit Name: JcC  
 Field Observations Confirm: YES

PROFILE DESCRIPTION

Depth	Matrix Color	Mottle	MottleAbundance	Texture
0-15 in.	7.5YR 4/6		>50%	Sand
15+ in.	7.5YR 2.5/3			

Hydric Soil Indicators:

Hydric Soil Present? NO

WETLAND DETERMINATION

Hydrophytic Vegetation Present? NO  
 Wetland Hydrology Present? YES  
 Hydric Soil Present? NO

Sampling point a Wetland?  
 NO

ROUTINE WETLAND DETERMINATION DATA FORM

Project/Site:  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/17/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 25

Do normal Circumstances exist on the site? YES  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

VEGETATION

Dominant Plant Species	Stratum	Indicator
Sesuvium portulacastrum	H 100%	FAC*

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100.00%

Hydrophytic Vegetation Present? YES

REMARKS:

NAD 83  
 25  
 N20, S3, S3.8  
 W156, 26, 34.3  
 Salt Crust on soil surface

HYDROLOGY

PRIMARY Indicators

Inundated  
 ✓Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 ✓Sediment Deposits  
 ✓Drainage patterns in Wetlands

FIELD OBSERVATIONS:

Depth of Surface Water:  
 Depth to Free water in Pit:  
 Depth to saturated Soil: 0in.

Wetland Hydrology Present? YES

SOILS

Map Unit Name: Jc C  
 Field Observations Confirm: YES

PROFILE DESCRIPTION

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-5 in.	Sand			
5-12 in.	7.5YR 5/3	Sand	5.00%	
12-16 in.	7.5YR 6/2		>50%	
16+ in.	7.5YR 5/2		>50%	

Hydric Soil Indicators:  
 Sulfic odor Gleyed Colors Organic streaking in Sandy soil  
 Reducing conditions  
 Hydric Soil Present? YES

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	YES	Sampling point a Wetland?	YES
Wetland Hydrology Present?	YES		
Hydric Soil Present?	YES		

ROUTINE WETLAND DETERMINATION DATA FORM

Project/Site:  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/17/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 26

Do normal Circumstances exist on the site? YES  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

VEGETATION

Dominant Plant Species	Stratum	Indicator
Sesuvium portulacastrum	H 50%	FAC*
Sporobolus virginicus	G 40%	FAC*
Spergularia salina	H 10%	FAC

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100.00%

Hydrophytic Vegetation Present? YES

REMARKS:

NAD 83  
 26  
 N20, S3, S4.5  
 W156, 26, 35.7  
 Salt Crust on Soil Surface

HYDROLOGY

PRIMARY Indicators

Inundated  
 ✓Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 ✓Sediment Deposits  
 ✓Drainage patterns in Wetlands

FIELD OBSERVATIONS:

Depth of Surface Water:  
 Depth to Free water in Pit:  
 Depth to saturated Soil: 2in.

Wetland Hydrology Present? YES

SOILS

Map Unit Name: Jc C  
 Field Observations Confirm: YES

PROFILE DESCRIPTION

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-13 in.	7.5YR 4/6	Sand		
13-16 in.	7.5YR 3/4			
>16 in.	7.5YR 2.5/1			

Hydric Soil Indicators:  
 Sulfic odor  
 Gleyed Colors  
 Hydric Soil Present? YES

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	YES	Sampling point a Wetland?	YES
Wetland Hydrology Present?	YES		
Hydric Soil Present?	YES		

ROUTINE WETLAND DETERMINATION DATA FORM

Project/Site:  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/17/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 29

Do normal Circumstances exist on the site? YES  
 Atypical Situation? YES  
 Is the area a potential Problem Area? NO

VEGETATION  
 Dominant Plant Species Stratum Indicator  
 Batis maritima H 80% OBL  
 Prosopis pallida T 20% FACU-

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100.00%

Hydrophytic Vegetation Present? YES

REMARKS:

NAD 83  
 29  
 N20,53,51.3  
 W156,26,39.8  
 On edge of old fill

HYDROLOGY

PRIMARY Indicators  
 Inudated  
 ✓Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 ✓Drainage patterns in Wetlands

FIELD OBSERVATIONS:  
 Depth of Surface Water:  
 Depth toFree water in Pit:  
 Depth to saturated Soil: 2 in.

Wetland Hydrology Present? YES

SOILS

Map Unit Name: J c C  
 Field Observations Confirm: YES

PROFILE DESCRIPTION  

Depth	Matrix Color	Mottle	MottleAbundance	Texture
0-5 in	7.5YR 3/4	7.5YR 7/4	10.00%	
5-11 in	5YR 4/6	Sand	>50%	
11+ in	7.5YR 2.5/2			

Hydric Soil Indicators:  
 Sulfic odor Gleyed color Organic streaking  
 Hydric Soil Present? YES

WETLAND DETERMINATION  
 Hydrophytic Vegetation Present? YES Sampling point a Wetland? YES  
 Wetland Hydrology Present? YES  
 Hydric Soil Present? YES

ROUTINE WETLAND DETERMINATION DATA FORM

Project/Site:  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/17/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 30

Do normal Circumstances exist on the site? YES  
 Atypical Situation? YES  
 Is the area a potential Problem Area? NO

VEGETATION  
 Dominant Plant Species Stratum Indicator  
 Prosopis pallida T 30% FACU-

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 30.00%

Hydrophytic Vegetation Present? YES

REMARKS:

NAD 83  
 30  
 N20,53,51.4  
 W156,26,40.7

HYDROLOGY

PRIMARY Indicators  
 Inudated  
 ✓Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 Drainage patterns in Wetlands

FIELD OBSERVATIONS:  
 Depth of Surface Water:  
 Depth toFree water in Pit:  
 Depth to saturated Soil: 1 in.

Wetland Hydrology Present? YES

SOILS

Map Unit Name: DL  
 Field Observations Confirm: YES

PROFILE DESCRIPTION  

Depth	Matrix Color	Mottle	MottleAbundance	Texture
0-8 in	5YR 3/4			Sand
8-13 in	5YR 4/6	Sand		Sand
13+ in	7.5YR 5/6			

Hydric Soil Indicators:  
 Hydric Soil Present? YES

WETLAND DETERMINATION  
 Hydrophytic Vegetation Present? YES Sampling point a Wetland? YES  
 Wetland Hydrology Present? YES  
 Hydric Soil Present? YES

**ROUTINE WETLAND DETERMINATION DATA FORM**

Project/Site: Kanaha - Edge of roadside parking lot  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/17/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 33

Do normal Circumstances exist on the site? YES  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

**VEGETATION**  
 Dominant Plant Species Stratum Indicator  
 Sporobolus virginicus G 60% FAC\*  
 Prosopis pallida T 20% FACU-

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 80 00%

Hydrophytic Vegetation Present? YES

**REMARKS:**

NAD 83  
 33  
 N20,53,55.4  
 W156,26,36.8

**HYDROLOGY**

**PRIMARY Indicators**  
 Inudated  
 ✓Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 ✓Drainage patterns in Wetlands

**FIELD OBSERVATIONS:**  
 Depth of Surface Water:  
 Depth toFree water in Pit:18 in.  
 Depth to saturated Soil: 1 in.

Wetland Hydrology Present? YES

**SOILS**

Map Unit Name: DL  
 Field Observations Confirm: YES

**PROFILE DESCRIPTION**

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-9 in.	7.5YR 3/3			Sand
9-11 in.	7.5YR 2.5/1			Sand
11-14 in.	7.5YR 3/2			Sand
14+	7.5YR 5/1			

Hydric Soil Indicators:  
 Sulfic Odor Organic streaking in sandy soil  
 Gleyed colors  
 Hydric Soil Present? YES

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	YES	Sampling point a Wetland?	YES
Wetland Hydrology Present?	YES		
Hydric Soil Present?	YES		

**ROUTINE WETLAND DETERMINATION DATA FORM**

Project/Site:  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/17/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 34

Do normal Circumstances exist on the site? YES  
 Atypical Situation? NO  
 Is the area a potential Problem Area? NO

**VEGETATION**  
 Dominant Plant Species Stratum Indicator  
 Sporobolus virginicus G 100% FAC\*

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100 00%

Hydrophytic Vegetation Present? YES

**REMARKS:**

NAD 83  
 34  
 N20,53,56.1  
 W156,26,39.4

**HYDROLOGY**

**PRIMARY Indicators**  
 Inudated  
 ✓Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 ✓Drainage patterns in Wetlands

**FIELD OBSERVATIONS:**  
 Depth of Surface Water:  
 Depth toFree water in Pit:19 in.  
 Depth to saturated Soil: 1 in.

Wetland Hydrology Present? YES

**SOILS**

Map Unit Name: DL  
 Field Observations Confirm: YES

**PROFILE DESCRIPTION**

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-9 in.	7.5YR 3/3			Sand
9-13 in.	7.5YR 2.5/2			
13-15 in.	10YR 5/2			Sand
15+	7.5YR 4/1			> 50%

Hydric Soil Indicators:  
 Sulfic Odor Organic streaking in sandy soil  
 Gleyed colors  
 Hydric Soil Present? YES

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	YES	Sampling point a Wetland?	YES
Wetland Hydrology Present?	YES		
Hydric Soil Present?	YES		

ROUTINE WETLAND DETERMINATION DATA FORM

Project/Site:  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/17/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 37

Do normal Circumstances exist on the site? YES  
 Atypical Situation? YES  
 Is the area a potential Problem Area? NO

VEGETATION

Dominant Plant Species	Stratum	Indicator
Thespesia populnia	T 100%	FACU-

Percent of Dominant Species that are  
 OBL FACW or FAC (excluding FAC-) 100.00%

Hydrophytic Vegetation Present? YES

REMARKS:

NAD 83  
 37  
 N20,53,47.6  
 W156,26,57.6

HYDROLOGY

PRIMARY Indicators  
 Inundated  
 ✓Saturated in Upper 12"  
 Water marks  
 ✓Drift Lines  
 Sediment Deposits  
 ✓Drainage patterns In Wetlands

FIELD OBSERVATIONS:  
 Depth of Surface Water:  
 Depth toFree water in Pit:  
 Depth to saturated Soil: 0In.

Wetland Hydrology Present? YES

SOILS

Map Unit Name: Jc C  
 Field Observations Confirm: YES

PROFILE DESCRIPTION

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-6 in.	7.5YR 3/2	7.5YR 3/1	50.00%	
6+ in.	Sand			

Hydric Soil Indicators:  
 Gleyed or Low-Chrome Colors

Hydric Soil Present? YES

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES  
 Wetland Hydrology Present? YES  
 Hydric Soil Present? YES

Sampling point a Wetland?  
 YES

ROUTINE WETLAND DETERMINATION DATA FORM

Project/Site:  
 Applicant:  
 Investigators: Anna Palomino & Jennifer Crummer  
 Date: 5/17/03  
 County: Maui  
 State: Hawaii  
 Plot ID: 38

Do normal Circumstances exist on the site? NO  
 Atypical Situation? YES  
 Is the area a potential Problem Area? NO

VEGETATION

Dominant Plant Species	Stratum	Indicator
------------------------	---------	-----------

Percent of Dominant Species that are  
 OBL FACW or FAC (excluding FAC-)

Hydrophytic Vegetation Present?

REMARKS:

NAD 83  
 38  
 N20,53,48.7  
 W156,26,54.9  
 In roadway

HYDROLOGY

PRIMARY Indicators  
 Inundated  
 Saturated in Upper 12"  
 Water marks  
 Drift Lines  
 Sediment Deposits  
 ✓Drainage patterns In Wetlands

FIELD OBSERVATIONS:  
 Depth of Surface Water:  
 Depth toFree water in Pit:  
 Depth to saturated Soil:

Wetland Hydrology Present? NO

SOILS

Map Unit Name: Jc C  
 Field Observations Confirm: YES

PROFILE DESCRIPTION

Depth	Matrix Color	Mottle	Mottle Abundance	Texture
0-14 in	Sand	5YR 4/6		Streaks

Hydric Soil Indicators:  
 Organic streaking in sandy soil

Hydric Soil Present? NO

WETLAND DETERMINATION

Hydrophytic Vegetation Present? NO  
 Wetland Hydrology Present? NO  
 Hydric Soil Present? NO

Sampling point a Wetland?  
 NO

Table 2

## PLANT LIST AND INDICATOR STATUS

BOTANICAL NAME	COMMON/HAWAIIAN NAME	INDICATOR STATUS
<i>Alternanthera pungens</i>	Khaki weed	NI
<i>Batis maritima</i>	Pickle weed, 'Akulikuli kai	OBL
<i>Brachiaria mutica</i>	California grass	FACW
<i>Casuarina equisetifolia</i>	Common Ironwood	FACU
<i>Chenopodium murale</i>	Goosefoot, 'Aheahea	FACU
<i>Chenopodium oahuense</i>	'Aweoweo	NI
<i>Cynodon dactylon</i>	Burmuda grass	FACU
<i>Cyperus involucratus</i>	Umbrella segde	FACW
<i>Cyperus javanicus</i>	'Ahuawa	FACW
<i>Eclipta prostrata</i>	False daisy	FACW
<i>Heliotropium curassavicum</i>	Nena	FAC
<i>Indigofera suffrutcosa</i>	Indigo	UPL
<i>Lemna perpusilla</i>	Duckweed	OBL
<i>Leucaena leucocephala</i>	Koa haole	UPL
<i>Ludwigia octovalvis</i>	Primrose willow	OBL
<i>Momordica charantia</i>	Bitter melon	FAC*
<i>Pluchea indica</i>	Indian fleabane	FAC*
<i>Pluchea symphytifolia</i>	Sourbush	FAC*
<i>Prosopis pallida</i>	Kiawe	FACU-
<i>Scaevola sericea</i>	Naupaka kahakai	FACU
<i>Schinus terebinthifolius</i>	Christmas berry	FACU-
<i>Schoenoplectus lacustris</i>	Great bullrush	OBL
<i>Sesuvium portulacastrum</i>	'Akulikuli, Sea purslane	FAC
<i>Spergularia marina</i>	Common chickweed, Stitchwort	FAC
<i>Sporobolus virginicus</i>	'Aki'aki	FAC*
<i>Thespesia populnia</i>	Milo	FAC+
<i>Waltheria indica</i>	Uhaloa	NI

**Indicator Categories**

**OBL - Obligate Wetland:** Occurs almost always (estimated probability >99%) under normal conditions in wetlands.

**FACW - Facultative Wetland:** Usually occurs in wetlands (estimated probability 67%-99%), but occasionally found in nonwetlands.

**FAC - Facultative:** Equally likely to occur in wetlands or nonwetlands (estimated probability 1%-33%).

**FACU - Facultative Upland:** Usually occurs in nonwetlands (estimated probability 15-33%)

**UPL - Obligate Upland:** Occurs in wetlands in another region, but occur almost always (estimated probability >99%) under natural conditions in nonwetlands in the region specified.

**NI - Not found on the National List.**

June 18, 2001

Karla Peters  
Planning & Development

Dear Karla,

The Parks and Recreation Department of Maui County is seeking input from the community on addressing current problems/issues and on the future development of Kanaha Park. Your name was suggested as an individual that may have special insights on the park.

We are planning a meeting on the following date:

**Tuesday, June 26**  
**3:00 pm**  
**Kahului Community Center**  
**Upstairs Conference Room**

We will be following a format developed by Richard Baron of Responsive Management Systems of Seattle. In the hour or so that we will take, we will work through a process that will allow us to prioritize our ideas. There are two meetings proposed for this group—one to generate the ideas and the second to seriously evaluate the potential of making those ideas reality.

We hope that you allow Kimo and Jorge to join us in this important effort to enhance and improve the recreational experience at Kanaha Park. Please confirm your attendance by calling 270-7329. Any questions can be addressed to Sue Kiang. She will be facilitating this process for me. If you are not able to attend the meetings, you may submit written suggestions to Sue at the Community Resource Section at 275 Uhu St., Kahului, HI 96732.

I thank you in advance for your assistance.

Sincerely,

Floyd Miyazono  
Director

Kanaha Meeting Agenda  
June 26, 2001

Goal: To gain community input in addressing problems/issues facing Kanaha Park at present and to seek feedback on the future development of the park.

Questions to be addressed:

1. What is it that you like about the park?
2. What would you change/improve about the park?

Process to be followed:

- Ideas generation—take five minutes to list comments (in 4 words or less) Each individual gives a comment. The group continues until all ideas have been generated. No discussion by group at this point.
- Clarification—this is the opportunity for members of the group to get clear on what each of the comments means. The facilitator does not clarify, the individual that gave the comment does.
- Redundancy/Repetition check—the group then looks at the list and tries to decide if there is any repetition in the ideas that have been generated. The list is numbered beginning with 5

\* \* \*

- Selection—each person is given five notecards to write the concept in the middle of the card. On the upper left corner, put the number from the master list of the chosen idea.
- Scaling—Chose the idea that you feel is the *most significant* and put number 5 in the lower right corner. From the remaining four, chose the *least significant*. Continue the same process with the last three
- The list is then scored according to the group's choices.

End of first meeting

**GROUP MEMORY**  
**Kanaha Meeting**  
**June 26, 2001**

The purpose of a group memory is a document that captures the information gained in a facilitated brainstorm session. The additional process of ranking the material gives the group an idea of the importance of each item to the group as a whole. A group memory is not intended to be an analysis of the information, but merely the collection of that information. Therefore, the reader will see repetitions which have been included for others to see just how important that particular statement was to each individual.

At our second meeting, people will break down into small groups to discuss the data at length and to come to some conclusions regarding future plans and actions. At the end of this session, the group will be invited to determine their further participation.

The second meeting has been scheduled as follows:

**Tuesday, July 24, 2001**  
**1:30 pm**  
**Kahului Community Center**

What is it that you like about Kanaha Park?

- diving
- fishing
- picnics
- open space
- easy access
- consistent side shore tradewinds
- great family/kids park
- shade
- clean, open, protected ocean
- windy/sheltered
- shade/sun
- parking set-up
- place to lunch and dinner
- showers
- on bike path
- international visitor destination
- secure storage facilities
- reefs
- safer
- marine life
- beginner spot for ocean sports
- clean

Kanaha Meeting

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...like about the park?

- nicely painted bathrooms
- room for expansion
- so multi-use
- variety of activities for users
- community partnerships and cooperation
- surfing
- windsurfing
- trees
- sand
- sewer connection
- camping
- best place to work
- lifeguards
- picnic areas
- kiteboarding
- canoeing
- ideal youth program site *Summer PALS*
- Hawaiiana activities
- central location
- large beach
- various water conditions
- close to airport
- historical
- potential to bring people together peacefully
- action of elements
- sand volleyball courts
- open space
- toilets
- post & rail
- job security
- wetlands
- safe ocean
- picnic & bar-b-que pits
- Laeula O Kai *—the canoe club*
- milo & coconut trees
- seaweed
- horseshoe pits
- lifeguards
- Ka Lima keeps clean
- multi-uses—canoe hale, windsurfing, kitesailing, swimming, surfing, picnics, &

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- volleyball

What would you like to see changed/improved at Kanaha Park?

*Information in italics resulted from the group's efforts to consolidate or clarify comments made during the brainstorm session. The numbers begin with #6 to accommodate the ranking exercise that follows.*

6. Prevent water leaks at showers
7. Recycle baskets for cans
8. Fix sprinkler system *make automatic & use recycled water*
9. Overflow parking
10. Lifeguard station and more storage for equipment
11. Improve restroom (*mentioned in other comments*)
12. Enhance plant life especially natives (*same as #29*)
13. Lighting in parking lot, park, & restrooms
14. Increase lifeguard hours until dusk
15. More picnic tables and bar-b-que pits
16. Community police station in park (*Same as #59*)
17. Expand park to sewage treatment plant
18. More water for planting at north end *is a goal*
19. Master plan for park which would assist in budget plans
20. ? Resident caretaker house or 24 hour presence in park
21. More grassy areas
22. Improve existing restroom and add 2 more
23. Increase garbage pick-up
24. Keep gates open for *overnight* fishing
25. Improved camping *include in Master Plan*
26. Maintain & replace picnic tables and bar-b-ques
27. Trash cans to sewer plant
28. Bike & walking plans expedited
29. Remove Kiawe replaced with endemic plants with no thorns
30. Reduce feral cat population
31. Remove kiawe (*same as #29*)
32. Volunteer watering for new plants (*Jim Bailey/CWD back on track with water*)
33. Increase police presence
34. Concession stands
35. Educate against litter and increase signs
36. Increase recreation staff onsite (*59?*)
37. Open visual access to discourage illegal camping
38. User-friendly educational board easily understood by all inc. foreign visitors *59?*

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39. 2 full-time maintenance workers onsite
40. Small, open museum with hands-on activities (#59. *Like center at Volcanoe Park*)
41. Roped off kid swim area
- ? 42. Land behind Kook's beach purchased from state
43. Safety training center like at Ala Moana
44. Businesses nearby upgrade their appearance
45. Preserve & clean wetlands
46. Ban glass beverage containers on beach
47. Speed bumps in park
48. Plaques to identify plants
49. Move wastewater plant
50. New hotel in vicinity impacts
51. More drinking fountains
52. Add shower at lower end and upper needs wind protection
53. Reduce hypnea (seaweed not natural to area)
54. Create park ranger with law enforcement capabilities *24 hour presence*
55. Lighting along road
56. Change access road
57. Doggy park
- ? 58. Remove storage containers
59. Visitors Center that could address safety, information, and permits
60. Beach grading and cleaning

Ranking Exercise

The group was asked to chose five concerns that they feel are priority. The five are then ranked according to the first choice for 5 points and the last choice for 1 point. From the remaining three, then chose the next most important for 4 points and the least for 2 points and the final card gets 3 points. By following this format, a group not only prioritizes their choices but gives them more weight. An example of a choice not perceived important but still a priority may get five people giving it 1 point while another item is perceived as important by one individual for five points. The end result is that they are each weighted the same.

The following reflection is ordered by the most responses and then the points were totalled. *Italics are further comments made on the card.*

- Visitor Center-3 - 5 - 4 - 1 - (*museum*)2 - (*future*)1 - 4 - (*multi-use*)1 - (*with ranger, info, lifeguard storage, cultural exhibit, first aid station, communitiy police*)4 - 1 - (*caretaker*)4 - (*inc. community police sub-station*)5 - 1 - 2 - (*24hr. Interpretive park ranger/warden/cultural/security*)3 - (*24 hr. park ranger*)5 - (*park ranger*)3 - (*resident caretaker house*)5 - (*24 hr presence*)5 - (*resident caretaker house*)3 - (*caretaker*)4 - (*resident caretaker*)4=*total 70 points*

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- Irrigation - 3 - (*automatic sprinkler system, more drinking fountains*)5 - 2 - 4 - 5 - 5 - 2 - (*enhanced*)2 - 1 - 2 = 31 points
- Restroom improvements 5 - (*more*)5 - 4 - 3 - 5 - (*add shower*)2 - (*shower fixed & maintained*)2 - 3 - (*improve existing & build 2 large permanent restrooms*)2=31
- Master plan 5 - 5 - 5 - 5 - 4 - 3 - 3 = 31 points
- Lifeguard (*facility expansion*)5 - (*station & towers*)5 - 4 - (*until dusk*)1 - (*additional manpower 1. Lifeguards 2. Caretakers*)2 - (*lifeguard hours expanded*)3 - (*improved station & storage*)2 - (*lifeguard storage*)3 - 1 - (*lifeguard station improvements*)4 = 30 points
- Lighting 3 - 3 - 4 - (*lighting park & parking lot now*)2 - (*parking lot, park, restroom*)1 - (*lighting parking lot, park, & restroom*)4 - (*new & improved*)3=20
- Picnic areas 1 - (*bar-b-ques & picnic tables—new, maintain, replace*)4 - 4 - 1 =10
- Expand park 4 - (*land purchase*)3 - (*kook's beach*)2 - (*expand to sewer plant*)1=10 points
- Ban glass 3 - 5 = 8 points
- Remove kiawe 1 - (*replace with endemics, user friendly plant species*)2 - (*replaced with endemic*)4 = 7 points
- Concession stands 3 - 2 - 1 =7 points
- Allow overnight fishing 1 - 2 =3 points
- Change access road 4 points
- Overflow parking 3 points
- Camping 2 points
- Improved maintenance 2 points
- Enhance/restore wetlands 1 point
- More MPD patrols 1 point

Kanaha Meeting Agenda  
second meeting

July 24, 2001  
1:30 PM  
Kahului Community Center

JUL 06 2001

Goal: To review and input on the list of desired improvements/enhancements to Kanaha Park suggested by the group at the first meeting.

Problem analysis:

- The facilitator will have created a new list with the top five scores.
- A quick review by the group to refresh memories and further clarify ideas that have been generated.
- Break into small groups to discuss possible solutions  
The large group will decide if each break-out group looks at all five or if the small group will discuss at length an individual idea
- Each group identifies a recorder and a reporter to present ideas back to the group as a whole.

Conclusions:

- A representative from the group gives their top five suggestions.
- Discuss future needs.

Mahalo for your participation

RSVP: Sue Kiang 270-7329

## KANAHHA INTEREST GROUP

### Meeting Minutes

July 24, 2001

Those present: Tamara Horcajo, Marian Feenstra, Jim & Roselle Bailey, Karla Peters, Craig Powell, Ed Diehl, Martin Kirk, Jorge Marzan, Jay Sniffen, Mary Kielty, Kim Ball, Pat Rocco

While the purpose of the meeting was to break into small groups and discuss in more depth the results of the prioritization exercise, members spent the time questioning the purpose of the meetings and expressing concern about the utilization of their time.

As a review, those priorities were as follows:

Visitor Center	70 points
Park Ranger (15)	
24 hour presence (25)	
Irrigation	31
Restroom improvements	31
Master Plan	31
Lifeguard services/storage	30

The discussion began with comments about creating plans and not having them adhered to which seemed related to the information in the media regarding community plans and who makes them and how binding they are. There was also the impression that there were existing plans. (From my research, there are no previous plans within the county but there is one in existence that is not the property of the county.) Some members seemed to feel it was futile to proceed without a better direction from the administration. And finally, there were those that felt the "old-timers" should be invited back to give their vision for the park. Some of the names listed or parties indicated were Elmer, Jan, Charmaine, Bishop, Council members, Public Works, Water Department, the sewer pump station manager, and the guy that picks up the trash in the afternoon.

With precious time waning, it was decided to convene the committee again (for those that are interested) to review the following topics:

Information from the recent shoreline study by Matt Niles of Planning

Camping

Master plan contract\*

**Kanaha Meeting Minutes**  
**July 24, 2001**

\*Karla of Parks Planning and Development had told the group that the current budget allocation was for a master plan. This meeting would allow members the opportunity to provide input to the contractor.

Before the meeting was adjourned a quick question of what again would those present see as priority. Their comments were as follows:

Green grass

Lifeguard tower and storage

Overview of current plans

MPD substation kiosk

Entrance sign

Speed bumps

Clarity on immediate and long range plans

License to occupy for canoe club

Controlled camping

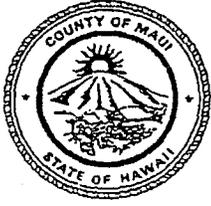
*[As facilitator, I will try to keep the meeting to an hour and a half.]*

Respectfully submitted: Sue Kiang 8/16/01

# DRAFT

## Possible rules and regulations for Kanahā Beach Group Campground:

- ◆ Permits required for any and all camping.
- ◆ Permits must be displayed on campsite. Keep receipt for verification.
- \* ◆ All permits must have all campers names. Must present current picture ID for everyone on permit. All ID #s on permit. All vehicle license plates must be documented on permit. If under 18 yrs old, must have names and ages.
- \* ◆ Limit 10 people maximum on permit.
- ◆ Fees: \$3.00 per day=adults; \$.50 per day=minors(under 18 yrs)
- ◆ 3 day maximum of camping @ campground.
- \* ◆ 30 day waiting period in between camping @ campground for all persons on permit. *(maybe 21 days)*
- ◆ Parking in designated spaces only.
- ◆ Camp at designated site only.
- ◆ Observe quiet hours from 10pm to 7am.
- ◆ Keep pets on a leash @ all times. Do not leave pets unattended. Please clean up after your pet, placing droppings in garbage cans. Pets abandoned or left unattended may be turned over to County Animal Control.
- ◆ No cutting or removal of trees, plants, rocks, etc. Nails, screws or spikes shall not be driven into trees. It is illegal to destroy, damage or deface any of the buildings or equipment in the camp ground and/or surrounding park.
- ◆ Disposal of all trash, garbage in the containers provided. Please help us keep the park clean and attractive.
- ◆ Fires shall be built only in established bbq pits, *shared*
- ◆ Burn charcoal in grills only. Do not leave stoves or charcoal fires unattended. Do not place grill on tables. Dispose of charcoal in the containers provided.
- ◆ Bathe @ the showers provided. Bathing @ water spigots or in the restrooms is a health hazard.
- ◆ The construction of any structure for camping purposes shall not be allowed in campground.
- ◆ Campsites may be reserved in advance upon payment and completion of permit through the Permits Office.
- ◆ Camping check out time is noon. Permit holders shall clean and restore said camping area to its original condition. Campers, vehicles and all personal belongings must vacate the campground area and parking lot entirely.
- ◆ Only persons camping pursuant to duly issued camping permits shall enter or remain in camping areas within County Parks between twelve midnight and 6am.



DEPARTMENT OF  
**PARKS AND RECREATION**  
COUNTY OF MAUI

1580-C Kaahumanu Avenue, Wailuku, Hawaii 96793

JAMES "KIMO" APANA  
Mayor

FLOYD S. MIYAZONO  
Director

ELIZABETH D. MENOR  
Deputy Director

(808) 270-7230  
FAX (808) 270-7934

September 20, 2001

Dear Kanaha Supporter,

As you may have heard through the media, the Mayor has resumed camping at Kanaha on an interim basis. We are still seeking input for the long term on how best to provide the camping experience at this location.

We are planning a meeting on the following date:

**Tuesday, September 25**  
**1:30 pm**  
**Kahului Community Center**  
**Upstairs Conference Room**

If you are not able to attend the meetings, you may submit written suggestions to me at the Community Resource Section at 275 Uhu St., Kahului, HI 96732 or by calling 270-7329

I thank you in advance for your assistance.

Sincerely,

*Sue Kiang*  
Sue Kiang

KANAHA INTEREST GROUP  
Meeting Minutes  
September 25, 2001

Those present: Tamara Horcajo, Marian Feenstra, Karla Peters, Craig Powell, Ed Diehl, Martin Kirk, Mary Kielty, Pat Rocco, Val Magee, Allen Atkinson, Dave Emerson

Camping was resumed at the park on September 20, 2001. The group was convened to provide input on the interim program. The plan was to make a campground available to the public while the longterm plans are being formulated. The camp is now open five days a week and closed two days for maintenance. People will have to completely evacuate the area for those two days. The park itself is open from 6 am until 10 pm although the gate is not locked. Permits are limited to three days. All cars must park in the parking lot and there is no vehicular access into the campground.

The group reviewed a survey conducted by the Maui News in 1995. There were 100 responses. The following information was given:

In general, "more remote, primitive experiences--not close to an urban area."

- group camping size averaged 4.5 per party, larger # than expected
- \$10 per tent campsite per night
- \$7 per person per night for cabin (few expressed an interest in cabins)
- 79% did not want pets there; 21% wanted pets
- most everyone agreed to no alcohol
- a reservation system that didn't require year in advance

The ten most chosen favored elements for a campground were--

- peace & quiet
- good tent sites
- safety
- good drinking water
- privacy
- good drainage
- parking
- scenery
- trail access
- beach access

The group then looked at the rules that are currently being given when a permit is pulled. It was expressed that the Mayor's office wanted to keep them to a minimum. It was decided that more information could also be posted on a bulletin board at the park itself. These would include rules more pertaining to the camping experience. One aspect the administration chose not to

include in the rules was a limit to the number of total days that parties can stay per quarter/year/or whatever. The group also felt there should be some sort of sanction if the party leaves the area filled with litter. They wondered about a security deposit.

Mary Kielty is currently monitoring the campground. The permits are pinned on the tent with all the names. While there is currently no Parks policeman, Jorge Marzan has been very conscientious about following up on the permits pulled and the campground. According to ordinance, however, he can only evict people not permitted at 12 am to 6 am. His presence has made a difference. Tamara Horcajo is hopeful that a security company will be contracted in January to assist. Their responsibilities will include interfacing with the public. Pat Rocco is hopeful that she will soon have a park caretaker assigned to Kanaha Monday through Friday 6am until 2:30 pm. He/she will be able to do the daily maintenance as well as beautification projects. The group is still proposing a resident caretaker. Allen Atkinson (phone #270-7979) shared information about the fee for service program. This may be a way to secure a monitor fairly quickly. The group was asked to spread the word for anyone interested in such a position for 20 hours a week that would include being at the site twice a day.

In summary, the members agreed to assist in monitoring the situation over time. Areas of concern include leaving trash, what size of tents are appropriate, need for a concrete disposal area for charcoal, if there will be cars in the park, the feral cat population, and if there is a change in conditions once staff is assigned on a more permanent basis.

The next meeting will be a presentation by Matt Niles of Planning on the shoreline erosion. He will also give feedback on the trees and their part in the process. The next meeting is scheduled as follows:

Thursday,\* October 25  
1:30 pm  
KCC annex\*

\*NOTE CHANGE IN DAY OF WEEK & LOCATION

Respectfully submitted: Sue Kiang 10/5/01  
270-7329

County of Maui - Department of Parks and Recreation  
Camping Rules and Regulations  
Kanaha Beach Park Campground

1. Permits are required for any and all camping at County of Maui campsites. Permits must be conspicuously displayed at the campsite. Keep receipt for verification. Permits have a three night limit.
2. All campers names must be listed on the permit. Campers must have valid identification if over 18 years of age.
3. Fees: \$3.00 per day per adult camper; \$.50 per day per minor camper (under 18 years).
4. Parking is only allowed in designated parking lots and stalls.
5. Camp in designated areas only. Check in is 12:00 p.m. and Check out is 12:00 p.m.
6. Observe quiet hours from 10:00 p.m. until 7:00 a.m. Please be considerate of your fellow campers.
7. Keep pets on a leash at all times. Do not leave pets unattended. Please clean up after your pet. Place droppings in garbage cans. Pets that are abandoned or left unattended may be turned over to County Animal Control.
8. No cutting or removal of trees, plants, rocks, etc. Nails, screws or spikes shall not be driven into trees. It is illegal to destroy, damage or deface any of the buildings or equipment in any County parks facility.
9. Dispose of all trash and garbage in the containers provided. Please help us keep our parks clean and attractive.
10. Do not kindle, build, maintain or use any fire other than in a grill or hibachi. If using a facility barbeque pit, please share with others who request.
11. Campsites may be reserved in advance upon payment and completion of permit through the Parks and Recreation Permits Office
12. Only persons camping pursuant to duly issued camping permits shall enter or remain in designated camping areas between 12:00 a.m. and 6:00 a.m.
13. Campsites will be closed on Tuesdays and Wednesdays for general maintenance.
14. The Kanaha Beach campsite has a capacity of 50 total campers at any one night. Permits will be limited to the first 50 campers on a first come, first served basis.



## LIST OF OTHER REFERENCES

- Archaeological Consultants of Hawaii Inc. (Joseph Kennedy, Peter Brennan, Sandra Ireland)  
1993 Archaeological Inventory Study with Subsurface Testing Report for a Property located at TMK: 3-8-01: 119(por.) Wailuku Ahupua'a, Wailuku District, Island of Maui. Prepared for Department of Parks & Recreation, County of Maui.
- Aura Consulting (Sarah Young)  
1999 Hawaii Wetland Management Policy. Prepared for Hawai'i Wetland Management Policy Group.
- Environmental Planning Associates Inc. (Bruce Bebe, Glenn Hontz, and Andrea Swanander)  
1990 Maui Coastal Scenic Resources Study. Prepared for the County of Maui, Planning Dept.
- International Archaeological Research Institute, Inc. (David J. Welch, Ph.D.)  
1988 Archaeological Subsurface Survey of Kaliialinui Gulch, Kahului Airport, Maui. Prepared for R. T. Tanaka Engineers, Inc.
- International Archaeological Research Institute, Inc. (David J. Welch, Ph.D.)  
1991 Archaeological Subsurface Testing for Kanaha Beach Park Addition and Kanaha Airport Transient Apron, Kahului Airport, Wailuku, Maui, Hawaii. Prepared for R. T. Tanaka Engineers, Inc.
- International Archaeological Research Institute, Inc. (M.J. Tomonori-Tuggle, David J. Welch)  
1995 The Archaeology of Kahului Airport. Prepared for Edward K. Noda and Associates.
- International Archaeological Research Institute, Inc. (M.J. Tomonori-Tuggle, David J. Welch) and Spencer Mason Architects (Ann Yoklavich)  
1997 Architecture and Archaeology at Naval Air Station Kahului Airport (NASKA), Island of Maui Prepared for Edward K. Noda and Associates.
- International Archaeological Research Institute, Inc. (Usha Prasad, M.J. Tomonori-Tuggle, David J. Welch)  
1999 An Evaluation of Traditional and Customary Land Uses in the Kahului Airport Area. Prepared for Edward K. Noda and Associates, Inc.
- University of Hawaii Sea Grant Extension Service  
1997 Beach Management Plan for Maui. Prepared with the County of Maui, Planning Dept.

## PROJECT DIRECTORY

### PARKS DEPT PROJECT MANAGER:

Dyan Ariyoshi 1580C Kaahumanu Ave., (808) 270-7981 (fax 270-7162)  
Parks Planning & Dev. Div. Wailuku, HI 96793

### PARKS DEPT. COMMUNITY COMM. COORDINATOR:

Sue Kiang Kahului Comm. Center, 275 Uhu St., (808) 270-7325 (fax 270-7953)  
Parks Recreation Div. Kahului, HI 96732

### CIVIL ENGINEER:

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### AERIAL TOPOGRAPHIC SURVEYOR:

Gary Takahashi, Ryan Suzuki 420 Waiakamilo Rd., Ste. #411, (808) 842-1133 (fax 842-1937)  
R. M. Towill Honolulu, HI 96817

### LANDSCAPE ARCHITECT:

Russel Gushi 44 S. Market St., (808) 242-6503 (fax 242-0131)  
Russel Y. Gushi, ASLA Wailuku, HI 96793

### ARCHAEOLOGIST/FLORA&FAUNA CONSULTANT:

Erik Fredericksen P. O. Box 880131, (808) 572-6118 (fax 572-6118)  
Xamanek Researches Pukalani, HI 96788 (pager 249-4016)

### PLANNING DEPT. (SHORELINE PLANNER)

Matt Niles 250 S. High St., (808) 270-7735 (fax 270-7634)  
Wailuku, HI 96793

### PLANNING DEPT. LONG RANGE PLANNING DIV. PLANNER

Darin Suzuki 250 S. High St. (808) 270-7506 (fax 270-7634)  
Wailuku, HI 96793

### PLANNING DEPT. ZONING AND ENFORCEMENT DIVISION

Francis Cerizo 250 S. High St. (808) 270-7253 (fax 270-7634)  
Wailuku, HI 96793

### MAUI SEA GRANT EXTENSION AGENT

Zoe Norcross works @ MCC & DPWWM (808) 984-3335  
U.H. Sea Grant program ([www.soest.hawaii.edu/coasts/erosion.html](http://www.soest.hawaii.edu/coasts/erosion.html))  
(N.O.A.A) (also working on updating Maui County Grading ordinance)

### CORPS OF ENGINEERS – WETLANDS

Lollie Silva Corps of Engineers (808) 438-7038

### D.L.N.R. – MAUI OFFICE LAND AGENTS

Louis Wada, Jason Koga 54 S. High St. #102, (808) 984-8103 (fax 984-8111)  
Wailuku, HI 96793

### D.L.N.R. – HISTORIC PRESERVATION DIVISION

Melissa Kuykendall Maui office (808) 243-5169  
Kathy Daegher Honolulu office (808) 692-8023

D.A.G.S. – LAND SURVEY DIVISION

Randall M. Hashimoto                      Kalanimoku Bldg. Rm. 210                      (808) 586-0390  
State Land Surveyor                      1151 Punchbowl St., Honolulu, HI 968  
(Marvin Ting)

D.L.N.R. – FORESTRY

Bob Hobdy, Meyer Ueoka,                      54 S. High St. #102  
Fern Duvall                                      Wailuku, HI 96793

COMMUNITY WORK DAY PROGRAM – VOLUNTEER PLANTING PROJECT

Jan Dapitan, Jim Bailey, or                      P.O. Box 757                                      (808) 877-2524 (fax 873-7762)  
Stuart Funke-Degnuff                      Puunene, HI 96784

HAWAIIAN CULTURE & PLANT EXPERT

Lyons Naone

ENVIRONMENTALISTS / CONCERNED CITIZENS (who may be interested in commenting)

Elmer Cravalho, Kula Community Federal Credit Union

Mary Evanson

John Michael Perry                                      (808) 572-9836

(former Lahaina Postmaster, recommended by Mary Evanson)

Art Medeiros (National Park Service botanist)

Jim Smith

Forest Starr (called 3/27/02)                                      (808) 572-2352