Harry Kim
Mayor

Patricia G. Engelhard
Director

Pamela N. Mizuno
Deputy Director

'07 MAY 31 P1:17

County of Hawai`i

DEPARTMENT OF PARKS AND RECREATION

101 Pauahi Street, Suite 6 • Hilo, Hawai'i 96720
(808) 961-8311 • Fax (808) 961-8411

May 29, 2007

Genevieve Salmonson, Director
Office of Environmental Quality Control
Hawai'i State Department of Health
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813

Dear Ms. Salmonson:

Re: Final Environmental Assessment for Reed's Bay Beach Park Improvements TMK (3)2-1-05:001 & 028, 2-1-06:010, 013 & -15 and portion of abandoned railroad right of way, Island of Hawai'i

The Department of Parks and Recreation, County of Hawai'i, has reviewed the comments received during the 30-day comment period on the draft environmental assessment that ended on March 12, 2007. Our agency has determined that the project will not have significant environmental effects and has issued a Finding of No Significant Impact (FONSI). Please publish notice of availability for this project in the next available edition of the *Environmental Notice*. We have enclosed the following:

- Four (4) copies of the Final EA
- A completed OEQC Environmental Notice Publication Form
- A distribution list for the Draft EA
- A hardcopy of the project summary
- A sample "Dear Participant" letter to be finalized when publication date is known

The summary description was contained in the e-mail sent your office by our consultant for the draft EA. If you require another, please contact him at rterry@hawaii.rr.com. Please contact our park planner, James Komata at 961-8311 if you have any questions.

Sincerely,

Pat Engelhard

Patricia G. Engelhard
Director

Encl(s)

Copy: Ron Terry, Ph.D., Project Environmental Consultant 9w/o attachments)

FINAL ENVIRONMENTAL ASSESSMENT

REED'S BAY BEACH PARK IMPROVEMENTS

TMKs (3rd): 2-1-05:01 & 28, 2-1-6:10, 13, & 15
and portion of abandoned railroad right of way

Hilo, Hawai'i Island, State of Hawai'i

May 2007

Prepared for:

County of Hawai'i
Department of Parks and Recreation
101 Pauahi Street, Suite 6
Hilo, Hawai'i 96720

FINAL ENVIRONMENTAL ASSESSMENT

REED'S BAY BEACH PARK IMPROVEMENTS

TMKs (3rd): 2-1-05:01 & 28, 2-1-6:10, 13, & 15
and portion of abandoned railroad right of way

Hilo, Island of Hawai'i, State of Hawai'i

PROPOSING/APPROVING AGENCY:

County of Hawai'i
Department of Parks and Recreation
101 Pauahi Street, Suite 6
Hilo, Hawai'i 96720-4224

CONSULTANT:

Geometrician Associates LLC
HC 2 Box 9575
Keaau, Hawai'i 96749

CLASS OF ACTION:

Use of State Land
Use of County Funds
Use of Federal Funds
Action in Conservation District

This document is prepared pursuant to:

The Hawai'i Environmental Protection Act,
Chapter 343, Hawai'i Revised Statutes (HRS), and
Title 11, Chapter 200, Hawai'i Department of Health Administrative Rules (HAR).

TABLE OF CONTENTS

LIST OF FIGURES, TABLES AND APPENDICES

SUMMARY OF THE PROPOSED ACTION, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The County of Hawai'i Department of Parks and Recreation (P&R) proposes to redevelop and improve a beach park at Reed's Bay in Hilo, Island of Hawai'i. The park is currently maintained at a minimal level, lacks landscaping, and there are no barriers to restrain vehicles from driving on the beach, which produces a safety hazard and adversely affects water quality. The project would improve a unique recreational resource for the Hilo community, enhance the attractiveness of the area, and allow for a greater diversity of uses. It would also improve safety and protect water quality and beach resources.

The project involves accessible walkways traversing the entire site; seven small pavilions; a restroom and storage structure with shower area; a 51-stall parking lot; removal of existing structures; drinking fountains and trash receptacles; landscaping; a pedestrian bridge connecting to Kūhiō Kalaniana'ole Park located across Reed's Bay (if funding permits); and removal of manmade obstructions in the shoreline area. All pedestrian improvements would be ADA compliant and the parking lot would include ADA accessible stalls. The project would be constructed in two or more phases. P&R would maintain the park, which would be closed at night.

No rare, threatened and endangered species are present. Archaeological and cultural surveys have identified four historic sites: Kanakea fishpond, remnants of railroad bridge trestles, a small complex of pecked basins, and remnants of the Scott Mansion/Legionnaire Clubhouse/Orchid Island Hotel. The former three sites will not be affected, and sufficient information has been gathered from the latter that it is not significant for preservation. If other archaeological resources or human remains are encountered during land-altering activities associated with construction, work in the area of the discovery will be halted and the State Historic Preservation Division will be consulted immediately.

Park users currently drive along and park on the beach. The project would restrict unauthorized vehicles from the shoreline, removing this source of impact to water quality. The contractor will be required to develop a traffic control plan during the design phase to minimize congestion and maintain access to adjacent properties during construction. Because construction would disturb more than an acre, the contractor must obtain a National Pollutant Discharge Elimination System (NPDES) permit and develop and implement a Storm Water Pollution Prevention Plan (SWPPP) to contain sediment and storm water runoff during construction. Furthermore, construction equipment shall be kept in good working condition to minimize the risk of fluid leaks that could enter runoff and groundwater. Significant leaks or spills, if they occur, shall be properly cleaned up and disposed of at an approved site. Landscaping will enhance the visual appearance of the site.

PART 1: PROJECT DESCRIPTION, PURPOSE AND NEED AND ENVIRONMENTAL ASSESSMENT PROCESS

1.1 Project Description, Location and Purpose and Need

The County of Hawai'i Department of Parks and Recreation (P&R) proposes to enlarge and enhance Reed's Bay Beach Park, on Banyan Drive in Hilo (Figs. 1-3; *Appendix 1, Site Plans*). Reed's Bay has long been used for public recreation such as fishing, picnicking, swimming and launching/retrieving of small watercraft. At present the park is only minimally maintained, lacks landscaping and functional restrooms (the current restroom has been decommissioned by P&R), and park users may freely drive and park along the sandy shoreline, which produces a safety hazard and adversely affects water quality. The purpose of the project is to redevelop and augment park facilities, enhance the appearance of the area, diversify uses, improve safety, and protect water quality and beach resources. This project would be consistent with County plans and ongoing projects to enhance the recreational resources and overall attractiveness of the Hilo shoreline, including Kūhiō Kalaniana'ole Park, located across Reed's Bay.

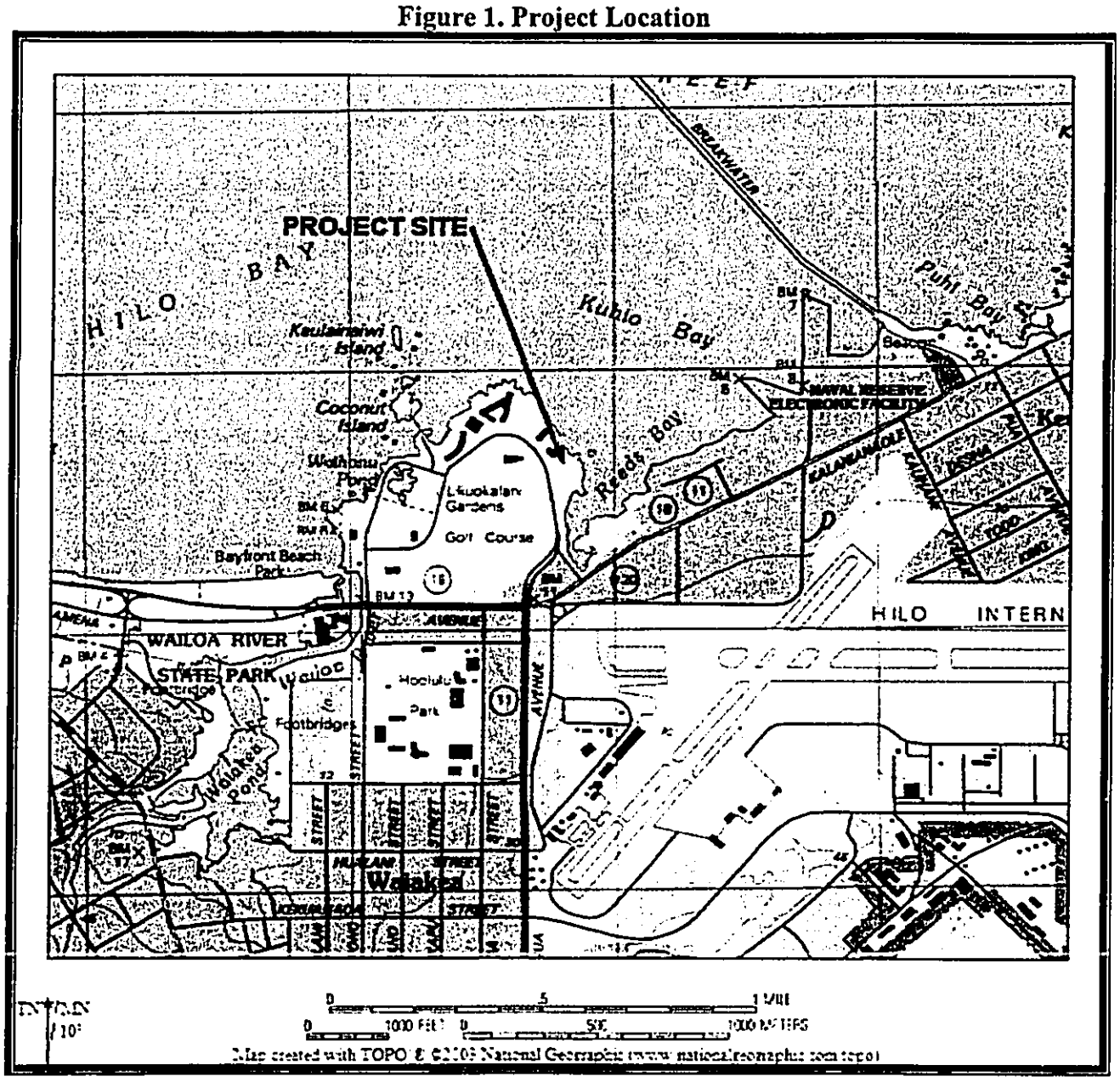
The project involves several related components, some of which will be ready for implementation soon, and others that will require certain actions to be completed first. The actions that are ready for funding and would occur on land that is or will soon be under direct County control are part of Phase 1; Phase II actions are planned for land that is not yet under County control and/or are actions that do not yet have identified funding. Phase II actions are included within this document to assist in comprehensive and sensible planning for recreational facilities. Improvements slated in both phases are shown in Figures 1-9 of *Appendix 1, Site Plans*, and details on the actions and properties involved are contained in Table 1.

Table 1 Property Identification, Use, Ownership and Action Phasing

Prop ID	Current Use	Owner/Status	Action	Phase
2-1-5:01	Existing Beach Recreation Area	State EO 3900 to County	Shoreline Recreation Facilities	I
2-1-5:28	Former Orchid Island Hotel Site)	State Revocable Permit to County, Month to Month	Shoreline Recreation Facilities & Parking Removal of Manmade Obstructions in Bay and Shoreline Setback	II II
2-1-6:10	Ice Pond	State EO 1572 to County	Swimming, Fishing	I
2-1-6:13*	Kūhiō Kalaniana'ole Park	State (EO to County Pending)	Restroom	II
Abandoned Railroad Right of Way*	Kūhiō Kalaniana'ole Park and vacant	State (EO to County Pending)	Pedestrian Bridge	I
Luana Street Access	Access to Kūhiō Kalaniana'ole Park	County	Access, Sewer Line	II

Notes: EO = State of Hawai'i Executive Order;
*Parts or all of these properties will be consolidated with 2-1-6:15 as part of Kūhiō Kalaniana'ole Park.

Figure 1. Project Location



Phase I would provide walkways and low stone seatwalls; one (1) approximately 12 by 12-foot pavilion; a restroom and storage structure with shower area in Reed's Bay Beach Park (see App. 1, Fig. 4 for details); drinking fountains and trash receptacles; and landscaping. Currently, only items covered in this phase are funded. Depending on the final estimated cost, a pedestrian bridge to Kūhiō Kalaniana'ole Park located across Reed's Bay may be constructed (see App. 1, Fig. 3 for details). The bridge would connect the walkway networks for both parks and provide an alternate scenic route to Banyan Drive from Kalaniana'ole Street for residents and cruise ship visitors. The 8-foot wide bridge would span 175 feet over the narrow area between Reed's Bay

Figure 2a
TMK Map Plat 2-1-5

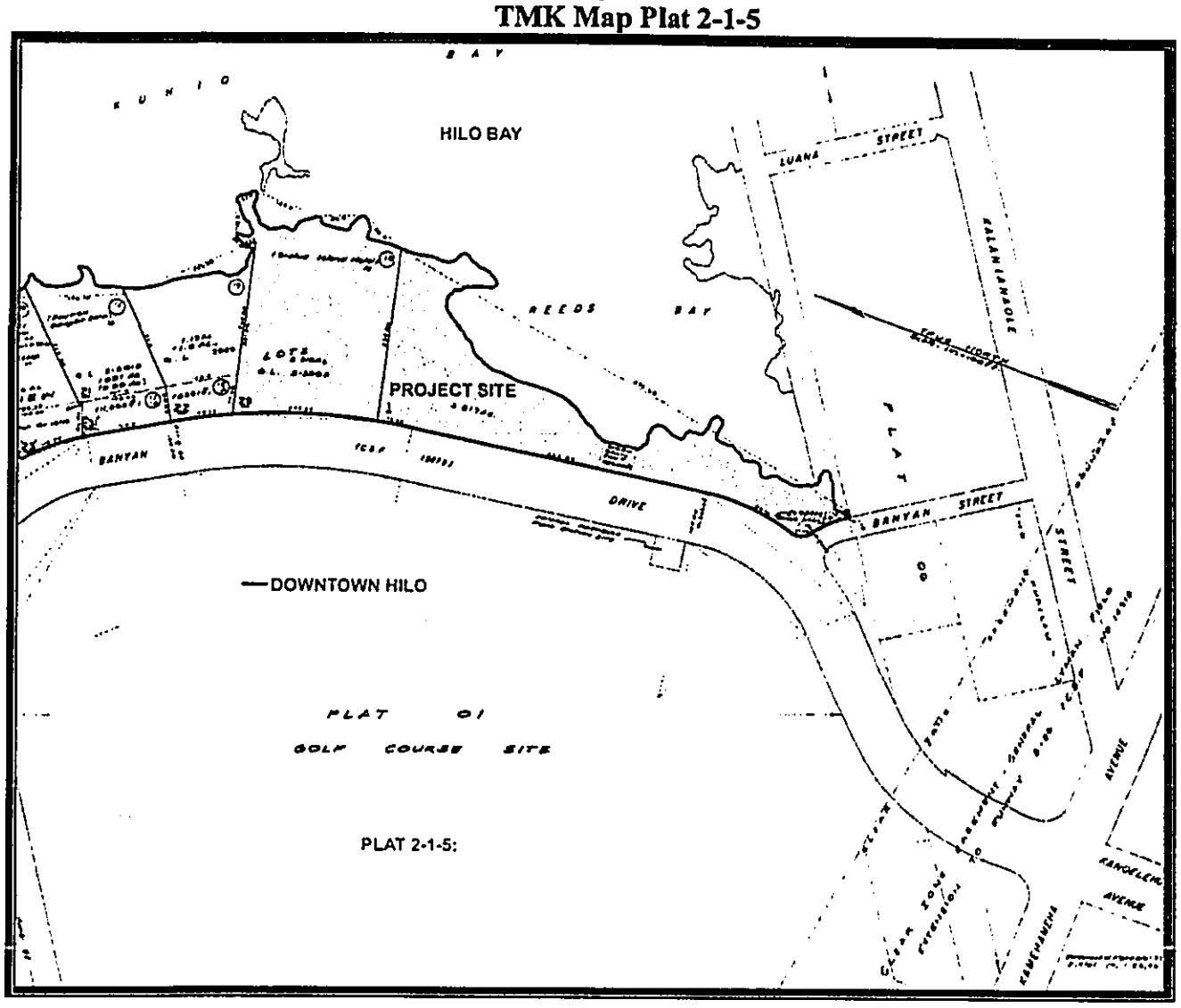


Figure 2b
TMK Map Plat 2-1-6

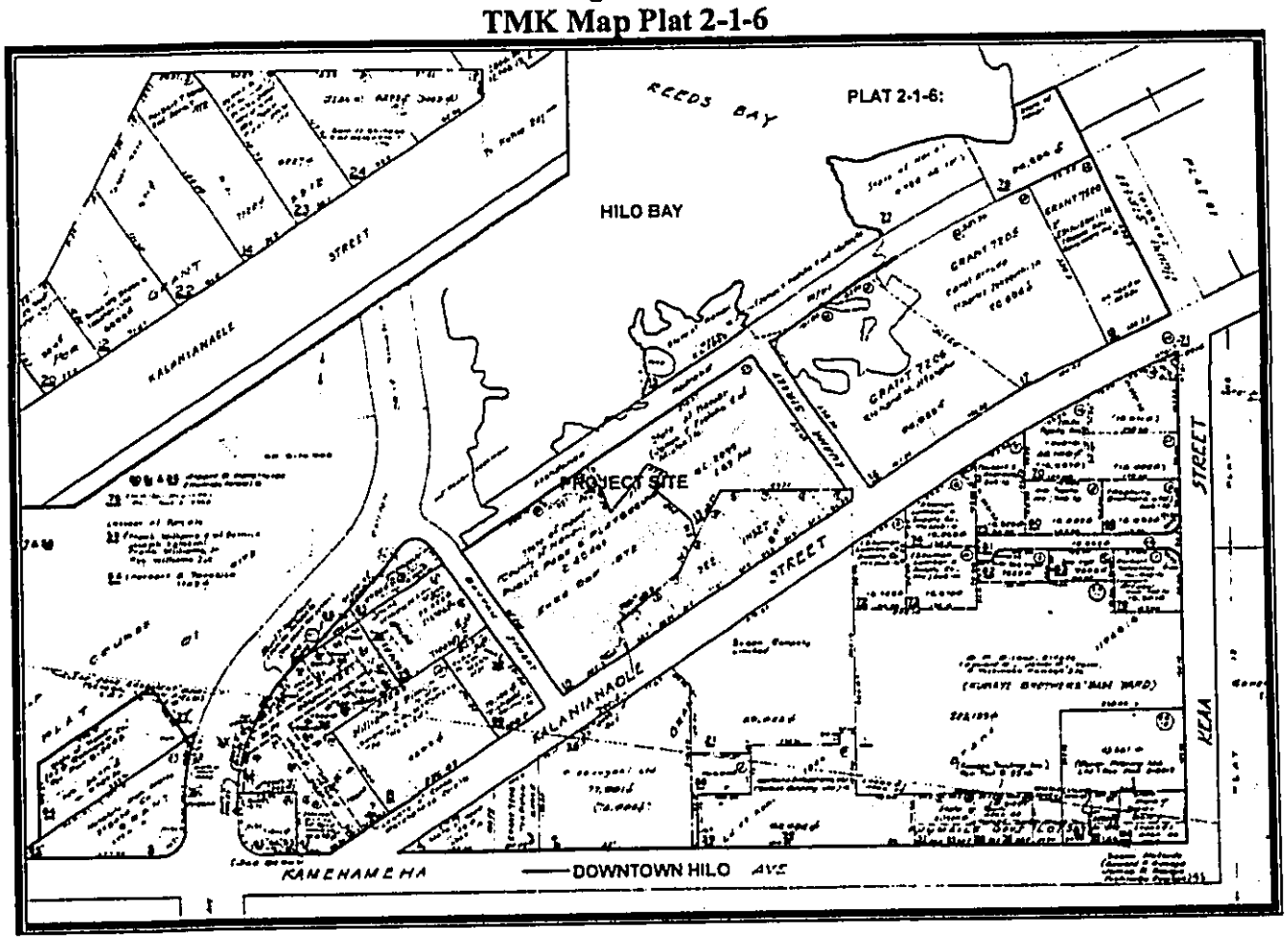
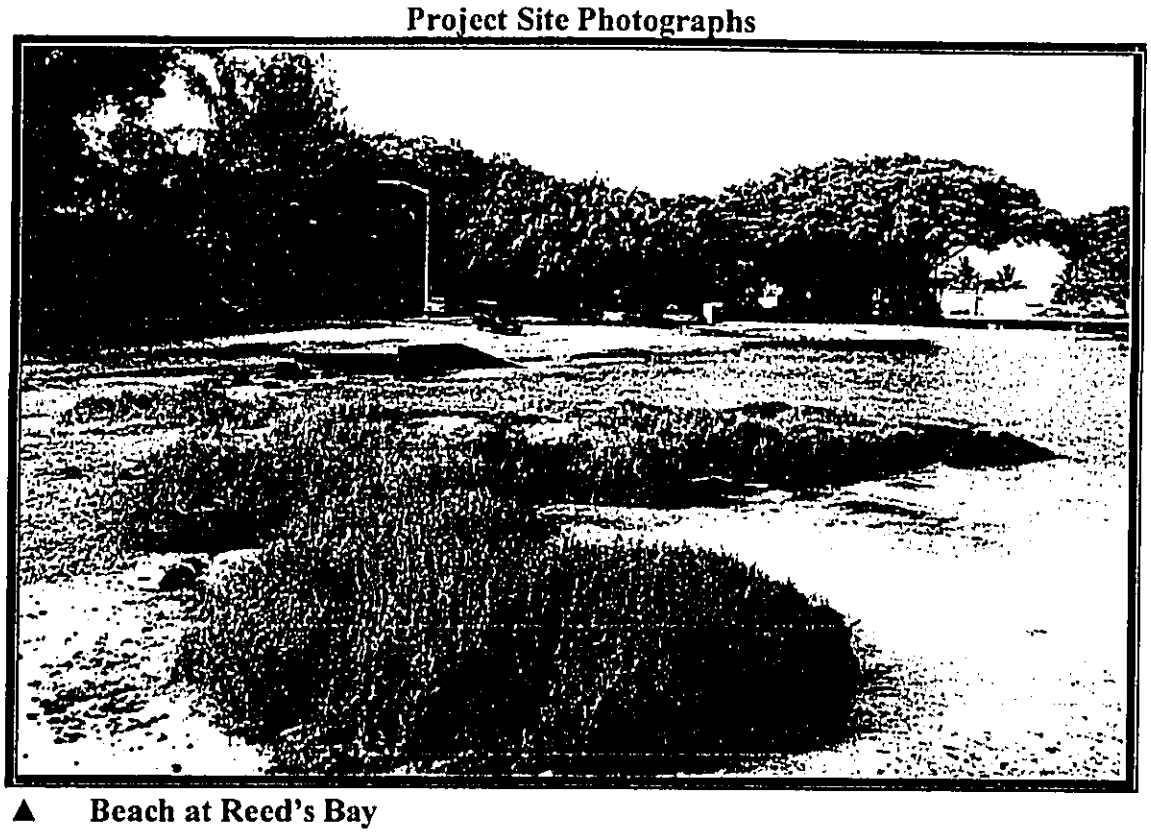
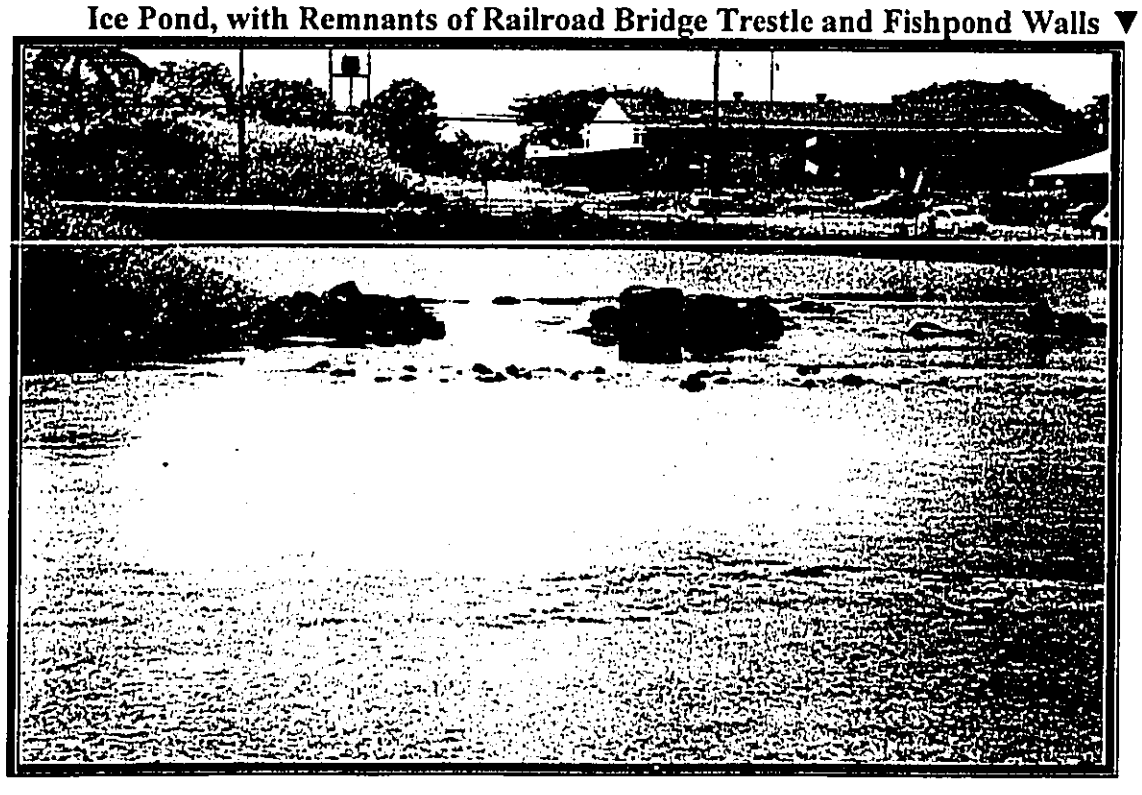


Figure 3
Project Site Photographs



▲ **Beach at Reed's Bay**

Ice Pond, with Remnants of Railroad Bridge Trestle and Fishpond Walls ▼



and Ice Pond without any need for abutments or supports to be placed in the water, would have a fairly flat middle section, and would sit about 3 to 5 feet above the water (varies due to tidal fluctuations). Phase I will also include on-street parking, repair of sidewalks in the right of way, removal of selected trees, pruning and root control of selected trees and hardening of the site's boundaries along the adjacent rights of way.

Phase II of the project depends on funding, land disposition and acquisition of permits that are still pending. Phase II actions may be executed incrementally as the aforementioned constraints permit. If the County acquires TMK 2-6-1:28 (the Old Orchid Island Hotel site) under an Executive Order as planned, it would develop this property with a 51-stall parking lot with two access points to Banyan Drive; walkways and low stone seatwalls; seven (7) pavilions; drinking fountains; trash receptacles; and landscaping. Phase II would also provide a restroom in Kuhio Kalaniana'ole Park identical to the one planned for Reed's Bay (see App. 1, Fig. 1 for restroom location).

Also part of Phase II is a potential project to remove a number of minor manmade obstructions – dilapidated portions of sidewalks, docks and other features built during the 20th century – that intrude within the shoreline setback and even extend a few feet beyond the shoreline into the water (see App. 1, Figs. 5-9 for details). The removal would occur with the aid of land-based heavy equipment but no equipment would be stationed within the water. As much of the below-water material as feasible would be removed by hand in order to minimize disturbance to the shoreline and coastal waters. Material would be removed from the work site as it was loosened and would not be stockpiled in the water for any significant length of time (i.e., overnight or longer). Approximately 255 cubic yards of cement and former rock wall pieces would be removed. The result would be a safer, more natural shoreline that would encourage reestablishment of a sand beach hrough natural accretion. Removal would require consultation with agencies to determine whether a Shoreline Setback Variance, Conservation District Use Permit, U.S. Army Corps of Engineers permit, and Section 401 Water Quality Certification would be required.

The park will be maintained by the Department of Parks and Recreation and closed at night. The project would be funded by the County of Hawai'i and a federal grant from the Department of Housing and Urban Development Neighborhood Initiatives Program. Total costs would be approximately $2.5 million for Phase I, and $1.5 million for Phase II; these costs are subject to revision as design proceeds and estimates refined.

1.2 Environmental Assessment Process

This Environmental Assessment (EA) process is being conducted in accordance with Chapter 343 of the Hawai'i Revised Statutes (HRS). This law, along with its implementing regulations, Title 11, Chapter 200, of the Hawai'i Administrative Rules (HAR), is the basis for the environmental impact process in the State of Hawai'i. According to Chapter 343, an EA is prepared to determine impacts associated with an action, to develop mitigation measures for adverse impacts, and to determine whether any of the impacts are significant according to thirteen specific criteria. If, after considering comments to a Draft EA, the approving agency

concludes that no significant impacts would be expected to occur, then the agency issues a Finding of No Significant Impact (FONSI), and the action will be permitted to occur. If the agency concludes that significant impacts are expected to occur as a result of the proposed action, then an Environmental Impact Statement (EIS) will be prepared before the action proceeds. Parts 4 and 5 of this EA present the analysis and anticipated finding (for the Draft EA) and the final finding (for the Final EA).

Separately, environmental documentation in conformance with the National Environmental Policy Act (NEPA) and the implementing regulations of the U.S. Department of Housing and Urban Development (HUD) for NEPA, at 24 CFR Part 50 is also being undertaken. A HUD Environmental Review record under HUD's Neighborhood Initiative Program will be prepared along with a NEPA Environmental Assessment. The project will also include a review for consistency under the Coastal Zone Management Program.

1.3 Public Involvement and Agency Coordination

The following agencies and organizations were consulted in development of the environmental assessment.

Federal:
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers

State:
- Department of Land and Natural Resources, Historic Preservation Division
- Department of Land and Natural Resources, Office of the Chairperson
- Department of Land and Natural Resources, Land Division, Hawai'i Island Office

County:
- Planning Department
- Police Department
- Department of Public Works
- Hawai'i County Council

Private:
- Sierra Club
- Hawaiian Civic Club of Hilo
- Edith Kanaka'ole Foundation
- Rotary Club of Hilo
- Keaukaha Community Association

Copies of communications received during preconsultation are contained in Appendix 5.

A public meeting concerning the project was held on July 6, 2006. Concerns raised included how to keep kids from jumping off bridge, park and sidewalk lighting, existing users who prefer to park on the beach, parking adequacy, and preservation of banyan trees. Each of these issues has been carefully considered as part of subsequent design of the park.

Appendix 6b contains written comments on the Draft EA and the responses to these comments. Various places in the EA have been modified to reflect input received in the comment letters; additional or modified non-procedural text is denoted by double underlines, as in this paragraph.

PART 2: ALTERNATIVES

2.1 No Action

Under the No Action Alternative, the existing park would not be improved or expanded and would continue to lack restrooms, parking, landscaping and ADA accessible walkways. Park users would continue to drive vehicles on the beach, which encourages disturbance to the shoreline area, poses a safety hazard and adversely impacts water quality. A pedestrian connection between Reed's Bay Beach Park and Kūhiō Kalaniana'ole Park would not be built. Because of the unique character and the heavy use of the area, the County of Hawai'i Department of Parks and Recreation considers the No Action Alternative undesirable.

2.2 Improvements to Other Parks

Reed's Bay Beach Park is uniquely located close to hotels and urban Hilo in a very picturesque area on the Waiakea Penninsula. These qualities, as well as its calm waters and its current intensive use for many forms of recreation, encourages heavy use of the project site. Improvements to other locations could not answer the needs that could be met by the proposed project, and therefore P&R considers the project to be a high priority among other park improvement projects.

PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

Basic Geographic Setting

The properties upon which the park would be constructed are referred to throughout this EA as the *project site*. The term *project area* is used to describe the general environs of Banyan Drive and Reed's Bay, and in some cases, all of Hilo.

The project site is located along the shoreline on Banyan Drive near its intersection with Kalaniana'ole Avenue (see Fig. 1). The coastal vegetation of the project area has been extensively modified through urban and recreational uses. The project site itself contains remnant coastal vegetation but is largely unvegetated where disturbed by vehicular and recreational use, and occupied by weeds elsewhere. Several large Chinese banyans and false kamani trees, a few lines of coconuts, and isolated groups of small milo trees are present. Adjacent land is generally urban, with public, private, and commercial uses interspersed. Hilo's largest concentration of visitor accommodations is directly adjacent along Banyan Drive, including the former Naniloa Volcanoes Resort (currently being redeveloped), the Hilo Hawaiian Hotel, Uncle Billy's Hotel, the Hilo Seaside Hotel, and several smaller condominium/hotel complexes. Recreational facilities nearby include Lili'uokalani Gardens, Moku Ola, the Ho'olulu Complex, Hilo Bayfront Beach Park, Happiness Gardens, Wailoa River State Park, and the Naniloa Volcanoes Resort Golf Course, while industrial areas occupy much of the land between the project site and the Port of Hilo and Hilo International Airport. The average maximum daily temperature is 81.0 degrees F., with an average minimum of 66.7 degrees, (http://cdo.ncdc.noaa.gov/climatenormals/clim81/HInorm.pdf) and annual rainfall averages approximately 130 inches U.H. Hilo-Geography 1998:57).

3.1 Physical Environment

3.1.1 Geology, Soils and Geologic Hazards

Environmental Setting

Geologically, the project site is located on the lower flank of Mauna Loa along the shoreline of Hilo Bay. The surface consists of lava flows of the Ka'u Basalt series from Mauna Loa of age 750 to 1,500 years old (Wolfe and Morris 1996). The project site soil is classified by the National Resource Conservation Service (formerly Soil Conservation Service) as Keaukaha extremely rocky muck (rKFD), a dark brown and strongly acid soil that is approximately 8 inches thick. Permeability is rapid, runoff moderate, and erosion hazard slight. The soil's Capability Subclass indicates that it is not valuable for agriculture and is mainly used for pasture and woodland (U.S. Soil Conservation Service 1973). As the site is on the shoreline, the natural material on the sites consists of rocky coral sand instead of the typical regional soil. This has largely been replaced by fill material of sand, coral chunks and basalt rocks dredged from Hilo Bay in the early 1900s.

The entire Big Island is subject to geologic hazards, especially lava flows and earthquakes. Volcanic hazard as assessed by the United States Geological Survey in this area of Hilo is 3 on a scale of ascending risk 9 to 1 (Heliker 1990:23). This hazard risk is based on the fact that Mauna Loa is an active volcano. Volcanic hazard zone 3 areas have had 1-5% of land area covered by lava or ash flows since the year 1800, and are at lower risk than zone 2 areas because of their greater distances from recently active vents and/or because the local topography makes it less likely that flows will cover these areas.

In terms of seismic risk, the entire Island of Hawai'i is rated Zone 4 Seismic Probability Rating (*Uniform Building Code, 1997 Edition*, Figure 16-2). Zone 4 areas are at risk from major earthquake damage, especially to structures that are poorly designed or built, as the 6.7-magnitude (Richter) quake of October 16, 2006, demonstrated. The project site is level and not subject to landslides or other forms of mass wasting.

Impacts and Mitigation Measures

In general, geologic conditions impose no constraints on the proposed action, and the proposed improvements are not imprudent to construct. Project design will take soil properties into account through geotechnical investigations. All facilities will be built in conformance with the Uniform Building Code's seismic standards.

3.1.2 Water Features and Water Quality

Existing Environment

The project site is in the interior of Hilo Bay, on an inlet known as Reed's Bay that extends into the brackish and spring-fed "Ice Pond." There are no freshwater bodies at the project site. Nearby are artificial water features of the Naniloa Volcanoes Resort Golf Course. About a half mile west is the Wailoa River, which forms a broad estuary known as Wailoa Pond.

Hawai'i Administrative Rules (HAR) 11-54-03(c)(2) states that class A waters such as those found in Hilo Bay are valuable for their use for recreational purposes and aesthetic enjoyment. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. The Coast Guard has explicit plans to respond to oil spills at the Port of Hilo to prevent effects to Reed's Bay (Source: http://www.uscg.mil/d14/units/msohono/factbook/hacp1/Geograhical/Hawaii/hilo_harbor.htm).

Impacts and Mitigation Measure

The project will reduce long-term impacts to water quality due to sedimentation by removal of vehicular disturbance of the shoreline area. No adverse wastewater impacts are expected because the site will be serviced with municipal sewerage, and the provision of two restrooms will provide a more sanitary situation for the many park users who now have limited facilities (portable "johns").

No impacts to stream banks or stream waters will occur, as none are present, but demolition and removal of the manmade obstructions in the shoreline has the potential to cause water pollution. However, due to the project site's proximity to the ocean, sedimentation during construction is possible.

In order to minimize the potential for sedimentation and erosion of shoreline areas, the contractor shall perform all earthwork and grading in conformance with Chapter 10, Erosion and Sediment Control, Hawai'i County Code. Because the project will disturb more than one acre of soil, a National Pollutant Discharge Elimination System (NPDES) permit must be obtained by the contractor before the project commences. This permit requires the completion of a Storm Water Pollution Prevention Plan (SWPPP). In order to properly manage storm water runoff, the SWPPP will describe the emplacement of a number of best management practices (BMPs) for the project. These BMPs may include, but will not be limited to, the following:

- Minimization of soil loss and erosion by revegetation and stabilization of slopes and disturbed areas of soil, possibly using hydromulch, geotextiles, or binding substances, as soon as possible after working;
- Minimization of sediment loss by emplacement of structural controls possibly including silt fences, gravel bags, sediment ponds, check dams, and other barriers in order to retard and prevent the loss of sediment from the site;
- Minimizing disturbance of soil during periods of heavy rain;
- Phasing of the project in order to disturb a minimum necessary area of soil at a particular time;
- Application of protective covers to soil and material stockpiles;
- Construction and use of a stabilized construction vehicle entrance, with designated vehicle wash area that discharges to a sediment pond;
- Washing of vehicles in the designated wash area before they egress the project site;
- Use of drip pans beneath vehicles not in use in order to trap vehicle fluids;
- Routine maintenance of BMPs by adequately trained personnel; and
- Significant leaks or spills, if they occur, shall be properly cleaned up and disposed of at an approved site.

The proposed pedestrian bridge does not involve any construction within, or effects to, Reed's Bay or other waters. The U.S. Coast Guard has been consulted as part of the EA to determine permit needs.

In association with the removal of manmade obstructions in the shoreline area, the County will continue consultation with the U.S. Army Corps of Engineers concerning the need for a permit under Section 404(b) of the Clean Water Act; with the Hawai'i State Department of Health concerning a Section 401 Water Quality Certification; with the Hawaii County Planning Department concerning the need for a Shoreline Setback Variance; and with the Hawai'i State Department of Land and Natural Resources as part of the Conservation District Use Permit process. It is expected that the permit process will result in coordinated conditions that specify Best Management Plans to minimize water pollution and associated effects to recreation and aquatic biology, recognizing the environmental benefit of removing these obstructions and

constructing these improvements (see Appendix 6 for BMPs recommended by the U.S. Fish and Wildlife Service).

3.1.3 Drainage and Flooding

Existing Environment

No stream poses a flooding hazard to the project site. The Flood Insurance Rate Maps (FIRM) 880C – 885C (9/16/88) show the entirety of the project site in Flood Zone VE, indicating the 100-year flood coastal, high hazard floodplain, incorporating storm surge inundation. The 100-year floodplain designates the area as subject to inundation from a flood having a 1 percent chance of occurring in any given year. This flood is referred to as the "100-year" flood or "base flood" and may occur more or less often than once every 100-years. The base flood elevation (BFE), 12 and 13 feet at the proposed site, is the estimated elevation of the 100-year flood based on the National Geodetic Vertical Datum of 1929 (NGVD). Maps printed by the Hawai'i County Civil Defense Agency locate the parcel in the area that should be evacuated during a tsunami warning. Hilo Bay, including the project site, has been struck by several highly destructive tsunami in historic times. The May 23, 1960 tsunami had a runup of 35 feet at Hilo Bay, killing 61 people and destroying about 540 homes and businesses, while the April 1, 1946 tsunami had a runup at Hilo Bay of 25 feet (Hawai'i County 2003). Reed's Bay was also affected by the1952 Kamchatka tsunami.

Regulations

The NEPA compliance process requires federal agencies to consider direct and indirect impacts to floodplains that may result from federally funded actions. Executive Order (EO) 11988 requires federal agencies to take action to minimize occupancy and modification of floodplains. EO 11988 also requires that federal agencies proposing to site a project in the 100-year floodplain must consider alternatives to avoid adverse effects and incompatible development in the floodplain. If no practicable alternatives exist, the project must be designed to minimize potential harm to or within the floodplain and a notice must be publicly circulated explaining the project and reasons for the project being sited in the floodplain. Furthermore, construction must be consistent with the standards, criteria, and intent of the National Flood Insurance Program (NFIP) and its implementing regulations (44 CFR 59 through 77).

As part of implementation of this E0 11988, HUD requires an "Eight-Step Decision Making Process" to ensure that all practicable alternatives have been analyzed, that the natural and beneficial uses of floodplains are not adversely affected, that any potential harm to the floodplain or human health and safety can be mitigated, and that the public has had a chance to review and comment upon the proposed project.

Impacts and Mitigation Measures

Implementation of the proposed action would site various structures, including the public restrooms, sewer lines, parking lots, showers, a shelter structure, picnic tables, seat walls, the

perimeter post and rail vehicular barriers and gates, and the pedestrian bridge, within Zone VE. As the entire site is located in Zone VE, construction of the structures in a flood zone is unavoidable. P&R will apply to the Hawai'i County Department of Public Works for a variance of the elements of the project in accordance with the conditions of Chapter 27 of the Hawai'i County Code. Because the flooding is coastal in nature, siting these structures in the 100-year floodplain would have negligible impact on the BFE and the size of the floodplain.

An Eight-Step Decision Making Process analysis of the project will be performed for the Hawai'i County Office of Housing and Community Development as part of the federal EA process. Public notices announcing the opening and closing of the comment period for the Eight-Step Decision Making Process will be published in the *Hawai'i Tribune Herald.* Preliminary analysis indicates that implementation of the project would not expose any person to unreasonable risk nor would it adversely affect any natural and beneficial uses of the floodplain.

The National Weather Service of the National Oceanic and Atmospheric Administration operates the Pacific Tsunami Warning Center and Alaska Tsunami Warning Center, which monitors sudden earth movements throughout the Pacific Basin. A tsunami from earth movements in South America would allow for as much as 15 hours warning time and events in the Aleutian Islands, 4.5 hours, providing sufficient time for evacuation of the park. Sudden movement along faults close to Hawai'i are unpredictable, and would allow for a few minutes to perhaps an hour of warning time, and evacuation would be more problematic. Coastal recreational areas in Hilo cannot avoid the tsunami hazard because the entire coast is vulnerable to tsunami. Warning sirens are present near the park and are easily audible.

3.1.4 Flora, Fauna and Ecosystems

Existing Environment

The natural vegetation of this part of the Hilo shoreline was mostly strand vegetation or coastal forest and swampland dominated by hala (*Pandanus tectorius*), milo (*Thespesia populanea*), naupaka (*Scaevola taccada*) and similar plants (Gagne and Cuddihy 1990). This original community has been modified by centuries of human use involving tree felling, land clearing, placement and removal/placement of fill, and development of structures. The vegetation of the project site is mainly managed vegetation (i.e., landscaped grounds) or adventive "communities" of various alien weeds, although some native coastal species persist or are used as landscape elements.

A botanical survey of the project site was performed by botanist Layne Yoshida on May 29, 2006. Table 2 is a list of plant species detected. No listed, candidate or proposed endangered plant species were found or would be expected to be found on the project sites.

Table 2
Plant Species List

Scientific Name	Family	Common Name	Life Form	Status
Ageratum conyzoides	Asteraceae	Ageratum	Herb	A
Alternanthera sessilis	Amaranthaceae	Joyweed	Herb	A
Araucaria columnaris	Araucariaceae	Cook Island Pine	Tree	A
Buddleia asiatica	Buddleiaceae	Buddleia	Shrub	A
Calophyllum inophyllum	Clusiaceae	Kamani	Tree	A
Canavalia cathartica	Fabaceae	Mauna Loa	Vine	A
Cardamine flexuosa	Brassicaceae	Bittercress	Herb	A
Casuarina sp.	Casurainaceae	Ironwood	Tree	A
Centella asiatica	Apiaceae	Pennywort	Herb	A
Chamaecrista nictitans	Fabaceae	Partridge Pea	Herb	A
Chamaescye hirta	Euphorbiaceae	Hairy Spurge	Herb	A
Chamaescye prostrata	Euphorbiaceae	Spurge	Herb	A
Chamaesyce hypericifolia	Euphorbiaceae	Graceful Spurge	Herb	A
Chloris barbata	Poaceae	Swollen Fingergrass	Herb	A
Chloris radiata	Poaceae	Fingergrass	Herb	A
Clusia rosea	Clusiaceae	Autograph Tree	Tree	A
Cocos nucifera	Arecaceae	Niu	Tree	A
Conyza sp.	Asteraceae	Horseweed	Herb	A
Cordyline fruticosa	Agavaceae	Ti	Shrub	A
Crotalaria pallida	Fabaceae	Rattlebox	Herb	A
Crotalaria retusa	Fabaceae	Crotalaria	Herb	A
Cuphea carthagenensis	Lythraceae	Tarweed	Herb	A
Cynodon dactylon	Poaceae	Bermuda Grass	Herb	A
Cyperus rotundus	Cyperaceae	Nut Grass	Herb	A
Desmodium sandwicensse	Fabaceae	Spanish Clover	Herb	A
Desmodium tortuosum	Fabaceae	Beggarweed	Herb	A
Desmodium triflorum	Fabaceae	Desmodium	Herb	A
Digitaria sp.	Poaceae	Crabgrass	Herb	A
Dracaena sp.	Agavaceae	Dracaena	Shrub	A
Drymaria cordata	Caryophyllaceae	Drymaria	Herb	A
Eclipta prostrata	Asteraceae	False Daisy	Herb	A
Eleocharis sp.	Cyperaceae	Spikerush	Herb	A
Eleusine indica	Poaceae	Wiregrass	Herb	A
Emilia sonchifolia	Asteraceae	Pualele	Herb	A
Epipremnum pinnatum	Araceae	Taro Vine	Vine	A
Eragrostis tenella	Poaceae	Love Grass	Herb	A
Erecthites hieracifolia	Asteraceae	Fireweed	Herb	A
Ficus microcarpa	Moraceae	Chinese Banyan	Tree	A
Fimbristylis dichotoma	Cyperacae	Fimbristylis	Herb	I
Galinsoga parviflora	Asteraceae	Galinsoga	Herb	A

Table 2, continued				
Scientific Name	**Family**	**Common Name**	**Life Form**	**Status**
Hedychium sp.	Zingiberaceae	Yellow or White Ginger	Herb	A
Hedyotis corymbosa	Rubiaceae	Hedyotis	Herb	A
Heliconia sp.	Heliconiaceae	Heliconia	Herb	A
Hibiscus tiliaceus	Malvaceae	Hau	Tree	I(?)
Hippobroma longiflora	Campanulaceae	Star-of-Bethlehem	Herb	A
Ipomoea sp.	Convolvulaceae	Morning Glory	Vine	?
Iris sp.	Iridaceae	Iris	Herb	A
Kyllinga brevifloia	Cyperaceae	Kyllinga	Herb	A
Kyllinga nemoralis	Cyperaceae	Kyllinga	Herb	A
Lepisorus thunbergianus	Polypodiaceae	Pleopeltis	Fern	I
Ludwigia palustris	Onagraceae	Purslane	Herb	A
Lycopersicon esculentum	Solanaceae	Cherry Tomato	Herb	A
Macaranga mappa	Euphorbiaceae	Bingabing	Tree	A
Macroptilium lathyroides	Fabaceae	Cow Pea	Herb	A
Medicago sp.	Fabaceae	Clover	Herb	A
Microsorium scolopendria	Polypodiaceae	Maile Scented Fern	Fern	A
Mimosa pudica	Fabaceae	Sleeping Grass	Herb	A
Monstera deliciosa.	Araceae	Monstera	Shrub	A
Murraya paniculata	Rutaceae	Mock Orange	Shrub	A
Nephrolepis multiflora	Nephrolepidaceae	Sword Fern	Fern	A
Oxalis corniculata	Oxalidaceae	Wood Sorrel	Herb	A
Paederia foetida	Rubiaceae	Maile Pilau	Vine	A
Pandanus tectoris	Pandanaceae	Hala	Tree	I
Paspalum conjugatum	Poaceae	Hilo Grass	Herb	A
Paspalum sp.	Poaceae	Paspalum	Herb	A
Pennisetum clandestinum	Poaceae	Kikuyu Grass	Herb	A
Philodendron sp.	Araceae	Philodendron	Vine	A
Phlebodium aureum	Polypodiaceae	Hare's Foot Fern	Fern	A
Phyllantus debilis	Euphorbiaceae	Niruri	Herb	A
Pilea microphylla	Urticaceae	Artillery Plant	Herb	A
Plantago major	Plantaginaceae	Common Plantain	Herb	A
Pluchea indica	Asteraceae	Fleabane	Shrub	A
Pluchea symphytifolia	Asteraceae	Sourbush	Shrub	A
Polygala paniculata	Polygalaceae	Milkwort	Herb	A
Psilotum nudum	Psilotaceae	Moa	Herb	I
Pycreus polystachyos	Cyperaceae	Sedge	Herb	I
Schefflera actinophylla	Araliaceae	Octopus Tree	Tree	A
Sida rhombifolia	Malvaceae	Sida	Herb	I(?)
Sida spinosa	Malvaceae	Sida	Herb	A

Table 2, continued				
Scientific Name	**Family**	**Common Name**	**Life Form**	**Status**
Solanum americanum	Solanaceae	Popolo	Herb	I(?)
Spermacoce assurgens	Rubiaceae	Buttonweed	Herb	A
Sporobolus indicus	Poaceae	Indian Dropseed	Herb	A
Stachytarpheta sp.	Verbenaceae	Vervain	Herb	A
Synedrella nodiflora	Asteraceae	Synedrella	Herb	A
Terminalia catappa	Combretaceae	Tropical Almond	Tree	A
Thespesia populnea	Malvaceae	Milo	Tree	I
Wedelia trilobata	Asteraceae	Wedelia	Herb	A

A = alien, E = endemic, I = indigenous, End = Federal and State listed Endangered Species

The project site was surveyed for fauna by biologist Reginald E. David on November 23 and 26, 2005 (see Appendix 4 for report). While the majority of bird species observed during this survey were non-native, including Common Mynah (*Acridotheres tristis*), Japanese White-Eye (*Zosterops japonicus*), Northern Cardinal (*Cardinalis cardinalis*), House Finch (*Carpodacus mexicanus*) and Nutmeg Mannikin (*Lonchura punctulata)*, several indigenous migratory waterfowl were also observed. These included the Pacific Golden Plover (*Pluvialis fulva)*, Wandering Tattler (*Heteroscelus incanus*), and the Ruddy Turnstone (*Arenaria interpres*). The endangered Hawaiian Hoary Bat, or 'ope'ape'a (*Lasiurus cinereus semotus*), the only non-marine mammal native to the Hawaiian Islands, was also observed foraging over Hilo Bay.

Hilo Bay is classified by the Department of Health as an impaired water body in need of water quality improvement. For an urban area, Reed's Bay has reasonable water quality, and although no aquatic biology surveys were undertaken, it is clear from the frequent fishing and limu gathering on the site that it supports a variety of marine flora and fauna. The vegetated edges of Kanakea Pond serve as a natural as fish hatchery for aholehole and other nearshore fish.

Impacts and Mitigation Measures

No rare, threatened or endangered plant species are present or would be affected in any way by the project. Several non-native trees (possibly including a few Chinese banyans) may be removed from the site and replaced with native or Polynesian coastal species, which will improve habitat. The foraging of the heavily urbanized project area by bats indicates that the scale and nature of the park improvements here is unlikely to have any effect on this endangered species. Aside from mitigated construction effects, the only aspects of the proposed project that would affect the aquatic biology are prevention of vehicles from using the beach and removal of manmade structures from the shoreline, actions that will improve aquatic conditions.

In sum, no valuable or protected native species or ecosystems would be adversely affected, and protection of water quality encouraged by the project will only enhance aquatic biology.

3.1.5 Air Quality, Noise, and Scenic Resources

Environmental Setting

Air pollution in East Hawai'i is minimal and is mainly derived from volcanic emissions of sulfur dioxide, which convert into particulate sulfate and produce a volcanic haze (vog) that occasionally blankets the district. The persistent tradewinds keep the project area relatively free of vog for most of the year.

Noise on the project site varies widely. Hilo International Airport is located less than a half-mile away, and the major approach corridor for landing jets is as close as a quarter mile. Kalaniana'ole Avenue supports an industrial area on its mauka side. The major hotel district of Hilo and a golf course are nearby, and the park is bounded on two sides by busy roads. The clearly urban park also generates its own noise from users vehicles and stereos.

The project site itself is listed in the Hawai'i County General Plan as an area of significant natural beauty. In addition, the project area contains a number of sites that are considered significant for their scenic character in the Hawai'i County General Plan (see Table 3).

Table 3
Areas of Natural Beauty Noted in Hawai'i County General Plan

No.	Scenic Resource	TMK	Location
1	Banyan Drive Scenic Area	2-1-01, 03, 05	Waiakea
2	Lili'uokalani Gardens	2-1-03:2	Waiakea
3	Viewpoint of Hilo Bay area with Mauna Kea in Background	2-1-03:2	Waiakea
4	Viewpoint of Hilo Bay with Mauna Kea in Background	2-1-03:17	Waiakea
5	Coconut Isle (Mokuola)	2-1-03:19	Waiakea
6	Reeds Bay (Shoreline)	2-1-05:1	Waiakea
7	Ice Pond	2-1-06:10	Waiakea
22	Viewpoint on hilltop looking over Hilo Bay	2-3-37	Ponahawai

Banyan Drive was built in the early 1930s, and reportedly soon thereafter banyan trees were planted at regular intervals on both sides of the road to honor prominent business leaders and eminent visitors. The first banyan tree was planted in 1933. The last tree was planted in1972 by Mrs. Richard Nixon to replace one that had been originally planted in 1952 but destroyed later that year by a tsunami. Some trees that have been destroyed have not been replanted. Several of these banyan trees line the street in front of the project site and two are contained within the park (Warshauer 2003a; 2003b; 2004).

Impacts and Mitigation Measures

There is a potential for fugitive dust emissions during grading and construction. Project construction could induce direct and indirect impacts on air quality due to fugitive dust from vehicle movement and soil excavation, and exhaust emissions from on-site construction equipment. State of Hawai'i Air Pollution Control Regulations (Chapter 11-60, HAR) prohibit visible emissions of fugitive dust from construction activities beyond the property line. Thus, an effective dust control plan for the project construction phase is essential.

Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep bare-dirt surfaces in construction areas from becoming significant sources of dust. In dust-prone or dust-sensitive areas, other control measures such as limiting the area that can be disturbed at any given time, applying chemical soil stabilizers, mulching and/or using wind screens may be necessary. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials that could be blown away. Haul trucks tracking dirt onto paved streets from unpaved areas are often a significant source of dust in construction areas. Some means to alleviate this problem, such as road cleaning or tire washing, may be appropriate. Establishment of landscaping as early in the construction schedule as possible can also lower the potential for fugitive dust emissions.

On-site mobile and stationary construction equipment also would emit air pollutants from engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxide emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

In addition, to avoid air quality impacts from slow-moving construction vehicles traveling to and from the site on major roadways, heavy construction equipment should be moved on-site during periods of low traffic volume.

Development would entail limited tree removal, excavation, grading, compressors, vehicle and equipment engine operation, and construction of new infrastructure. These activities may generate noise exceeding 95 decibels at times, impacting nearby sensitive noise receptors (i.e., nearby single-family residences, condominiums and hotels). In cases where construction noise is expected to exceed the Department of Health's (DOH) "maximum permissible" property-line noise levels, contractors would obtain a permit per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction. DOH would review the proposed activity, location, equipment, project purpose, and timetable in order to decide upon conditions and mitigation measures, such as restriction of equipment type, maintenance requirements, restricted hours, and portable noise barriers.

The signed banyan trees lining the street would be left in place but would be trimmed and managed in order to control excessive growth. There are five other banyan trees, the largest of

which, though not directly on Banyan Drive, may have been planted in 1939 in honor of a prominent American Legionnaire. Some of these five trees may be retained in place or relocated, but some may be removed in order to create a more useable and attractive park space. Given the planned landscaping with native and Polynesian trees more appropriate to the coastal setting and conducive to enhancing a park setting, scenic impacts from the removal of these trees will be adequately mitigated. Each removed tree would be replaced with a native or Polynesian introduced species at or near the location of the removed tree. As appropriate, the newly planted trees could be named and signed in honor of the original designee, if known.

In general, the project would significantly enhance the visual appearance of the project site and project area. Areas within the project site that are presently maintained at a minimal level would be landscaped and maintained. These visual improvements are in character with surrounding uses and recognition of the area as possessing areas with significant natural beauty. The project therefore fulfills those Hawai'i County General Plan goals calling for protection, preservation, and enhancement of the quality of areas of natural beauty, and those for maximizing opportunities for the public to appreciate and enjoy scenic resources.

3.1.6 Hazardous Substances, Toxic Waste and Hazardous Conditions

An enhanced Phase I Environmental Site Assessment (ESA) was performed for the project site by Myounghee Noh & Associates (MNA) in July 2006. The report is summarized below and contained in full in Appendix 2.

A Phase I Environmental Site Assessment aims to identify *recognized environmental conditions* that exist on the project site, and existing *recognized environmental conditions* in the project area that have the potential to impact the subject property. The term *recognized environmental conditions* means the presence or likely presence of any hazardous substances or petroleum products on the property under conditions that indicate an existing release, a past release, or a material threat of a release into structures on the property or into the ground, groundwater, or surface water of the property (American Society for Testing and Materials [ASTM], 2000. The Phase I Environmental Site Assessment performed for the project conforms to the ASTM standard.

In a Phase I Environmental Site Assessment, evidence of *recognized environmental conditions* may be obtained by execution of the following:

- A records search of federal and State databases of hazardous material use, storage, and releases, including, but not limited to, hazardous material generators, leaking underground storage tanks, and reported hazardous material releases;
- Interviews with landowners, nearby residents, and regulatory agency members concerning the subject property's history of land use;
- Other records searches, including tax records, aerial photography, and, when available, fire insurance maps; and
- A visual survey of the property and immediately surrounding areas.

Phase I ESA Findings

Database Search for Subject and Adjacent Properties

The project site and adjacent properties were not listed in the federal and State databases covered by Environmental Data Resources. No other sources of offsite potential contamination were found to exist in the project area. The findings of this records search are summarized in Table 4, below.

Table 4
Findings of Records Search, Phase I ESA

Search Type	Distance Searched	Findings
Federal NPL Site List	1 mile	None
Federal RCRA CORRACTS TSD Facilities List	1 mile	None
State Hazardous Waste Sites	1 mile	10
Federal CERCLIS List	½ mile	1
Federal RCRA Non-CORRACTS TSD Facilities List	½ mile	1
State-Equivalient CERCLIS	½ mile	None
State Landfill and/or Solid Waste Disposal Site List	½ mile	None
State Registered UST List	¼ mile	10
State Leaking UST List (LUST)	½ mile	11
Federal RCRA Generators List	½ mile	2
FEDERAL ERNS List	Subject Site	None
State Spill List	Subject Site	None

See Appendix 2 for explanation of databases

It is MNA's opinion that the above sites do not pose a significant threat to the subject site. This opinion is based on distance (the listed sites are too far away to pose potential migration threats) and the State of Hawai'i Department of Health records on LUST. MNA's findings are as follows:

- *Hazardous Materials and Regulated Wastes*: MNA observed no evidence of hazardous materials or regulated wastes on the subject and adjoining sites.
- *Storage Tanks*: MNA observed no Underground Storage Tanks (USTs) in use at the subject property at the time of this ESA. No ASTs were visible at the project site.
- *Potential Asbestos-, Polychlorinated Biphenyl (PCB)- or Lead-Containing Material*: MNA found evidence of materials that could contain asbestos, lead, and PCBs.
- *HELCO Fuel Line* A fuel oil pipeline owned by Hawai'i Electric Light Company is located along Kalaniana'ole Avenue and Banyan Drive. MNA found no record of spills or leaks from the fuel line.
- *Soil and Water Sampling*: Because of the site's proximity to a wood processing facility and a power plant, the Phase I was enhanced by soil and water sampling for polyaromatic hydrocarbons (PAHs), arsenic, cadmium and lead. All analytic results, both and water, were below State of Hawai'i Department of Health Action Levels.

- *Offsite Contamination Source*: In 1990, a large volume (estimated 4,000 gallons) of wood treating substance was released in the vicinity of Reeds Bay. MNA performed sampling of the soil and water near the shore and found no significant levels of contamination, but they may exist in the ocean sediments. The contaminated soil at the spill site had been reportedly removed during cleanup in 1990. No other potential offsite contamination sources were identified during the course of this Phase I Environmental Site Assessment.
- In summary, MNA observed no *recognized environmental conditions* in connection with the project site.

3.2 Socioeconomic and Cultural

3.2.1 Socioeconomic Characteristics

The project would affect and benefit the Hilo community most directly, although other residents from throughout Hawai'i County might also use the park. Table 5 provides information on the socioeconomic characteristics of Hilo along with those of Hawai'i County as a whole for comparison, from the 2000 U.S. Census of Population. The calm and shallow waters of Reed's Bay Beach Park make it ideal for family-oriented ocean activities, fishing, and access to Hilo Bay for paddlers and small boats. While the park sees continuous use during daytime hours, the heaviest use is during weekends and holidays. Its location on the east end of Banyan Drive makes it a natural extension of the path used by walker and joggers who start from Lili'uokalani Gardens and also promotes its use by cruise ship visitors walking from the Port of Hilo. Hilo now receives as many as a half dozen cruise ships a week, up from an average of about two ships only five years ago.

Impacts

The project would provide social benefits to Hilo residents and visitors. The additional parking, pavilions, and restrooms would improve conditions for families and enable higher quality shoreline experiences. The pedestrian bridge, if implemented, would encourage use of the park by walking traffic on Kalaniana'ole Avenue and Banyan Drive, including cruise ship visitors, and would unite the three park sites into one cohesive amenity.

Table 5
Selected Socioeconomic Characteristics

CHARACTERISTIC	ISLAND OF HAWAI`I	HILO
Total Population	148,677	36,836
Percent Caucasian	31.5	15.8
Percent Asian	26.7	39.6
Percent Hawaiian	9.7	13.3
Percent Two or More Races	28.4	26.5
Median Age (Years)	38.6	38.0
Percent Under 18 Years	26.1	25.8
Percent Over 65 Years	13.5	15.8
Percent Households with Children	21.3	37.8
Average Household Size	2.75	2.85

Source: U.S. Bureau of the Census. May 2001. *Profiles of General Demographic Characteristics, 2000 Census of Population and Housing, Hawai'i.* (U.S. Census Bureau Web Page).

3.2.2 Cultural Setting

Existing Environment

A cultural and archaeological study of the subject area was conducted by Thomas R. Wolforth, M.A., of Scientific Consultant Services, Inc. It is attached as Appendix 3 and summarized in this and the next section.

The purpose of the study was to document the presence and assess the significance of any historic properties or traditional cultural properties within the project area, and provide a statement of impact to any such resources as a result of the proposed construction of the reservoir. The study used historic maps and documents, archaeological studies, interviews, and field investigation. This information provided a context for the search for potential historic or traditional cultural properties.

The earliest historical knowledge of Hilo comes from legends written by Kamakau (1961) of a 16th century chief 'Umi-a-Liloa (son of Liloa), who at that time ruled the entire island of Hawai'i. Descendants of Umi and his sister-wife were referred to as "Kona" chiefs, controlling Ka'ū, Kona, and Kohala, while descendants of Umi and his Maui wife were "Hilo" chiefs, controlling Hāmākua, Hilo, and Puna (Kelly *et al.* 1981:1). According to Kamakau (1961) both sides fought over control of the island, desiring access to resources such as feathers, *māmaki* tapa, and canoes on the Hilo side; and *wauke* tapa, and warm lands and waters on the Kona side (Kelly *et al.* 1981:3).

Sometime near the end of the 16th century or early in the 17th century, the lands of Hilo were divided into *ahupua'a,* which till today retain their original names (Kelly 1981:3). These include the *ahupua'a* of Pu'u'eo, Pi'ihonua, Punahoa, Pōnohawai, Kūkūau and Waiākea. The design of these land divisions was that residents could have access to all that they needed to live, with ocean resources at the coast, and agricultural and forest resources in the interior. However, only Pi'ihonua and Waiākea provided access to the full range of resources stretching from the sea up to 6,000 feet along the slopes of Mauna Kea (Kelly 1981:5). The project site is located in the ahupua'a of Waiakea, which translates as "broad waters" (Pukui *et al.* 1974:220).

Settlement in Hilo Bay was concentrated in the eastern portion of the shoreline, with perhaps 2,000 people living in 400 houses there in 1823 (Kelly *et al.* 1981:19). Other habitations were distributed throughout the coastline well beyond the east and west limits of the bay.

The project site and immediate project area likely looked much differently than at present; mapping evidence from the early 1800s shows a shoreline further west than the existing shoreline, and informant accounts appear to agree with this. For example, Ms. Abbie Napeahi commented that "Where the golf course is now, that was all swamp land" (Akoi 1989:50).

A tale involving Reed's Bay has survived into print (Pukui and Green 1995:95-96), told by a policeman named Kaiama, a man that lived near the bay in the early 1900s. In ancient times a fisherman and his spouse lived near a hole at Reed's Bay. This man met a woman from Keaukaha, and this woman came to live with the man and his wife at Reed's Bay. Over time, the new, second wife became jealous of the first. Because the conduct of the family affects the outcome of a fisherman at sea, the husband forbade his wives from fishing until his return from the sea that day. But the Keaukaha wife urged the first wife to go net spawning fish as soon as the man left. The first wife resisted initially, but eventually consented to go catch shrimp in a net. While she was busy catching shrimp at the edge of a hole, the second wife pushed her in and covered her with a rock, killing her. Blood came from the body water and out into the sea foam, and reached the place where the man was fishing. He followed the trail of blood with his canoe to the hole, moved the stone, and found his first spouse. He confronted the second wife, listened to her lie, then beat her to death. Since that time the hole has been referred to as Kaluakoko, the Hole of Blood.

A fishpond named Kanakea is identified with the perimeter of the Reed's Bay Beach Park. This fishpond was in use during historic times; in 1823 Ellis observed small huts alongside the Waiākea ponds for the pond caretakers. In addition, it "was the custom to build small watch houses from which to guard the fish from being stolen at high tide, or from being killed by pigs and dogs; when the tides receded the fish would return to the middle of the pond out of reach of thieves" (Kamakau 1976:48).

By 1901 sugar dominated the island's industry, and Hilo was the center of production and export. Railroads connected sugar cane cultivators and millers along the Hamakua, Puna, and Ka'u coasts to the mills and wharves at Hilo. The railroad began operation in the Hilo area in 1899, and was abandoned in 1946 (Kelly *et al.* 1981) after sustaining significant tsunami damage. The railroad served Kuhio Wharf upon its construction between 1912 and 1916 (Kelly *et al.* 1981:194). Reed's Bay beach was expanded by filling in with material from dredging for Kuhio Wharf, creating a longer, more continuous beach.

Impacts and Mitigation Measures

As part of the current study an effort was made to obtain information about any potential traditional cultural properties and associated practices that might be present, or have taken place in the project area. The Edith Kanaka'ole Foundation, the Office of Hawaiian Affairs, the Keaukaha Community Association, and the Hawaiian Civic Club of Hilo were contacted in an attempt to obtain information on traditional cultural properties and practices in the project area.

A presentation on the results of the historical documentation and archaeological fieldwork presented in this report was given at the monthly meetings of the Keaukaha Community Association and Hawaiian Civic Club Hilo. The groups related specific recollections of the project area including walking along the railroad line, playing at the beach, seeing the first aquatic plane land and take off in Reed's Bay, and suggestions that the pecked areas observed in the project site (described below) were salt pans.

Interviews and the site history show that the project area, including Reed's Bay Beach, has long been used for recreation and fishing, and that it once supported a fishpond. The project will not affect Kanakea Fishpond or any other cultural site in any way. As the project serves to preserve and continue traditional uses of the area, it is not likely to have adverse effects upon cultural practices. In summary, there are no adverse cultural effects associated with the project.

3.2.3 Archaeology and Historic Sites

Existing Environment

A cultural and archaeological study of the subject area was conducted by Thomas R. Wolforth of Scientific Consultant Services, Inc. (see Appendix 3) and is summarized in this and the preceding section.

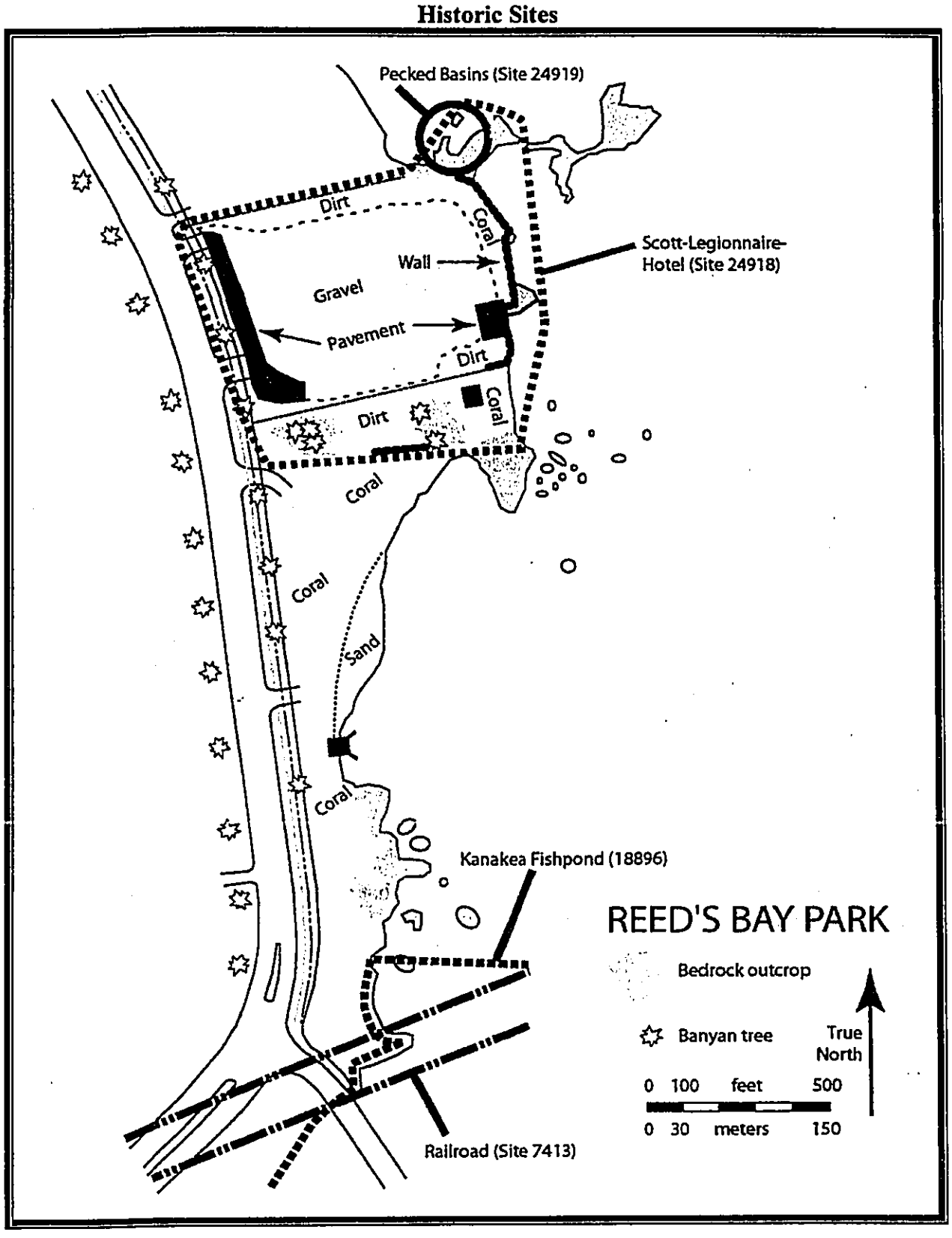
Four historic sites are present on the properties comprising the project site (Table 6 and Figure 4). Kanakea Fishpond (State Historic Site Number Site 50-10-35-Site 18896, hereafter abbreviated by removing site prefixes, as with other sites) and the railroad remnants (Site 7413) were previously recorded during the archaeological study for the adjacent Kūhiō Kalaniana'ole County Park. The Scott-Legionnaire site (Site 24918) and several pecked basins on the shoreline (Site 24919) were recorded as part of the current effort.

Table 6
Historic Sites in the Project Area

Site	Name	Era-Type	Significance	Recommended Treatment	Effects
7413	Railroad remnants	20th century railroad remnants	Info content	No further work on land portion: preserve trestle ruins within water portion	None (no project actions will affect site)
18896	Kanakea Fishpond	Pre-Contact Fishpond	Info content	Preservation of wall ruins	None (no project actions will affect site)
24918	Scott/ Legionnaire/ Orchid Island Hotel site	20th century Modern building	Info content	No further work	None (project affects site, but no data recovery required)
24919	None	Pre-Contact Pecked basins	Info content	No further work	None (no project actions will affect site)

Site 7413 consists of the remnants of two railroad trestles that once formed part of the railway bridge over the narrow section between Reed's Bay and the Ice Pond. The tracks were constructed about 1916 and abandoned in April 1946 when the entire Hilo rail system was devastated by the tsunami.

Figure 4
Historic Sites



The majority of the extents of Kanakea Fishpond (Site 18896) are located within the brackish Ice Pond. A portion of the fishpond's seawall near the railroad trestles is still visible above the water at low tide. While the construction of this fishpond is pre-contact, it was still maintained and in active use in the 19th century. The fishpond appears to have been highly modified by modern activities, including construction of Kalaniana'ole Drive and Banyan Way, although two stone walls associated with the pond survive.

The entire northern portion of the project area is a multi-component historical site that has its origins in building in the early 20th century of the Scott mansion, which was largely destroyed and succeeded by the American Legion Clubhouse. This site in turn was destroyed – but not entirely – and the Orchid Island Hotel was built in the site. The hotel was demolished in the 1980s, and now remnants of the three building episodes remain. A portion of the area just to the south associated with the short-lived Richardson development from 1899 to 1932 is also included in this suite of building-destruction episodes. The only remains of all these structures today consist of low features such as walkways, docking areas, boat mooring footings, leveled gravel areas, and pavements.

Three pre-Contact basins that have been pecked into the bedrock near the ocean's edge are found in the northeast of the project site. Two of them are partially covered by the cement walkway that is presumably associated with the Scott occupation, and the other is near the water's edge. These basins are similar in size and situation to salt basins found elsewhere on island shorelines, but may have actually served to process shellfish or bait.

Impacts and Mitigation Measures

Assessment of the significance of the sites informed by consultation with knowledgeable community members determined that each was significant for data content (see Table 6). Sufficient data has been obtained concerning the Scott-Legionnaire site and no further work is necessary. No effects would occur at the other sites, as no alterations are planned in their vicinity, and thus no data recovery is recommended for these sites. The State Historic Preservation Division is currently reviewing the final version of the inventory survey and is expected to concur with the findings. The Final EA will report on the status of the review.

Although the project itself presents no effects to historic properties, a preservation plan for the Kanakea Fishpond and the railroad trestle remnants is recommended in order to promote their appreciation and their continued preservation. This recommendation is based on the findings of the archaeological surveys for both parks and in furtherance of the comments of the State Historic Preservation Division (SHPD) after reviewing the inventory survey for Kūhiō Kalaniana'ole Park (SHPD letter dated January 4, 2005, Log No. 2005:0010). The plan should include measures for both the Kūhiō Kalaniana'ole and Reed's Bay Beach Parks, and should be implemented by agencies that may be involved with these resources in the future.

In the unlikely event that undiscovered archaeological resources or human remains are encountered during future development activities within the current study area, work in the

3.3 Infrastructure

3.3.1 Utilities

Existing Facilities and Services

Electrical power to the facility will be supplied by Hawai'i Electric Light Company (HELCO), a privately owned utility company regulated by the State Public Utilities Commission, via their island-wide distribution network. Electrical service is available at the project site.

Water is supplied by the Hawai'i County Department of Water Supply. Telephone service is available, but not required, for the project. Wastewater treatment is currently provided by Hawai'i County via a sewer line along Banyan Drive.

Impacts and Mitigation Measures

The proposed action would not have any substantial impact on existing electrical facilities or HELCO's ability to provide electricity. The restrooms will be connected to the sewer lines via laterals that run within the park to the mains on adjacent streets, and no impact to the wastewater system is expected. No other utilities will be affected in any way.

In summary, the utility infrastructure for the facility is adequate and no adverse impacts are expected.

3.3.2 Traffic and Parking

Existing Roadway and Traffic Conditions

Reed's Bay Beach Park is accessed by Banyan Drive, a two-lane County Road with shoulder parking that also accesses Lili'uokalani Gardens and various hotels and condominiums. A small portion of the park is located along Banyan Way (Figs. 1-3). Essentially all of the existing park is accessible to vehicles. Because the park is heavily used on some occasions, including holidays, parking inside the park can be congested and safety issues arise. However, even at these times, the traffic on Banyan Drive and its intersection with Banyan Way is not congested. Currently, shoulder parking along Banyan Drive is available on the side opposite Reed's Bay Beach Park, and is mostly utilized when the interior of the park becomes congested.

Impacts and Mitigation Measures

The project, being relatively small in scale, would not be expected to cause long-term traffic congestion and adversely affect traffic on Banyan Drive. A 51-stall parking lot is planned for the future phase of the project. Until this is built, parking for Reed's Bay Beach Park would be limited to on-street parking along Banyan Drive, which is proposed to be expanded, as shown in the Site Plans in Appendix 1 – pending approval by the County of Hawai'i Department of Public Works.

Prior to project implementation, the contractor will be required to develop a traffic control plan that minimizes disruption to traffic during construction.

3.4 Secondary and Cumulative Impacts

The project will not involve any secondary or cumulative impacts, such as population changes or effects on public facilities. Although the project would provide some short-term construction jobs, these would almost certainly be filled by local residents and would not induce in-migration.

Cumulative impacts result when implementation of several projects that individually have limited impacts combine to produce more severe impacts or conflicts in mitigation measures. The adverse effects of the project – very minor and temporary disturbance to air quality, noise, visual and traffic congestion quality during construction – are very limited in severity, nature and geographic scale. At the current time, there do not appear to be any other development projects planned around Banyan Drive that would combine in such a way as to produce adverse cumulative effects or involve a commitment for larger actions.

3.5 Required Permits and Approvals

The following permits and approvals would be required:

Hawai'i County

- Department of Public Works: Building Division Approval and Building Permit
- Planning Department: Plan Approval, Shoreline Setback Variance (To be determined), and Special Management Area Permit
- Department of Public Works, Engineering Division, Grading & Driveway Permits

State

- Hawai'i State Conservation District Use Permit
- National Pollutant Discharge Elimination System Permit (NPDES)
- Section 401 Water Quality Certification (to be determined)
- Conservation District Use Permit
- DBEDT, CZM Federal Consistency Assessment

Federal

- U.S. Coast Guard Bridge and Causeway Permit (to be determined)
- U.S. Army Corps of Engineers Section 10 Permit for removal of manmade coastal structures

3.6 Consistency With Government Plans and Policies

3.6.1 Hawai'i State Plan

Adopted in 1978 and last revised in 1991 (Hawai'i Revised Statutes, Chapter 226, as amended), the Plan establishes a set of themes, goals, objectives and policies that are meant to guide the State's long-run growth and development activities. The three themes that express the basic purpose of the *Hawai'i State Plan* are individual and family self-sufficiency, social and economic mobility and community or social well-being. The project would promote these goals primarily by enhancing recreational opportunities for the Hilo community.

3.6.2 Hawai'i County General Plan and Zoning

The *Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG).* The LUPAG map component of the *General Plan* is a graphic representation of the Plan's goals, policies, and standards as well as of the physical relationship between land uses. It also establishes the basic urban and non-urban form for areas within the planned public and cultural facilities, public utilities and safety features, and transportation corridors. The LUPAG Designation for TMK 2-1-5:1 and 2-1-6:15 is Open; TMKs 2-1-5:28 and 2-1-6:13 are Open and Resort. The project is consistent with the Resort designations, which are intended for resorts, hotels, condominiums, and support services, and Open, which includes parks.

Hawai'i County Zoning. Much of the project is site is zoned Resort-Hotel (V-.75), including TMK 2-1-5:28. TMK 2-1-6:13 is split-zoned Open and V-.75. The project is a permitted use within these designations. The property is situated within the County's Special Management Area (SMA) and would require a Special Management Area permit from the Hawai'i County Planning Department.

The General Plan for the County of Hawai'i is a policy document expressing the broad goals and policies for the long-range development of the Island of Hawai'i. The General Plan itself is organized into thirteen elements, with policies, objectives, standards, and policies for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawai'i. Most relevant to the project are the following Goals, Standards, Policies and Courses of Action of the Natural Resources and Shoreline and Recreation chapters:

Natural Resources and Shoreline - Goals
(a) Protect and conserve the natural resources from undue exploitation, encroachment and damage.
(b) Provide opportunities for recreational, economic, and educational needs without despoiling or endangering natural resources.
(c) Protect and promote the prudent use of Hawaii's unique, fragile, and significant environmental and natural resources.
(d) Protect rare or endangered species and habitats native to Hawaii.
(e) Protect and effectively manage Hawaii's open space, watersheds, shoreline, and natural areas.

(f) Ensure that alterations to existing land forms, vegetation, and construction of structures cause minimum adverse effect to water resources, and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of an earthquake.

Discussion: The project satisfies relevant goals in the Hawai'i County General Plan. The project would protect and restore a portion of the shoreline and is sensitive to the unique character of the site, and is therefore a prudent use of this resource.

Natural Resources and Shoreline – Policies
(c) Maintain the shoreline for recreational, cultural, educational, and/or scientific uses in a manner that is protective of resources and is of maximum benefit to the general public.
(h) Encourage public and private agencies to manage the natural resources in a manner that avoids or minimizes adverse effects on the environment and depletion of energy and natural resources to the fullest extent.
(i) Encourage an overall conservation ethic in the use of Hawaii's resources by protecting, preserving, and conserving the critical and significant natural resources of the County of Hawai'i.
(r) Ensure public access is provided to the shoreline, public trails and hunting areas, including free public parking where appropriate.

Discussion: The project would protect and preserve a portion of shoreline, while facilitating public access.

Recreation - Goals
(a) Provide a wide variety of recreational opportunities for the residents and visitors of the County.
(b) Maintain the natural beauty of recreation areas.
(c) Provide a diversity of environments for active and passive pursuits.

Discussion: The project would improve recreational opportunities for residents and visitors and enhance the natural beauty of the area.

Recreation - Policies
(b) Improve existing public facilities for optimum usage.
(c) Recreational facilities shall reflect the natural, historic, and cultural character of the area.
(d) The use of land adjoining recreation areas shall be compatible with community values, physical resources, and recreation potential.
(g) Facilities for compatible multiple uses shall be provided.
(h) Provide facilities and a broad recreational program for all age groups, with special considerations for the handicapped, the elderly, and young children.
(i) Coordinate recreational programs and facilities with governmental and private agencies and organizations. Innovative ideas for improving recreational facilities and opportunities shall be considered.
(o) Develop facilities and safe pathway systems for walking, jogging, and biking activities.
(s) Consider alternative sources of funding for recreational facilities.

Discussion: The project would improve a public recreational facility in a manner consistent with the natural, historic, and cultural character of the area. Facilities would include features such as ADA accessible pathways that make the park accessible to a wide array of age groups. Also, new amenities offered, such as pavilions, restrooms and showers, parking, drinking fountains, landscaping, etc., would support the current recreational uses of the site and encourage greater sustainable usage of the park.

Recreation – Standards
(f) Parks for General Use: Beach parks provide opportunities for swimming/sunbathing, surfing, camping, fishing, boating, nature study, and other pastimes. Every section of the island should be adequately served. Facilities depend on size and intensity of use but should include: restrooms with showers; picnic facilities; a defined tent camping area when allowed; drinking water; adequate parking; pavilions of various sizes; and lifeguard facilities.

South Hilo - Courses of Action
(h) Develop Reed's Bay for more intensive water-oriented recreation.

Discussion: This project is specifically referred to in the Hawai'i County General Plan. The project would achieve many of the stated goals of the General Plan, including protection of recreational resources, diversification of recreational uses, keeping in character with traditional uses of the area, and utilizing alternative funding sources. In summary, the project satisfies relevant goals, standards, policies and courses of action related to recreation, and natural resources in the Hawai'i County General Plan.

3.6.3 Hawai'i State Land Use Law

All land in the State of Hawai'i is classified into one of four land use categories – Urban, Rural, Agricultural, or Conservation – by the State Land Use Commission, pursuant to Chapter 205, HRS. The property is mostly within the State Land Use Urban District. The Land Use Commission Administrative Rules (Chapter 15-15 HAR) allow determination of allowed uses for the Urban Land Use district by County Zoning (discussed in section 3.6.2 above). State waters and TMK 2-1-16:10 are located within the Conservation District. Work makai of the shoreline of the project (i.e., removal of seawalls) would require a Conservation District Use Permit. The project may include removal of manmade obstructions that extend below the shoreline, including the concrete slabs, walkways, and stairs located on parcel TMK 2-1-5:28. According to the Hawaii State Office of Conservation and Coastal Lands (see App. 5), removal of such features is an identified use in the Resource subzone subject to a permit from the Department of Land and Natural Resources.

3.6.4 Coastal Zone Management Act Consistency (CZMA)

The purpose of the federal Coastal Zone Management Act (CZMA) of 1972 (U.S.C. 1451-1464) is to preserve, protect, develop and where possible enhance the resources of the coastal zone. Projects with federal involvement significantly affecting areas under jurisdiction of the State

CZM Agency must undergo review for consistency with the State's approved coastal program. The entire State of Hawai'i is included in the coastal zone for such purposes.

The objectives of the Hawai'i Coastal Zone Management Program are presented below, along with discussion of the consistency of the project with each:

Recreational Resources: *Provide coastal recreational opportunities accessible to the public.* The project would improve coastal recreational opportunities for the public.

Historic Resources: *Protect, preserve, and where desirable, restore those natural and man-made historic and prehistoric resources in the CZM that are significant in Hawaiian and American history and culture*. The project would protect and preserve a resource that is significant to the Hilo community.

Scenic and Open Space Resources: *Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.* The project is in an area noted for its scenic value, and it would protect and preserve a unique shoreline area.

Coastal Ecosystems: *Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems*. The project would reduce adverse impacts on a portion of shoreline area by limiting disturbance by vehicles to a shoreline area, thereby minimizing impacts on water quality.

Economic Uses: *Provide public or private facilities and improvements important to the State's economy in suitable locations*. The project would improve Hilo's recreational facilities for both residents and visitors, promoting Hilo as a visitor destination.

Coastal Hazards: *Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, and subsidence*. The project would reduce hazards to life and property by removing vehicles from the shoreline.

Managing Development: *Improve the development review process, communication, and public participation in the management of coastal resources and hazards*. The proposed activity conforms with the State and County land use designations for the area and would support land use in accordance with State and County plans.

Beach Protection. The project would protect and restore a portion of shoreline.

Marine Resources. The project will enhance marine resources through reduction of the potential for adverse water quality impacts.

In summary, the project does not adversely impact these coastal zone resources, and appears to be consistent with the objectives of the program. This EA has been included as part of the materials submitted to the Hawai'i Coastal Zone Management Program (HCZMP) for CZMA consistency review.

PART 4: DETERMINATION

The Hawai'i County Department of Parks and Recreation, after considering the information in the Draft EA and the comment letters in response to it, has determined that the proposed project will not significantly alter the environment. Therefore, an Environmental Impact Statement is not warranted and the Department of Parks and Recreation has issued a Finding of No Significant Impact (FONSI).

PART 5: FINDINGS AND REASONS

Chapter 11-200-12, Hawai'i Administrative Rules, outlines those factors agencies must consider *when determining whether an Action has significant effects:*

1. *The project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources.* No valuable natural or cultural resources would be committed or lost. The park itself is a cultural resource, and would be enhanced and protected by the proposed action.

2. *The project will not curtail the range of beneficial uses of the environment.* No restriction of beneficial uses would occur. The recreational opportunities afforded by the project would enhance the diversity of beneficial uses of the environment.

3. *The project will not conflict with the State's long-term environmental policies.* The State's long-term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. The project is minor, environmentally beneficial, and fulfills aspects of these policies calling for an improved social environment. It is thus consistent with all elements of the State's long-term environmental policies.

4. *The project will not substantially affect the economic or social welfare of the community or State.* The project would not have any adverse effect on the economic or social welfare of the County or State, and would improve the social welfare of the Hilo area.

5. *The project does not substantially affect public health in any detrimental way.* The project would affect public health and safety in only beneficial ways by enhancing public access to recreational opportunities.

6. *The project will not involve substantial secondary impacts, such as population changes or effects on public facilities.* No secondary effects are expected to result from the proposed action, which would simply expand and improve public recreational facilities.

7. *The project will not involve a substantial degradation of environmental quality.* The project is environmentally beneficial, and would improve the quality and condition of a portion of shoreline. The potential for water quality impacts during construction would be mitigated.

8. *The project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat.* The project site supports mainly alien vegetation. Impacts to rare, threatened or endangered species of flora or fauna would not occur.

9. *The project is not one which is individually limited but cumulatively may have considerable effect upon the environment or involves a commitment for larger actions.* The project is not related to other activities in the region in such a way as to produce adverse cumulative effects or involve a commitment for larger actions.

10. *The project will not detrimentally affect air or water quality or ambient noise levels.* No adverse effects on these resources would occur. Mitigation of construction-phase impacts will preserve water quality. Ambient noise impacts due to construction will be temporary and restricted to daytime hours.

11. *The project does not affect nor would it likely to be damaged as a result of being located in environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal area.* Although the project is located in an area with volcanic, seismic and tsunami risk, any coastal recreation area in Hilo shares this risk, and the project is not imprudent to construct.

12. *The project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.* No scenic vistas and viewplanes will be adversely affected by the project. The proposed action would improve the visual appearance of the area.

13. *The project will not require substantial energy consumption.* The construction and maintenance of the park and its facilities would require minimal consumption of energy. No adverse effects would be expected.

For the reasons above, the proposed Action will not have any significant effect in the context of Chapter 343, Hawai'i Revised Statues and section 11-200-12 of the State Administrative Rules.

REFERENCES

Akoi, R. 1989. *Ku'u Home I Keaukaha: An Oral History.* Hui Ho'omau O Keaukaha Panaewa, Hilo.

Bird, I. 1964. *Six Months in the Sandwich Islands.* University of Hawai'i Press, Honolulu.

Gagne, W., and L. Cuddihy. 1990. "Vegetation," pp. 45-114 in W.L. Wagner, D.R. Herbst, and S.H. Sohmer, eds., *Manual of the Flowering Plants of Hawai'i.* 2 vols. Honolulu: University of Hawai'i Press.

Handy, E.S.C., and E. Handy. 1972. *Native Planters in Old Hawai'i. B.P. Bishop Museum Bulletin 233.* Bishop Museum Press, Honolulu. (With M.K. Pukui)

Hawai`i, County of. Annual Report Fiscal Year 2002-2003, pg. 7.

Hawai'i County. *Natural Hazards Mitigation Plan: Interim Report.* Hawai'i County Civil Defense Agency, Hilo.

Hawai'i County Planning Department. 1989. *The General Plan, County of Hawai'i.* Hilo.

Hawai'i County Research and Development Department. Var. years. *Hawai'i County Data Book.* Hilo.

Hawai'i State Commission on Water Resources Management (CWRM). 1990. *Draft Hawai'i Stream Assessment: A Preliminary Appraisal of Hawai'i's Stream Resources.* Prep. for CWRM by Hawai'i Cooperative Park Service Unit. Honolulu: National Park Service.

Heliker, C. 1990. *Volcanic and Seismic Hazards on the Island of Hawai'i.* Washington: U.S. GPO.

Kamakau, S. 1961. *Ruling Chiefs of Hawaii.* Honolulu: The Kamehameha Schools Press.

Kelly, M., B. Nakamura, and D.B. Barrère. 1981. *Hilo Bay: A Chronology History.* Bernice P. Bishop Museum Department of Anthropology. For U.S. Army Corps of Engineers, Honolulu District.

Maly, K. 1996. Appendix In: "Archaeological Assessment Study Hilo Judiciary Complex Project, Lands of Wainaku, Pōnohawai, Pi'ihonua, and Waiākea, South Hilo District, Island of Hawai'i (TMK: 2-6-15:1,2; 2-6-16:2; 2-4-49:18,19; 2-2-15:33; 2-4-1:12)." Paul H. Rosendahl, Inc., Hilo. PHRI Report 1721-061496. Prepared for State of Hawai'i, Honolulu.

McEldowney, H. 1979. "Archaeological and Historical Literature Search and Research Design: Lava Flow Control Study, Hilo Hawai'i." Manuscript on file, Department of Land and Natural Resources-State Historic Preservation Division.

Pukui, M.K. with L.C.S. Green. 1995. *Folktales of Hawai'i.* Bishop Museum Press, Honolulu.

Pukui, M.K, S.H. Elbert, and E.T. Mookini. 1974. *Place Names of Hawai'i.* University of Hawai'i Press, Honolulu.

Spear, R. 1992. "An Archaeological Inventory Survey for the H.C.E.O.C. Project, Hilo. Island of Hawai'i (TMK: 2-3-32:1B)." Scientific Consulting Services, Inc., Kaneohe. Prepared for Neil Erickson, AIA.

Stokes, J., and T. Dye. 1991. "Heiau of the Island of Hawai'i." *Bishop Museum Bulletin in Anthropology* 2. Bishop Museum Press, Honolulu.

Thrum, T. 1907. Tales from the Temples. *Hawaiian Almanac and Annual for 1908*, pp. 48-58.

_____. 1923. *Hawaiian Almanac and Annual for 1924.* Honolulu.

U.S. Dept. of Commerce, Economics and Statistics Administration, Bureau of the Census, 2001, http://factfinder.census.gov/ .

U.S. Soil Conservation Service. 1973. *Soil Survey of Island of Hawai'i, State of Hawai'i.* Washington: U.S.D.A. Soil Conservation Service.

University of Hawai'i at Hilo, Dept. of Geography. 1998. *Atlas of Hawai'i.* 3rd ed. Honolulu: University of Hawai'i Press.

University of Hawai'i at Manoa, Dept. of Geography. 1983. *Atlas of Hawai'i.* 2nd ed. Honolulu: University of Hawai'i Press.

U.S. Fish and Wildlife Service (USFWS). 2000. *Threatened and endangered plants in Hawai'i.* Washington: GPO.

Walker, A., and P. Rosendahl. 1996 "Archaeological Assessment Study Hilo Judiciary Complex Project, Lands of Wainaku, Pōnohawai, Pi'ihonua, and Waiākea, South Hilo District, Island of Hawai'i (TMK: 2-6-15:1,2; 2-6-16:2; 2-4-49:18,19; 2-2-15:33; 2-4-1:12)." Paul H. Rosendahl, Inc., Hilo. PHRI Report 1721-061496. Prepared for State of Hawai'i, Honolulu.

Warshauer, K. 2003a. *Early Development of Reed's Bay Shores. Hawa'ii Tribune-Herald*, August 3, 2003, Hilo.

_____. 2003b. *Some Banyan Drive Signs Need Correction. Hawa'ii Tribune-Herald*, April 27, 2003, Hilo.

_____. 2004. *Famed Trees of Banyan Drive Still Mislabeled. Hawa'ii Tribune-Herald*, April 11, 2004, Hilo.

Wolfe, E.W., and J. Morris. 1996. *Geologic Map of the Island of Hawai'i.* USGS Misc. Investigations Series Map i-2524-A. Washington, D.C.: U.S. Geological Survey.

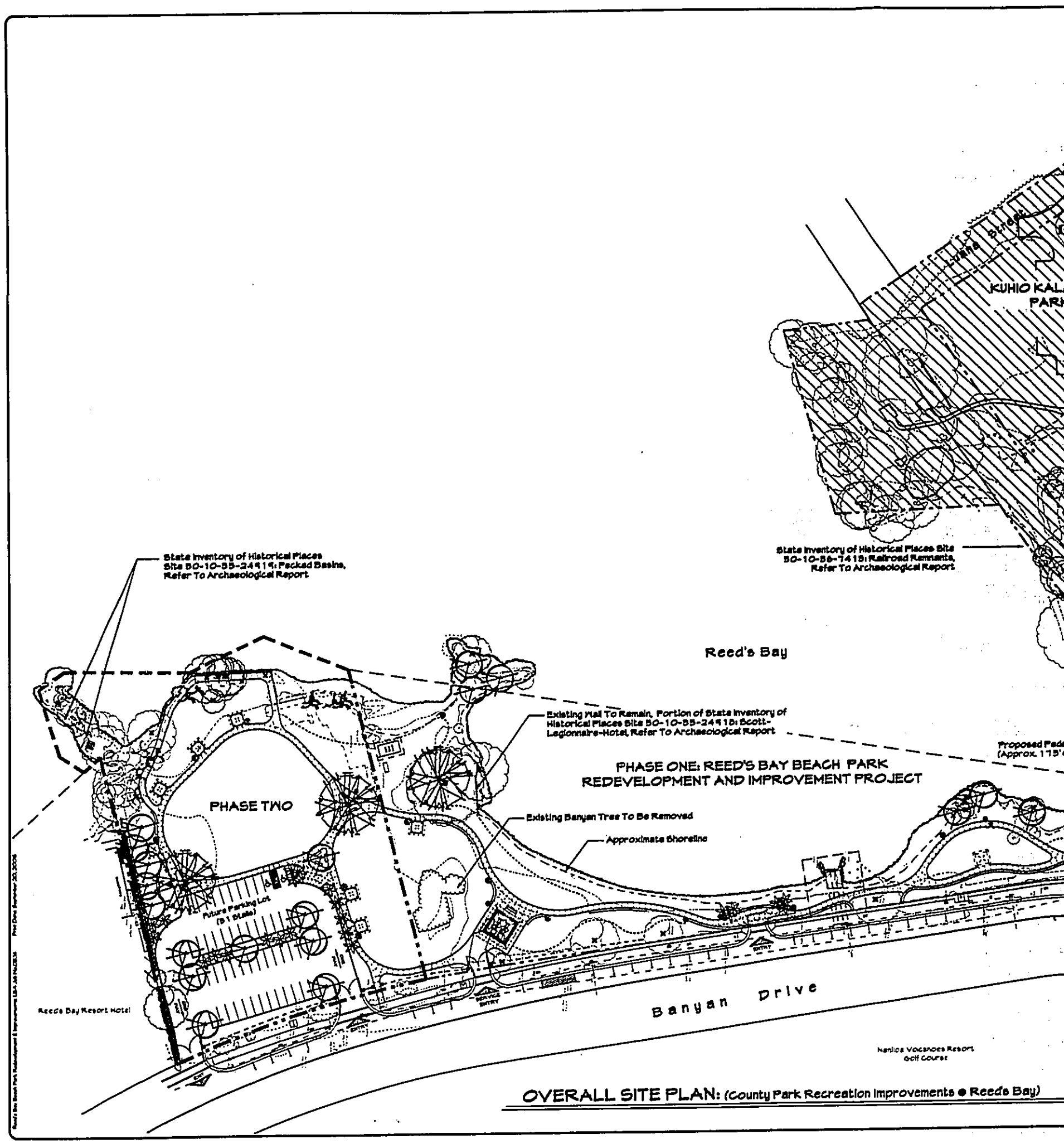
ENVIRONMENTAL ASSESSMENT

REED'S BAY BEACH PARK IMPROVEMENTS

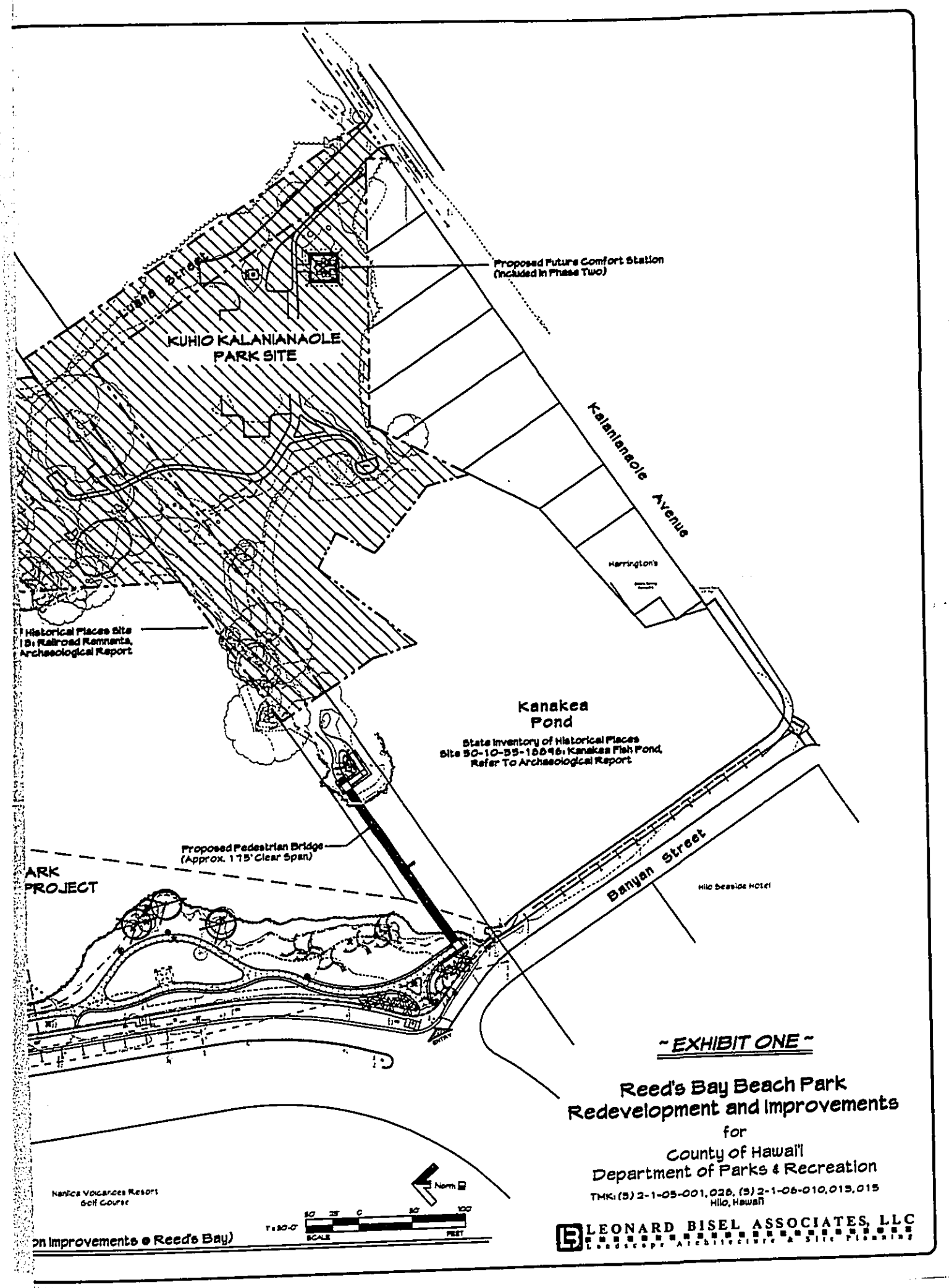
APPENDIX 1

SITE PLANS

Index to Plans



OVERALL SITE PLAN: (County Park Recreation Improvements @ Reeds Bay)



~ EXHIBIT ONE ~

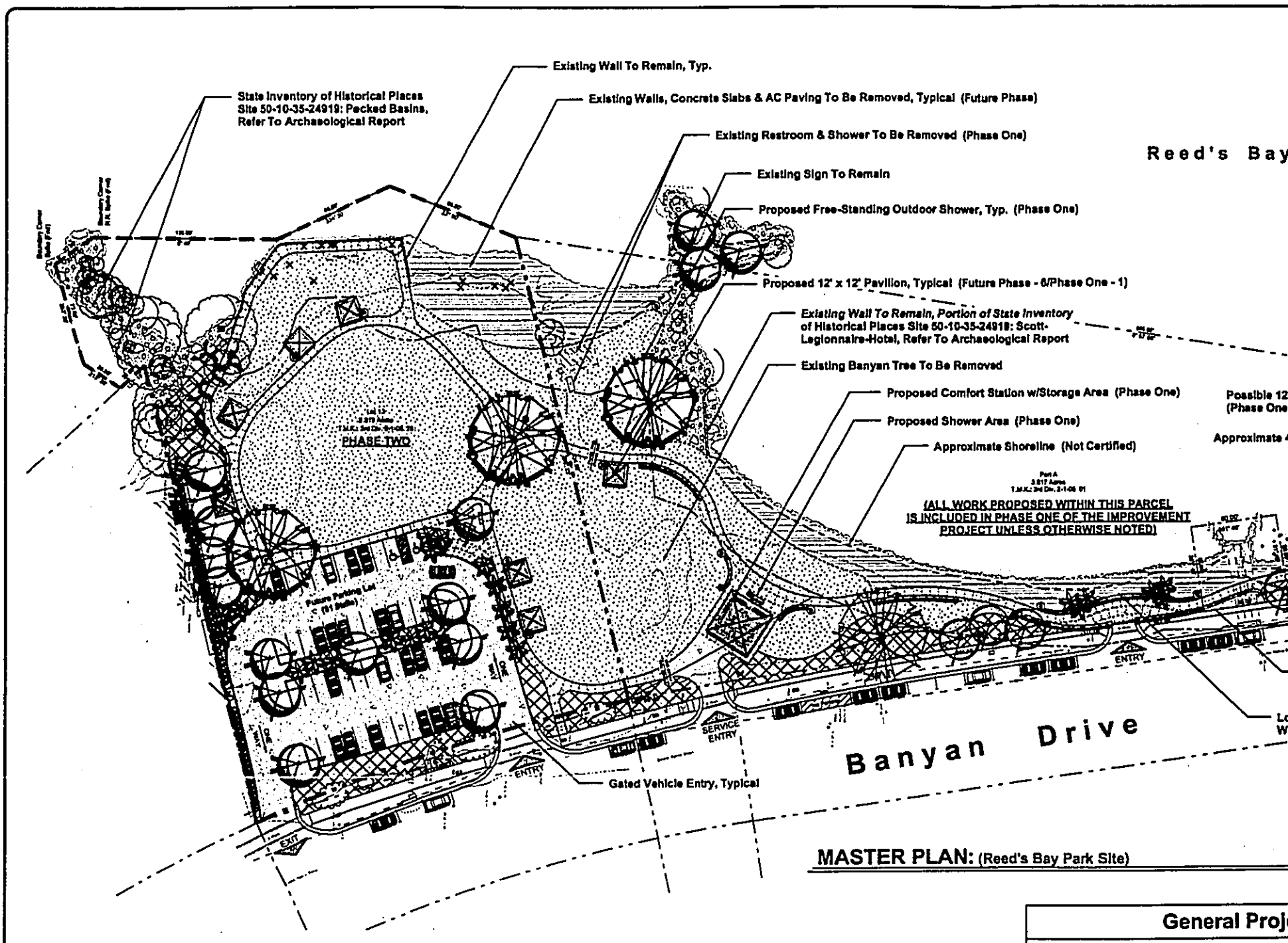
Reed's Bay Beach Park
Redevelopment and Improvements

for

County of Hawai'i
Department of Parks & Recreation

TMK: (3) 2-1-05-001,028, (3) 2-1-06-010,015,015
Hilo, Hawai'i

LEONARD BISEL ASSOCIATES, LLC
Landscape Architecture & Site Planning



MASTER PLAN: (Reed's Bay Park Site)

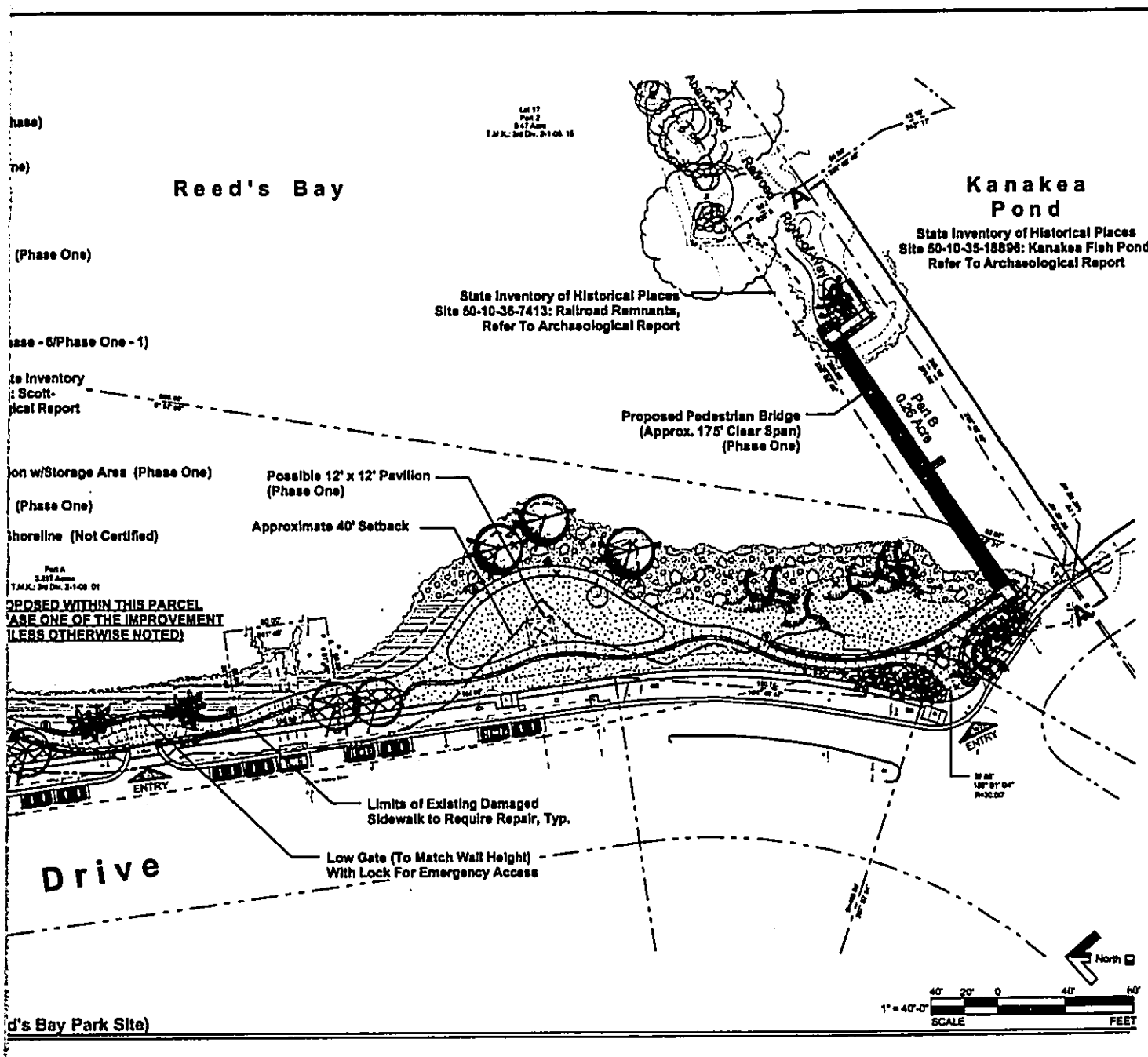
Master Plan Legend

- Large Accent Tree, Typ. (3 Total)
- Mid Size Accent Tree, Typ. (19 Total)
- Mid Size Single Trunk Palm, Typ. (31 Total)
- Ex. Tree To Be Removed, Typ. (35 Total)
- Mid Size Screen Shrub, Typ. (55 Total)
- Shrubs and Groundcover, Typ. (Approx. 25,165 S.F. Total)
- Lawn Area, Typ. (Approx. 73,949 S.F. Total)
- Accessible Concrete Walkway, Typ. (Approx. 20,243 S.F. Total)
- AC Pavement, Typ. (Approx. 23,851 S.F. Total)
- Restored/Expanded Beach Area, Typ. (Future) (Approx. 16,968 S.F. Total)
- Existing Rocky Coastline, Typ.
- 18" High Stone Seat Wall w/ 3' Tall Matching Column (Approx. 2,145 S.F.F. Total)
- 10" Wide Poured-In-Place Concrete Landscape Edging (Approx. 204 L.F. Total)
- Drinking Fountain, Typ. (6 Total)
- Trash Receptacle, Typ. (14 Total)
- Bollard and Chain, Typ. (383 L.F. Total)

General Proj

Location: Waiakea, South Hilo, Hawai'i
Tax Map Key: TMK: (3) 2-1-05-001, 028, (3) 2-1-
Total Area: 10.696 Acres
State Land Use District: Urban
County General Plan Zoning: TMK: (3) 2-1-
2-1-06-010 (Open), TMK: (3) 2-1-06-013 (Split-
According to Division 16 of Hawai'i County Code,
including Height Limit, Minimum Building Site Ar
Yards, and Other Regulations, are to be determine
of plan approval. (According to Chapter 25 of Haw
are as follows: Front Yard - 20'-0"; Rear Yard - 20
2'-0" for each additional story permitted).
Existing Use: TMK: (3) 2-1-05-001 - Reed's Bay P
TMK: (3) 2-1-05-028 - Vacant - Former Orchid Isl
TMK: (3) 2-1-06-010 - Kanakea Pond
TMK: (3) 2-1-06-013 - Kuhio-Kalaniaole Park
TMK: (3) 2-1-06-015 - Luana Street R.O.W., Por
Flood (FIRM) Zoning: VE
Seismic Zone: 4
Shoreline Setback: 40'-0"
Parking: 75 Stalls Total - Parking Lot: 49 Standar

Print Date: September 20, 2006



General Project Information

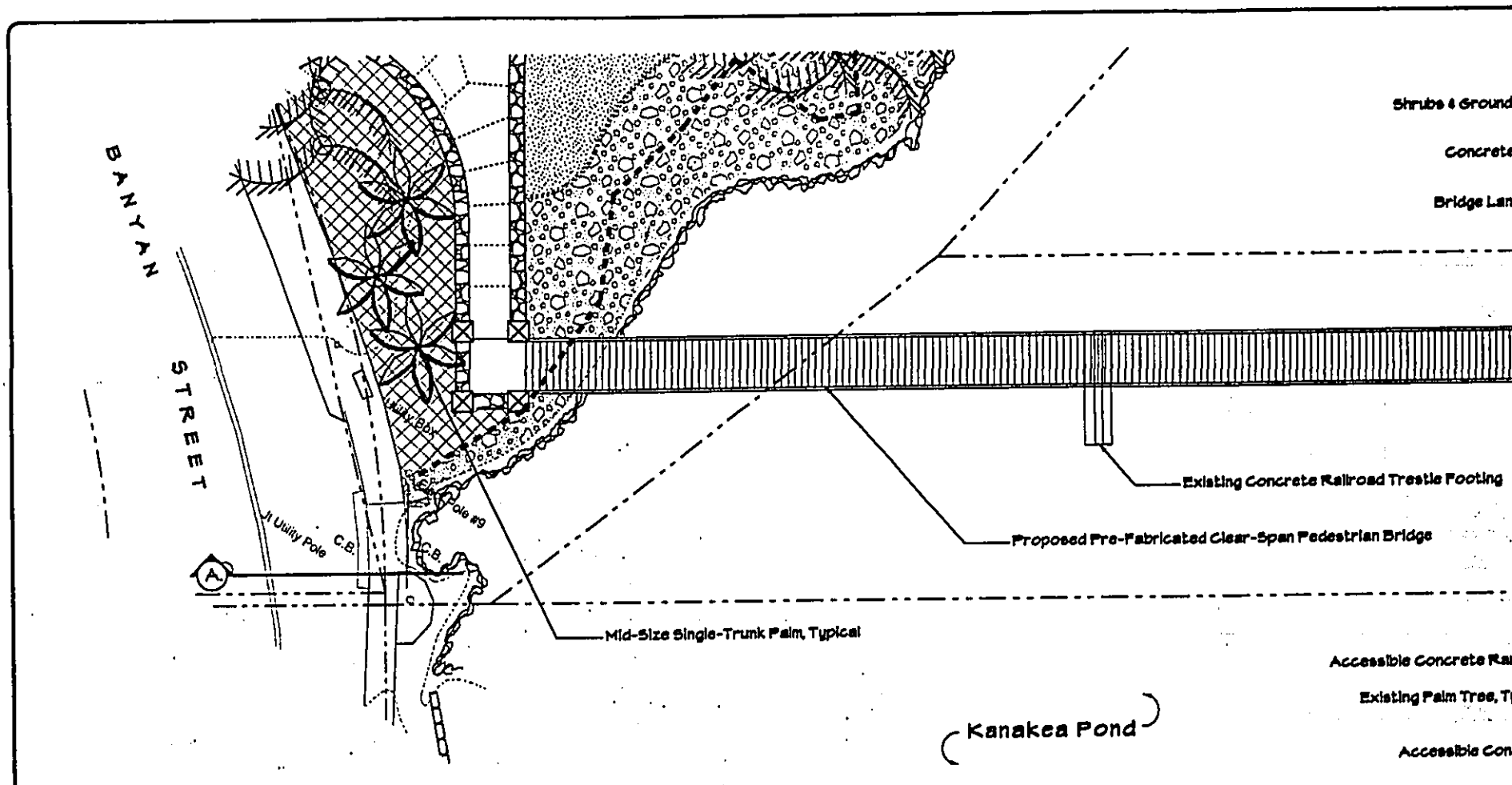
Location: Waiakea, South Hilo, Hawai'i
Tax Map Key: TMK: (3) 2-1-05-001, 028, (3) 2-1-06-010, 013, 015
Total Area: 10.696 Acres
State Land Use District: Urban
County General Plan Zoning: TMK: (3) 2-1-05-001 (Open), TMK: (3) 2-1-05-028 (V-.75),TMK: (3) 2-1-06-010 (Open), TMK: (3) 2-1-06-013 (Split-Zoned Open & V-.75), TMK: (3) 2-1-06-015 (Open). According to Division 16 of Hawai'i County Code, requirements for construction within the Open District including Height Limit, Minimum Building Site Area, Minimum Building Site Average Width, Minimum Yards, and Other Regulations, are to be determined as a condition of approval attached to any use permit of plan approval. (According to Chapter 25 of Hawai'i County Code, the mimimum setbacks in V Districts are as follows: Front Yard - 20'-0"; Rear Yard - 20'-0"; Side Yard - 8'-0" for one story, and an additional 2'-0" for each additional story permitted).
Existing Use: TMK: (3) 2-1-05-001 - Reed's Bay Beach Park Site
TMK: (3) 2-1-05-028 - Vacant - Former Orchid Island Hotel Site (State Owned)
TMK: (3) 2-1-06-010 - Kanakea Pond
TMK: (3) 2-1-06-013 - Kuhio-Kalanianaole Park Site
TMK: (3) 2-1-06-015 - Luana Street R.O.W., Portion of Abandoned Railroad R.O.W.
Flood (FIRM) Zoning: VE
Seismic Zone: 4
Shoreline Setback: 40'-0"
Parking: 75 Stalls Total - Parking Lot: 49 Standard, 2 Accessible; On-Street Parking: 24 Standard

~ EXHIBIT TWO ~

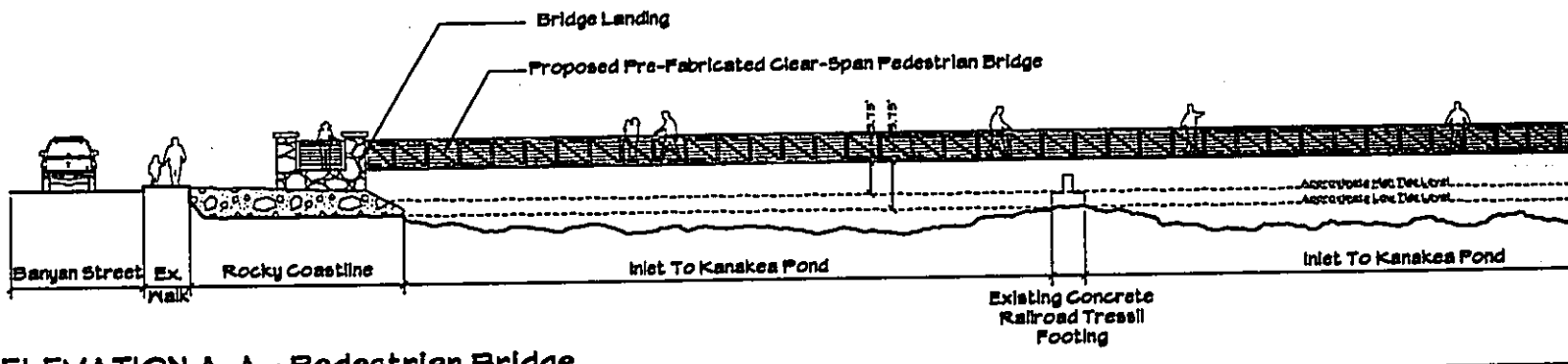
Reed's Bay Beach Park
Redevelopment and Improvements
for
County of Hawai'i
Department of Parks & Recreation

TMK: (3) 2-1-05-001, 028, (3) 2-1-06-010, 013, 015
Hilo, Hawai'i

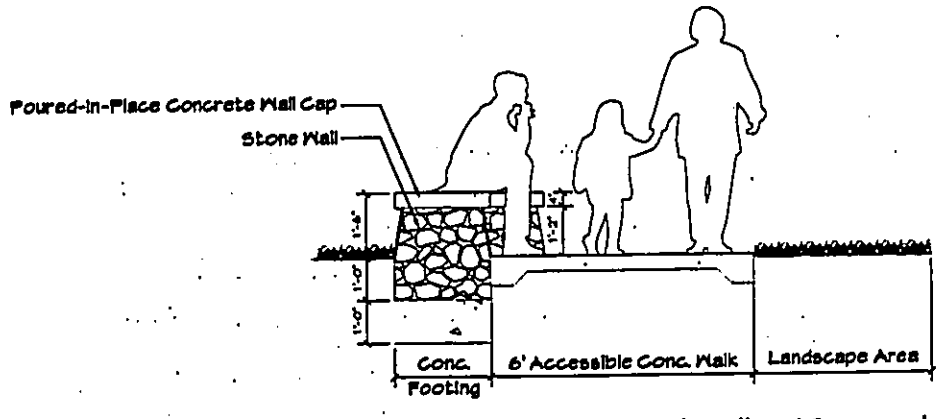
LEONARD BISEL ASSOCIATES, LLC
Landscape Architecture & Site Planning



PLAN ENLARGEMENT Pedestrian Bridge

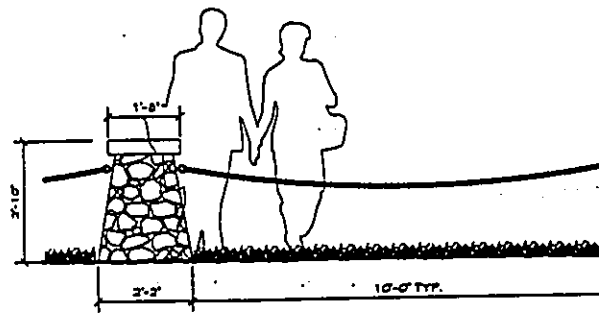


SECTION/ELEVATION A. A. : Pedestrian Bridge

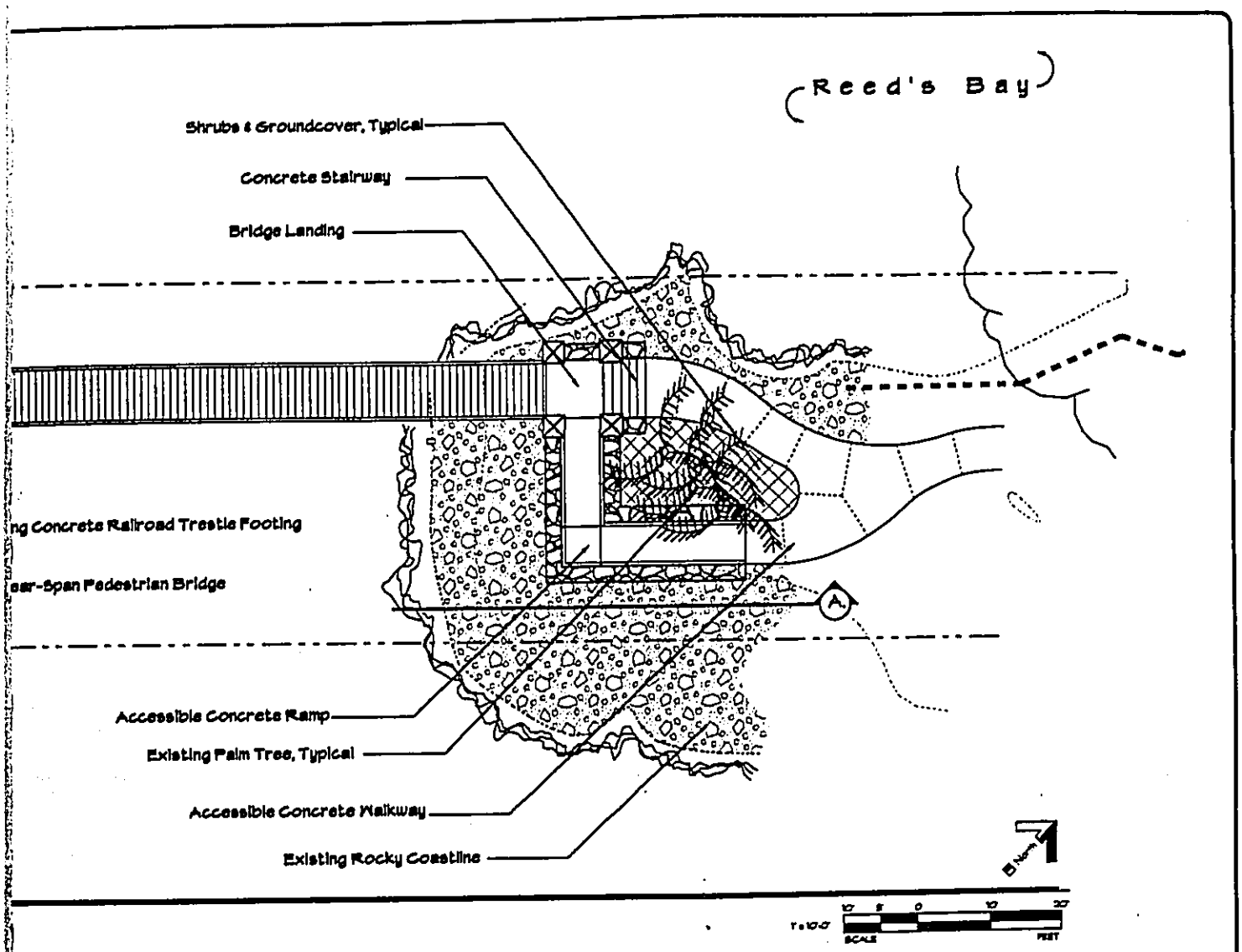


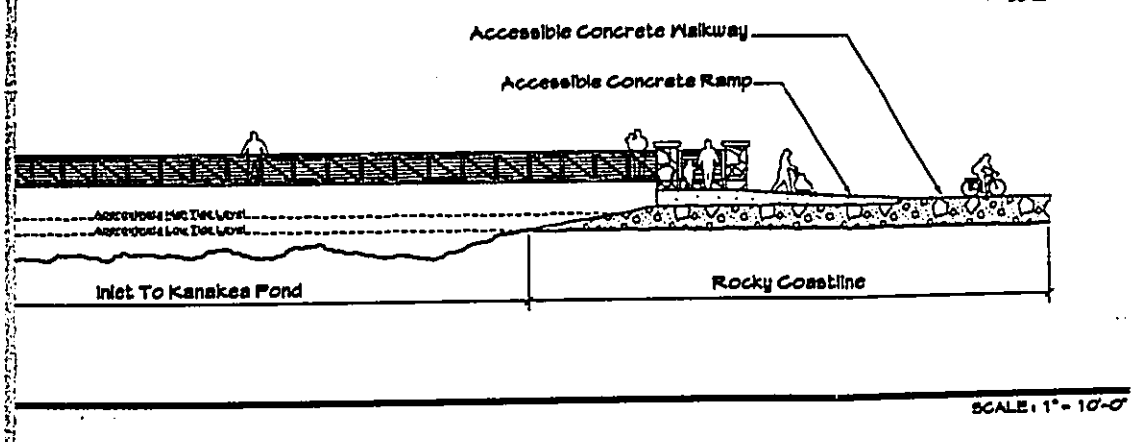
SECTION/ELEVATION: 18" Stone Seatwall w/Concrete Cap

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

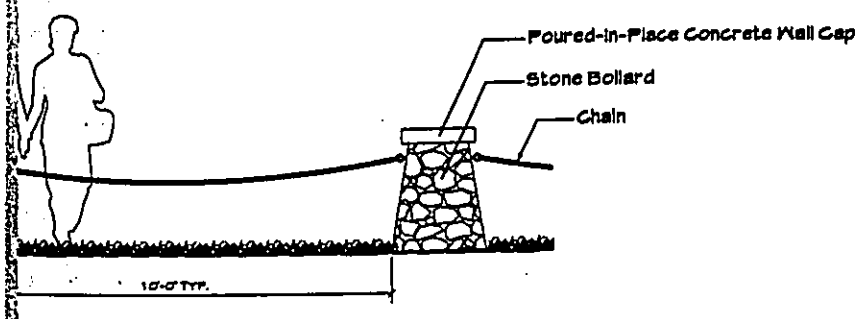


ELEVATION: 30" Stone Bollards w/Co





SCALE: 1" = 10'-0"



Stone Bollards w/Concrete Cap

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

~ EXHIBIT THREE ~

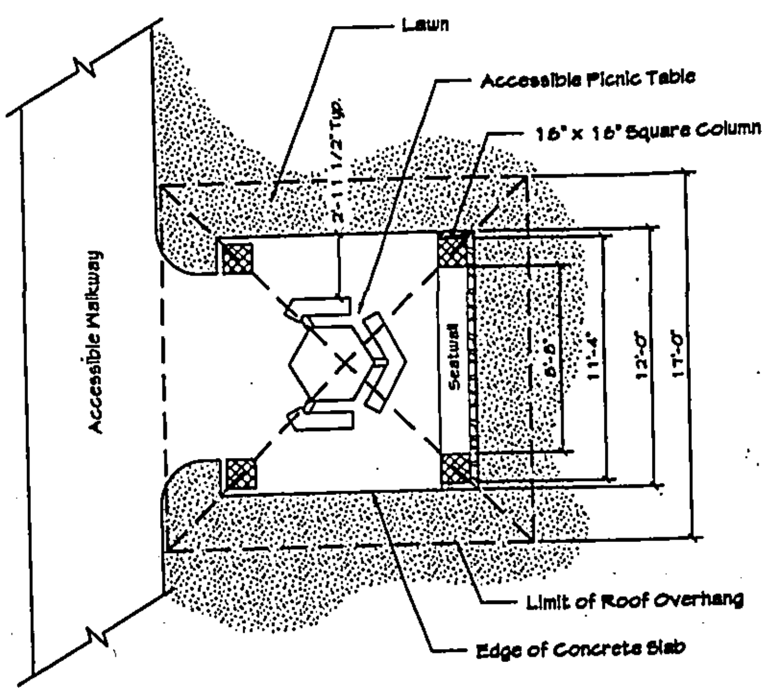
Reed's Bay Beach Park Redevelopment and Improvements

for

County of Hawai'i
Department of Parks & Recreation

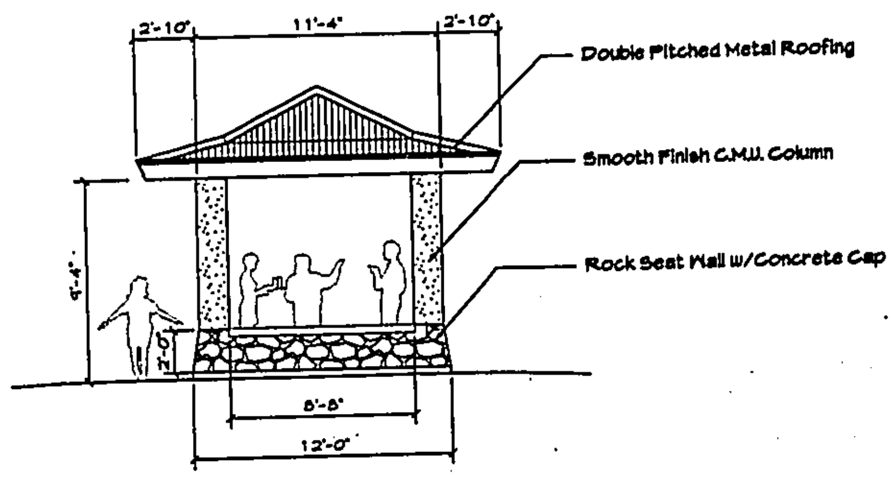
TMK: (3) 2-1-05-001, 028, (3) 2-1-06-010, 013, 015
Hilo, Hawai'i

LEONARD BISEL ASSOCIATES, LLC
Landscape Architecture & Site Planning



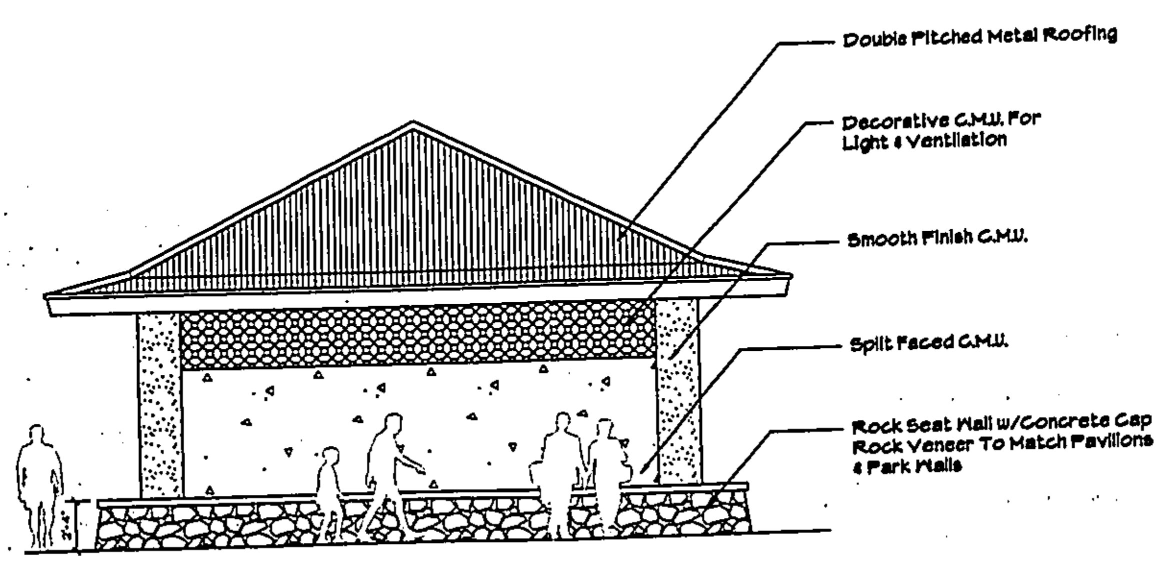
Pavilion Floor Plan

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



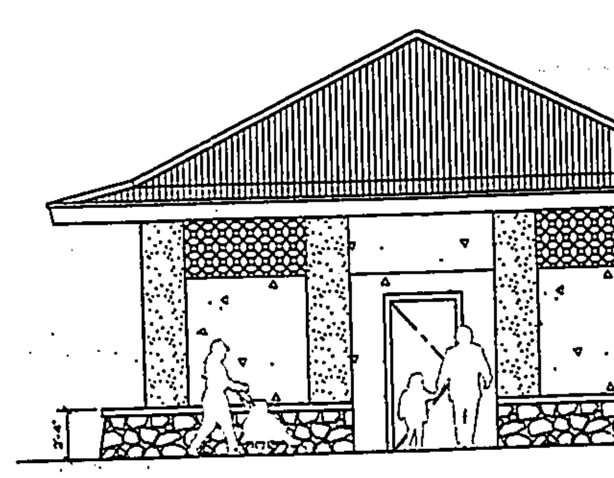
Pavilion Elevation

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



Comfort Station Side Elevation

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



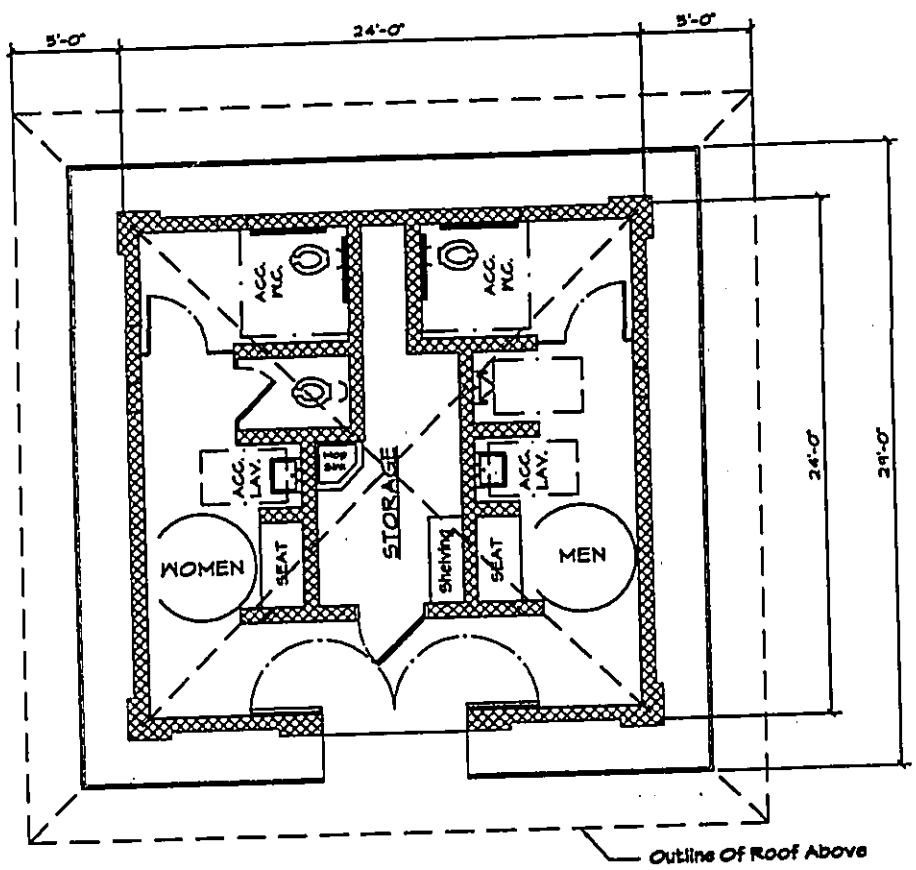
Comfort Station Front Elevation

e Pitched Metal Roofing

h Finish C.M.U. Column

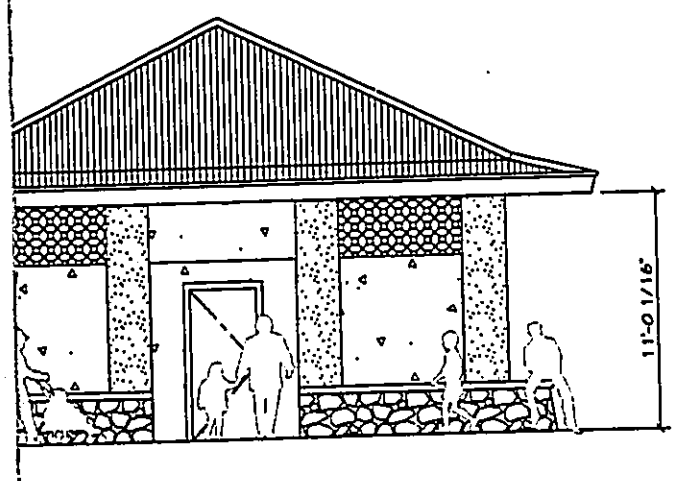
Seat Wall w/Concrete Cap

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



Comfort Station Floor Plan

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



tion Front Elevation

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

~ EXHIBIT FOUR ~

Reed's Bay Beach Park
Redevelopment and Improvements

for

County of Hawai'i
Department of Parks & Recreation

TMK: (3) 2-1-05-001, 028, (3) 2-1-06-010, 013, 015
Hilo, Hawai'i

INABA ARCHITECTURE, LLC
P.O. Box 7133, Kamuela, Hawai'i 96743
Phone: 808.885.4116, Fax: 808.885.7893, Email: iainc@hawaii.rr.com

SEE PLAN ENLARGEMENT:

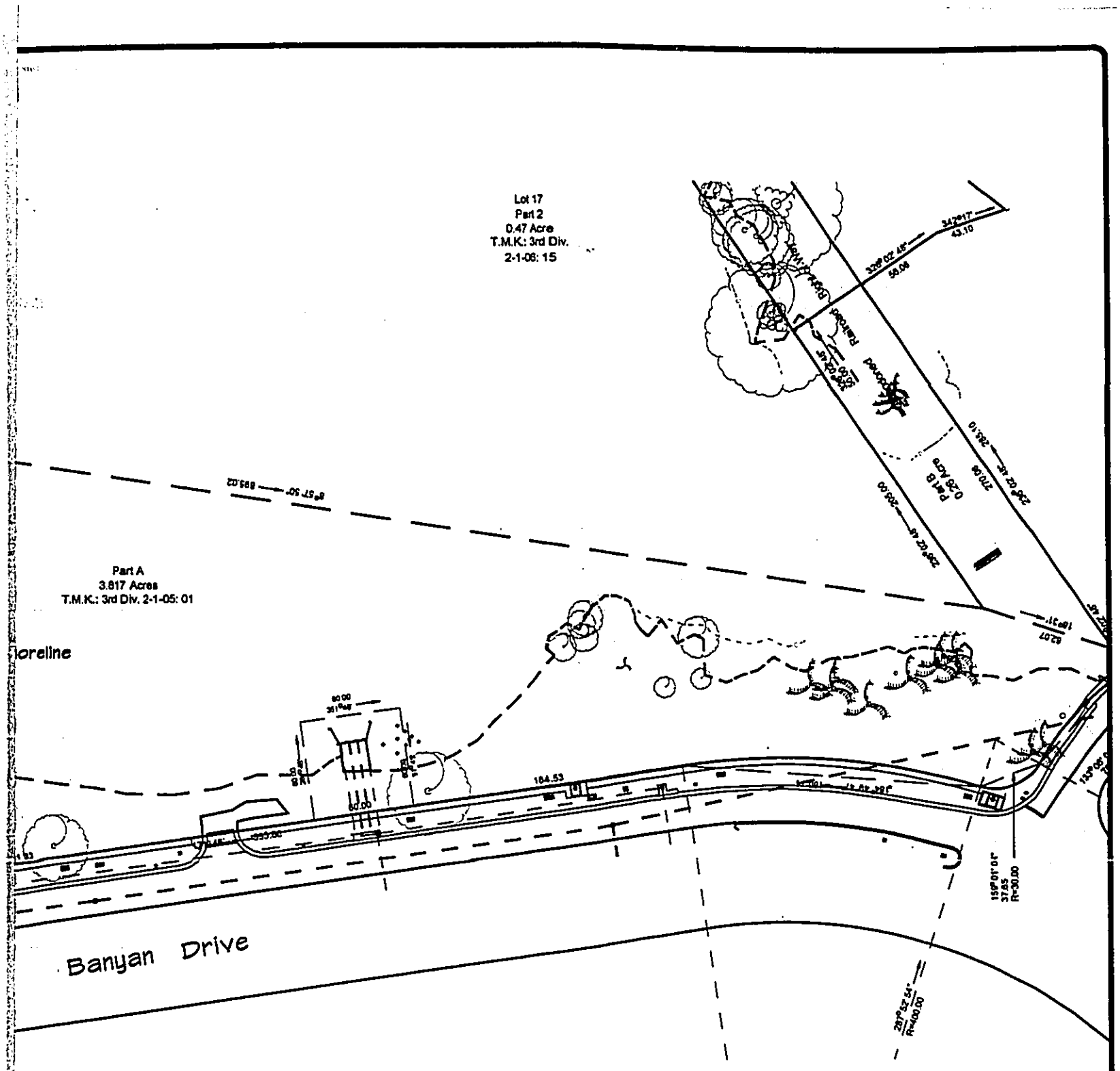
Part A
3.617 Acres
T.M.K.: 3rd Div. 2-1-05: 01

Approximate Shoreline

Lot 13
2.319 Acres
T.M.K.: 3rd Div. 2-1-05: 28

Banyan Drive

Print Date: May 30, 2006



~ EXHIBIT FIVE ~

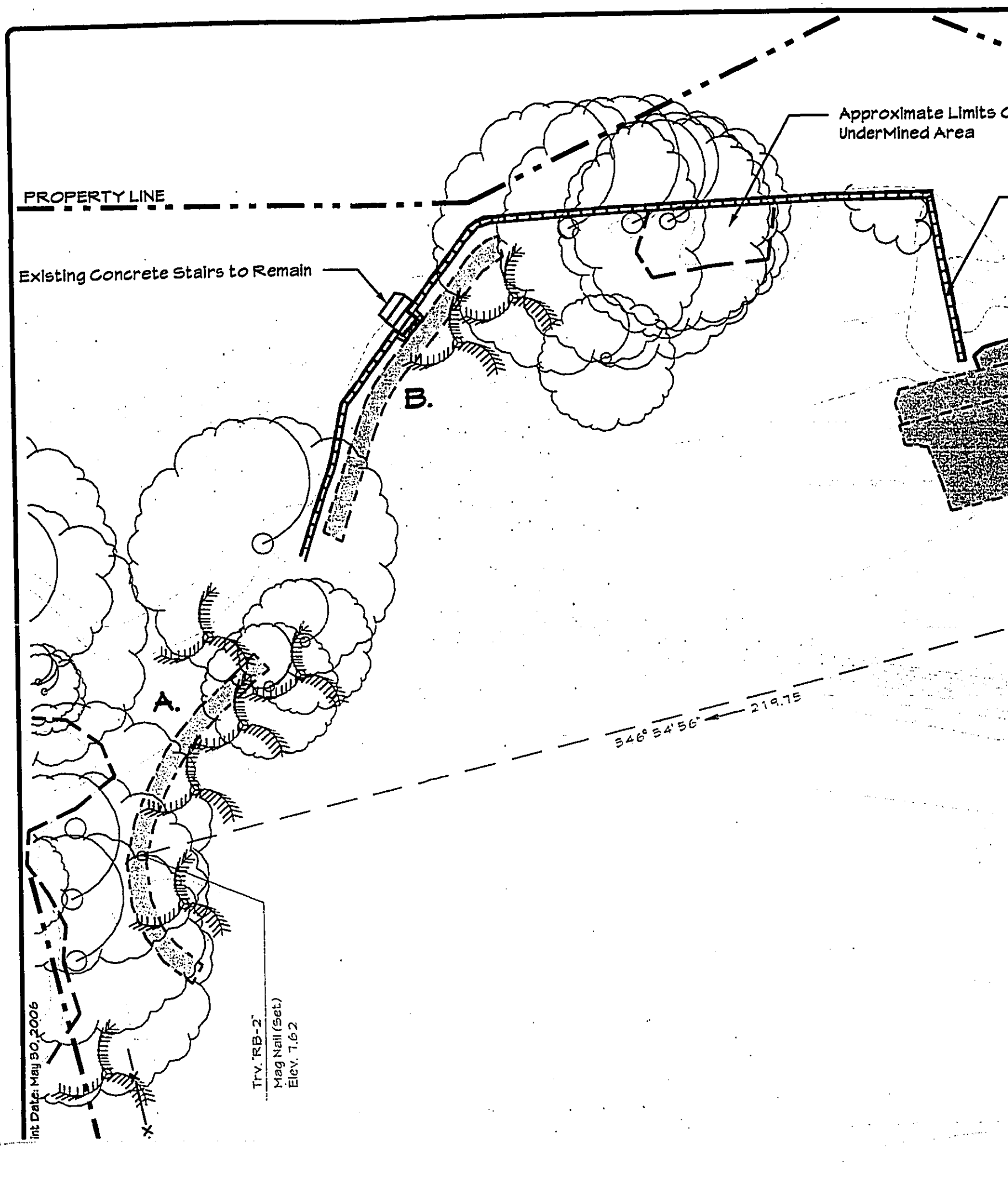
Existing Elements To Be Demolished
(Overall Site Plan)

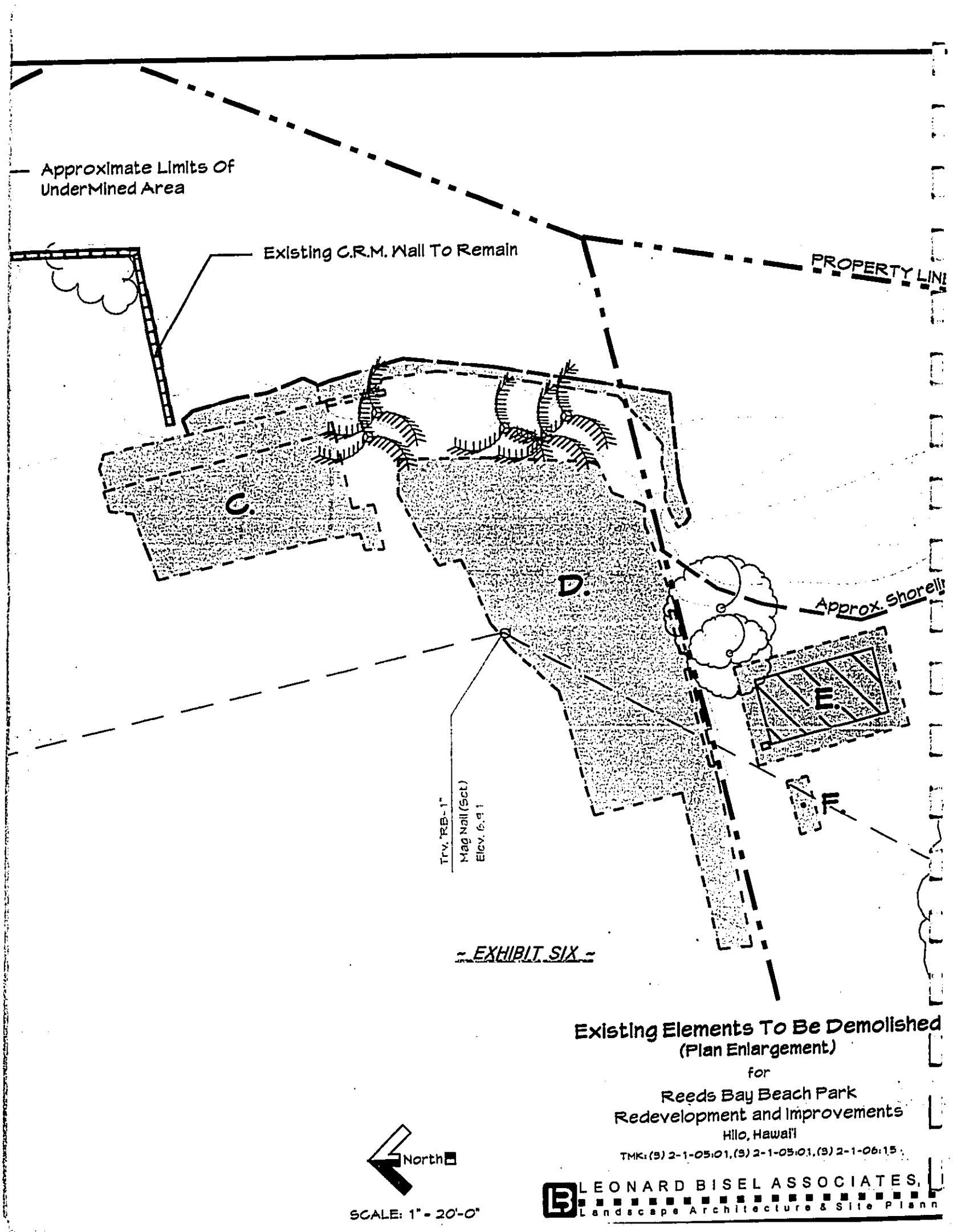
for

Reeds Bay Beach Park
Redevelopment and Improvements
Hilo, Hawai'i

TMK: (3) 2-1-05:01, (3) 2-1-05:01, (3) 2-1-06:15

LEONARD BISEL ASSOCIATES, LLC
Landscape Architecture & Site Planning


PROPERTY LINE
Approximate Limits o
UnderMined Area
Existing Concrete Stairs to Remain
B.
A.
346° 54' 56"
219.75
Trv. "RB-2"
Mag Nail (Set)
Elev. 7.62
int Date: May 30, 2006



~ EXHIBIT SIX ~

Existing Elements To Be Demolished
(Plan Enlargement)

for

Reeds Bay Beach Park
Redevelopment and Improvements
Hilo, Hawai'i

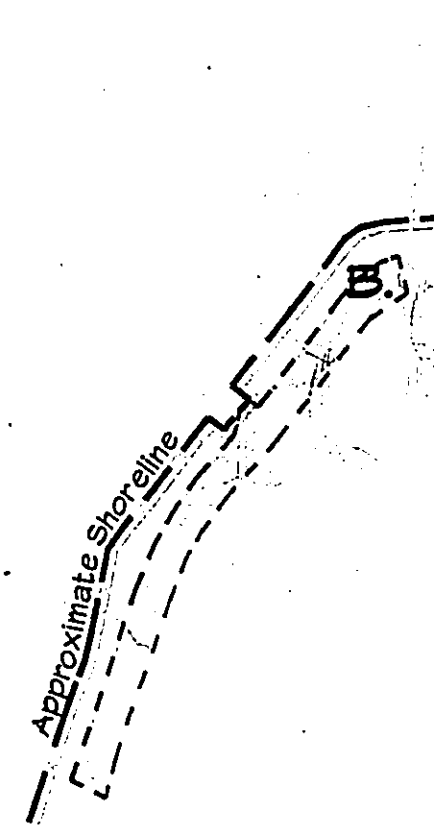
TMK: (3) 2-1-05:01, (3) 2-1-05:01, (3) 2-1-06:15 ;

North

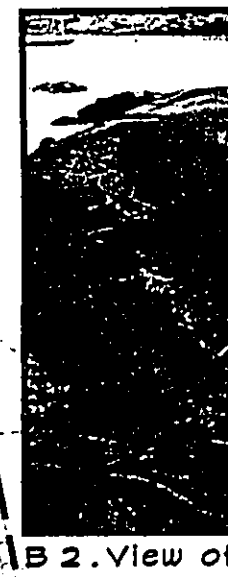
SCALE: 1" = 20'-0"

LEONARD BISEL ASSOCIATES,
Landscape Architecture & Site Plann

In restoring the shore line at Reeds Bay Beach Park, the following areas are proposed to be demolished in order to aviod potential hazards and to eliminate construction completed prior to the establishment of current health and safety standards:

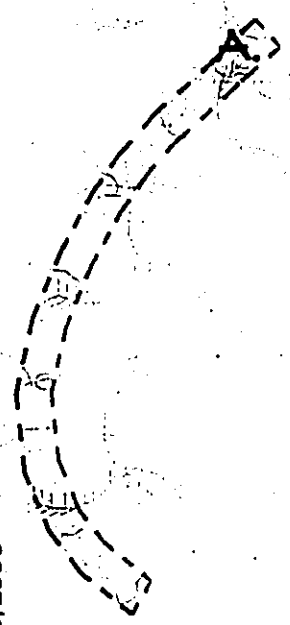


B 1. View of Existing Concrete Walkway Looking South



B 2. View of Looking South

B. Existing Concrete Walkway to be Demolished



A1. View of Existing Concrete Walkway Looking North-West

A. Existing Concrete Walkway to be Demolished

A2. View of Existing Concrete Walkway Looking East

Print Date: May 30, 2006

B 2. View of Existing Concrete Walkway Looking South-East

B3. View of Existing Concrete Walkway Looking North-West

ed

Concrete

A3. View of Existing Concrete Walkway Looking North-West

~ EXHIBIT SEVEN ~

Existing Elements To Be Demolished
(Photo Reference Sheet 1)

for

Reeds Bay Beach Park
Redevelopment and Improvements
Hilo, Hawai'i

TMK: (3) 2-1-05:01, (3) 2-1-05:01, (3) 2-1-06:15

LEONARD BISEL ASSOCIATES, LLC
Landscape Architecture & Site Planning

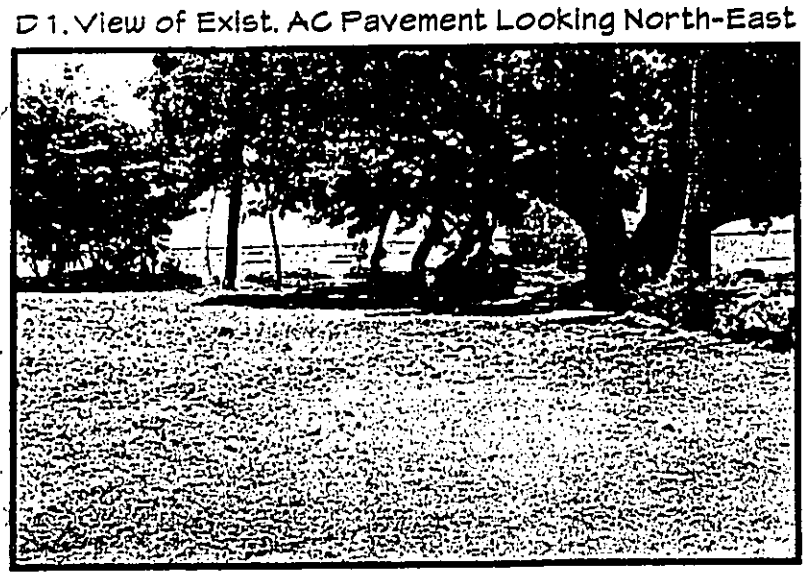
In restoring the shore line at Reeds Bay Beach Park, the following areas are proposed to be demolished in order to aviod potential hazards and to eliminate construction completed prior to the establishment of current health and safety standards:

C. Existing Concrete Slab and Sea Wall to be Demolished

C1. View of Existing Concrete Slab and Sea Wall Looking South

C2. View of Existing Concrete Slab North-East

D 1. View of Exist. AC Pavement Looking North-East



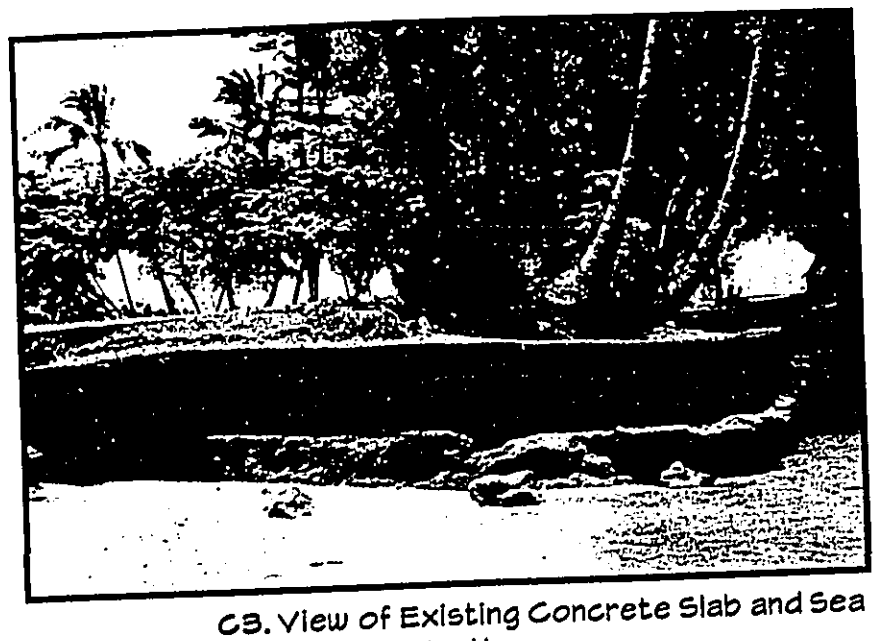
D2. View of Existing AC Pavement Looking East

D3. View o
Sea Wall L

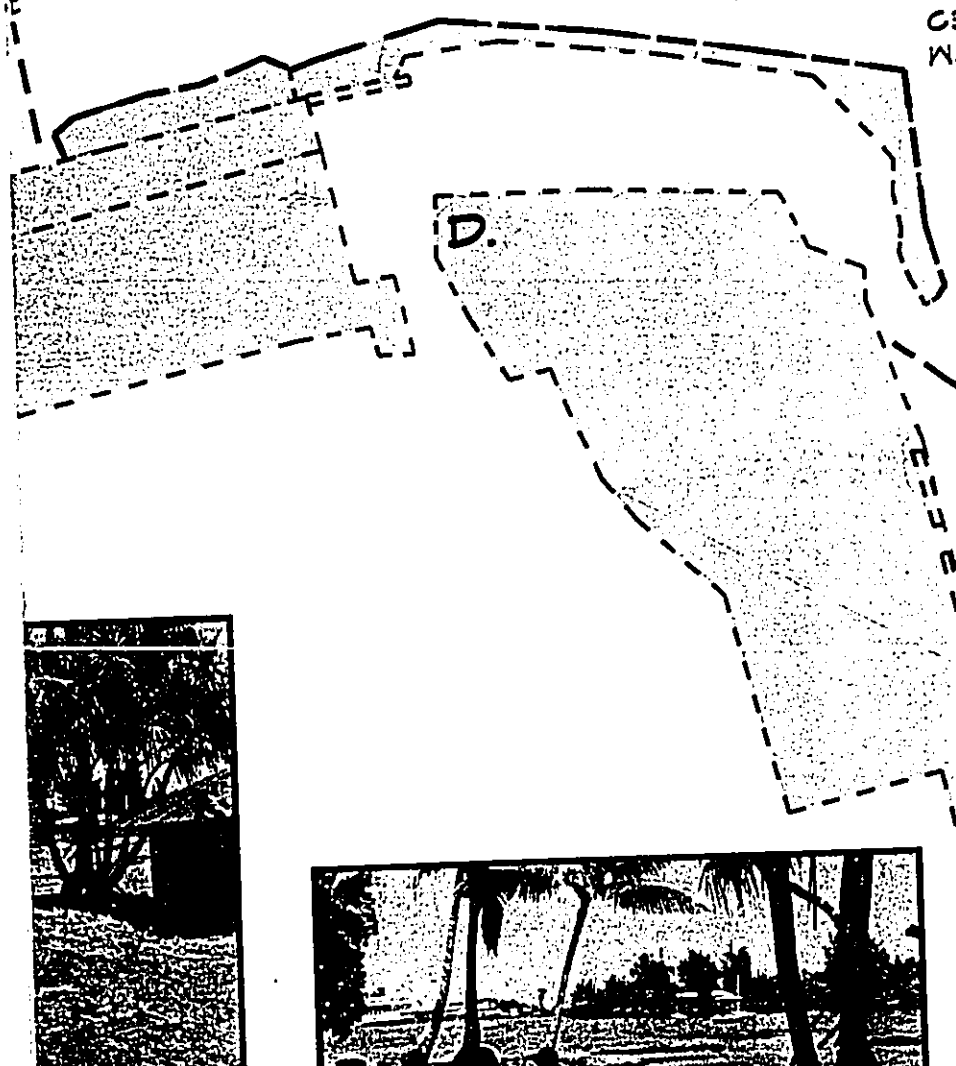
D. Existing AC Pavement to be Demolished

Print Date: May 30, 2006

of Existing Concrete Slab Looking



C3. View of Existing Concrete Slab and Sea Wall Looking North



Looking East

D3. View of Existing Concrete Slab and Sea Wall Looking East

~ EXHIBIT EIGHT ~

Existing Elements To Be Demolished
(Photo Reference Sheet 2)

for

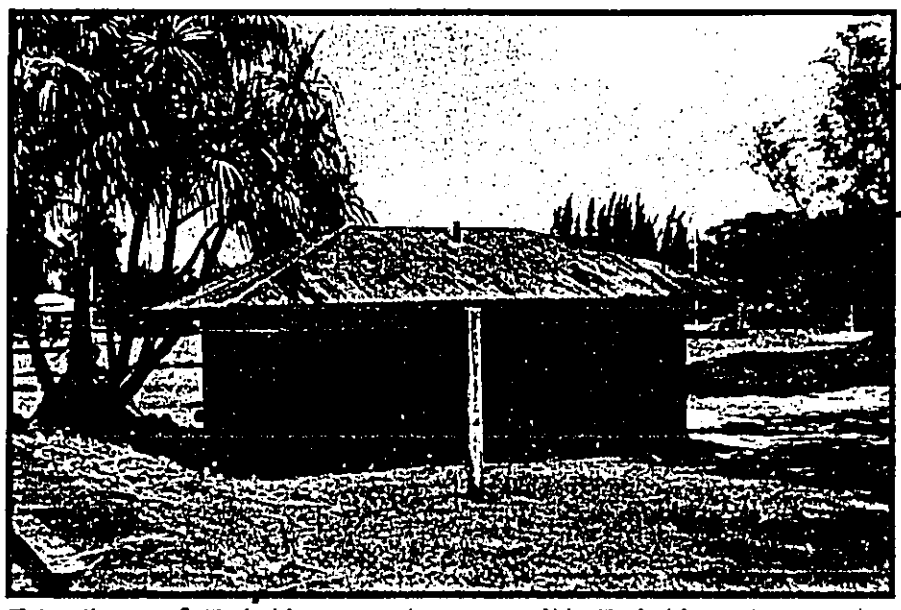
Reeds Bay Beach Park
Redevelopment and Improvements
Hilo, Hawai'i

TMK: (3) 2-1-05:01, (3) 2-1-05:01, (3) 2-1-06:15

LEONARD BISEL ASSOCIATES, LLC
Landscape Architecture & Site Planning

In restoring the shore line at Reeds Bay Beach Park, the following areas are proposed to be demolished in order to aviod potential hazards and to eliminate construction completed prior to the establishment of current health and safety standards:

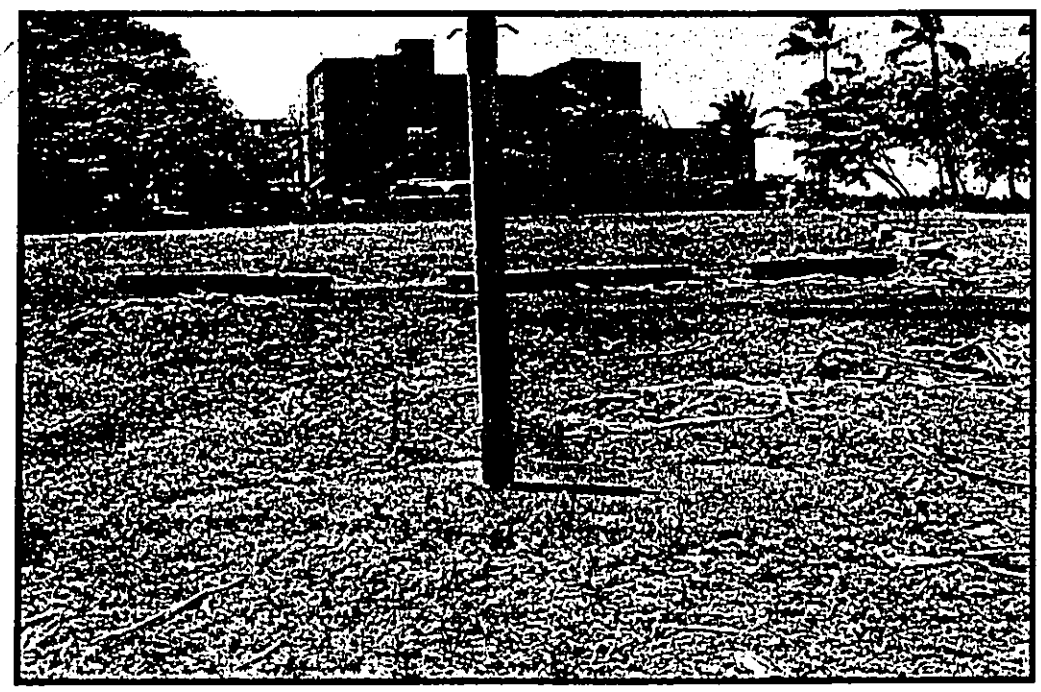
E. Existing Restroom Building to be Demolished



E1. View of Existing Restroom with Existing Concrete Slab and Shower in Foreground, Looking South-East

E 2. View of Existing Restroom in Back
Looking South

F. Existing Concrete Slab and Shower to be Demolished



F1. View of Existing Concrete Slab and Shower with Existing AC Pavement in Background, Looking North

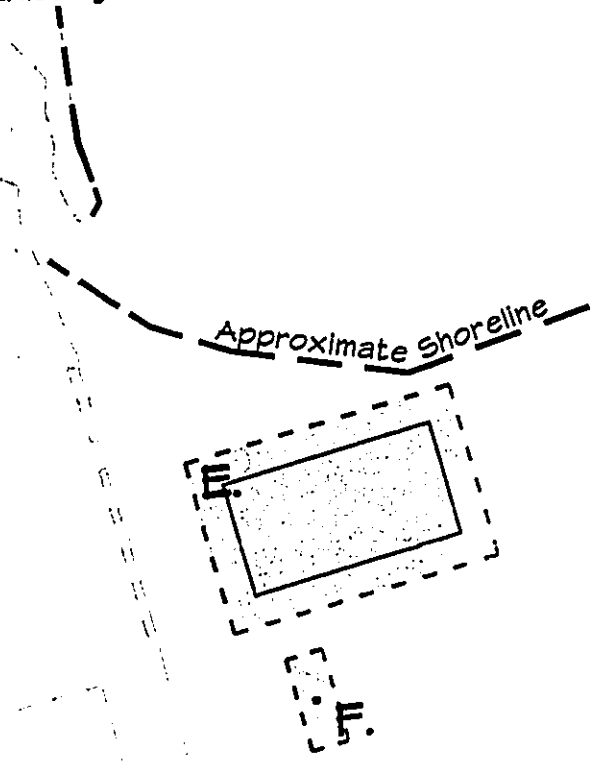
F2. View of Existing C
and Shower with Existing
Background

Print Date: May 30, 2006

ting Restroom in Background.

E3. View of Existing Restroom Looking North-East

F2. View of Existing Concrete Slab and Shower with Existing Restroom in Background



~ EXHIBIT NINE ~

Existing Elements To Be Demolished
(Photo Reference Sheet 3)

for

Reeds Bay Beach Park
Redevelopment and Improvements
Hilo, Hawai'i

TMK: (3) 2-1-05:01, (3) 2-1-05:01, (3) 2-1-06:15

LEONARD BISEL ASSOCIATES, LLC
Landscape Architecture & Site Planning

ENVIRONMENTAL ASSESSMENT

REED'S BAY BEACH PARK IMPROVEMENTS

APPENDIX 2

PHASE I ENVIRONMENTAL SITE ASSESSMENT

(Note: Main report included only; Appendices available for review at Hawaii County P&R)

ENHANCED PHASE I
ENVIRONMENTAL SITE ASSESSMENT REPORT
REEDS BAY
HILO, HAWAII 96720
TMKS (3) 2-1-005:001, 2-1-005:028, 2-1-006:010, 2-1-006:0015, ABANDONED RIGHT OF WAY, AND ADJACENT LUANA STREET ACCESS

August 2006

Myounghee Noh & Associates

Environmental Studies and Consulting Services

99-1046 Iwaena St. #210A, Aiea, Hawaii, USA 96701 • 808.484.9214

This Phase I ESA report is prepared for:

Geometrician
HC 2 Box 9575
Keaau, Hawaii 96749

ENHANCED PHASE I ENVIRONMENTAL SITE ASSESSMENT REEDS BAY HILO, HAWAII 96720 TMKS (3) 2-1-005:001, 2-1-005:028, 2-1-006:010, 2-1-006:015, ABANDONED RIGHT OF WAY, AND ADJACENT LUANA STREET ACCESS

10 acres

MNA Job No. 20397

August 18, 2006

Joanna Boyette
Project Manager

Myounghee Noh
Principal Consulting Chemist

Myounghee Noh & Associates, L.L.C.
99-1046 Iwaena Street, Suite 210A
Aiea, Hawaii 96701
Tel (808) 484-9214
Fax (808) 484-4660
Toll free (888) 747-8448
www.noh-associates.com

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

LIST OF ABBREVIATIONS

AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation & Liability Information System
CFR	Code of Federal Regulations
CORRACTS	RCRA Facilities that are undergoing "corrective action"
EDR	Environmental Data Resources, Inc.
EO	Executive Order
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
HDOH	Hawaii Department of Health
HEER	Hazard Evaluation and Emergency Response
LUST	Leaking Underground Storage Tank
MGD	Million Gallons Per Day
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
MNA	Myounghee Noh & Associates, L.L.C.
NPL	National Priorities List
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
TMK	Tax Map Key
TRIS	Toxic Release Inventory System
TSD	Treatment Storage and Disposal
UIC	Underground Injection Control
USGS	United States Geological Survey
UST	Underground Storage Tank

1.0 EXECUTIVE SUMMARY

Myounghee Noh & Associates, L.L.C. (MNA), was retained to conduct an Enhanced Phase I Environmental Site Assessment (ESA) for the subject site located at Reeds Bay, Hilo, Hawaii, 96720, in October 2005. This work was completed for Geometrician, HC 2 Box 9575, Keaau, Hawaii 96749. The following table lists the properties ownership status:

Tax Map Key	Owner
2-1-005:001 (Reeds Bay Beach Park)	State EO'd to County #3900
2-1-006:010 (Kanakea Pond)	State EO'd to County #1572
2-1-005:028 (Orchid Island Hotel Site)	State revocable permit to County, month to month
2-1-006:013 (Kuhio Kalanianaole Park)	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork
2-1-006:015 (Kuhio Kalanianaole Park)	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork
Abandoned Railroad Right of Way (Kuhio Kalanianaole Park)	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork
Luana Street Access (County paper road)	County paper road

Source: James Komata, County of Hawaii Department of Parks and Recreation

1.1 *FINDINGS SUMMARY*

Based on the information obtained during the site assessment performed in October-April 2006, MNA provides the following summary:

- **Database Search for Subject and Adjoining Sites:** The subject and adjoining properties were not listed in any of the federal or state databases searched by EDR (Appendix B). The findings are summarized in the table below.

Search Type	Distance Searched	Findings
Federal NPL Site List	1 mile	None
Federal RCRA CORRACTS TSD Facilities List	1 mile	None
State Hazardous Waste Sites	1 mile	10
Federal CERCLIS List	1/2 mile	1
Federal RCRA Non-CORRACTS TSD Facilities List	1/2 mile	1
State-Equivalent CERCLIS	1/2 mile	None
State Landfill and/or Solid Waste Disposal Site List	1/2 mile	None
State Registered UST List	1/4 mile	10
State Leaking UST List (LUST)	1/2 mile	11
Federal RCRA Generators List	1/2 mile	2
Federal ERNS List	Subject site	None
State Spill List	Subject site	None

- **Site Check:** During a site check conducted on October 28, 2005, and sampling performed on December 9, 2005, MNA observed the subject site and surrounding areas. Reeds Bay was in use as a public park. The west portion along Banyan Drive was cleared with little to no vegetation. A small, unused restroom was the only structure on the site. The eastern portion of the site was heavily vegetated with no structures on the site. In the bay were sailboats.

- **Hazardous Materials and Regulated Wastes:** MNA observed no evidence of hazardous materials or regulated wastes on the subject and adjoining sites.

- **Storage Tanks:** MNA observed no USTs or ASTs in use at the subject property at the time of this ESA. A fuel oil pipeline owned by Hawaii Electric Light Company is located along Kalanianaole Avenue and Banyan Drive. MNA found no record of spills or leaks from the fuel line.

- **Potential Asbestos-, Polychlorinated Biphenyl (PCB)- or Lead-Containing Material:** MNA found no evidence of materials that could contain asbestos, lead, or PCBs.

- **Surface Soil and Water Sampling:** MNA performed a sampling of soil and water for the analysis of polynuclear aromatic hydrocarbons (PAH), lead, cadmium, and arsenic on December 9, 2005. All lead results were below the HDOH Soil Action Level of 22 mg/Kg, all cadmium results were below the HDOH Soil Action Level of 12 mg/Kg, and all arsenic results were below the HDOH Soil Action Level of 22 mg/Kg. No measurable quantities of PAHs were found in the soil or water samples.

- **Offsite Contamination Source:** In 1990, a large volume (estimated 4,000 gallons) of wood treating substance was released in the vicinity of Reeds Bay. MNA performed sampling of the soil and water near the shore and found no significant levels of contamination, but they may exist in the ocean sediments. The contaminated soil at the spill site had been reportedly removed during cleanup of Keaa Street and Kalanianaole Avenue in 1990.

1.2 RECOGNIZED ENVIRONMENTAL CONDITIONS

MNA observed no *recognized environmental conditions* in connection with the subject property.

2.0 INTRODUCTION

This report presents the results of a Phase I Environmental Site Assessment (ESA) of the subject site at Reeds Bay, Hilo, Hawaii, 96720, TMKs (3) 2-1-005:001, 2-1-005:028, 2-1-006:010, 2-1-006:015, Abandoned Right of Way and Adjacent Luana Street Access (Figure 1). This ESA was conducted by Myounghee Noh & Associates, L.L.C., herein referred to as MNA, for Geometrician, HC 2 Box 9575, Keaau, Hawaii 96749. The following table lists the properties ownership status:

Tax Map Key	Owner
2-1-005:001 (Reeds Bay Beach Park)	State EO'd to County #3900
2-1-006:010 (Kanakea Pond)	State EO'd to County #1572
2-1-005:028 (Orchid Island Hotel Site)	State revocable permit to County, month to month
2-1-006:013 (Kuhio Kalanianaole Park)	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork
2-1-006:015 (Kuhio Kalanianaole Park)	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork
Abandoned Railroad Right of Way (Kuhio Kalanianaole Park)	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork
Luana Street Access (County paper road)	County paper road

Source: James Komata, County of Hawaii Department of Parks and Recreation

2.1 PURPOSE

The purpose of this Phase I ESA is to identify any *recognized environmental conditions* (REC) at the subject site, with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and petroleum products. This practice is intended to permit a user to satisfy one of the requirements to qualify for the *innocent landowner defense* to CERCLA liability, "all appropriate inquiry into the previous ownership and uses of the site consistent with good commercial or customary practice." The term *recognized environmental conditions* denotes the presence, or likely presence, of any hazardous substances or petroleum products on the site under conditions that indicate an existing release, a past release, or a material threat of a release into structures on the site or into the ground, ground water, or surface water of the site [American Society for Testing and Materials (ASTM), 2000].

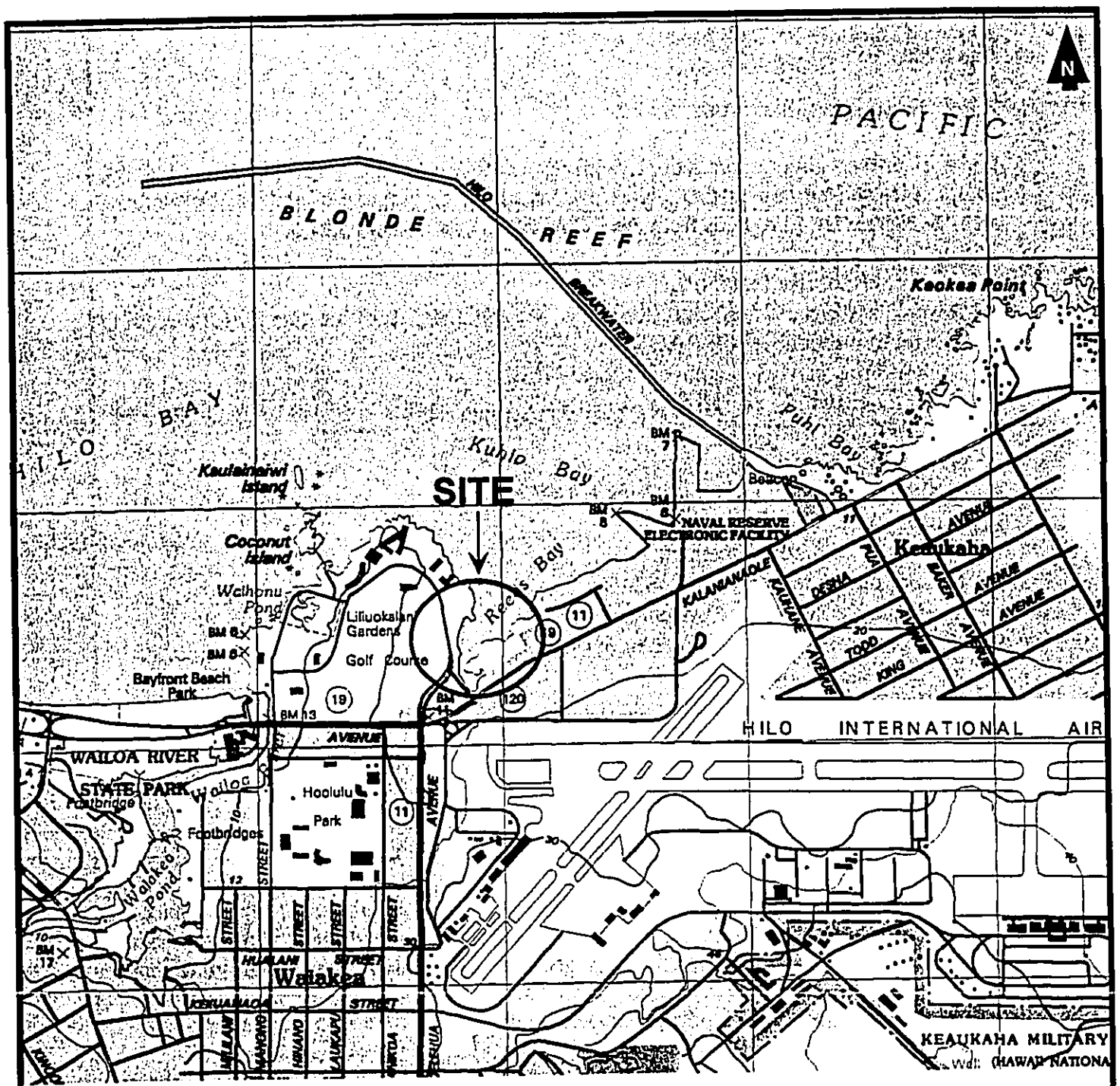
The assessment was performed in accordance with the prescribed practice in *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-00, 2000).

2.2 *DETAILED SCOPE OF SERVICES*

The Enhanced Phase I ESA has five components: Records Review; Site Reconnaissance; Surface Soil Sampling and Analysis; Interview; Report. MNA conducted the ESA using information sources with the potential to identify past or current releases of hazardous materials at the site. MNA performed the following:

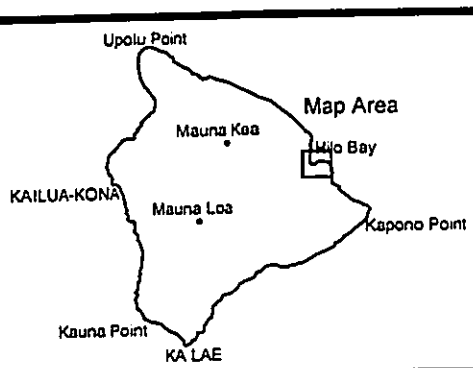
2.2.1 Site History

MNA examined documents consisting of topographic maps, tax records, and aerial photographs. The purpose of this basic research was to identify previous and current uses of the site, adjoining properties, and the surrounding area.



Source: USGS Topographic Map, 1998

Figure 1. Site Location



Enhanced Phase I ESA
Reeds Bay
Hilo, Hawaii 96720

August 2006
Job No. 20397
Page 5

Myounghee Noh & Associates, L.L.C.

2.2.2 Regulatory Records

MNA examined government records with respect to environmental conditions, citations, complaints, and permits at the subject site, at adjoining properties, and the surrounding area. MNA reviewed records from the following federal or state programs:

- National Priorities List (NPL)
- Resource Conservation and Recovery Act (RCRA) facilities that are undergoing "corrective action" (CORRACTS)
- RCRA-Treatment, Storage, & Disposal (TSD)
- Comprehensive Environmental Response, Compensation & Liability Information System (CERCLIS) List
- Solid Waste & Landfill
- Leaking Underground Storage Tank (LUST)
- Water Wells
- RCRA-Violators/Enforcement
- Underground Storage Tank (UST) list
- Toxic Release Inventory System (TRIS)
- Emergency Response Notification System (ERNS)
- RCRA-Large Generator
- RCRA-Small Generator
- Spill

2.2.3 Site Reconnaissance

MNA performed a site reconnaissance to obtain information indicating the likelihood of contamination, to interview available site personnel, if any, and conduct a brief assessment of the adjoining properties. During the site reconnaissance, MNA looked for stained surface soil, dead or stressed vegetation, hazardous materials, aboveground and underground storage tanks, disposal areas, groundwater wells, sumps, and storm drains.

2.2.4 Site Geology and Hydrogeology

MNA reviewed published information on surface and subsurface conditions at the site and surrounding area. MNA used this information to assess topography, drainage, surface water bodies, subsurface geology, and groundwater occurrence in the area to assess the impact of migration of any potentially hazardous materials in connection with the site.

2.2.5 Surface Soil and Water Sampling & Analysis

MNA performed soil and water sampling for polynuclear aromatic hydrocarbons (PAH), lead, cadmium, and arsenic. It was suspected that the subject site had received waste from a nearby power plant and wood processing plant.

2.2.6 Data Evaluation and Reporting

MNA evaluated the information collected and prepared this report documenting the assessment. Section 2 presents the introduction, Section 3 contains the site description, Section 4 contains information obtained from the user, Section 5 records review, Section 6 site reconnaissance, Section 7 sampling and analysis, Section 8 personal interviews, Section 9 summary of findings, Section 10 opinion, and Section 11 conclusion.

2.3 SIGNIFICANT ASSUMPTIONS

The conclusion presented in this report is based upon the assumption that reasonably ascertainable and relevant information pertaining to the environmental condition of the subject site was made available to MNA during the assessment. Information obtained from government agencies and other resources is presumed to be accurate and updated.

2.4 LIMITATIONS AND EXCEPTIONS

The Phase I ESA provides a "snap shot" of the site conditions and is, by its nature, limited. Summary and conclusion apply to site conditions existing at the time of our investigation and those reasonably foreseeable. They cannot apply to site changes of which MNA is not aware of and has not had the opportunity to evaluate.

This report is based upon visual observations of the site and vicinity, and interpretation of the available historical and regulatory information and documents reviewed. MNA cannot ensure the accuracy of the historical or regulatory information. This report is intended exclusively for the purpose outlined, and applies only to the subject site.

This ESA does not include investigations regarding asbestos, lead paint, or geotechnical concerns.

2.5 SPECIAL TERMS AND CONDITIONS

This Phase I ESA was conducted and prepared by MNA for the exclusive use of Geometrician and County of Hawaii. This report shall not be relied upon or transferred to any other party without written authorization from Geometrician and County of Hawaii.

2.6 USER RELIANCE

This report is an instrument of service of MNA, which summarizes its findings and opinions with respect to the subject site history and *recognized environmental conditions* at the subject site. Note that said findings and opinions are predicated on information that MNA obtained on the dates and from individuals stated herein, from public records review, a site reconnaissance, and ancillary Phase I ESA assignments. This assessment relies upon the accuracy and completeness of the information provided. The information obtained for this assessment is used without extraordinary verification. It is possible that other information exists and is discovered, or environmental conditions change subsequent to submittal of this Phase I ESA report to Geometrician, to which MNA shall not be held responsible for exclusion there from.

3.0 SITE DESCRIPTION

3.1 LOCATION AND LEGAL DESCRIPTION

The subject site is the parcel located at Reeds Bay, Hilo, Island of Hawaii (Figure 1). Tax Map Key of the site is Division 3, Zone 2, Section 1, Plat 005, and Parcels 001, 028, & Plat 6, and Parcels 010, 015, Abandoned Railroad Right of Way and Luana Street Access. The zoning for TMKs 2-1-005:001 & :028 are Urban, the zoning for TMKs 2-1-006:010 & :015 are Conservation (2006, County of Hawaii Planning Department). The Fire Insurance Rate Map designation is Coastal Flood Zone with velocity hazard. According to the County of Hawaii record, the parcel consists of approximately 10 acres.

3.2 SITE AND VICINITY GENERAL CHARACTERISTICS

Hilo is located on the windward (eastern) side of the Island of Hawaii, the youngest and largest island in the Hawaiian Archipelago. The city is situated between the island's two major volcanic mountain peaks, Mauna Kea and Mauna Loa, and has a population of 40,759, according to the 2000 U.S. Census Population (Foronda, 2001). The project site is located in the Waiakea region of the district.

Polynesian inhabitants settled along the shores of Hilo Bay as early as 1100 AD and began farming, fishing, and trading their goods along the Wailuku River (HDIA, 2005). With King Kamehameha I's unification of the islands in 1791, Hilo emerged as a significant locality in Hawaiian history. Not only was the city an ideal location for the King to headquarter his efforts to conquer the neighboring islands, it was abundant in resources including sugarcane, taro, bananas, coconuts, and breadfruit trees (Foronda, 2001).

The city maintained a subsistence-based economy until the early 1800s when the arrival of the sandalwood trade, the intensification of the whaling industry, and the arrival of New England missionaries (funded by the American Board of Commissions of Foreign Ministries) generated a shift to market-based economic practices (PBR Hawaii, 2004). Sugar plantations first surfaced at this time, but cattle, timber, and whaling industries remained the prime contributors to Hilo's economic growth. This economic trend continued until the mid-1800s when the sugarcane industry gained momentum and a dependable Hawaiian sugar trade was established. Several changes in land use were observed at the beginning of the 20th century as sugarcane production continued to intensify in the early 1900s. Areas deemed too rocky for sugarcane production were allocated as pasture for the Parker and Shipman Ranches. In the 1920s, many areas in the Waiakea region were designated as forest reserve (PBR Hawaii, 2004).

In the second half of the 20th century, a multitude of major construction projects were completed in the Hilo region including wharfs in Hilo Bay, bridges, breakwater, the Hilo Airport, and Saddle Road, which runs between Mauna Kea and Mauna Loa to the other side of the island (PBR Hawaii, 2004). Despite these major structural accomplishments, the mid- to late-1900s also brought economic hardship to the Hilo area. The sugarcane and sea trade industries began declining while attempts to establish a tourism industry

were unsuccessful due to the area's high annual rainfall, vulnerability to natural disasters, and devastation from the tsunami (Foronda, 2001).

Restoration efforts to preserve the city's historic elements and revive the economy took off in the 1980s and 1990s (Foronda, 2001). Because of these restoration endeavors, the city has experienced a significant turnaround, although not without periodic downturns. In recent times, tourism has emerged as the city's primary industry. However, the Hilo district also plays a strong supporting role in the island's agriculture industry through its cultivation of tropical fruits, flowers, and macadamia nuts (PBR Hawaii, 2004).

3.2.1 Geology

Published geologic and hydrogeologic reports and maps were reviewed to obtain information regarding subsurface conditions in the general area of the property. The Island of Hawaii is of volcanic origin and was built by the Kohala, Mauna Kea, Mauna Loa, Kilauea, and Hualalai volcanoes and is comprised of numerous thin, extremely permeable tholeiitic basalt lava flows (Stearns, 1985).

Hawaii, the youngest and largest Hawaiian Island, is as large as all the others combined. In 1996, Hazlett and Hyndman described the island as follows:

> It sprawls over an area the size of Connecticut, spanning 90 miles from north to south and 80 miles from east to west. Five large volcanoes coalesce to make the visible part of the Big Island; a sixth lies buried beneath the surface. The southern part of the island is still volcanically active and building out along much of the coastline. To the north, volcanism is in the waning stages. Of all the Hawaiian Islands, the Big Island shows the greatest diversity of rocks and landscapes.

The U.S. Soil Conservation Service mapped the basic soil type of the area as Keaukaha extremely rocky much (rKFD). It is a dark brown and strongly acid soil that is approximately 8 inches thick, and follows the undulating topography of the underlying pahoehoe lava flows. Permeability is rapid, runoff moderate, and erosion hazard slight.

Virtually the entire region is covered with prehistoric lavas of the Kau Basalt, onto which long tongues of historic lavas from the northeast rift have flowed. Other than scanty recent alluvium, no sediments occur (Water Resources Research Center, 1993).

3.2.2 Hydrogeology

The permanent source of potable groundwater is a basal aquifer. This aquifer is floating on and displacing salt water, which saturates the base of the island. The basal aquifer is recharged by precipitation. The precipitation percolates through soil and rock until it is either confined by an impermeable layer or floating on basal salt water (Stearns, 1985). The groundwater in the region is known to be either basal water floating on salt water or water perched on ash, soil, or alluvium and underlain with basal water (Stearns, 1985). In

1993, Water Resources Research Center described the water as follows:

> A voluminous basal lens extends at least 4 miles inland of the coast, beyond which high-level water has been encountered. The lens may reach farther inland, but it has hardly been explored. Toward the rift zone dike-impounded high-level water probably occurs. Elsewhere the high-level water is likely to be perched. The flux of groundwater in the basal lens is enormous; the fresh water springs at Hilo-Waiakea have been measured at 150 million gallons per day (mgd). The gradient is about 5 ft/mile, and the permeability of the basalt is probably at least 5,000 ft/day.

The Hawaii Department of Health (HDOH) has established an Underground Injection Control (UIC) line to serve as a boundary between drinking and non-drinking water portions of underlying aquifers. Areas above (mauka side of) the UIC line are within drinking-water portions of the aquifer, while areas below (makai side of) the UIC are within non-drinking water portions of the underlying aquifer. Since the subject site is located on the makai side of the UIC line, it lies within a non-drinking water portion of the local aquifer, and only limited types of injection wells are allowed in the area. Furthermore, injection wells in the area require a UIC Permit or Permit Exemption from the HDOH. According to the Mink & Lau Technical Report #191, published by the University of Hawaii Water Resources Research Center, the subject site is located above one aquifer as indicated in Table 1 (Mink, 1990).

Table 1. Aquifer Classification System

Aquifer Code	**80401111**
Island Code	8 – Island of Hawaii
Aquifer Sector	04 – Northeast Mauna Loa
Aquifer System	01 – Hilo
Aquifer Type, hydrogeology	1 – Basal
Aquifer Condition	1 – Unconfined
Aquifer Type, geology	1 – Flank
Status Code	**11111**
Development Stage	1 – Currently used
Utility	1 – Ecologically important
Salinity (in mg/L Cl^-)	1 – Fresh (<250)
Uniqueness	1 – Irreplaceable
Vulnerability to Contamination	1 – High

3.3 CURRENT USE OF THE SITE

The following table lists the properties ownership status:

Tax Map Key	Owner
2-1-005:001 (Reeds Bay Beach Park)	State EO'd to County #3900
2-1-006:010 (Kanakea Pond)	State EO'd to County #1572
2-1-005:028 (Orchid Island Hotel Site)	State revocable permit to County, month to month
2-1-006:013 (Kuhio Kalanianaole Park)	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork
2-1-006:015 (Kuhio Kalanianaole Park)	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork
Abandoned Railroad Right of Way (Kuhio Kalanianaole Park)	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork
Luana Street Access (County paper road)	County paper road

Source: James Komata, County of Hawaii Department of Parks and Recreation

3.4 STRUCTURES, ROADS, AND OTHER IMPROVEMENTS

The site is bordered by Kalanianaole Highway to the south and Banyan Drive to the west. (Figure 2). The area was in use as a beach park. The eastern portion of Reeds Bay was paved and in good condition. The subject site does not use city water or sewer systems.

3.5 PAST USES OF THE SITE

Information regarding past uses of the subject site was obtained from interview, review of tax records, and aerial photographs. The current owner, State of Hawaii, has owned the site since 1949. Table 2 lists the users and property uses of the subject site.

Table 2. Users and Primary Uses of the Subject Sites

Period (approx.)	Property User	Area (acre)	Primary Use
TMK (3) 2-1-005:001			
2006	State EO'd to County #3900	3.817	Beach Park
1967-2006	State of Hawaii	3.817	Beach Park
TMK (3) 2-1-005:028			
2006	State revocable permit to County, month to month	2.319	Vacant
1994-2006	State of Hawaii	2.319	Vacant
1993-1994	Seiyukai Corporation	2.319	Hotel
1991-1993	Kabushiki Gaisha Seiyukai	2.319	Hotel
1981-1991	Pacific Resort Management, Inc.	2.319	Hotel
1978-1981	Hoshi International, Inc.	2.319	Hotel

Period (approx.)	Property User	Area (acre)	Primary Use
1972-1978	Orchid Island Hotels	2.319	Hotel
1965-1972	Tradewind Resorts, Inc.	2.319	Hotel
1940-1965	State of Hawaii	2.319	Undocumented
TMK (3) 2-1-006:010			
2006	State EO'd to County #1572	2.40	Beach Park
1953-2006	County of Hawaii	2.40	Beach Park
TMK (3) 2-1-006:013			
2006	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork	1.69	Parking lot
1985-2006	Department of Land and Natural Resources	1.69	Parking lot
1957-1985	James Y. Kealoha, Miulan Kealoha		Vacant
TMK (3) 2-1-006:015			
2006	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork	0.47	Beach Park
1985-2006	State of Hawaii, Department of Land and Natural Resources	0.47	Beach Park
1957-1985	James Kealoha	0.47	Vacant
1956-1957	John A. Lee, Clifford A. Lee	0.47	Vacant
1948-1956	Manuel Consalves	0.47	Vacant
1946-1948	William Consalves	0.47	Vacant
1941-1946	Asako Koizumi	0.47	Vacant
Abandoned Railroad Right of Way			
2006	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork		Undocumented
1969-2006	Undocumented		Undocumented
1949-1969	Hawaii Consolidated Railway		Railroad
Luana Street Access			
2006	County paper road		Roadway

3.6 CURRENT AND PAST USES OF ADJOINING PROPERTIES

Information regarding past uses of the adjoining properties was obtained from County of Hawaii tax records and review of aerial photographs. The property use information is summarized in Table 3, and the site location is depicted in Figure 2.

Table 3. Users and Primary Uses of Adjoining Properties

Period (approx.)	Property User	Area (sq. ft.)	Primary Use
TMK (3) 2-1-005:022			
1999-2006	Reeds Bay Resort Hotel, Ltd.	51,836	Hotel
1982-1999	David De Luz, John S. Tolmie Jr.	51,836	Hotel
1980-1982	David De Luz, Ronald C. Robertson, John	51,836	Hotel

Period (approx.)	Property User	Area (sq. ft.)	Primary Use
	Tolmie, Linda Ann Tolmie, Puna Shores, Inc.		
1978-1980	Yorkwood Savings & Loan Association	51,836	Undocumented
1974-1978	James Y. Ho, Florence J. Ho	51,836	Undocumented
1973-1974	James Y. Ho, Shinkichi Shimabukuro	51,836	Undocumented
1965-1973	Nalei, Inc.	51,836	Radio Station
1956-1965	Richard D. Furtado, Juliette Furtado	51,836	Undocumented
TMK (3) 2-1-006:011			
1995-2006	Bobbie's Steak & Lobster, Ltd., DSD, Inc.	6,741	Restaurant
1960-1995	Bobbie's Steak & Lobster, Ltd, H-B, Inc.	6,741	Restaurant
TMK (3) 2-1-006:012			
1995-2006	Bobbie's Steak & Lobster, Ltd., DSD, Inc.	6,592	Parking lot
1970-1995	Bobbie's Steak & Lobster, Ltd.	6,592	Parking lot
1969-1970	William L. Horton	6,592	Vacant
1958-1969	Walter K. Eko, Alice T. Eko	6,592	Vacant
TMK (3) 2-1-006:014			
2005-2006	Maria Luisa Sacharov	7,520	Residential
1983-2005	Cleo Y. Ikeda	7,520	Residential
1975-1983	Herbert T. Ikeda, Doris Ikeda	7,520	Residential
1946-1975	Tadashi Ikeda, Fujie Ikeda	7,520	Residential
TMK (3) 2-1-006:020			
1984-2006	Bobbie's Steak & Lobster, Ltd., H-B, Inc.	3,510	Parking lot
1979-1984	Bobbie's Steak & Lobster, Ltd.	3,510	Parking lot
1959-1979	Richard D. Furtado, Juliette S. Furtado	3,510	Vacant
TMK (3) 2-1-006:022			
2005-2006	Maria Luisa Sacharov	7,670	Residential
1983-2005	Cleo Y. Ikeda	7,670	Residential
1975-1983	Herbert T. Ikeda, Doris Ikeda	7,670	Residential
1946-1975	Tadashi Ikeda, Fujie Ikeda	7,670	Residential
TMK (3) 2-1-006:023			
1985-2006	Paul V. Chinn	6,227	Vacant
1982-1985	Helen H. Chinn	6,227	Vacant
1942-1982	Chiyoko Odani et. al.	6,227	Vacant
TMK (3) 2-1-006:024			
1995-2006	Sam N. Okinaga Trust	8,253	Vacant
1969-1995	Sam N. Okinaga, Genevieve N. Okinaga Trust	8,253	Vacant
1963-1969	The Ichiban, Inc.	8,253	Vacant

4.0 USER PROVIDED INFORMATION

4.1 ENVIRONMENTAL LIENS OR ACTIVITY AND USE LIMITATIONS

No environmental liens or activity and use limitations are known for the subject site. The subject site was assessed by MNA for *recognized environmental conditions* including petroleum and other hazardous material releases.

4.2 SPECIALIZED KNOWLEDGE

In January 2005 asbestos containing debris was discovered on the western portion of Reeds Bay (TMK 2-1-006:005). The source of the asbestos debris was transite siding from a building on site that was destroyed by a fire in the 1970s. On January 13, 2005, the asbestos debris in soil was removed manually by Ohana Environmental Construction.

On July 22, 1990, about 4,000 gallons of wood-treating chemical containing copper, chromium, and arsenic drained from a lumber treatment yard owned by Hawaii Planing Mill (HPM). An unknown quantity of the spill seeped through a drain at the Suisan fish warehouse and traveled under the road to a private fishpond that opens onto Reeds Bay (Environment Hawaii, 1998). On July 23, 1990, a pump truck was used to clean the spilled solution, water, gravel, and silt from the areas along Keaa Street and Kalanianaole Avenue. On August 3 and 4, 1990, soil was removed along the same area using two backhoes and a flatbed truck. Additional soil removal was performed on August 11 and December 29, 1990. No cleanup occurred in the waters of Reeds Bay.

Soil sampling was performed by Brewer Environmental Services. Table 4 lists the soil sampling results in "CCA Spill Remedial Investigation / Feasibility Study" dated February 4, 1991. At the time of the report, the DOH cleanup goals were 25 mg/kg for arsenic, 125 mg/kg for chromium, and 200 mg/kg for copper.

Table 4. CCA Spill Remedial Investigation Soil Sampling Results (Brewer, 1991)

Sample ID	Description of Location Area	Sample Date	Sample Depth (inches)	Total Arsenic (mg/kg)	Total Chromium (mg/kg)	Total Copper (mg/kg)
1	Sump	8/4/1990	48	**278**	**320**	**1,210**
1A		8/27/1990	72	**314**	**410**	**1,776**
1B		9/15/1990	96	**106.2**	**502.0**	**1,018.0**
1C		12/29/1990	96	**83.24**	**189.7**	**701.0**
3	East of sump entry area	8/4/1990	3	**114**	120	**318**
3A	West of Suisan exit	12/29/1990	6	7.92	26.5	52.3
A11	Sump entry area	7/2/1990	0	**390**	**1,800**	**2,190**
4		8/4/1990	3	**171**	**303**	**666**
4A		8/27/1990	8	**30**	124	125
4B		1/15/1991	8	13.6	**139**	136
A10	East of Suisan exit	7/28/1990	0	**490**	**1,640**	**2,000**
5		8/4/1990	5	**114**	**348**	**579**

Sample ID	Description of Location Area	Sample Date	Sample Depth (inches)	Total Arsenic (mg/kg)	Total Chromium (mg/kg)	Total Copper (mg/kg)
5A		8/27/1990	8	**216**	**320**	**548**
5B		9/15/1990	18	**6.7**	**152.0**	44.4
A9	Along Kalanianole near fire hydrant	7/28/1990	0	**600**	**1,515**	**2,080**
6		8/4/1990	3	**221**	**415**	**1,360**
6A		8/27/1990	8	13	105	73
A8	Along Kalanianaole east of fire hydrant	7/28/1990	0	**600**	**1,625**	**2,040**
7		8/4/1990	3	**157**	**235**	**503**
7A		8/27/1990	8	**173**	**232**	**601**
7B		9/15/1990	18	**31.8**	**271.0**	59.5
7C		12/29/1990	21	5.42	31.4	30.2
8	Along Kalanianole east of Toyota entrance	8/4/1990	3	**86**	109	**272**
8A		8/27/1990	6	**117**	111	195
8B		12/29/1990	9	6.64	37.1	77.6
A6	Along Keaa north of small street	7/27/1990	0	**420**	**965**	**927**
9		8/4/1990	3	**300**	**358**	**429**
9A1		8/27/1990	6	**146**	**128**	**443**
9A2		8/27/1990	6	7.2	13	43
9A3		8/27/1990	6	**31**	72	134
9B1		9/15/1990	14	2.8	40.0	54.9
A5	Along Keaa between small street and Toyota Parts entrance	7/27/1990	0	**700**	**1,110**	**1,090**
10		8/4/1990	3	**554**	**332**	**587**
10-1		8/11/1990	6	**99**	**288**	**498**
10A		8/27/1990	9	29	30	77
A4	Along Keaa south of Toyota Parts entrance	7/27/1990	0	14	104	**287**
11		8/4/1990	3	**128**	**177**	**512**
11A		8/27/1990	6	**1,220**	**1,300**	**1,900**
11B		9/15/1990	16	19.5	**74.0**	66.2
A3	Along Keaa near fire hydrant north of HPM	7/27/1990	0	**1,330**	**3,030**	**2,350**
12		8/4/1990	3	**1,464**	**2,580**	**2,685**
12-1		8/11/1990	9	**371**	**1,610**	**2,460**
12-2		8/16/1990	21	**227**	**1,285**	**935**
12A		8/27/1990	31	**153**	**186**	**245**
12B		12/29/1990	34	9.39	50.3	110.8
A2	HPM entry	7/27/1990	2	**26**	**161**	**682**
13		8/4/1990	3	**157**	**126**	154
13A		8/27/1990	13	**173**	**140**	**321**
13B		9/15/1990	23	2.8	**150.0**	39.8
14A	Across Kalanianaole from sump	12/29/1990	3	6.40	21.2	43.7

4.3 VALUATION REDUCTION

There is no information pertaining to the valuation reduction of the subject site.

4.4 OWNER, PROPERTY MANAGER, AND OCCUPANT INFORMATION

The following table lists the properties ownership status:

Tax Map Key	Owner
2-1-005:001 (Reeds Bay Beach Park)	State EO'd to County #3900
2-1-006:010 (Kanakea Pond)	State EO'd to County #1572
2-1-005:028 (Orchid Island Hotel Site)	State revocable permit to County, month to month
2-1-006:013 (Kuhio Kalanianaole Park)	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork
2-1-006:015 (Kuhio Kalanianaole Park)	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork
Abandoned Railroad Right of Way (Kuhio Kalanianaole Park)	State of Hawaii EO pending subdivision/consolidation by County and finalization of State paperwork
Luana Street Access (County paper road)	County paper road

Source: James Komata, County of Hawaii Department of Parks and Recreation

4.5 REASON FOR PERFORMING A PHASE I

We are performing a Phase I ESA because policies implementing NEPA regulations of the U.S. Department of Housing and Urban Development (HUD), at 24 CFR Part 50, describe a Phase I Environmental Site Assessment as the minimum standard for addressing the conformance of the action with environmental standards related to Toxic or Hazardous Substances and Radioactive Materials [HUD Notice 79-33] and Siting of HUD-Assisted Projects near Hazardous Operations [24 CFR 51 C].

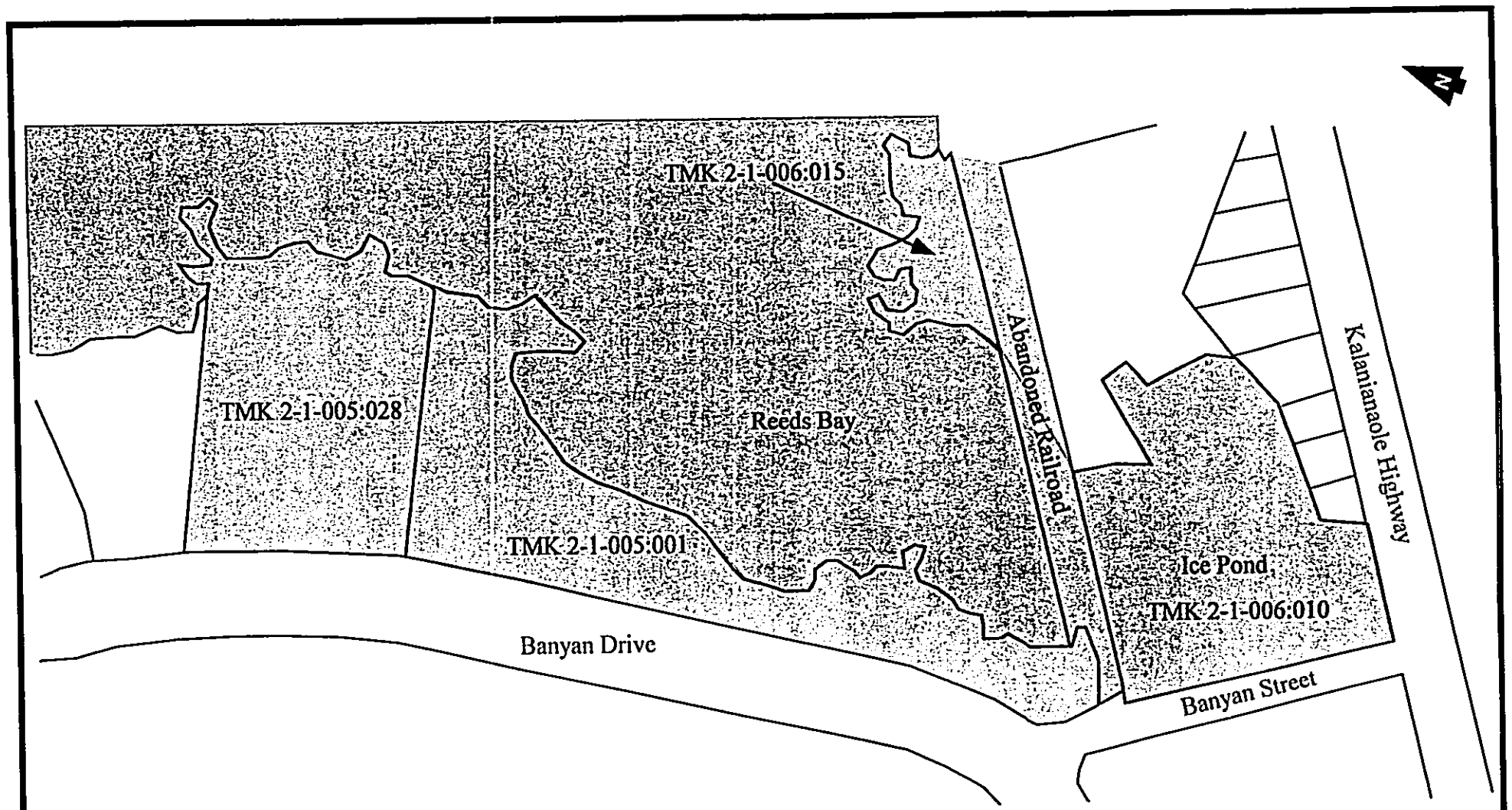
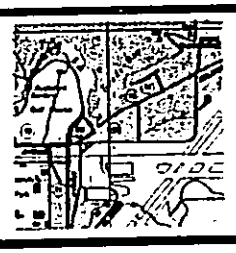


Figure 2. Site Map



Enhanced Phase I ESA
Reeds Bay
Hilo, Hawaii 96720
August 2006
Job No. 20397

Myounghee Noh & Associates, L.L.C.

5.0 RECORDS REVIEW

5.1 STANDARD ENVIRONMENTAL RECORD SOURCES

5.1.1 General Overview

MNA used Environmental Data Resources, Inc., (EDR) (800-352-0050) for searching standard federal and state government databases of known or potential sources of hazardous materials or waste. The record sources are listed in Appendix A, and the EDR assessment report is provided in Appendix B. MNA conducted further local searches as needed.

ASTM E 1527-00 specifies a minimum search distance for specific environmental record sources. The following sources are specified for incidents or sites within one mile of the subject site:

- Federal NPL site list
- Federal RCRA CORRACTS TSD facilities list
- State hazardous waste sites (State-equivalent NPL)

The following sources are specified for incidents or sites within one-half mile of the subject site:

- Federal CERCLIS list
- Federal RCRA non-CORRACTS TSD facilities list
- State-equivalent CERCLIS
- State landfill and/or solid waste disposal site list
- State leaking UST list

The following sources are for incidents on the subject and adjoining properties:

- Federal RCRA generators list
- State registered UST list

Finally, the following is for incidents for the subject site:

- Federal ERNS list

5.1.2 Federal National Priorities List

The NPL, compiled by the Environmental Protection Agency (EPA), is a list of sites with the highest priority for cleanup under the EPA's Hazard Ranking System [40 Code of Federal Regulations (CFR) Part 300]. EDR found no NPL sites within one mile of the subject site (EDR, 2005).

5.1.3 Federal RCRA CORRACTS TSD Facilities List

The RCRA CORRACTS TSD facilities list is compiled by the EPA. The list contains those RCRA regulated facilities, which are undergoing "corrective action" due to a release of hazardous substance. EDR revealed one facility within one mile of the subject site (EDR, 2005).

- Shipman Generating Station – Lihiwai & Banyan Drive, Hilo, HI 96720

5.1.4 State Hazardous Waste Sites (State-equivalent NPL)

The State Hazardous Waste Sites are sites or areas in which the Office of Hazard Evaluation and Emergency Response (HEER) has an interest, has investigated or may investigate. EDR found 10 hazardous waste sites listed within one mile of the subject site (EDR, 2005). Table 5 lists those sites and a map showing the location with respect to the subject site is provided in Appendix B.

Table 5. State Hazardous Waste Sites

Facility	Site	Address
Wood Protection Company	1,365 ft. ESE	150 Keaa Street
Pacific Machinery, Inc.	1,593 ft. E	456 Kalanianaole Ave.
KTA/Davies Property	1,905 ft. ENE	500 Kalanianaole Ave.
Tesoro Hawaii Corporation	2,420 ft. ENE	595 Kalanianaole Ave.
Tesoro Hawaii Corporation	2,474 ft. ENE	607 Kalanianaole Ave.
Shell Oil Products	2,768 ft. ENE	661 Kalanianaole Ave.
Hilo Terminal	2,789 ft. ENE	666 Kalanianaole Ave.
Tesoro Hawaii Corporation	2,987 ft. ENE	701 Kalanianaole Ave.
HELCO Pipeline Release	3,923 ft. S	Kanoelehua Ave/Hualani St.
Aloha Petroleum Hilo	4,548 ft. ENE	999 Kalanianaole Ave.

5.1.5 Federal CERCLIS List

The CERCLIS list, compiled by the EPA, contains sites currently or formerly under review by EPA for potential hazardous substance contamination for possible inclusion on the NPL. EDR found one CERCLIS sites listed within 1/2 mile of the subject site (EDR, 2005).

- Big Island Asphalt – 494 Kalanianaole Ave., Hilo, HI 96720

5.1.6 Federal RCRA non-CORRACTS TSD facilities list

The RCRA non-CORRACTS TSD facilities list, compiled by the EPA, contains RCRA permitted treatment, storage, and disposal facilities. EDR found no RCRA TSD site listed within 1/2 mile of the subject site (EDR, 2005).

5.1.7 State Landfill / Solid Waste Disposal Sites

The HDOH records contain an inventory of permitted landfills in the State of Hawaii. EDR found no permitted solid waste landfills, incinerators, or transfer stations within 1/2 mile of the subject site (EDR, 2005).

5.1.8 State Registered UST List

This database is compiled by the HDOH Solid and Hazardous Waste Branch, UST section. EDR's search revealed 10 UST sites within 1/4 mile of the subject site. There are no registered USTs currently on the subject or adjoining properties (EDR, 2005). A summary of this finding is presented in Table 6.

Table 6. State Registered UST

UST Facility	Site	Address	Note
Within 1/8 to 1/4 mile:			
Tesoro Gas Express #82	818 ft. S	1672 Kamehameha Ave.	4-Gasoline USTs, out of use 1-Used oil UST, out of use
Harper Car & Truck Rentals of Hawaii	830 ft. S	1690 Kamehameha Ave.	1-Gasoline UST, out of use 1-Diesel UST, out of use
Kumu Street	899 ft. SSW	Kumu St./Kamehameha Ave.	1-Gasoline UST, out of use
H. Harada Contractor, Inc.	991 ft. SSW	24 Railroad Ave.	1-Gasoline UST, out of use 1-Diesel UST, out of use
Mid Pac Petroleum	1,181 ft. SE	1801 Kamehameha Ave.	2-Gasoline USTs, out of use 1-Used oil UST, out of use 3-Gasoline USTs, in use
Asakura Brothers, Ltd.	1,263 ft. E	50 Keaa St.	1-Gasoline UST, out of use
Andrews Trucking Service, Inc.	1,263 ft. E	58 Keaa St.	1-Gasoline UST, out of use
Former Schuman Lumber	1,264 ft. E	60 Keaa St.	2-Gasoline USTs, out of use
Mihara Transfer, Inc.	1,268 ft. E	41 Keaa St.	1-Gasoline UST, out of use 1-Diesel UST, out of use
Waiakea Fire Station	1,282 ft. E	95 Keaa St.	1-Gasoline UST, out of use

5.1.9 State Leaking UST (LUST) List

This database is compiled by the HDOH Hazardous Waste Branch, UST section. EDR and HDOH's database searches found 11 LUST sites within 1/2 mile of the subject site (EDR, 2005). A summary of these findings is presented in Table 7.

Table 7. State Leaking UST (LUST) Sites

LUST Facility	Site	Address	Incident detail	Detail date
Within 1/8 to 1/4 mile:				
Tesoro Gas Express #82	818 ft. S	1672 Kamehameha Ave.	Site Cleanup Completed	6/19/2000
Harper Car and Truck Rentals of Hawaii	830 ft. S	1690 Kamehameha Ave.	Site Cleanup Completed	6/24/2000
Kumu Street	899 ft. SSW	Kumu St./Kamehameha Ave.	Site Cleanup Completed	6/27/2000
H. Harada Contractor, Inc.	991 ft. SSW	24 Railroad Ave.	Site Cleanup Completed	10/21/1996
Mid Pac Petroleum	1,181 ft. SE	1801 Kamehameha Ave.	Confirmed Release	7/20/2004
Allied Aggregates, Co.	1,388 ft. ESE	160 Keaa St.	Site Cleanup Completed	1/21/1998
Pacific Machinery, Inc.	1,593 ft. E	456 Kalanianaole Ave.	Site Cleanup Completed	10/25/1996
Jack's Tours	1,616 ft. SSW	226 Kanoelehua Ave.	Site Cleanup Completed	1/31/2003
Hale Halawai SPS	1,859 ft. S	108 Railroad Ave.	Site Cleanup Completed	3/10/1994
S.K. Oda, Ltd.	2,002 ft. SW	180 Kalanikoa St.	Site Cleanup Completed	9/27/1994
Kuwaye Trucking, Inc.	2,634 ft. ESE	2055 Kamehameha Ave.	Site Cleanup Completed	9/20/1996

5.1.10 Federal RCRA Generators List

This database, compiled by the EPA, contains RCRA registered small or large quantity generators of hazardous waste. RCRA Large Quantity Generators are facilities that generate at least 1,000 kg/month of non-acutely hazardous waste (or 1 kg/month of acutely hazardous waste). RCRA Small and Very Small Quantity Generators are facilities that generate less than 1,000 kg/month of non-acutely hazardous waste. EDR's search found two generators within 1/2 mile of the subject site (EDR, 2005). A summary of these findings is presented in Table 8.

Table 8. Federal RCRA Generators

Facility	Site	Address	Classification
Concophillips Company	1,181 ft. SE	1801 Kamehameha Ave.	Small Quantity Generator
Unitek Solvent Services, Inc.	1,271 ft. E	76 Keaa St.	Small Quantity Generator

5.1.11 Federal ERNS List

The ERNS list, compiled by the EPA, contains CERCLA hazardous substance releases or spills, as maintained at the National Response Center. EDR's search revealed no reported incident on the subject site (EDR, 2005).

5.1.12 State Spill List

This database is compiled by the HDOH Hazard Evaluation and Emergency Response (HEER) office. EDR and MNA's search revealed no previous spill incidents on the subject site (EDR, 2005; HEER, 2005).

5.2 ADDITIONAL ENVIRONMENTAL RECORD SOURCES

There are no further environmental record sources known to MNA that are likely to have additional environmental information pertaining to the subject property.

5.3 HISTORICAL USE INFORMATION ON THE SUBJECT SITE

5.3.1 Aerial Photographs

Aerial photographs of the subject and adjoining properties were reviewed at the R.M. Towill Corporation in Honolulu. Photographs reviewed are summarized as follows:

1949: Reeds Bay was in use as a beach and boat launch area. Boats were visible in the bay. On the eastern portion of Reeds Bay between the ice pond and the bay, a railroad track was visible. East of the ice pond residences were visible. To the west of Reeds Bay along Banyan Drive, several large hotels were visible. To the east of the bay was an industrial area with large warehouses.

1951: No significant changes were depicted in the 1951 photograph.

1952: No significant changes were depicted in the 1952 photograph.

1969: The railroad was no longer visible. To the west the hotels were no longer visible. A hotel was visible on the west side of Reeds Bay. To the southwest of the bay the Hilo Seaside Hotel was visible.

1972: No significant changes were depicted in the 1972 photograph.

1977: Reeds Bay appeared the same. To the west of the bay a golf course was visible.

1985: To the south of Reeds Bay more warehouses were visible.

1992: The hotel on the west side of Reeds Bay was no longer visible.

1998: No significant changes were depicted in the 1998 photograph.

2003: No significant changes were depicted in the 2003 photograph.

No readily apparent evidence of *recognized environmental conditions* at the subject or adjoining properties was noted on any of the aerial photographs reviewed.

5.3.2 Historical Topographic Maps

Historical United States Geological Survey (USGS) topographic maps for the subject site and vicinity were reviewed for the years 1963, 1981, and 1995. The maps depicted the following:

Quadrangle: Hilo, Hawaii Scale: 1:24,000 Series 7.5 Minute

1963: Reeds Bay was visible. On the east side of the bay small residences were visible. To the west were hotels. The city of Hilo was visible south of Reeds Bay.

1981: More hotels were visible northwest of the bay. East of the bay industrial buildings were visible.

1995: The map did not show enough detail to view the subject site or surrounding area.

No readily apparent evidence of *recognized environmental conditions* at the subject or adjoining properties was noted on any of the topographic maps reviewed.

5.3.3 Sanborn Fire Insurance Maps

Sanborn Fire Insurance maps were reviewed as follows:

1921: A boat launch was visible on the southern portion of Reeds Bay. The road accessing the bay was called Kanakea Road.

1957: No structures were visible on Reeds Bay. To the north was the American Legion Club.

1974: The area around Reeds Bay was called Banyan Drive Park with a small restroom on the north side of the park. The American Legion Club had been replaced by the Orchid Isle Hotel mislabeled on the map as Orchard Island Hotel. Banyan Drive was visible.

1978: The area around Reeds Bay remained the same. The Orchid Isle Hotel was renamed the Royal Kalani Hotel.

1987: The Park and Reeds Bay remained the same. The Orchid Isle Hotel was no longer visible and the area north of Reeds Bay was vacant.

1991: No significant changes were depicted in the 1991 map.

No readily apparent evidence of *recognized environmental conditions* at the subject or adjoining properties was noted on any of the Sanborn Fire Insurance maps reviewed.

6.0 SITE RECONNAISSANCE

6.1 METHODOLOGY AND LIMITING CONDITIONS

Joanna Boyette conducted the site reconnaissance. The reconnaissance focused on identifying historical, current, and potential CERCLA impacts, which may affect ongoing and expanded use of the subject site. This includes identifying the presence, or likely presence, of any hazardous substances or petroleum products on the site under conditions that indicate an existing release, a past release, or a material threat of a release into structures on the site or into the ground, ground water, or surface water of the site (ASTM E 1527-00, 2000).

A survey of potential environmental hazards and conditions within the subject and adjoining sites was conducted in November 2005. Information regarding the current and previous uses of the site was obtained through a review of available records.

6.2 GENERAL SITE SETTING

The subject site is located in Hilo, Hawaii, and it is situated to the east of Banyan Drive. The site is bordered by residences to the east, hotels to the north, and a golf course to the west. The site location is depicted in Figure 2, and photographs are presented in Appendix C.

6.3 HAZARDOUS MATERIALS AND REGULATED WASTES

MNA observed no evidence of hazardous materials or regulated wastes at the subject site or surrounding area.

6.4 UNDERGROUND STORAGE TANKS

MNA observed no signs of storage tanks, such as dispenser pumps, fill pipes, or vent pipes. A fuel oil pipeline owned by Hawaii Electric Light Company is located along Kalanianaole Avenue and Banyan Drive. MNA found no record of spills or leaks from the fuel line. A map is provided in Appendix I.

6.5 ABOVEGROUND STORAGE TANKS

MNA observed no signs of aboveground storage tanks at the subject site or in line of sight in the surrounding area.

6.6 ASBESTOS, LEAD, & PCB INDICATIONS

MNA found no evidence of materials containing asbestos, lead, or PCBs.

6.7 SOLID WASTE DISPOSAL

MNA observed no signs of waste accumulation on the subject site. Domestic refuse is picked up by the County of Hawaii.

6.8 PHYSICAL SETTING ANALYSIS AGAINST POTENTIAL MIGRATION

MNA found no potential offsite contamination sources that may migrate to the subject site.

7.0 SAMPLING & ANALYSIS

7.1 PURPOSE

The purpose of this investigation was to screen surface soil and water samples for polynuclear aromatic hydrocarbons (PAH), lead, cadmium, and arsenic at the project area. It was suspected that the subject site had received waste from a nearby power plant and wood processing plant. Arsenic is one of the heavy metals associated with wood processing. Lead analysis was performed to verify the background soil lead level.

7.2 METHODOLGY

Discrete soil and water samples were collected by Joanna Boyette and Melissa Farris using a hand-held auger and amber jars on December 9, 2005. Three areas, A, B, and C were defined based on tax map keys. At each sampling location, samples were taken from the first three inches of soil. Because of the rocky under layer deeper intrusion was not possible. Upper surface samples were collected at 1 to 3 inches and labeled. Equal volumes of the discrete samples were combined onsite and placed in plastic bags. The samples were then homogenized. After separating twigs, roots, gravel, and rocks, the soil samples were transferred to amber jars, labeled, and chilled before being transferred to the laboratory. Similar collection procedure was followed for sampling in Areas B and C (Figure 3).

7.3 LABORATORY ANALYTICAL RESULTS

ESN Pacific performed the laboratory analysis for PAH by using EPA method 8100, lead by EPA method 7420, cadmium by EPA method 7130, and arsenic by EPA method 7061. The analysis for total lead, cadmium, and arsenic in water was performed using the EPA method 6020. Included in this section are summaries of the analytical results, and the complete laboratory results, are provided in Appendix D.

7.3.1 Surface Soil Results

MNA found no measurable quantity of PAHs in the surface soil. The sample from Area A (Figure 3) was found to contain 43 Milligrams per Kilogram (mg/Kg) lead. All lead results were found to be below the HDOH Soil Action Level of 200 mg/Kg. The results for metals are shown in Table 8, and the results for PAH are shown in Table 9.

Table 9. Metals Analyses of Soils

Sample ID	Description	Lead, mg/Kg (EPA 7420)	Cadmium, mg/Kg (EPA 7130)	Arsenic, mg/Kg (EPA 7061)
397S-TA	Area A, 1-3"	43	none detected	none detected
397S-TB	Area B, 1-3"	none detected	none detected	none detected
397S-TC	Area C, 1-3"	none detected	none detected	none detected
HDOH* Soil Action Level		200	12	22

*Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final – May 2005

Table 10. PAH Analyses of Soils

Sample ID	Description	Naphthalene mg/Kg	Acenaphthene mg/Kg	Fluoranthene mg/Kg	Benzo(a)pyrene mg/Kg
397S-TA	Area A, 1-3"	< 1.0	< 1.0	< 1.0	< 1.0
397S-TB	Area B, 1-3"	< 1.0	< 1.0	< 1.0	< 1.0
397S-TC	Area C, 1-3"	< 1.0	< 1.0	< 1.0	< 1.0
HDOH* Soil Action Level		4.8	19	60	130

*Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final – May 2005

7.3.2 Surface Water Results

MNA found no measurable quantities of PAHs in the surface water. The water samples did contain arsenic measuring from 0.0025 milligrams per Liter (mg/L) to 0.011 mg/L. All arsenic results were found to be below the HDOH Groundwater Action Level of 36 µg/L (0.036 mg/L). The results for metals are shown in Table 10, and the results for PAH are shown in Table 11.

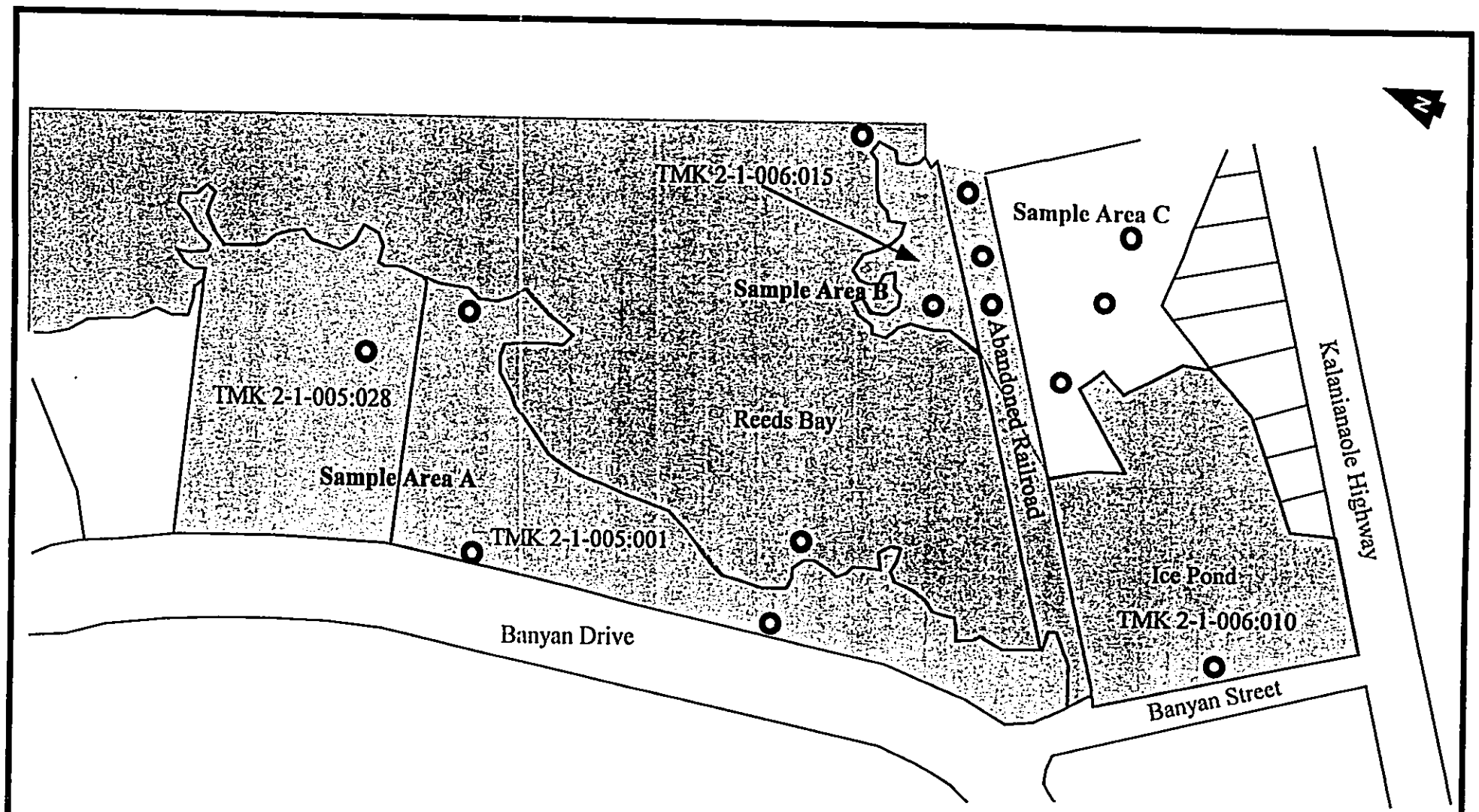


Figure 3. Sample Areas

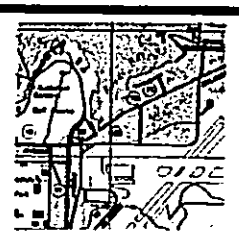


Table 11. Metals Analyses of Waters

Sample ID	Description	Lead, mg/L (EPA 6020)	Cadmium, mg/L (EPA 6020)	Arsenic, mg/L (EPA 6020)
397W-A	Area A	< 0.0025	< 0.0025	0.011
397W-B	Area B	< 0.0025	< 0.0025	0.0053
397W-C	Area C	< 0.0025	< 0.0025	0.0025
HDOH* Water Action Level		5.6	12	36

*Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final – May 2005

Table 12. PAH Analyses of Waters

Sample ID	Description	Naphthalene mg/L	Acenaphthene mg/L	Fluoranthene mg/L	Benzo(a)pyrene mg/L
397W-A	Area A,	< 0.0002	< 0.0002	< 0.0002	< 0.0002
397W-B	Area B,	< 0.0002	< 0.0002	< 0.0002	< 0.0002
397W-C	Area C,	< 0.0002	< 0.0002	< 0.0002	< 0.0002
HDOH* Water Action Level		24	23	8	0.014

*Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final – May 2005

8.0 INTERVIEWS

8.1 HARBORMASTER

MNA interviewed Ian Birnie, the Harbormaster for Hilo Bay on February 15, 2006. According to Mr. Birnie, Reeds Bay had been under his jurisdiction until 1992 when it was transferred to the Department of Land and Natural Resources. Mr. Birnie stated the Reeds Bay was primarily used to harbor sailboats and other small vessels. He was not aware of any environmental concerns at Reeds Bay.

8.2 COUNTY OF HAWAII

This report was reviewed by James Komata of The County of Hawaii. During the review Mr. Komata identified the presence of a Hawaii Electric Light Company fuel line in the vicinity of the subject site. Mr. Komata also provided the ownership and EO status for the subject site.

8.3 OKAHARA & ASSOCIATES

MNA interviewed Donald Okahara of Okahara & Associates, an engineering firm in Hilo. Mr. Okahara is a long time resident of Hilo. He stated that Waiakea-Kai Elementary and Intermediate School was located where the Hilo Golf course currently is. In 1946 when the tsunami hit Hilo, the school was destroyed. There were residences from the current Harrington's restaurant to the Wharf side, about 5 homes, a small park used by the Hokila Night Club, Hilo Bay Hotel, and a Bed & Breakfast in the area. Mr. Okahara also stated that he was not aware of any illegal dumping activities on Reeds Bay.

9.0 SUMMARY OF FINDINGS

Based on the information obtained during the site assessment performed in October 2005-April 2006, MNA provides the following summary:

- **Database Search for Subject and Adjoining Sites:** The subject and adjoining properties were not listed in any of the federal or state databases searched by EDR (Appendix B). The findings are summarized in the table below.

Search Type	Distance Searched	Findings
Federal NPL Site List	1 mile	None
Federal RCRA CORRACTS TSD Facilities List	1 mile	None
State Hazardous Waste Sites	1 mile	10
Federal CERCLIS List	1/2 mile	1
Federal RCRA Non-CORRACTS TSD Facilities List	1/2 mile	1
State-Equivalent CERCLIS	1/2 mile	None
State Landfill and/or Solid Waste Disposal Site List	1/2 mile	None
State Registered UST List	1/4 mile	10
State Leaking UST List (LUST)	1/2 mile	11
Federal RCRA Generators List	1/2 mile	2
Federal ERNS List	Subject site	None
State Spill List	Subject site	None

- **Site Check:** During a site check conducted on October 28, 2005, and sampling performed on December 9, 2005, MNA observed the subject site and surrounding areas. Reeds Bay was in use as a public park. The west portion along Banyan Drive was cleared with little to no vegetation. A small, unused restroom was the only structure on the site. The eastern portion of the site was heavily vegetated with no structures on the site. In the bay were sailboats.

- **Hazardous Materials and Regulated Wastes:** MNA observed no evidence of hazardous materials or regulated wastes on the subject and adjoining sites.

- **Storage Tanks:** MNA observed no USTs or ASTs in use at the subject property at the time of this ESA. A fuel oil pipeline owned by Hawaii Electric Light Company is located along Kalanianaole Avenue and Banyan Drive. MNA found no record of spills or leaks from the fuel line.

- **Potential Asbestos-, Polychlorinated Biphenyl (PCB)- or Lead-Containing Material:** MNA found no evidence of materials that could contain asbestos, lead, or PCBs.

- **Surface Soil and Water Sampling:** MNA performed a sampling of soil and water for the analysis of polynuclear aromatic hydrocarbons (PAH), lead, cadmium, and arsenic on December 9, 2005. All lead results were below the HDOH Soil Action Level of 22 mg/Kg, all cadmium results were below the HDOH Soil Action Level of 12 mg/Kg, and all arsenic results were below the HDOH Soil Action Level of 22 mg/Kg. No measurable quantities of PAHs were found in the soil or water samples.

- **Offsite Contamination Source:** In 1990, a large volume (estimated 4,000 gallons) of wood treating substance was released in the vicinity of Reeds Bay. MNA performed sampling of the soil and water near the shore and found no significant levels of contamination, but they may exist in the ocean sediments. The contaminated soil at the spill site had been reportedly removed during cleanup of Keaa Street and Kalanianaole Avenue in 1990.

10.0 OPINION

It is MNA's opinion that the above sites do not pose a significant threat to the subject site. This opinion is based on distance (the listed sites are too far away to pose potential migration threats) and the State of Hawaii Department of Health records on LUST. Based on the site assessment findings, there are no adverse environmental conditions existing currently on the subject site.

The 1990 HPM spill introduced contaminants into the waters of Reeds Bay; however, due to the natural dilution in the ocean water over the past 16 years, no significant levels of contaminants were found in the soil and water samples collected near the shore, but they may exist in the ocean sediments.

11.0 CONCLUSION

MNA performed an enhanced Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM E 1527-00 of the property located at Reeds Bay, Hilo, Island of Hawaii, 96720. Any exceptions to, or deletions from, this practice are described in Section "2.4 LIMITATIONS AND EXCEPTIONS." This assessment has revealed no evidence of *recognized environmental conditions* in connection with the property.

REFERENCES

Aerial Photographs, **1949, 1951, 1952, 1969, 1972, 1977, 1985, 1992, 1998, and 2003.** Courtesy of R.M. Towill Corporation, Honolulu.

ASTM E 1527-00. **2000.** "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." ASTM, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania.

Brewer Environmental Services. **1991.** *Report, CCA Spill, Remedial Investigation / Feasibility Study.* Prepared for HPM Building Supply Wood Protection Company. Hilo, Hawaii.

EDR. **2005.** *The EDR Radius Map with Geocheck for Reeds Bay* Environmental Data Resources, Inc., Southport, Connecticut.

Environment Hawaii. **1998.** *After Chemical Spill, Hawaii County Takes Over Liability for Waste Disposal.* Volume 9, Number 3, September 1998.

Foronda, Eddie. **2001.** *At Home Under the Volcanoes.* Primedia Enthusiast. Retrieved November 3, 2005 at: http://historictraveler.away.com/primedia/pol_soc/volcanoes_1.adp

Hawaii Department of Health. **2005.** Online UST and LUST databases provided at http://www.state.hi.us/doh/eh/shwb/ust/data.html

Hazard Evaluation & Emergency Response. **2005.** Online databases provided at http://www.state.hi.us/health/eh/heer /record.html

Hazlett, R.W. and D.W. Hyndman. **1996.** *Roadside Geology of Hawaii.* Mountain Press Publishing Company, Missoula, Montana.

HDIA. **2005.** *History of Hilo.* Retrieved November 3, 2005, from Hilo Downtown Improvement Association website: http://www.downtownhilo.com/hilo/history.htm

Mink, J.F. & Lau, L.S. **1990.** *Aquifer Identification and Classification for Oahu: Groundwater Protection Strategy for Hawaii.* Technical Report 179. University of Hawaii, Water Resources Research Center.

PBR Hawaii. **2004.** *Mauka Lands Master Plan Draft Environmental Impact Statement.* Accepting Agency State of Hawaii, University of Hawaii.

Stearns, H.T. **1985.** *Geology of the State of Hawaii,* 2nd ed., Pacific Books, Palo Alto, California.

U.S. Geological Survey. **1963, 1981, 1995.** Topographic Maps. U.S. Department of Interior, U.S. Geological Survey, Washington.

Water Resources Research Center. **1993.** *Aquifer Identification and Classification for the Island of Hawaii: Groundwater Protection Strategy for Hawaii.* Funding Agency: Department of Health, State of Hawaii.

ENVIRONMENTAL ASSESSMENT

REED'S BAY BEACH PARK IMPROVEMENTS

APPENDIX 3

ARCHAEOLOGICAL REPORT/

CULTURAL IMPACT ASSESSMENT

AND CORRESPONDENCE WITH STATE HISTORIC

PRESERVATION DIVISION

SCIENTIFIC CONSULTANT SERVICES, Inc.
1564 Lellehua Street Hilo, Hawai'i 96720

August 28, 2006

Melanie Chinen
Department of Land and Natural Resources
State Historic Preservation Division
Kakuhihewa Bldg, Suite 555
601 Kamokila Blvd
Kapolei, HI 96707

Transmittal of Inventory Survey Report:
Inventory Survey for the Proposed Reed's Bay Beach Park, Hilo:
Investigations into the Kanakea Fishpond at Reed's Bay
TMK: 3-2-1-005: 1 & 28, and 3-2-1-006:10

Dear Ms. Chinen:

Thank you in advance for your review of the above referenced project. Please find the SHPD submittal form, check, and a copy of the report for your office. A copy of the report is being sent to SHPD in Kona on Hawai'i.

Sincerely,

Thomas R. Wolforth
Hawai'i Island Project Manager

Encl. Report
Submittal form and check

Cc: Dr. J. Taomia, SHPD Kona, w/encl.
J. Komata, County of Hawai'i Parks and Recreation, w/encl.

BC: RonTery

Date: August 28, 2006

Submittal Sheet for Historic Preservation Review Filing Fees

State Historic Preservation Division
601 Kamokila Blvd., #555, Kapolei, Hawai`i 96707

Agency/Firm (Requesting Review): Scientific Consultant Services, Inc.

Contact: Tom Wolforth
Phone: (808) 959-5956 Fax: (808) 959-8836 E-Mail: wolforthi001@hawaii.rr.com
Address: 1564 Lellehua St, Hilo, HI 96720-3341

Title of Report/Plan: Inventory Survey for the Proposed Reed's Bay Beach Park,

Island: Hawaii District: South Hilo Ahupua`a: Waiakea
TMK [(1) 1-1-001:001]: [(3) 2-1-005:001 and 028, and (3) 2-1-006:010]

Submitted Plan/Report Fee & Type: (All reports or plans submitted to the SHPI accompanied by the appropriate fee in accordance with HAR §13-275-4 and §284-4).

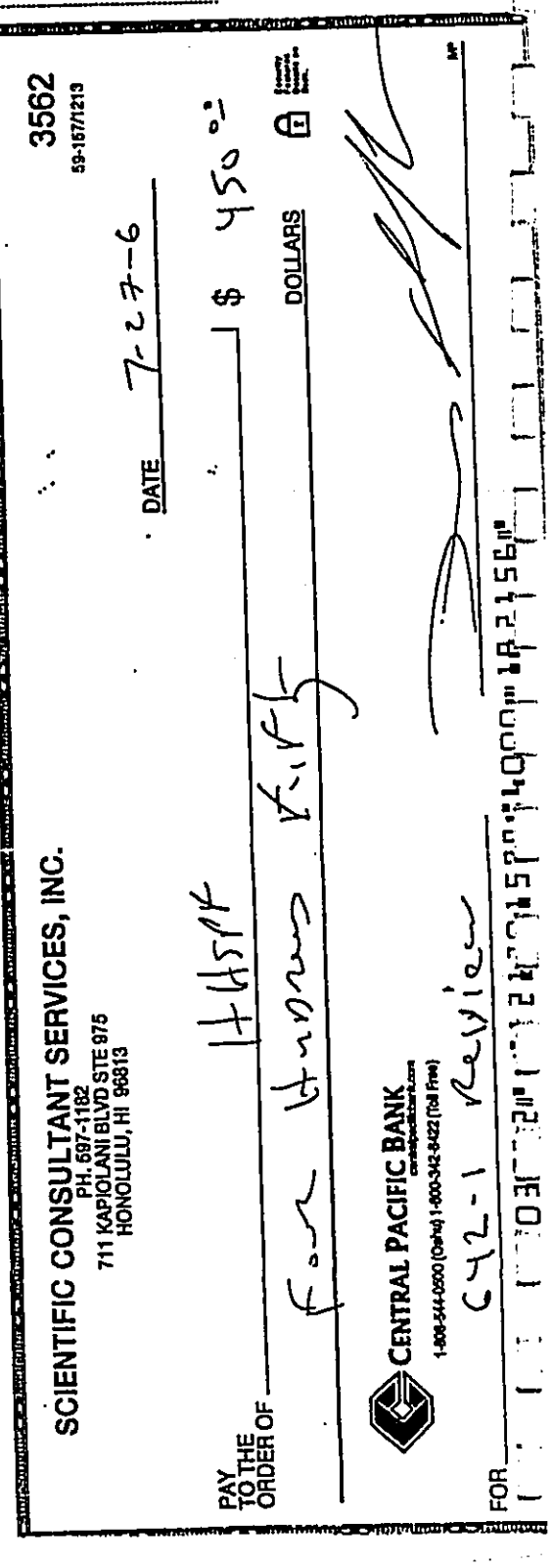
____		Indicate here (X) if report is a re-submittal (no fee
____	$50	Archaeological Assessment
____	$150	Archaeological Inventory Survey Plan
X	$450	Archaeological, Architectural or Ethnographic Sur
____	$150	Preservation Plan
____	$25	Monitoring Plan
____	$150	Archaeological Data Recovery Plan
____	$250	Burial Treatment Plan
____	$100	Archaeological Monitoring Report, if resources rep
____	$450	Archaeological Data Recovery Report
____	$450	Ethnographic Documentation Report
____	$25	Burial Disinterment Report
____	$50	Osteological Analysis Report

Make check payable to "Hawai`i Historic Preservation Spe service charge of $15 will be assessed on all dishonored che HRS §40-35.5" A copy of this form will be mailed or faxec will serve as your receipt.

Fee Total: $ 450.00

For Office Use Only:

Date Received:	Receipt No.:
	Payment Method: Cash ____ $ ____ Check: ____ Check No.: ____
Log. No.:	Receipt Issued by: ____ Treasury Deposit Receipt No:



LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

September 26, 2006

Mr. Thomas R. Wolforth
Scientific Consultant Services, Inc.
1564 Leilehua Street
Hilo, HI 96720

LOG NO: 2006.3250
DOC NO: 0609JT80
Archaeology

Dear Mr. Wolforth:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Inventory Survey for the Proposed Reed's Bay Beach Park, Hilo: Investigations into the Kanakea Fishpond at Reed's Bay
Waiakea Ahupua'a, South Hilo District, Island of Hawai'i
TMK: (3) 2-1-005: 001 & 028, & 2-1-006:010

Thank you for submitting the above reference report for our review (Wolforth 2006), your report number 642.1, which we received on August 30, 2006. The report summarizes the results of an archaeological inventory survey conducted for a County of Hawai'i park expansion project for which an application to the U.S. Department of Housing and Urban Development's Neighborhood Initiatives Program is being made. The survey covered

The plan is basically of good quality, but the following concerns should be addressed before we can accept the report.

1. p. 5 Please indicate if the banyan trees present in this project area are indigenous or introduced.

2. Please ensure that all references cited in the text are included in the bibliography at the end of the report. For instance, various references to publications by Westervelt (1972, 1977, 1987) are cited on p. 6, but only two (1963 & 1999) are found in the bibliography. Desha 2000, cited on p. 7, also does not appear in the bibliography.

3. Please ensure editing of the report for correct use of words (i.e., on p. 11, last paragraph discussing fishponds, reads "The Kikuchi map... and for different reasons do not clarity the sitatuation." Rather than "clarify". Also please ensure that dates are correct. For example, again on p. 11, "In April of 1922..." is given when referring to the first missionary.

4. Please assess the potential for subsurface remains at site 24918.

5. In support of the traditional use of the fish pond, there should be information of requirements of fry of various species. Fry are visible in the cold freshwater/brackish pools at Punalu'u on the Ka'u coast. Consideration of the pool for bathing should also be explored.

6. While we appreciate the proposed treatments for the sites described in this report, under the Section 106 process and it's implementing regulations (36 CFR § 800), an evaluation of the effects of a proposed project is considered first. If a determination of adverse effect is made, the effects are mitigated, usually through measures described in a memorandum of agreement.

We look forward to reviewing a revised report. In addition, once federal assistance has been secured, we look forward to receiving correspondence from a HUD/NIP representative pursuant to a Section 106 review of this project, including determinations of historic properties and effects of the proposed project on any historic properties, using the final report as documentation. We apologize for a lack of response to the initial letter regarding this project; the issues can be covered through correspondence regarding the presence of historic properties and the effects of the project on them. Please contact Dr. Julie Taomia at 808-327-3691 if you have questions or concerns.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

JT:gvf

Date: November 21, 2006

Submittal Sheet for Historic Preservation Review Filing Fees

State Historic Preservation Division
601 Kamokila Blvd., #555, Kapolei, Hawai`i 96707

Agency/Firm (Requesting Review): Scientific Consultant Services, Inc.

Contact: Tom Wolforth
Phone: (808) 959-5956 Fax: (808) 959-8836 E-Mail: wolforthi001@hawaii.rr.com
Address: 1564 Leilehua St, Hilo, HI 96720-3341

Title of Report/Plan: Inventory Survey for the Proposed Reed's Bay Beach Park, Hilo.

Island: Hawaii District: South Hilo Ahupua`a: Waiakea
TMK [(1) 1-1-001:001]: [(3) 2-1-005:001 and 028, and (3) 2-1-006:010]

Submitted Plan/Report Fee & Type: (All reports or plans submitted to the SHPD for review shall be accompanied by the appropriate fee in accordance with HAR §13-275-4 and §284-4).

X		Indicate here (X) if report is a re-submittal (no fee charged)
	$50	Archaeological Assessment
	$150	Archaeological Inventory Survey Plan
	$450	Archaeological, Architectural or Ethnographic Survey Report
	$150	Preservation Plan
	$25	Monitoring Plan
	$150	Archaeological Data Recovery Plan
	$250	Burial Treatment Plan
	$100	Archaeological Monitoring Report, if resources reported
	$450	Archaeological Data Recovery Report
	$450	Ethnographic Documentation Report
	$25	Burial Disinterment Report
	$50	Osteological Analysis Report

Fee Total: $ 0.00

Make check payable to "Hawai`i Historic Preservation Special Fund." A service charge of $15 will be assessed on all dishonored checks pursuant to HRS §40-35.5" A copy of this form will be mailed or faxed back to you and will serve as your receipt.

For Office Use Only:

Date Received:	Receipt No.:
	Payment Method: Cash $ Check: Check No.:
Log. No.:	Receipt Issued by: Treasury Deposit Receipt No:

SCIENTIFIC CONSULTANT SERVICES, Inc.
1564 Lelehua Street Hilo, Hawai'i 96720

November 21, 2006

Melanie Chinen
Department of Land and Natural Resources
State Historic Preservation Division
Kakuhihewa Bldg, Suite 555
601 Kamokila Blvd
Kapolei, HI 96707.

Please refer to: LOG NO: 2006.3250
DOC NO: 0609JT80

Transmittal of REVISED Inventory Survey Report:
Inventory Survey for the Proposed Reed's Bay Park, Hilo:
Investigations into the Kanakea Fishpond at Reed's Bay

Dear Ms. Chinen:

Thank you for your timely review of the earlier version of the above referenced project. We are particularly appreciative of the reviewer's comment that the report is of good quality. In addition, there were six concerns that are addressed in the final version, and explained (attachment).

Please find the SHPD submittal form and a copy of the report for your office. A copy of the report is being sent to SHPD in Kona on Hawai'i.

Sincerely,

Thomas R. Wolforth
Hawai'i Island Operations Manager

Encl. Report
Submittal form

Cc: Dr. M. Kirkendall, SHPD Maui (for Hawai'i Island), w/encl., and old letter.
J. Komata, County of Hawai'i Parks and Recreation, w/encl.
Dr. R. Terry, Geometrician, w/encl.

ATTACHMENT
Response to review comments from SHPD

1. SHPO directs "Please indicate if the banyan trees present in this project area are indigenous or introduced". They are introduced. This kind of tree, *Ficus microcarpa*, is considered a high risk invasive species by the University of Hawai'i's Hawai'i Ecosystems at Risk project (HEAR). More on the problem can be found at: http://www.hear.org/pier/wra/pacific/ficus_microcarpa_htmlwra.htm. All banyan trees in Hawai'i are introduced. Please refer to the short selection from Cuddihy and Stone's (1990:50-51) *Alteration of Native Hawaiian Vegetation: Effects of Humans, Their Activities and Introductions*. In addition, banyan trees do not show up on lists of native trees (cf. Krauss 1993; Judd 1999; Allen 2001). Interestingly, each species of banyan tree needs a specific type of wasp to pollinate it (see http://www.hear.org/starr/hiplants/reports/html/ficus_benghalensis.htm for a concise scientific discussion of the banyan tree in Hawai'i). Wasps are also not native, nor indigenous to Hawai'i.

2. I have untangled the confusing multiple Westervelt references, and added Desha (2000). I also noted during this inspection that the report that Beckwith was misspelled in the bibliography, Thompson (1966), Kalākaua (1990), Fornander (1996), Kikuchi (1973) were missing, and typos were present like Zambucka (1991). Those things were corrected in the bibliography at the end of the report.

3. The two typos pointed out by SHPO have been changed.

4. SHPO directs "Please assess the potential for subsurface remains at the site 24918". Site 24918 is the historical site with a house from 100 years ago which was bulldozed away, covered by a clubhouse that was bulldozed away, covered by a hotel that burned down and was bulldozed away. This text was added to the report:

> Pursuant to comments provided by the State Historic Preservation Office on an earlier draft of this report, the following is a discussion of the potential for subsurface remains at this site. It is not known whether there are any subsurface remains associated with this site, because no text excavations were conducted. This site is situated on the lava coast, and consequently, it is very unlikely that basements or any type of occupied spaces were constructed in this permeable substrate. There is a potential for near-surface underground utility lines and pipes, especially associated with the latest Orchid Island Hotel occupation. That potential is not worth exploring in any way. Likewise, excavations designed to retrieve artifacts have no potential to enhance the understanding of this site. The search for artifacts is often essential to understanding the kinds of activities that were conducted at a site, and in determining the chronology of those activities. The functions and chronology of this site are well established through documentary evidence, as outlined above.

5. SHPO calls for more information on the traditional use of the fishpond, specifically with regard to fry. Also, consideration of a bathing pool should be explored.

There is no dispute about whether the Kanakea Fishpond is a fishpond or not. A great deal of research, and a great deal of text in this report addresses that. There is no need to add anything about fry to bolster that argument. Nothing was changed in this report. These are salt water ponds, and consequently, were not used for bathing.

6. SHPO calls for determining whether there are adverse effects first, then consider mitigation.

Through careful application of the criteria of adverse effects (36 CFR 800.5(1), it has been determined that there are no adverse effects to the four sites in this project. This section was added to the report:

ASSESSMENT OF ADVERSE EFFECTS

The assessment of adverse effects is based on the proposed park plans. Current and future use of Reed's Bay Beach Park will include fishing, lounging, walking, picnicking and swimming. The nearby Ice Pond (Kanakea Fishpond) sustains a greater density of use from family outings focusing on wading and swimming in the pond. When school is not in session, the southern portion of the project area has high density usage. The County of Hawai'i is considering linking this park with the nearby Kūhiō-Kalaniana'ole park via a pedestrian pathway that spans the waterway near the outer wall of the Kanakea Fishpond and over the railroad trestle ruins. The walkway is designed to go over, but not come in contact with, the railroad trestle ruins. There will be no adverse effect to the four sites.

The elements that contribute to the significance of Site 24918, the Scott-Legionnaire-Hotel site, are the data about the history of change of use over the 20th century that are embodied in historical documentation, not in the material remains at the site. The sparse physical remains at the site are a jumble of concrete. The proposed landscaping with the addition of grass and the removal of trees here will not adversely effect the historical data that makes this site significant.

The three pecked basins at Site 24919 will not be altered in any way. No landscaping will take place at this site, and the closest project alterations will occur over 20 meters away. That landscaping will not diminish the character of Site 24919, and consequently, there will be no adverse effect at Site 24919.

The Kanakea Fishpond (Site 18896) has incurred a great deal of alteration over the last 200 years to its original configuration. Harrington's Restaurant has built stone walls and fill altering a portion of the perimeter of the fishpond, and has built its

restaurant over one edge of the pond. Kalaniana'ole Avenue was built over fill that was added to the southern edge of the pond, and much traffic passes over that daily. Likewise, Banyan Street was built over fill that was added to the main chamber of the two-chambered fishpond. Seaside Hotel has altered the whole western edge of the pond by creating a new edge to the pond with new stone walls and building their parking lot and hotel. The railroad line connecting the trunkline to the wharf was built near the pond *mākaha*. Tsunamis have damaged the *mākaha* at the outer perimeter of the pond. Much of the eastern perimeter of the pond has been silted over, and grasses and *hau* thickets have grown into the pond. The entire pond is a favorite recreation location for swimming.

There is no visual "presence" of the Kanakea Fishpond. Everything that constitutes the current manifestation of this site has been either modified by previous historical modifications detailed above, or is underwater (the ruins of the *mākaha*, and the sub-water surface mid-pond wall). There is one project element that is proposed for this portion of the Reed's Bay Park improvements: a footbridge that spans a portion of the fishpond. This footbridge will not alter the data that makes this site significant or alter the characteristics that make it significant. The integrity of the site has already been altered due to an accumulation of many modernizations (roads, restaurant, hotel, railroad). The *mākaha* wall ruins will not be impacted by the construction or use of the bridge. Nor will the mid-pond wall. The addition of a footbridge (that will not impact wall ruins) is not an adverse effect to the site.

The railroad site (Site 7413) is represented within the project area by the ruins of a trestle and the imaginary space that spans the water where the railroad bridge once existed. Elsewhere, the site is represented only by the imaginary linear space where the railroad once existed. There are no physical remains of the railway, such as cross ties or railings. The bridge was destroyed by a tsunami, and all other elements of the railway have been removed by modern developments. Consequently, the principal data that make the site significant are the documentary data of its chronology and use. There is one project element that is proposed for this portion of the Reed's Bay Park improvements: a footbridge that spans a portion of the fishpond. The footbridge will be built over the trestle ruins without coming into to contact with it. The trestle will remain in place, and consequently, will be preserved as is, and the trestle will not be diminished in any way.

SCS Report 642.1

Inventory Survey for the Proposed Reed's Bay Beach Park, Hilo:

Investigations into the Kanakea Fishpond at Reed's Bay
TMK: 3-2-1-005: 1 & 28, and 3-2-1-006:10

by
Thomas R. Wolforth, M.S.
Scientific Consultant Services, Inc.

August, 2006

for
The County of Hawai'i
Department of Parks and Recreation
101 Pauahi St, Hilo, Hawai'i

SCIENTIFIC CONSULTANT SERVICES Inc.

711 Kapiolani Blvd. Suite 975 Honolulu, Hawai'i 96813

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABSTRACT

The County of Hawai'i proposes to enhance and expand an existing park on 6.136 acres on the east side of Waiākea Peninsula, Hilo. A previously identified Hawaiian fishpond, Kanakea Pond (Site 50-10-35-18896) is adjacent to the southern edge of the project area. A small portion of the old railroad (Site 50-10-16-7413) is also at the southern project boundary. These two sites are significant for the data that they possess pertaining to prehistory and history. Preservation is recommended for each of these two sites.

Two new sites were identified in the project area: the Scott-Legionnaire-Orchid Hotel (Site 50-10-35-24918), and three pecked basins (Site 50-10-35-24919). Each is significant for Criterion D only, and no further work is recommended for these two sites.

INTRODUCTION

PROJECT SETTING

The County of Hawai'i proposes to enhance and expand an existing park on 6.136 acres on Waiākea Peninsula, Hilo (TMK 3-2-1-005: 1 and 28, and 3-2-1-006: 10, including an abandoned railroad ROW). The proposed Reed's Bay Beach Park area is defined by the ocean to the east, Banyan Street on the south, Banyan Drive on the west, and commercial property to the north (Figures 1 and 2).

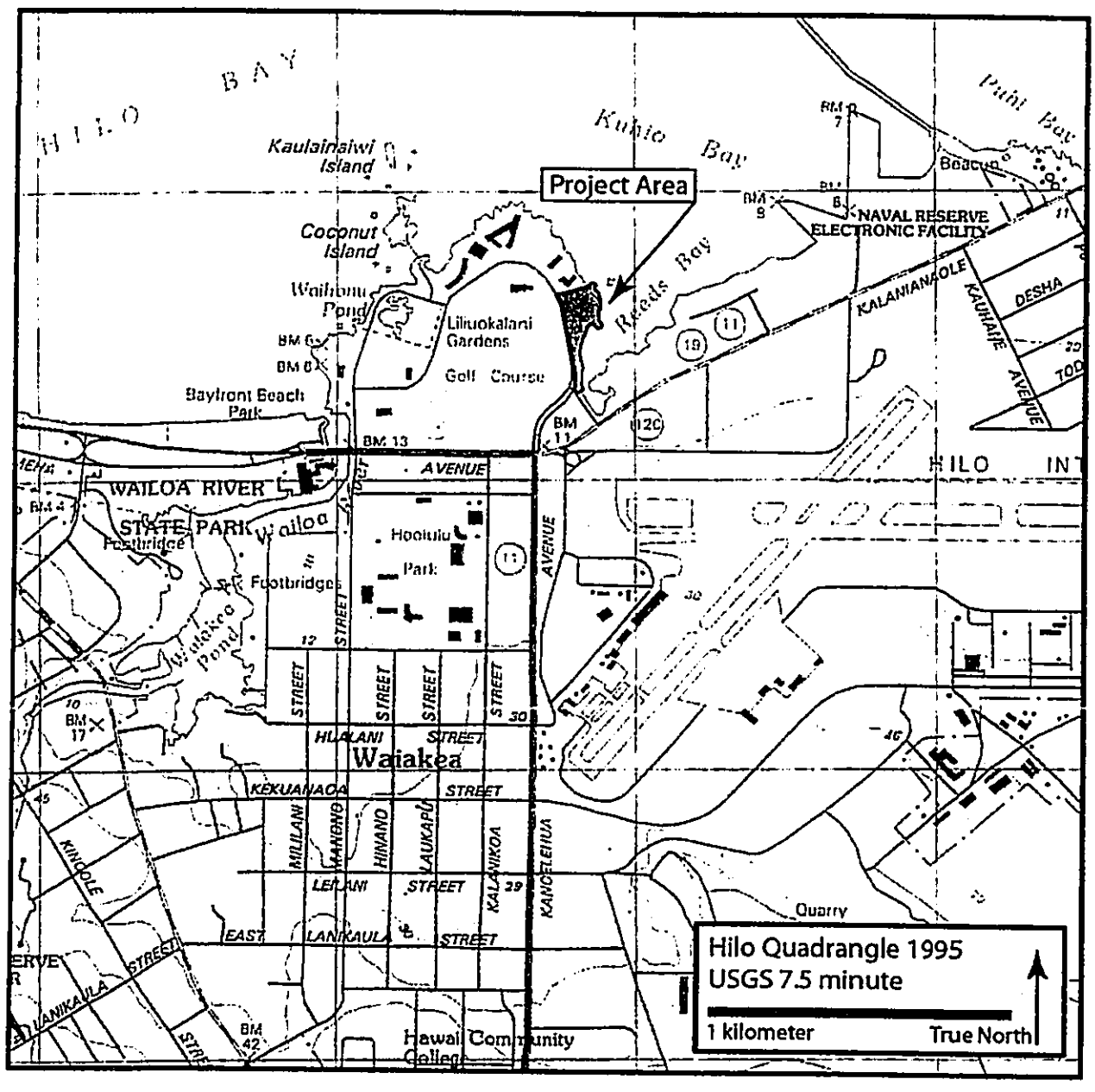


Figure 1. Project Location.

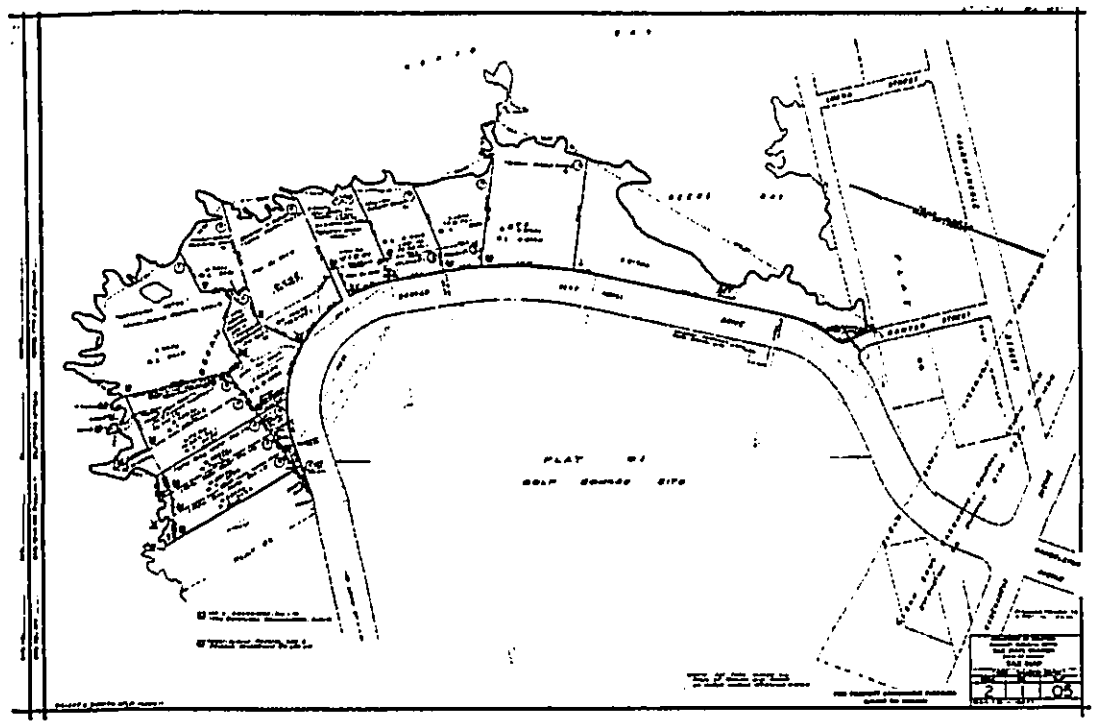


Figure 2. Project TMK.

The project area is owned by the County of Hawai'i, and is being used for a variety of recreational purposes: swimming, fishing, canoeing, picnicking, among others. The County of Hawai'i is applying for funds from the United Stated Department of Housing and Urban Development's Neighborhood Initiatives Program. Consequently, the project is an undertaking that is subject to Section 106 of the National Historic Preservation Act. The proposed development (Figure 3) will facilitate the continuation of this area as a public park for these uses. Proposed improvements associated with this development include a paved walkway, tree trimming, removal of existing concrete pads, abandoning an existing cesspool, restoring the beach, a walkway across Kanakea pond, repairing a damaged sidewalk, a new parking lot, and introduction of new vegetation.

The Reed's Bay Park will connect to the Kūhiō Kalaniana'ole Park on the east side of the Ice Pond (Figure 4). Archaeological Inventory survey has been conducted for the Kūhiō Kalaniana'ole Park (Wolforth 2004), and reviewed by State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources (SHPD letter dated January 4, 2005, Log No. 2005:0010). SHPD serves as the State Historic Preservation Office (SHPO) for the state of Hawai'i.

PHYSICAL SETTING

The Reed's Bay Beach Park project is situated on a series of lava flows that originated from Mauna Loa between 750 and 1,500 years ago (Wolfe and Morris 1996). This flow extends outward from the generalized eastern coastline of the island delineating the eastern edge of Hilo Bay, and is the foundation for the Pana'ewa forest and the Keaukaha shoreline. Bedrock outcrops cover the entire project area.

The natural shoreline along the Waiākea peninsula is exposed bedrock with small pockets of black sand. The physical setting of the entire project area portion of the Waiākea peninsula has been modified by a series of developments that are described in detail in this report under the section

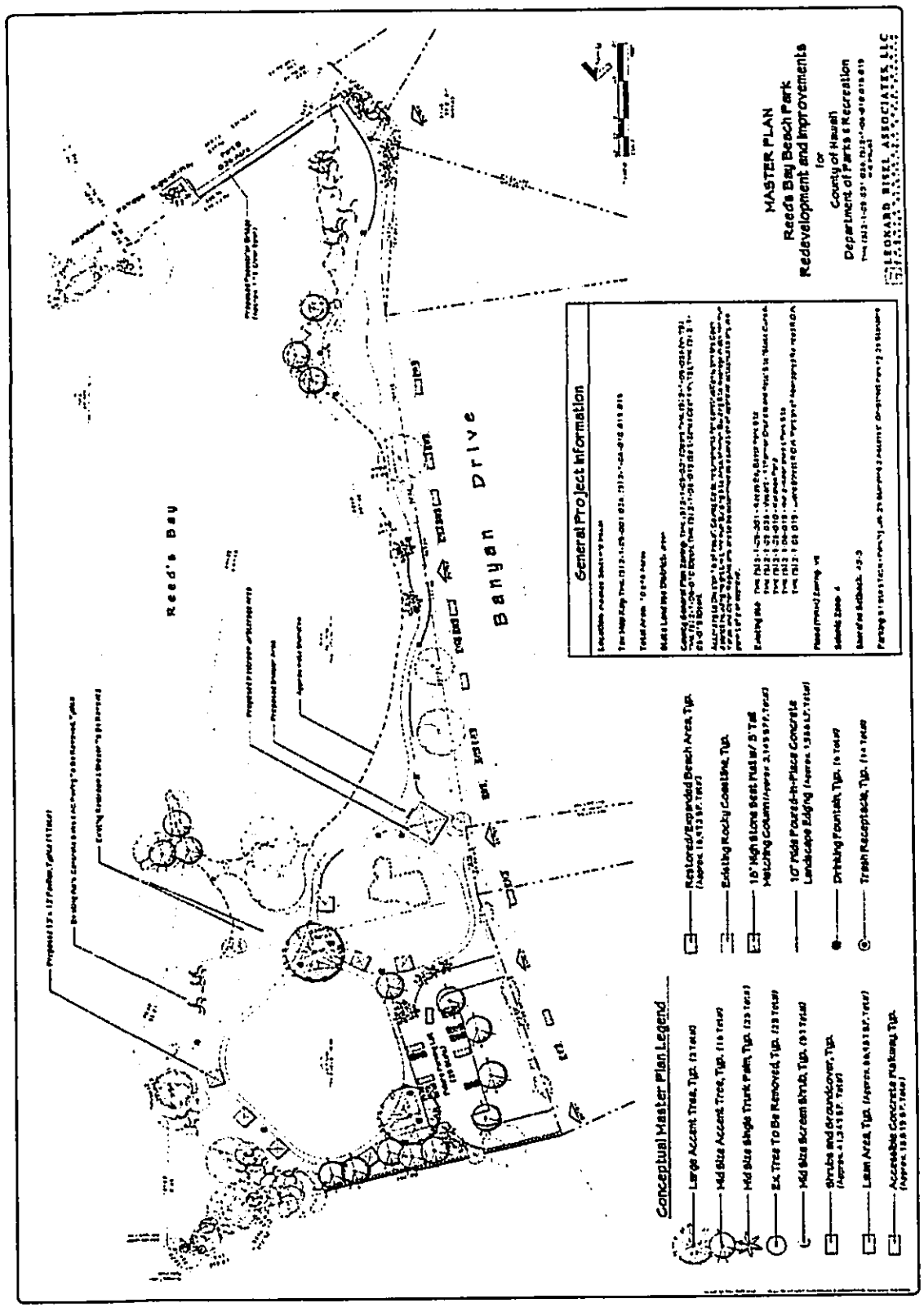


Figure 3. Master Plan for Reed's Bay Beach Park.

"Historical Developments". Briefly here, the north portion of the project area is introduced gravel that covers three building construction and destruction episodes. The southern portion is coral that was introduced during the dredging of Kuhio Bay for the modern wharf (nearby to the east of the project area). There are a few remnants of unaltered natural land within the project area). These are bedrock outcrops with elevations that protrude above the introduced coral and gravel.

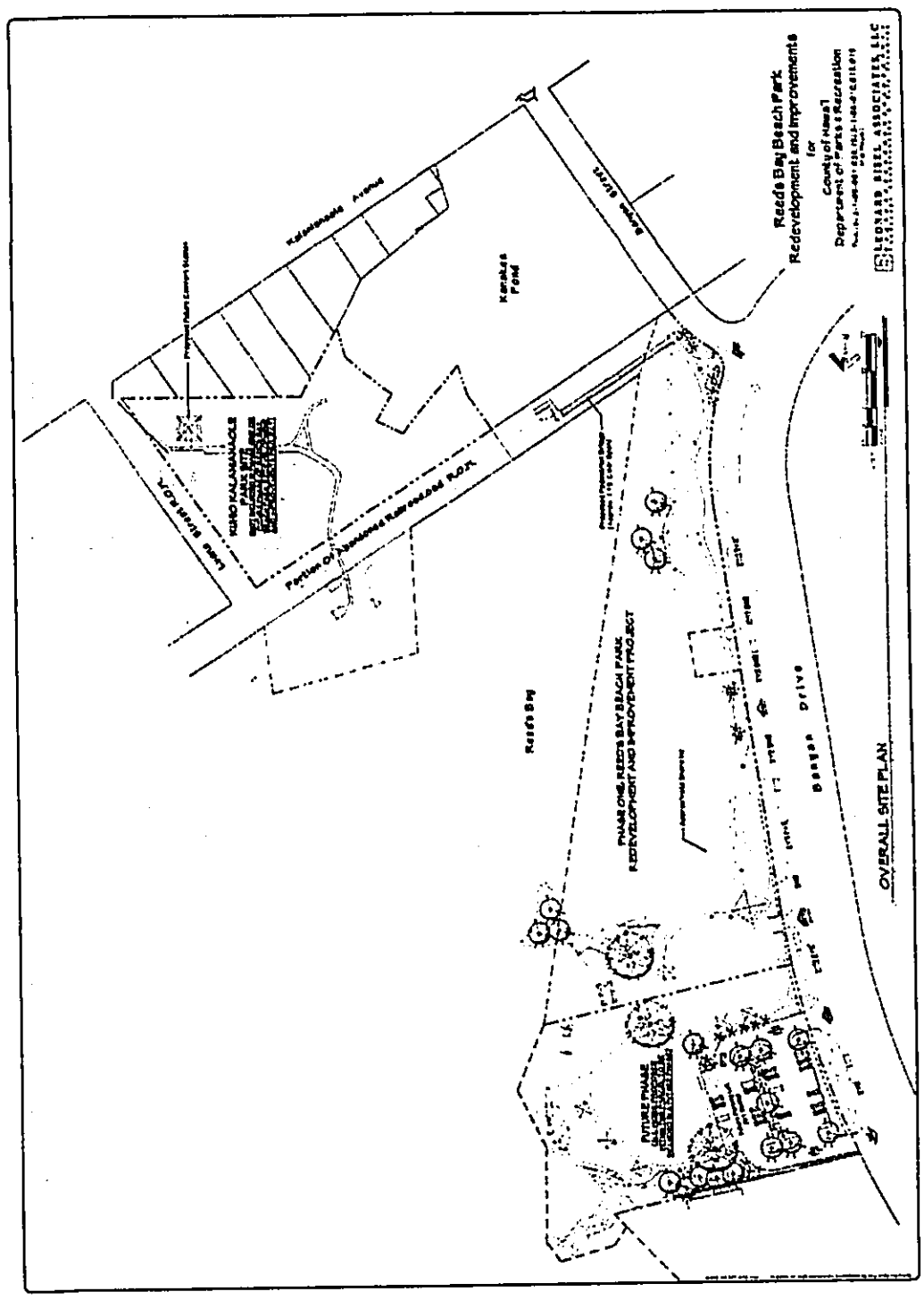


Figure 4. Reed's Bay Project Area, and the Kūhiō Kalaniana'ole Park.

Reed's Bay defines the eastern and southern boundaries of the project area. It is a relatively shallow bay with rock out-croppings along the outer edges. There is a freshwater subterranean spring that feeds cool water into the bay. This phenomenon is the source of the colloquial term for the innermost portion of Reed's Bay: the Ice Pond.

Vegetation is sparse in the project area. Banyan trees line the western project border, and there are other banyan trees scattered about the northern project area. Lauhala is present in the northern fringes of the project area.

CULTURAL SETTING

The proposed Reed's Bay Beach Park project is in the *ahupua'a* of Waiākea. Reed's Bay is the name for that portion of the shoreline between the eastern edge of Waiākea peninsula to the modern wharf facilities. The southern edge of the project area is defined by the innermost portion of the bay, an area known as "Kanakea", a Hawaiian word that means "wide stream", the old name for Reed's Bay" (Pukui *et al.* 1974:83).

Other place names in the vicinity of the project area are intimately tied to fresh water. Waiākea translates literally as "broad waters" (Pukui *et al.* 1974:220). Mokuola (also known as Coconut Island) means "healing island" (Pukui et al. 1974:156). A spring on that island was believed to have healing powers on the island. The largest fresh water river in the state is nearby, Wailuku, meaning "water of destruction" (Pukui *et al.* 1974:225). The stream and beach in the central portion of Hilo Bay is Waiolama, the "stream of torch" (Pukui *et al.* 1974:226). The nearby *ahupua'a* of Ponahawai means "water circle" (Pukui *et al.* 1974:189). Other place names include Keauhaha, the "passing current" (Pukui *et al.* 1974:104), and Pana'ewa, referring to a *mo'o*[1] that was destroyed by Hi'iaka (Pukui *et al.* 1974:178).

Legends and Traditional Developments

There are many Hawaiian legends associated with Hilo and its environs. They relate to the gods, the people, and in some instances the relationship between the two. The content of some of the legends reflect the antiquity of occupation in the Hilo area, and the importance of the place as a seat of power. A selection of legends and historical events illustrating this point are presented below.

The Taming of the Wild

The uplands of Hilo were noted for their wild natural and cultural powers. *Mo'o* lived there, and harassed the occupants of the lower elevations. The gods and goddesses of Hawai'i tamed these natural powers of drought, fire, wind, and the *mo'o*, and brought order and safety to the people of Hilo.

Pana'ewa was portrayed as a forested, uninhabited place in Hawai'i legend, as depicted in the trials and tribulations of Hi'iaka as she begins her trek from Kilauea westward: "Pana'ewa is a great *lehua* island; a forest of *ohias* inland" (Westervelt 1972:100). A *mo'o* named Pana'ewa ruled the wild forested

---

[1] The legendary beasts, goddesses, and gods known as *mo'o* have been described in a variety of ways. The following version covers some of that diversity. "Next in importance to the shark aumakua and possibly of older arrival in Hawai'i are the mo'o, reptile forms of the lizard kind but of monstrous size, believed to inhabit inland fishponds. Says Kamakau: The mo'o that guarded these ponds were not common gecko or skink; no, indeed.... They had a terrifying body such as was often seen in old days; not commonly, but they were often visible when fires were lighted on altars close to their homes... " (Beckwith 1970:125).

uplands until Hi'iaka was successful in removing him from the land (Westervelt 1972). She also bested the two mischievous *mo'o*, named Piliamo'o and Nohoamo'o, that controlled passage at the mouth of the Wailuku River (Westervelt 1999).

The goddess Hina, mother of Maui, lived in a cave on the Wailuku River (Beckwith 1970; Thompson 1988). Her daughters were entrusted to care for the people living in the several *ahupua'a* of the Hilo area. One daughter brings food and creates a permanent freshwater spring for the inhabitants during a killing drought (Pukui and Green 1995; Westervelt 1987). One of the places that Maui is said to have been born and lived is also the Wailuku River (Thompson 1988). Maui fought a *mo'o* there (variously named Kuna [Reed 1987; Thompson 1966] or Lonokaeho [Beckwith 1970; Westervelt 1987]), retreats upstream, flew his kite there, and learned the trick to making fire in the Hilo area (Beckwith 1970; Westervelt 1987).

A Royal Center from Antiquity to the Last of the Royalty

Hilo is likely one of the first two main settlement areas on the island (Kirch 1985), due to its calm and sizable bay, permanent supply of fresh water from the Wailuku River, and fertile and arable soils near the bay. Indeed, one of the early Polynesian travelers to Hawai'i was named Hiro, or Hilo (Beckwith 1970; Henry 1995), and the attachment of his namesakes to this place supplies some circumstantial evidence to the early occupation here.

The coming of Pa'ao to Hawai'i is commemorated in a legend associated with Hilo. Pa'ao is said to have made his first home in Hawai'i on a rock at the mouth of the Wailuku River (Reed 1987; Westervelt 1977). The subsequent history retained through tellings over the centuries is anchored on the events, often romantic and violent, of the struggle for power. Pa'ao affected the overthrown of the ancient lineages of power and supplanted them with the new Pili line by intrigues and warfare in Hilo (Westervelt 1977).

There is another story associated with Hilo that relates directly to the struggle between the old lineages of authority (Nanaula) versus the new ones represented by Pa'ao and Pili. Kaupe'epe'e, from the older Nanaula line, resisted the authority of the newcomers (Kalakaua 1990:84). He traveled to Hilo and captured a chiefess from her home in Hilo Bay, and returned to Molokai. A series of phenomenal battles transpired at his Molokai fortress, leading eventually to the return of the chiefess to her home (Beckwith 1970:464-466; Fornander 1996: 32; Pukui *et al.* 1974:42). This set of legendary events emphasizes the place of power that Hilo had during this pivotal time in Hawaiian history.

The chronology of developments in Hilo is portrayed in the oral traditions that were written down in the 19th century regarding struggles for power. Chiefs from Hilo and Puna banded together to raid O'ahu. They were slaughtered in Kipapa Gulch in 'Ewa, where "the head of Hilo was cut off and carried in triumph to Honouliuli, and stuck up at a place still called Poo-Hilo" (Fornander 1996:90). That did not deter Kulukulu, a subsequent Hilo chief, from successfully attacking O'ahu forces to retrieve a loved one (Elbert 1959:288-290). Not long after that, 'Umi spent time in Hilo soon after becoming ruler of the island, and before he was widely recognized as such. A lack of understanding with the Hilo chief Kulukulu was the purported reason for his attacking Hilo, but his subsequent actions, that of traveling around the island with his forces, indicates that 'Umi merely started his campaign of asserting his military authority over the entire island at the important seat of power of Hilo (Kamakau 1992:17).

The chiefs of Hilo fought those from Kona for "several centuries" (Kamakau 1992:62). "It is said that the cause which started the war between the chiefs of Hilo and Kona was the cruel treatment of Kua'ana, chief of Hilo, by the chiefs of Kona. He was the son of 'I..." (Kamakau 1992:62). Sometimes

the victory went to the chiefs of Kona, but more often to the chiefs of Hilo. Locations of these battles are not disclosed in the written histories.

Hilo was one of the royal centers frequented by the island *mo'i* Alapainui. Kalaniopuu attempted, and failed, to abduct the young Kamehameha from his Hilo residence while Alapainui was at Piopio near Hilo in 1752. This precipitated an attack on the warriors of Kalaniopu'u at Kalepolepo "by Alapai's men, who had followed Kalaniopu'u from Hilo. First the warriors from the lowland gained, then those from the upland, until night fell and the battle was postponed until the next day" (I'i:3). Later, Kalaniopu'u had a house in Piopio, and that is where he died (Fornander 1996:142, 201).

Hilo played a prominent role in the long campaign of conquest of the islands by Kamehameha. The first major battle campaign after the ascendance of Kamehameha at Moku'ōhai took place at Hilo, and is referred to as the Battle of the Bitter Rains. Kamehameha went by land from Kona to Hilo, and descended upon Keawema'uhili at Pū'āinakō for three days of battle. Forces from Maui in support of Keawema'uhili joined in the battle, and armies fought over the uplands and shoreline of Hilo for three more days. "Kamehameha's forces were badly used in these battles. Ka-lani-malokulolu-i-ke-po'o-ka-lani was almost killed at Hala'i. The army was saved only by getting to the sea and going aboard Ke'e-au-moku's fleet" (Kamakau 1992:125).

Years later, Keawema'uhili became an ally of Kamehameha. While Kamehameha was battling for control over Maui, Kamehameha's Hawai'i island nemesis, Keōuakū'ahu'ula, made a decisive move on Hilo.

> When *Keouakuahuula* heard of the assistance in men and canoes which *Keawemauhili* of Hilo had furnished to *Kamehameha* on his expedition to Maui, he was greatly irritated, and considered it as a breach of the agreement between them to jointly oppose *Kamehameha's* pretensions to sovereignty. To punish, therefore, his former ally, *Keoua* invaded Hilo. A battle was fought at Alae in Hilo-paliku, in which *Keawemauhili* was killed, and *Keoua* added the district of Hilo to his own possessions of Puna and Kau [Fornander 1996:240].

After another series of later battles in Hamakua between Kamehameha and Keōua, "Keoua retired to Hilo; Kamehameha went back to Waipi'o and Kohala" (Kamakau 1992:151-152). Keōua "stayed at Pi'opi'o for two days and on the third day he returned to Puna. From Puna he announced that he was the *mō'i* of all of Hawai'i Kuauli..." (Desha 00:271). It was immediately following this episode that a significant portion of Keōua's forces were destroyed by rock and ash spewing from the volcano Kilauea during their trek to Ka'u.

Kamehameha selected Hilo as his base of operations in preparation for launching an attack on the O'ahu and the western islands. Upon one trip to Hilo "(i)t is thought that there were as many as seven *mano* [twenty eight thousand] people who gathered at the shore at Kaipalaoa when the *ali'i* landed in their regal garments" (Desha 2000:369). Kamehameha developed a rapport with Vancouver. During one of Vancouver's visits to Hilo "he sent Lieutenant Puget ashore with a red British flag on a wooden staff to wave in the breezes of Hilo. By that flag, the island of Hawai'i was to escape being troubled by other governmental powers" (Desha 2000:379).

Even after Kamehameha was successful in subduing O'ahu at the battle of Nu'uanu, events in Hilo required his attention. A tabu chief from Maui named Namakeha' fomented rebellion in the eastern half of the island of Hawai'i while Kamehameha was in O'ahu.

> Kamehameha returned to Hawaii to make war on Na-makeha' and his followers. The battle took place at Hilo. Na-makeha' was defeated, fled, and hid in the bush until he was captured. He was made a mock of by his enemies, and in January, 1797, with the consent of Kamehameha, he was offered in sacrifice to the gods in the heiau of Kaipalaoa in Pi'ihonua, Hilo...This was the last of the battles fought by Kamehameha to unite the islands [Kamakau 1992:174].

The last battle that Kamehameha ever fought was in Hilo.

Hilo continued to be place of power after the death of Kamehameha and after the breaking of the *kapu*. Kalakaua had a residence in Hilo, as did Governess Ruth Ke'eilikolani (Zambucka 1992). Ruth visited her Waiākea home (called Waiolama) near the mouth of the Wailoa River during her legendary stoppage of the 1880-1881 Mauna Kea lava flow that threatened Hilo. Through the sacrifice of red handkerchiefs and brandy, and the appropriate prayers and conversation with Pele conducted at the edge of the advancing flow, Ruth was able to convince Pele to stop the 8 month and 48 kilometer (30 miles) long flow (Zambucka 1991) just less than 2 kilometers from Hilo Bay.

Kamehameha III visited in 1829 and 1830 (Kelly *et al.* 1981). Governor Kuakini had a mill in Ponahawai. Several of the *ahupua'a* fronting Hilo Bay were personal lands of Kamehameha I (Kelly et al. 1981:40).

> Waiākea, which had been retained as a personal land by Kamehameha I ... was at some later time held by the chiefess Ka-unu-o-hua, a granddaughter of Keawe-mau-hili ... She surrendered it in the Māhele of 1848 and it became a Crown Land (Indices ... 1929:26) (Kelly *et al.* 1981:40).

There are no LCAs for the project area.

The Maka'āinana

Rulers and would-be rulers would come and go, but the *maka'āinana*, the common folk, lived on and farmed the land and fished for generations in the Hilo area. The settlement in Hilo Bay was concentrated in the eastern portion of the shoreline, with perhaps 2,000 people living in 400 houses there in 1823 (Ellis 1917:253 IN Kelly *et al.* 1981:19). Other habitations were distributed throughout the coastline well beyond the east and west limits of the bay. The map from Byron depicts the position of the shoreline further to the west than it is today (Figure 5).

It is conceivable that the shoreline was inaccurately drawn by those that created this map in the early 1800s. It can alternatively be argued, based on inspection of their rendition of the coastline elsewhere on this map, that the mappers generated a very accurate portrayal of the Waiākea shoreline, and that the shoreline was simply further west in the early 1800's than it is today. This proposition is supported by two lines of evidence. First, people that used to live on the Waiākea peninsula point out that there was much more water on the peninsula in the first quarter of the 20th century. For instance, Ms. Abbie Napeahi commented that "Where the golf course is now, that was all swamp land" (Akoi 1989:50). Second, this is the area that was filled with material dredged from Kuhio Bay (details to follow in section "Historical Developments"). Filling implies a space that needs to be filled, and that space is depicted in the Byron map.

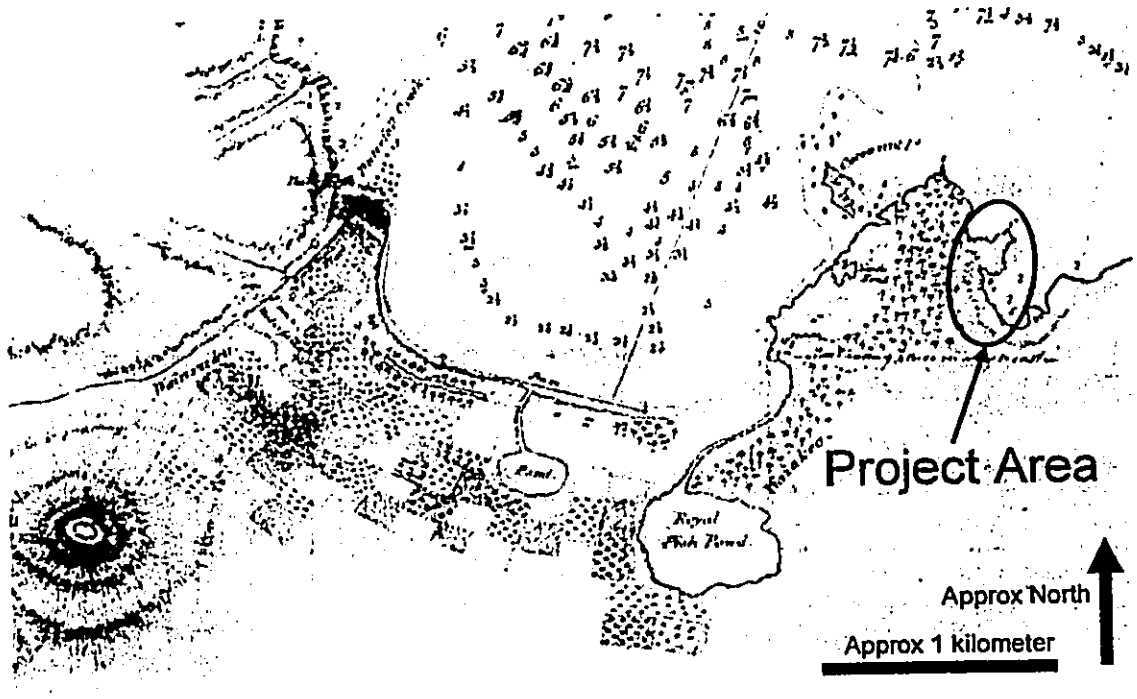


Figure 5. Portion of Chart of Hilo Bay by C.R. Malden, cartographer with Lord Byron 1825.

The larger *heiau* were concentrated on the western portion of Hilo Bay (Stokes 1991). This may suggest a segregation between ceremonial and mundane precincts in the Hilo region, with the former being concentrated at the mouth of the Wailuku and the latter at the mouth of the Wailoa River. *Heiau* were also located along the Waiākea coast. These were smaller, or perhaps not as ceremonially prominent, and consequently went unreported to Stokes. One is on the east coast of Reed's Bay (Kam 1983), and this is the only *heiau* in the Hilo vicinity that still has observable architecture. Another *heiau* once existed at Leleiwi point to the east of the project area. This *heiau* was a "fish *heiau (heiau ho'oulu i'a)*, named Pū-hala (pandanas tree)" (Pukui et al. 1974:131).

There is a local variant of the popular legend regarding the growth of a plant from a person after their burial, particularly as it relates to sustaining a starving population (Beckwith 1970:98). A man named 'Ulu lived in Waiākea. He died of famine. Priests directed that his body be buried near a running stream, and an *'ulu* tree sprouted at that location the next day. The fruits of that tree saved the people from further starvation.

There is one tale involving Reed's Bay that has survived into print (Pukui and Green 1995:95-96). It was told by a policeman named Kaiama, a man that lived near the bay in the early 1900s. In ancient times a fisherman and his spouse lived near a hole at Reed's Bay. This man met a woman from Keaukaha, and this woman came to live with the man and his wife at Reed's Bay. Over time, the new, second wife became jealous of the first. Because the conduct of the family affects the outcome of a fisherman at sea, the husband forbade his wives from fishing until his return from the sea that day. But the Keaukaha wife urged the first wife to go net spawning fish as soon as the man left. The first wife resisted initially, but eventually consented to go catch shrimp in a net. While she was busy catching shrimp at the edge of a hole, the second wife pushed her in and covered her with a rock, exterminating the life of the first wife. Blood came from the body water and out into the sea foam, and reached the place where the man was fishing. He followed the trail of blood with his canoe to the hole, moved the stone, and found his first spouse. He confronted the second wife, listened to her lie, then beat her to death. Since that time the hole has been referred to as Kaluakoko, the Hole of Blood.

The specific location of Kaluakoko is not given in the written version of the legend. During consultation, described below, which included specific reference to Kaluakoko, no one identified a specific location for any of the events that are included in that legend.

Fishponds for the Ali'i and the Maka'āinana

Kikuchi (1973) recognized the variations and complexities of fishpond design, and devised a classificatory system that recognizes 7 variants of *loko kuapā*, 3 variants of *loko pu'uone*, 4 variants of *loko wai*, 1 *loko i'a kalo*, 12 variants of *loko 'ume'iki*, 2 variants of *kaheka*, and 2 variants of *kahē paniwai* (Kikuchi 1973:227-232). There is one fishpond that is identified with the perimeter of the Reed's Bay Beach Park project area (Figure 6). It is named Kanakea, and it corresponds with the Ice Pond.

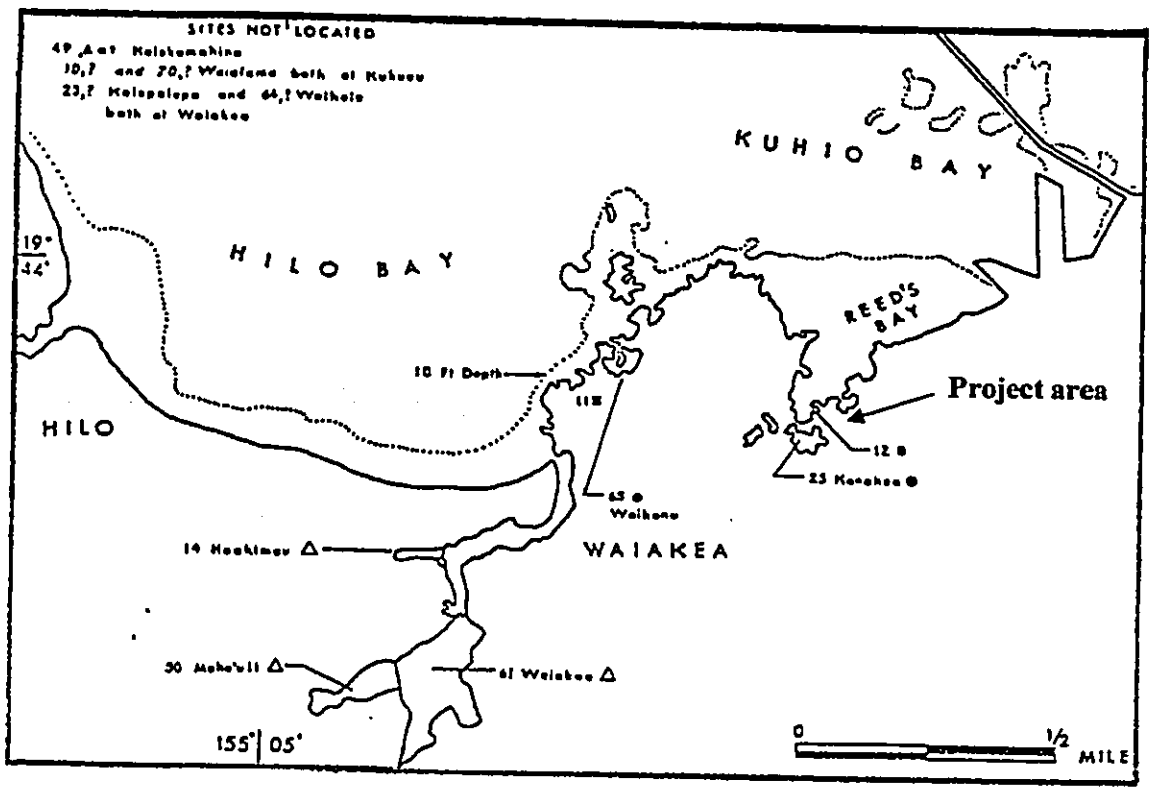


Figure 6. Fishponds identified by Kikuchi (1973:33), Figure 20.

Loko kuapā were controlled by the *ali'i*, and built by the local inhabitants (Summers 1964). Mullet (*'ama'ama*) and milkfish (*awa*) were the most common fish kept in this type of pond, in part, because their food (microbenthos) grew best in brackish water. Other fish raised and kept in ponds are *awa'aua, kaku, aholehole, 'o'opu, 'opae* and *puhi* (Summers 1964; Titcomb 1952). Pond caretakers could eat these as they wished, but "those kinds reserved for the chiefs they would eat secretly" (Kamakau IN Summers 1964:11). Ponds were built at least as early as the 1400s (Summers 1964:12), and probably many were built earlier than that. One fishpond on the West Loch of Pearl Harbor has been securely dated with radiocarbon assay to circa 1000 AD (Wolforth *et al.* 1997)

Royal fishponds were located in the western boundary of Waiākea (Kamakau 1961:152) with fish from these ponds being reserved for the *ali'i*. These ponds were said to be favorites of Hi'iaka and Pele. This was invoked as one possible explanation for the volcanic eruption that decimated Keōua's marching

army across Kilauea. Keōua had apparently not treated the Waiolama ponds with their due respect as he was passing through after a battle against chief Kamehameha (Desha 2000).

In 1823 Ellis observed small huts alongside the Waiākea ponds for the pond caretakers. In addition, it "was custom to build small watch houses from which to guard the fish from being stolen at high tide, of from being killed by pigs and dogs; when the tides receded the fish would return to the middle of the pond out of reach of thieves" (Kamakau 1976:48).

In addition to the royal ponds, there were *pu'uone* ponds that belonged to the commoners, and other non-royal inhabitants (Kamakau 1976:49).

> The *pu'uone* ponds near the sea (*loko kai pu'uone*) were much desired by farmers, and these ponds they stocked (*ho'oholo*) with fish. *Pu'uone* ponds were close to shore ponds, *loko kuapo*, or to the seashore, and next to the mouths (*nuku*) of streams. The farmer cleared away the *mokae* sedges, *'aka'akai* bulrushes, and the weeds, and deepened the pond, piling up the muck on the sides, until he had a clean pond. Then he stocked it with *awa* and fish fry, *pua i'a* - two or three gourds full - until the pond was full of fish [Kamakau 1976:49].

> There were at least two shore ponds within the bay area at Hilo, but no early information on them has been found. These ponds, Waihonu and Kanakea, were natural indentations of the shoreline and required little in the way of rock walls that characterize the typical shore ponds (Kamakau 1976:47-48: Summers 1964:2-12). Ponds such as these were called *loko i'a*,[2] and were used for storing excess fish rather than for fish culture (Summers 1964:I) [Kelly et al. 1981:15].

There are approximately 10 other fishponds to the east of Hilo along the Keaukaha shoreline (Kikuchi 1973: 34). One, the large pond named Lokowaka, is associated with the *mo'o* Waka (Kikuchi 1973:262). "Waka, a *mo'o*, dived into the pool to escape Pele who was jealous of Waka's interest in a man" (Pukui et al. 1974:134).

The exact configuration of the Kanakea pond is not known. The Kikuchi map (see Figure 6) does not show much detail, and the various maps of the place made during different times and for different reasons do not clarity the situation (see figures in this report, and Kelly *et al.* 1981). The TMK map provides the closest scale map of the pond, but transforms uncertain interior shapes (obscured by grasses) into lines and angles (Figure 7).

Historical Developments

The historical events at Hilo have received significant attention and presentation elsewhere (Desha 2000; Kelly *et al.* 1981; George 1948; Leithead 1974). Those events and trends that do or may relate directly to the project area are synthesized below.

Sandalwood was being shipped out of Hilo Bay in the first 20 years of the 19th century (Kelly *et al.* 1981:25). In April of 1922, the first missionary, Auna, a Tahitian, preached Hilo. Many other missionaries soon followed. Whaling ships are documented as docking at Hilo by at least 1824. Whaling declined precipitously in the mid 1800s due to depredations by the U.S. Confederate fleet, increased use worldwide of kerosene, and increased cost of outfitting, among

---

[2] Kamakau refers to the shore ponds as *loko kuapa*. He uses *loko i'a* as the generic term for all types of fishponds (Kamakau 1976:47-49).

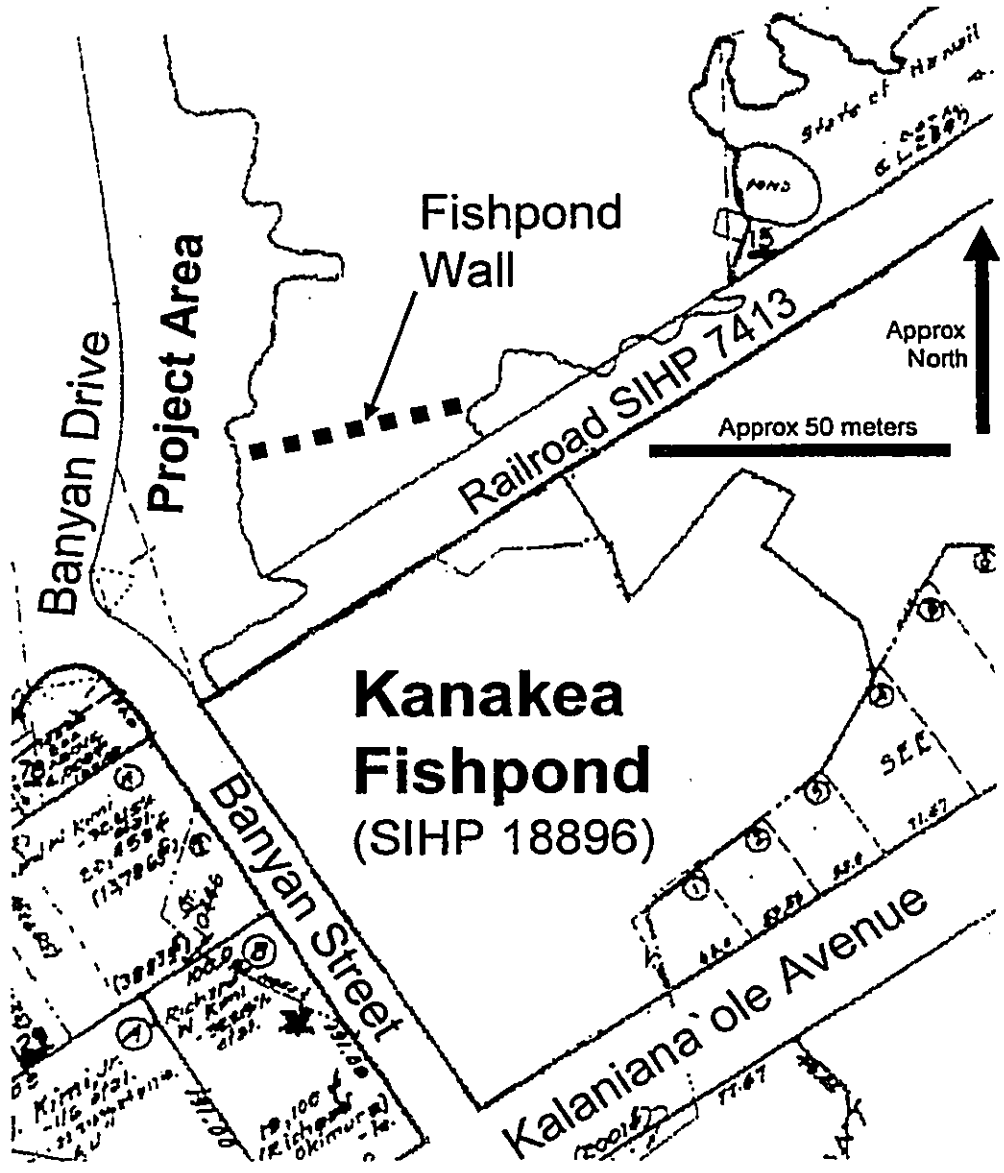


Figure 7. TMK of project area.

other things (George 1948:32). Whaling hobbled on in the islands, and the wreck of the Tamerlane in 1892 marks the end of commercial whaling in the area (Rogers 1999).

Due to economic, cultural and natural forces, the focus of habitation had fully shifted from the Wailoa River side of Hilo Bay to the Wailuku River of the bay by 1885. "Hilo in 1885 was a small settlement with only a few hundred inhabitants. Waiākea had no frame buildings, just a few grass homes (after the tidal wave of 1877)" (Leithead 1974:59). The industrial and commercial concerns began to expand in the Wailoa River vicinity. Markets, landings, agriculture, and milling soon flourished in the Waiākea side of the bay (Kelly *et al.* 1981; Leithead 1974). Habitation then increased in the Waiākea area on the heels of the industrial developments in the late 1800s and early 1900s.

By 1901 sugar dominates the island's industry, and Hilo was the epicenter of production and export. Railroads connected sugar factors along the Hamakua, Puna, and Ka'u coasts to the mills and

wharves at Hilo. An important spur of the railroad line connected the switch yard to the wharf (Figure 8). The first pier at Kuhio Wharf was built between 1912 and 1916 (Kelly *et al.* 1981:194). A second was added in 1923.

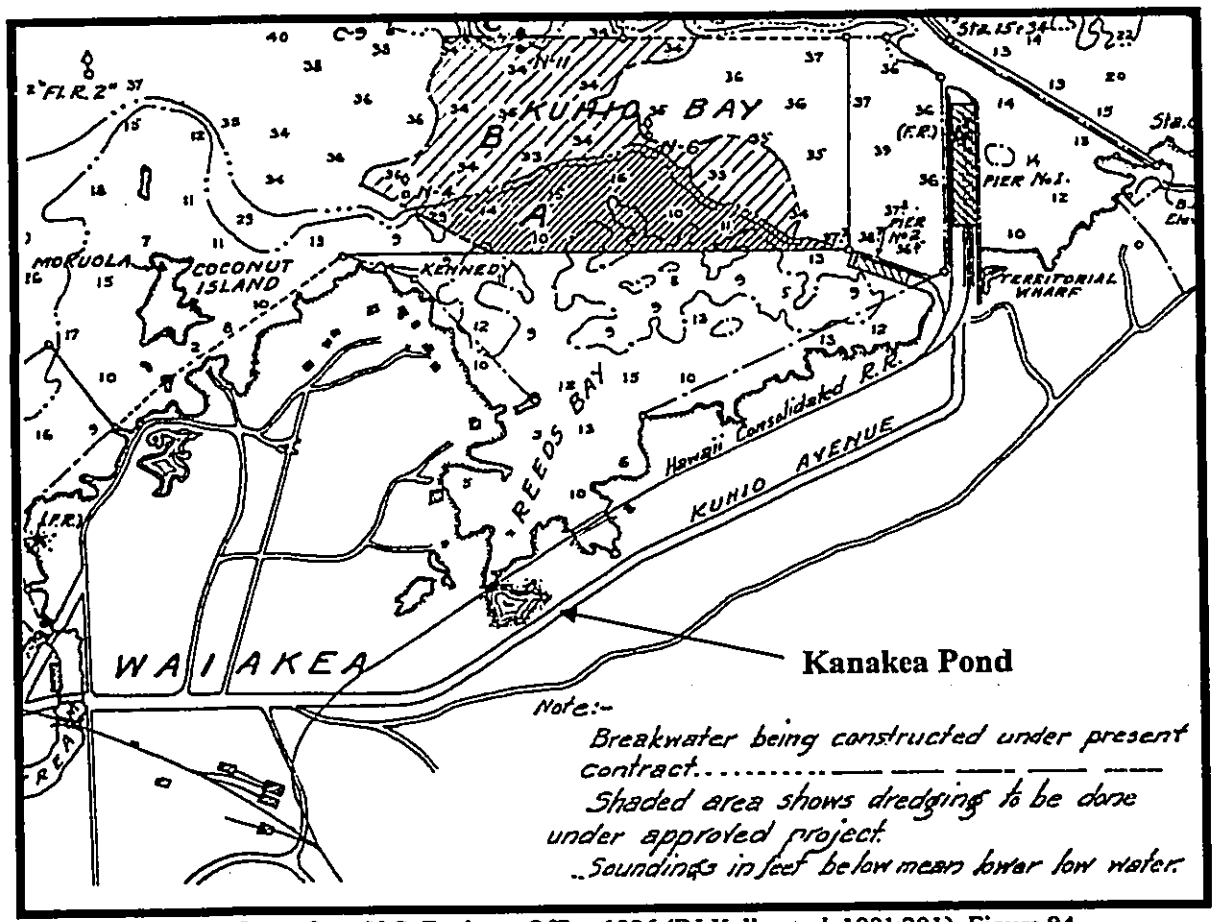


Figure 8. Portion of map from U.S. Engineer Office 1926 (IN Kelly *et al.* 1981:201), Figure 84.

The railroad began operation in the Hilo area in 1899, and was abandoned in 1946 (Kelly *et al.* 1981). The first railroad to wharf connection was at the mouth of the Wailoa River. Railroad and sugar expansion coincided with one another, although not always productively (Kelly *et al.* 1981:154). The construction of Railroad Wharf on the west side of the Waiākea peninsula provided the access of oversea steamers to Hilo and the sugar and other industrialists, stimulating a growth in the local economy and making Hilo a central place for island merchants. This was improved with the construction of the Kuhio Wharves in 1916 and 1923.

The wharf was expanded again, and enlarged to accommodate bigger ships. A portion of Kuhio Bay was dredged (the hatched area in Figure 8), and the dredged material was placed in Waiākea peninsula and along Baker's Beach. Figure 8 shows that the shoreline within the proposed Reed's Bay Beach Park area was much further to the west than it is today.

The history of Waiākea is linked to Keaukaha due to the Hawai'i Homes Commission Act of 1910. By 1926, many people that had once lived in Waiākea had begun to move and build residences in the newly opened lots in Keaukaha. This demographic shift continued through the 1930's when there were over 1,300 new residents along the Keaukaha shoreline and inland areas (Akoi 1989:44).

Banyan Drive was built in the early 1930's, and soon thereafter banyan trees were planted in regular intervals on both sides of the drive (Warshauer 2003b, 2004). The first banyan tree was planted in 1933 (Warshauer 2003b) The last tree was planted in 1972 by Mrs. Richard Nixon to replace one that was planted previously in 1952, but that had been destroyed by "seismic sea wave" in 1952 (Warshauer 2004:D3). Some trees that have been destroyed have not been replanted.

With the growing population, and an increase in recreational and industrial uses of the shoreline, the U.S. Army Corps of Engineers identified a shortage of berths, launching ramps, haul out and work space, and a need for harbors of refuge in eastern Hawai'i (M&E Pacific 1980). The Reed's Bay project was authorized in 1965, but was "not constructed because the harbor configuration would adversely affect existing recreation areas, Reed's Bay Beach and Ice Pond" (USCOE 1983a:4). Design configurations accommodated up to 100 boat berths. Alternative plans were devised to minimize impacts (Atoni 1977). The land around Reed's Bay was already in State ownership at that time.

During the Environmental Impact Statement process for the development of Reed's Bay small craft harbor, it was determined that there were "no Historic Resources in Reed's Bay" (USCOE 1983:19). The only historic resource in the entire larger bay study area that was eligible for listing on the National Register of Historic Places was the Hilo Breakwater (USCOE 1983b:19).

Reed's Bay has been a place of recreation since at least the time when the coral beach was created after the wharf dredging in 1916. Today the Ice Pond is a popular recreational location for families and young adults. The activity is focused along the western edge of the Ice Pond and along the lands adjacent to Banyan Street. Many people swim at the mouth of the Ice Pond at the remnants of the railroad trestle (ruins of the spur that linked the trunk line to the wharf). Few individuals venture to the eastern fringes of the pond where sedimentation and muddy grass line the shallow area.

Burial Locations on the Waiākea Peninsula

Burials were placed in small caves in the lava in Keaukaha and Waiākea peninsula during the 20th century. One deceased man was placed in a small cave in 1914 where the airport is now (Akoi 1989:48). Other burials were placed in small caves on houselots in Keaukaha (Akoi 1989:12). Many burials were placed along the west and north sides of Waiākea peninsula. A Mr. Wakefield encountered an "old Hawaiian cemetery [that] was littered with human bones" while building his home in the 1890's (Warshauer 2003a:D2). Other burials were encountered during the construction of Banyan Drive in 1934 west of the project area: "many small caves containing human skeletons were unearthed as the right-of-way was being cleared" (Warshauer 2003a:D3).

Buildings on the Project Area

New-style house building began on Waiākea peninsula in 1897 when several immigrant families raised buildings along the shoreline (Warshauer 2005). John A. Scott erected a "mansion" on the northern portion of the project area on land that he leased from the Territory. Ms. Ivy Richardson had a lease on the southern portion of the project area. Both properties were declared by the Territory of Hawai'i to be necessary for harbor improvements, and consequently the Scott and Richardson homes were eventually abandoned in 1932. The County Park Commission cleared the land and built a diving board there for the public. That property was neglected again, and became overgrown once more by 1937. The Territory then leased the Scott property to the American Legion in 1939. One of the banyan trees on that property was planted in 1939 in honor of a prominent American Legionnaire.

A Legionnaire clubhouse was completed in 1941. The lease ended in 1961, but was continued on a monthly basis while the governing body, the Department of Land and Natural Resources, deliberated

about potential sales to hotel interests. The Legionnaire's clubhouse was razed, and the Orchid Island Hotel was built and completed in 1967. Ownership changed hands a couple of times, and then the hotel went out of business and finally closed in 1977. The building burned in 1986, and the lot was cleared.

Consultation

To assist in identifying the potential for cultural resources in the project area, and in accordance with Section 106 of the National Historic Preservation Act 36 CFR Part 800.16(y) and 36 CFR 800.4 requirements for consultation, a request was made to the Hawai'i State Historic Preservation Office for information on the Area of Potential Effect, relevant historical resources, and potential consultation parties (Appendix A). Receiving no reply from SHPO, it is assumed that the proposed Area of Potential Effect (as outlined in that letter) is appropriate for this project.

Several agencies were contacted as part of the consultation process (Table 1). A Powerpoint presentation on the results of the historical documentation and archaeological fieldwork presented in this report was given at the monthly meetings of the Keaukaha Community Association and Hawaiian Civic Club Hilo. Input from the groups included specific reminiscences about walking along the railroad line, playing at the beach, seeing the first aquatic plane land and take off in Reed's Bay, and suggesting that the pecked areas (described below) were salt pans.

Table 1. Consulting Parties.

Agency	Process	Date	Status
Edith Kanaka'ole Foundation	Letter	November 30, 2005	No response
Keaukaha Community Association	Meeting	February 15, 2006	Presentation and discussion on with the Association
Hawaiian Civic Club Hilo	Letter	April 7, 2006	Presentation and discussion on June 1, 2006 with the Club
Office of Hawaiian Affairs	Letter	April 7, 2006	OHA will comment on report when it is submitted

Previous Archaeological Investigations and Expected Archaeological Sites

Several archaeological investigations in Waiākea have been conducted in the lowlands around Hilo town and Pana'ewa (Figure 9). In addition, there are several small projects that have been conducted at various elevations of this large *ahupua'a* (Table 2). Consequently, not much is known about the distribution of archaeological resources in Waiākea. To date the best model for settlement distribution is that created by McEldowney (1979).

Few archaeological sites have been recorded from the results of the projects conducted in the lower elevations of Waiākea. Whether this is due to actual lack of prehistoric activity cannot be assessed with certainty due to the extent of disturbance by the 200 years of growing Hilo town. Projects conducted just *mauka* of town have encountered a burial in a cave, sugar industry features, and World War II (WWII) features.

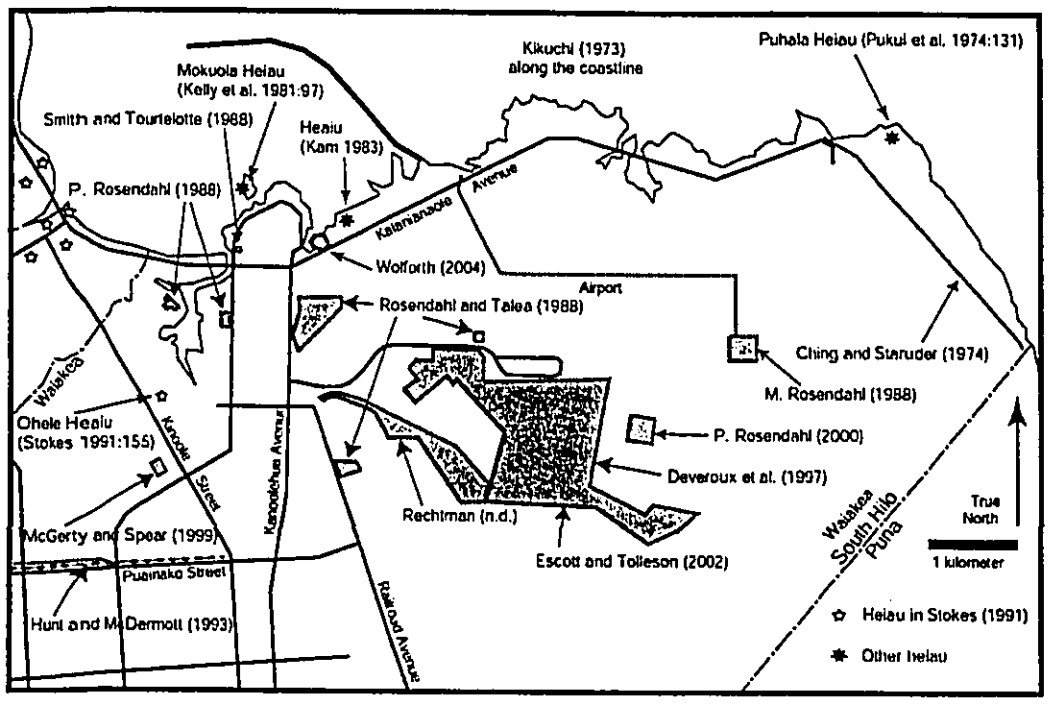


Figure 9. Previous archaeological studies in the project vicinity.

Table 2. Inventory of previous archaeological investigations in Waiākea.

Reference	Activity	Results
Ching and Staruder (1974)	Reconnaissance	4 sites
Bonk (1979)	Survey	No sites (no map)
McEldowney (1979)	Historical research	Settlement pattern
Kelly, Nakamura and Barrère (1981)	Historical research	Chronology
Kam (1983)	Site inspection	1 site
Smith and Tourtellotte (1988)	Burial removal	One individual encountered
Rosendahl, M. (1988)	Reconnaissance	No sites
Rosendahl, M. and L. Talea (1988)	Reconnaissance	No sites
Rosendahl, P. (1988)	Reconnaissance	No sites
Pietrusewsky (1989)	Skeletal analysis	1 Individual
Stokes (1991)	Intermittent survey	Heiau locations
Hunt and McDermott (1993)	Inventory Survey	11 sites
Borthwick *et al.* (1993)	Inventory Survey	Sugar cane remains in uplands
Maly (1996) TOO HERE	Cultural History	Sugar cane history
Robbins and Spear (1996)	Inventory Survey	Sugar cane sites in the uplands
Eblé *et al.* (1997)	Supplemental Testing	Sugar cane sites in the uplands
Deveroux, *et al.* (1997)	Reconnaissance	2 sites
Spear (1988)	Reconnaissance	Sites present
Carson (1999)	Inventory Survey	No sites
McGerty and Spear (1999)	Inventory Survey	1 site
Dega and Benson (1999)	Reconnaissance	Possible prehistoric auwai
Dega (2000)	Inventory Survey	Auwai equals historical ditch
Bush *et al.* (2000)	Inventory Survey	Burial in cave in uplands
Rechtman Consulting (n.d.)	Survey and CIA	No sites
Rechtman (2001)	Inventory Survey	No sites
McDermott and Hammatt (2001)	Inventory Survey	2 historical sites in uplands
Rosendahl, P. (2002)	Assessment Survey	No sites
Escott and Tolleson (2002)	Inventory Survey	Trail
Escott (2003)	Inventory Survey	WWII sites in the uplands
Wolforth (2004)	Inventory Survey	Fishponds, railroad

The Reed's Bay Beach Park project is situated within the Coastal Settlement Zone of the east Hawai'i settlement model. As reflected in the name of that zone, prehistoric habitation is focused along the coastline. Fishponds for *ali'i* and *maka'āinana* were created, maintained, and used all along the coast. The basic cultivated crops such as irrigated and dry taro, bananas, breadfruit, *kukui* nuts, pandanas and *ti* were grown in these lower elevations. They did not grow uniformly over the coastal zone, however. The heavily weathered soils on the Mauna Kea flows along the western portion of Hilo Bay were particularly well suited for agriculture. This bias towards the western area is evident in the distribution of fields portrayed in an early depiction of the Hilo Bay (see Figure 4). The eastern half Hilo Bay and further south and east are covered by younger Mauna Loa flows that lack soil the level of soil development present in the Mauna Kea flows.

Burials were also interred in the Coastal Settlement Zone. Sand dunes are a preferred burial location (Kirch 1985), and it should be expected that prehistoric burials exist within some portion of the sandy shoreline of Hilo Bay. One burial has been identified near the mouth of the Wailoa River in Waiākea (Pietrusewsky 1989; Smith and Tourtellotte 1988). Another has been identified in a small cave at 400 foot elevation approximately 2 kilometers inland from Hilo Bay.
(Bush *et al.* 2000; Escott 2003). The small caves in the rugged lava in the Waiākea peninsula and Keaukaha landscape are also a preferred location for burials as indicated in the information gleaned from the local newspaper over the past 100 years (as cited earlier in this report). Historical developments in Hilo town and surrounding sugar fields have probably masked the location of many prehistoric burials, but they can be expected to exist in small caves, stone platforms, ancient habitation pavements, and shoreline contexts.

The Reed's Bay Beach Park project area is characterized by the shoreline context. That shoreline was modified during prehistory to create a fishpond (Site 50-10-16-18896) that defines the southern perimeter of the project area (Kikuchi 1973; Wolforth 2004). The cultural setting for fishponds includes the fishpond structure, the maintenance and care of the fish within, the periodic structural maintenance, and the social conventions that dictated how and when these activities were carried out. Pond caretakers may have lived adjacent to the fishponds in the project area.

The eastern edge of the Waiākea peninsula was a natural low-lying area. Prior to 1926 the configuration of the shoreline within the project area was further to the west than it is today. Approximately half of the project was naturally within the ocean (Figure 10). Consequently, pre-contact era archaeological remains are not expected for that portion of the project area that was under water.

Pre-contact remains may be expected on the bedrock outcrops. Remains of fishing-related activities, such as pecked areas for bait and food processing, can be expected. Other kinds of resources associated with rocky shoreline settings in Hawai'i include petroglyphs, fishing shrines, and canoe ramps. Burials have been encountered during road and utility line construction in the Waiākea peninsula, and other burials may be in place within the project area.

Post-contact remains of the Scott and Richardson residences may be present. Landscape modifications made the American Legion and Orchid Island Hotel are also likely to be present.

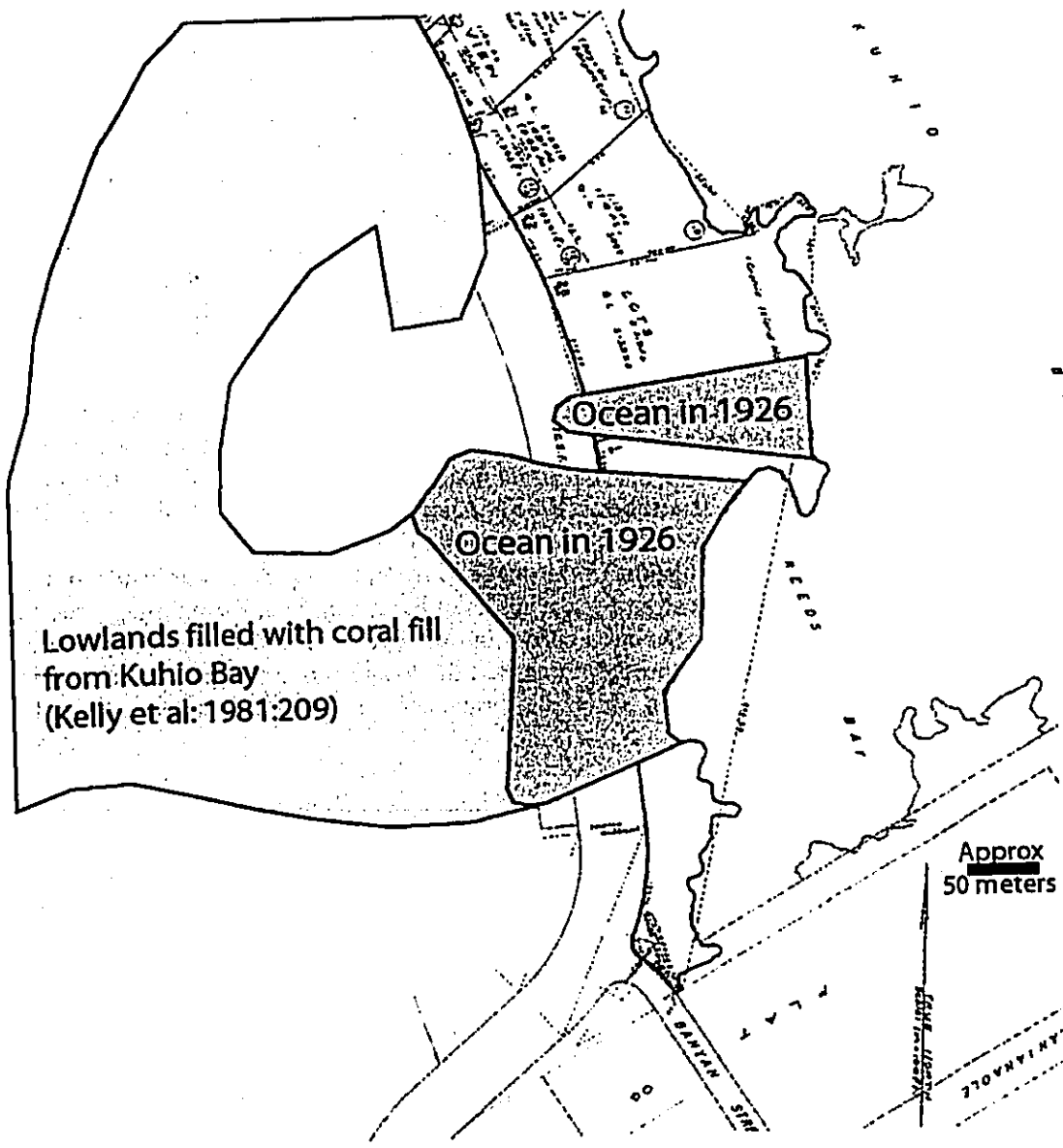


Figure 10. Shoreline in 1926.

ARCHAEOLOGICAL SITES

METHODS

The methods applied to this project were designed to address the particular situation manifest in the physical and managerial settings. The entire aquatic boundary of the project area is within the "Hilo Harbor, Wailoa River and Wailuku River Fisheries Management Area". This area is managed by the State of Hawai'i which invokes penalties for certain transgressions. The field work for this project was conducted along the waterfront with a minimum of impact to the physical resource. No vegetation or sediment was moved during this process.

Pedestrian survey was conducted over 100% of the project area. Sparse vegetation facilitated clear viewing (Figure 11). Particular attention was paid to the natural bedrock outcrops, and the built

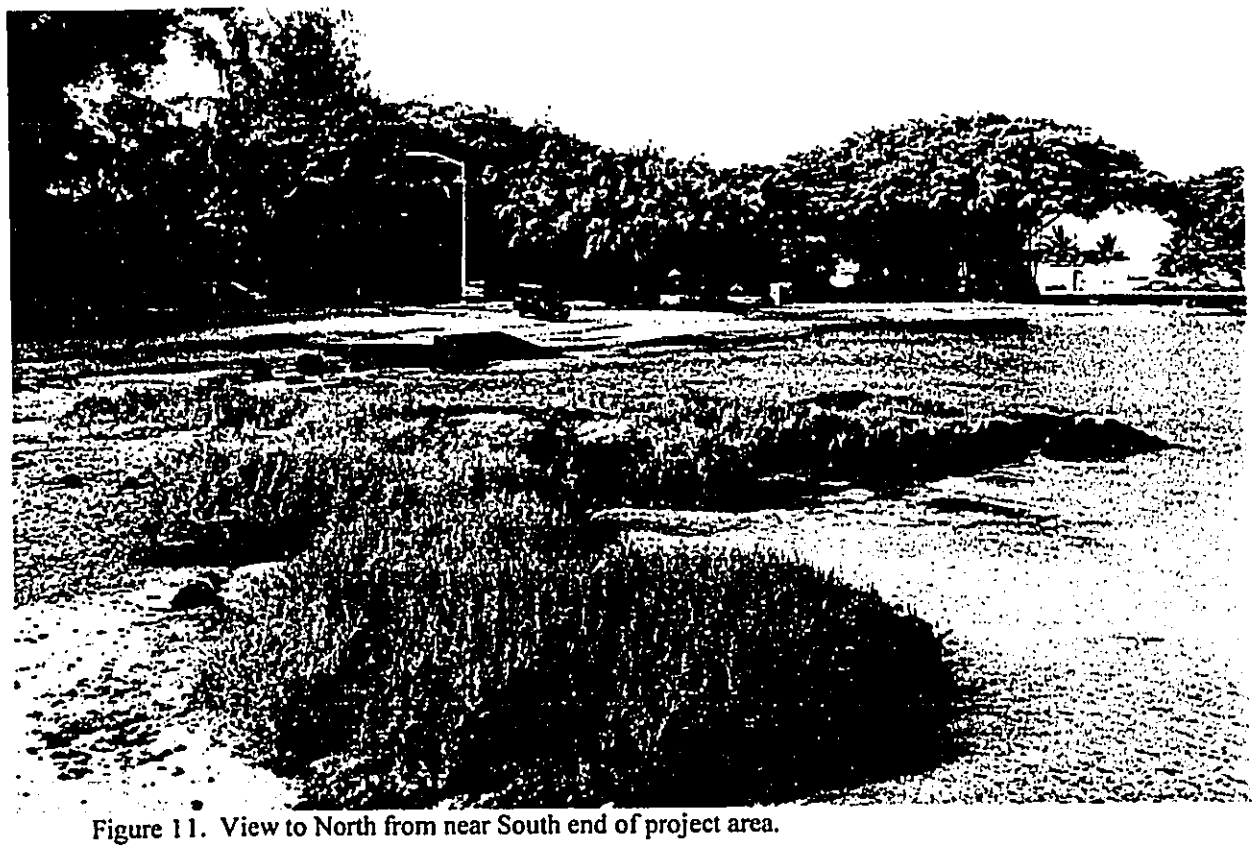


Figure 11. View to North from near South end of project area.

environment. Most of the project area is a man-made environment. Gravel covers the northern portion of the project area, and dredged coral fill covers most of the southern portion.

There are four archaeological sites associated with the project area (Table 3, Figure 12). Sites 7413 and 18896 were previously recorded, and much of their description is taken from Wolforth (2004).

Three of the four state site numbers in this Inventory Survey begin with the preface 50-10-35-. The number 50 indicates that the site is in the state of Hawai'i. Number 10 signifies that the site is on the island of Hawai'i. The number 35 indicates that the sites are on USGS quadrangle "Hilo", which has been arbitrarily designated 35. The full quadripartite number represents the State Inventory of Historic Places (SIHP) site number. The fourth site, 50-10-16-7413, was first identified in another USGS quadrangle: Papa'aloa.

Table 3. Sites in the Project Area.

Site	Name	Type	Era
7413	Railroad	Railroad remnants	20th century
18896	Kanakea Fishpond	Fishpond	Pre-Contact
24918	Scott-Legionnaire-Hotel	Modern building	20th century
24919	None	Pecked basins	Pre-Contact

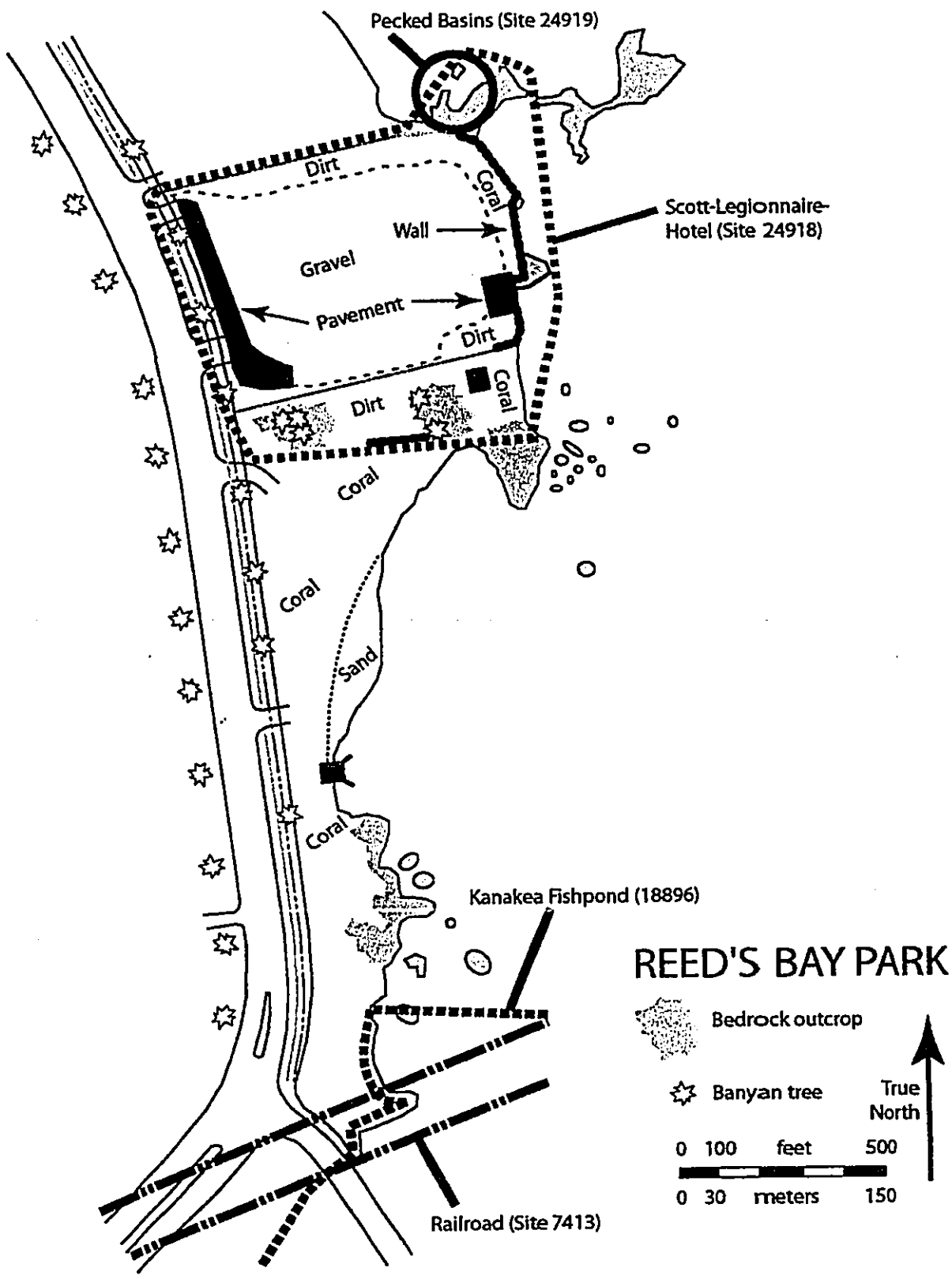


Figure 12. Sites in the Project Area.

SITE 7413: RAILROAD REMNANTS

The southern edge of the project area coincides with a portion of the right-of-way for the railroad line that was in operation for the single purpose of connecting the Kuhio Wharf to the trunkline that is to the west of the project area (see Figures 3, 7, and 8). Consequently the origin of the tracks is *circa* 1916 (the time of the beginning of the construction of the wharf), and they were abandoned in 1946 when the entire rail system was abandoned (Figure 13). That is a maximum of 30 years for the span of existence and operation of the rail line within the project area.

Figure 13. Ruins of railroad over Kanakea Pond immediately following the 1946 tsunami. View to north.

There are no physical remnants of the railway within the land portion of the project area. There are two trestle foundations in the water directly offshore of the project area and near the outer wall of the Kanakea Pond (see Figure 12).

SITE 18896: KANAKEA FISHPOND

Kanakea Fishpond was identified by Kikuchi (1973:260) as a Type Ib fishpond (*loko kuapā)* "whose wall completely closes the mouth of a bay" (Kikuchi 1973:227). The only other data provided about the pond in that document is that the pond coves 2 acres. There is no data on wall length, width, height, or composition, and the scale of the pond map does not show any details of the pond morphology. The pond was not investigated in the subsequent study of Hawai'i isle ponds (Murabayashi *et al.* 1990). The data collected during the Kūhiō-Kalaniana'ole park project (Wolforth 2004) provides details on pond

size, extent, and configuration. Details on pond style are provided in that report, but are not reproduced here.

A cursory inspection of the western half of the pond reveals a high degree of modern impact. The straight lines of rock associated with Banyan Street on the west and Kalaniana'ole Avenue on the south were likely created by filling of the western and southern pond edges. Inspection of these areas appears to indicate that dredging did not take place in those areas, however; the submarine *pāhoehoe* appears to be intact in those locations. This indicates that the pond was once larger in those directions. There is a highly modified pond on the west side of Banyan Street. This is presumed to be close the original (prehistoric) pond boundary.

Remnants of three walls associated with the pond were identified during the inventory survey of the nearby proposed Kūhiō-Kalanaiana'ole park (Wolforth 2004). Two walls appear to be directly associated with the prehistoric pond configuration, and the origin of the third is not clear (Figure 14). The wall that separates the pond from the ocean is represented by a field of cobbles in a rough line connecting the narrowest portion of the channel to the ocean. The cobble field does not readily present itself as a man made wall feature, however. Consequently, the following discussion presents the series of logical and investigative steps to arrive at this conclusion.

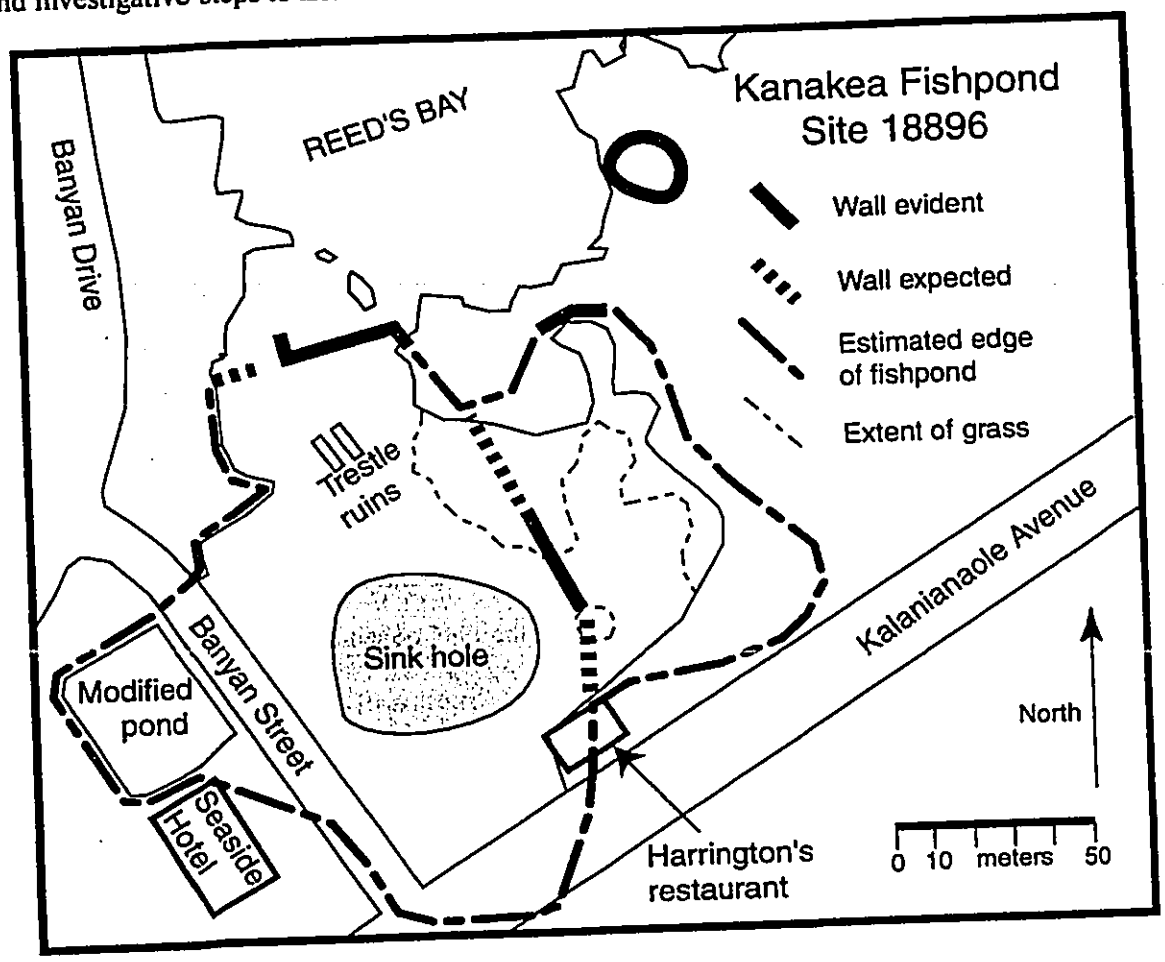


Figure 14. Site 18896. Kanakea Pond.

The area of the submarine cobble field is identified by Kikuchi (1973) as the outer boundary of the Kanakea Pond. The single figure representing this pond that shows the pond as landlocked and

lacking a wall or *makaha* (see Figure 6), yet contrary to the "inland" formation (a *pu'uone pond*) of the landlocked pond, the Kanakea pond is interpreted as a *loko kuapā*, a shoreline pond. The declaration of the pond as a *loko kuapā* is strong support for the presence of a wall in this general location. After all, a "Loko kuapā is a fishpond whose main characteristic is a seawall (kuapā)" (Kikuchi 1973:9). I interpret Kikuchi's use of the label *loko kuapā* to be of stronger identification that there was a wall there than the drawing of the pond which shows the Kanakea fishpond as landlocked. Consequently, even though there is no wall drawn for this pond, one would expect a wall (for a *loko kuapā*).

The cobble field is entirely submerged except during low of tide. At low tide a portion of the rocks are visible, revealing the linear pattern of the cobble field (Figures 15 and 16). The linearity of the cobbles provides one item of evidence for a prehistoric origin of the cobbles, but does not in and of itself, provide conclusive evidence of such. The fact that this area has cobbles, however, adds support to that argument. The field of cobbles contrasts with the *pāhoehoe* bedrock that makes up the submarine 'surface' throughout the channel and within the pond. The cobbles could have washed in from some unknown source by strong currents or tsunami, and settled in this narrow channel through forces of nature. Alternatively, these cobbles could represent the remains of a fishpond wall that has suffered from the ravages of time, tides, and neglect.

Figure 15. Site 18896, Wall 1. The 'cobble field' partially above sea level at low tide. View to south.

Other phenomenon of the cobble field suggest that they represent the ruins of a fishpond. The cobbles are of relatively nonuniform size, ranging from 10 to 60 centimeters. If they were moved to this location by wave action, one would expect them to be of a more uniform size, because movement of rocks and sediment by water usually segregates particle sizes. In contrast, the range of rock size is commensurate with the size of rocks commonly found in Hawaiian stone structures. The 'surface' of the bedrock below water level in this narrow channel undulates from approximately 0.5 to 1.5 meters deep.

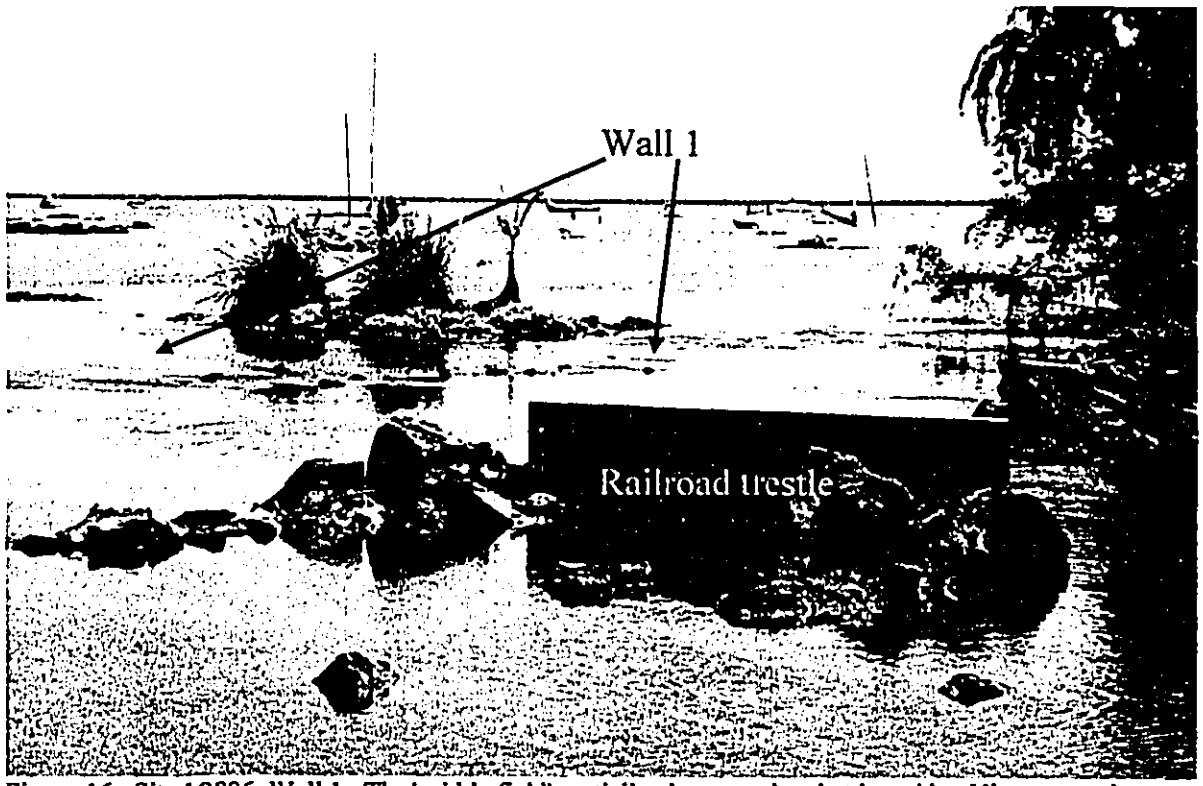


Figure 16. Site 18896, Wall 1. The 'cobble field' partially above sea level at low tide. View to north.

Yet the top of the cobble field is relatively level. This can be interpreted as a result of more rocks being brought in to fill the lower levels, and using less rocks in the higher bedrock locations. In addition to this line of reasoning, the most compelling evidence for the human origin of the cobble field is the low wall segment that transitions from the cobble field in the water to land in the proposed Kūhiō-Kalaniana'ole park area.

A small segment of eastern edge of the stone wall at the water's edge exhibits the stacking and edge verticality commensurate with walls in general, including fishpond walls. The fact that it exists partially in the water, and partially on silted lands is strong evidence for the interpretation that this, and the nearby cobble field, represent the remnants of an ancient fishpond here.

Of the many maps and aerial photographs compiled by Kelly *et al.* (1981) there is one that shows land across most of the narrow channel where the field of cobble is (Figure 108 in Kelly *et al.* 1981: see Figure 8 in this report for similar image). The correspondence of the mapped land and the linear cobble field could mean that: 1) the wall was in better shape, and higher when the map was made; or 2) that map was made during low tide. I am inclined to think that the map was made during low tide, because none of the other historical maps (Kelly *et al.* 1981) show the 'land' across the channel there. Nevertheless, the map does emphasize that the cobble field is substantial enough to be identified as a feature worth mapping in.

There is no clear *makaha* area, but one can be surmised by the lack of cobbles and the presence of current passing out of the channel near the western one third of the cobble field. The western portion of the wall that separates the pond from the ocean connects directly to the Reed's Bay Beach project area. A small pair of parallel alignments is visible at low tide at the shoreline (Figure 17).

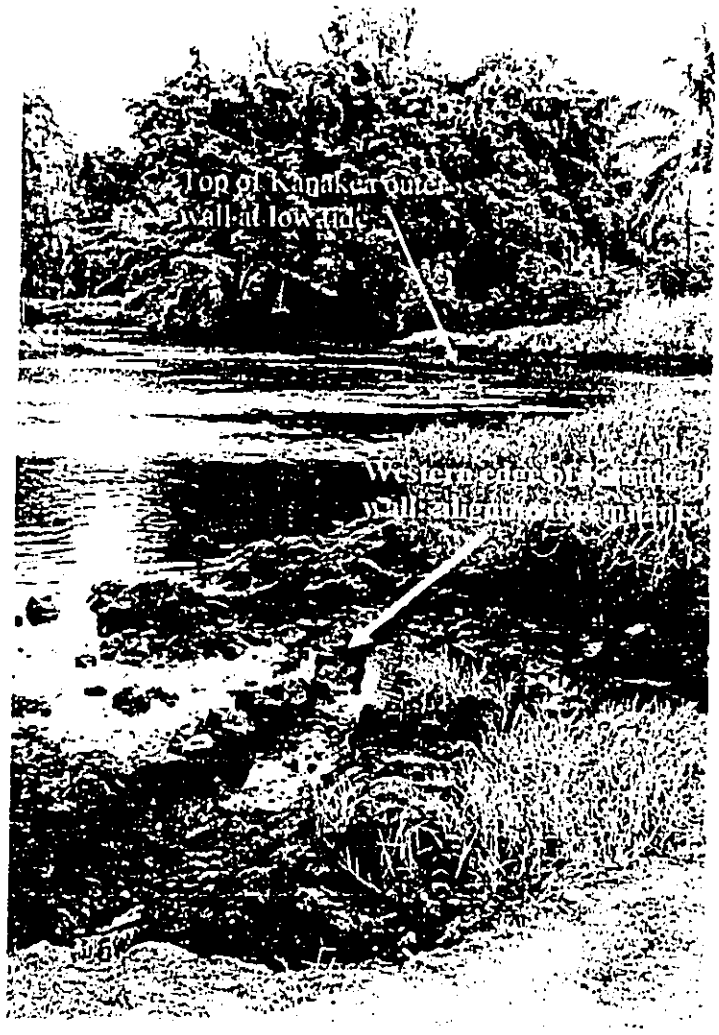


Figure 17. Kanakea outer wall remnant, view to Southeast.

Other Walls

There is another stone wall situated within the pond that creates a separate pond chamber to the east (see Figure 12). Segments of the wall are partially intact and visible below the water level to the south of the above water segment. The wall is 2 meters wide, and it rises to varying heights to be just below the water surface at low tide. That "height" varies from 30 centimeters to 85 centimeters of stacked wall construction. There are two gaps in the submarine wall. At least one of these, and perhaps both, indicate where a *makaha* once existed. *Makaha* construction is not apparent, however.

A third 'wall' is situated at the land/water interface near the old railroad (see Figure 12). This is not a freestanding wall; it is exposed to air on one side, but is backed by land on the other. It may continue further to the west, but that area is covered by banyan roots, and it is difficult to discern whether that land/water interface is natural or has stacked stone. This is a stacked wall, lacking mortar or cement

of any visible kind. It is approximately 60 centimeters high, but that is not clear due to the heavy silt and banyan roots in this area.

The Ice Pond Phenomenon

There is a large (approximately 60 meters or 200 feet in diameter), deep hole in the middle of the pond (see Figure 12). Local recreational waders refer to this as the 'bottomless crater'. Based on inspection from the water's surface above and around the rim of the 'crater', it appears that this is a sink hole, similar to so many others observable from the ground surface elsewhere on the island. This is also very likely the origin of the volume of cold fresh water in the pond.

This sinkhole is not considered an archaeological feature. It is clearly a natural feature created within the usual volcanic ways. There is an outside possibility that the submarine tube was explored, and even utilized in some fashion, however, during prehistory. This project will not have any direct or indirect effects on the sinkhole. There will be no dredging, excavation, or construction within the water. Should any potential impact to the sinkhole be planned or identified, it should be fully explored by professional scuba divers.

During my field inspection, I was surprised to discover how fresh the 'brackish' water is. It is notably more fresh than brackish ponds that I have experienced on the Kona side of the island. In addition, the water is very cold. My fingers became numb, and it was difficult to take notes. Although these observations lack scientific measurements easily obtainable with appropriate devices, it does suggest that this pond is an outlier with regard to the level of salinity and temperature. What that means with regard to utility and desirability for the prehistoric fishpond context is unclear. It certainly makes this an attractive place for modern recreation.

Studies into the salinity and temperature of the water in the western and eastern ponds may provide insights into the rationale for the prehistoric creation of the rare type of Ib_1 pond at Kanakea. Detailed exploration of the eastern interior of Kanakea pond may provide data on the extent and date of construction of interior lining walls.

Potential Legendary Connections

Given the quantity of known references to distinctly different *mo'o* in the Hilo/Waiākea region (Hi'ika fought the three *mo'o* Pana'ewa, Piliamo'o, and Nohoamo'o, and Maui fought the *mo'o* Lonokaeho), the correlations of *mo'o* with "large deep pools" of freshwater (Westervelt 1963:256-259), and the propensity for *mo'o* to reside in fishponds (Kikuchi 1973) with one nearby fishpond, Lokowaka, directly associated with *mo'o* (Pukui *et al.* 1974; Kikuchi 1973), it is not unreasonable to suggest that the cool, freshwater of Kanakea with its large, deep hole in the middle may have also been associated with a resident *mo'o* in the past. Physical remains of such a *mo'o* were not encountered in this research, and no written records were identified that mentioned *mo'o* together with this place. However, the lack of evidence of a *mo'o* at Kanakea is not necessarily evidence of a lack of *mo'o* in the pond.

The sinkhole in the middle of Kanakea pond could be the hole referred to in the story of Kaluakoko, the setting for the story of the local fisherman and his two wives. Although too big to actually be 'plugged up by a rock' as described in the story, it is an easily recognizable hole in the heart of Reed's Bay where the story takes place. The large size of the hole does harmonize with legendary events.

SITE 24918: SCOTT-LEGIONNAIRE-HOTEL

The entire northern portion of the project area (TMK 2-1-005:28) is a multi-component historical site. The site originates with the building of the Scott mansion. That was destroyed (but not entirely), and is followed by the building of the American Legion Clubhouse. That was destroyed (but not entirely), and is followed by the building of the Orchid Island Hotel. That was destroyed, and remnants of the three building episodes remain in the project area. A portion of TMK 2-1-005:1 is included in this suite of building-destruction episodes: the area that is associated with the short-lived Richardson development from 1899 to 1932.

There are physical remains of each of the building episodes (Table 4). Remains of the 1897 to 1932 building episode are on the northeast limits of the site and project area. This area represents the periphery of the building and destruction zones, and consequently things here were not demolished with each subsequent occupational episode.

Table 4. Site 24918 Features.

Year	Event	Documented buildings	Remains in the Project Area
1897	Scott mansion built	Mansion	Walkway, docking areas
1897	Richardson place built	None	None
1932	Buildings demolished	Diving board	None
1939	American Legion leased land	Banyan tree	Banyan tree and sign
1941	American Legion clubhouse	Clubhouse	Wall, steps, walkway, boat mooring footings
1961	Clubhouse demolished	None	None
1967	Orchid Island Hotel built	Hotel	Pavements at Banyan Drive and near ocean
1986	Hotel demolished	None	Leveled gravel area

Scott-Richardson Occupation

A cement landing is situated at a modified shoreline (Figure 18). The cement is notably different in material content and form than other cement nearby, suggesting that this cement was created at a different time. Although not determined through absolute dating techniques, it is suggested that this cement episode is associated with the earliest construction, because it is directly associated with the boat landing feature. It is assumed that boat landing at this area would have been an important element of the Scott mansion's landscape. If this is the case, then the two rectangular spaces that have been cut out of the bedrock to form boat launches would also have been created during that occupational episode.

The mortared stone wall that directly coincides with the shoreline was probably built late in the Scott occupation. There is coral fill inland of the wall, suggesting that the wall was built sometime around the time that the coral fill was placed along this area: in the 1920's.

American Legion Occupation

A series of disconnected cement paths extend further beyond the boat launch area from the presumed Scott occupation (see Figure 18). These appear to have been built later, and it is assumed that they date to the American Legion episode. They lead to the shoreline where there are several cement footings. There are rebar and red brick matrix in the cement. The red brick is similar to that used in the oven at the Kon Tiki restaurant, the establishment across Reeds' Bay that was built between the late 1940's and the early 1960's (Wolforth 2004:25). The American Legion clubhouse was built in 1941. If the red brick was a material used in the 1940-1960 era, then it appears to indicate that the brick in the

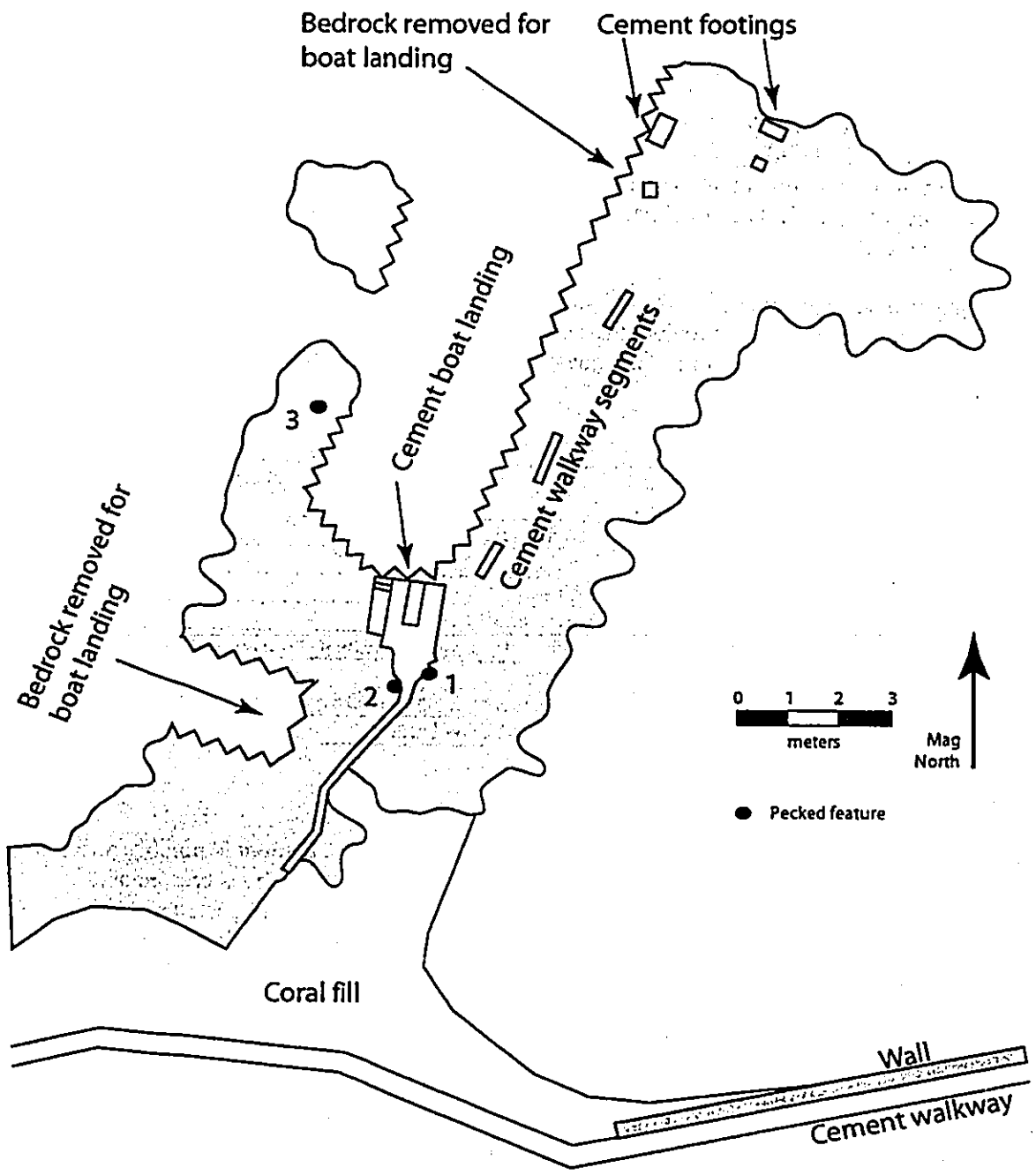


Figure 18. The Northeast portion of the project area.

footings in Site 24918 was placed there during the American Legion occupation. The footings probably represent an additional boot launch/mooring structure. The cement walkway was built to reach the new mooring area.

There is a cement walkway that parallels the wall, and it is made of cement identical to the outermost walkway to the newer moorings. This walkway is built on coral fill, indicating that it was built after the bay dredging/filling events in the mid 1920s.

Orchid Island Hotel Occupation

The Orchid Island Hotel occupation episode is less than 50 years old, and is not considered part of the historical resource. Remains of that episode include the paved driving area near Banyan Drive, and a pavement near the ocean. This pavement is higher than the older wall, and is built over that stone wall, providing clear evidence that the wall was built before the Orchid Island Hotel Occupation. Nearly the entire TMK 2-1-005:28 portion of the project area is now covered by leveled gravel representing the final clearing and covering of the land after the hotel burned down in 1986.

SITE 24919: PECKED BASINS

There are three basins that have been pecked into the bedrock near the ocean's edge in the northeast portion of the project area (see Figure 18). Two of them are partially covered by the cement walkway that is presumably associated with the Scott occupation of Site 24918 (Figure 19), and the other is near the water's edge (Figure 20). Additional pecked areas may have existed on lava that was subsequently removed to create the two boat docking areas.

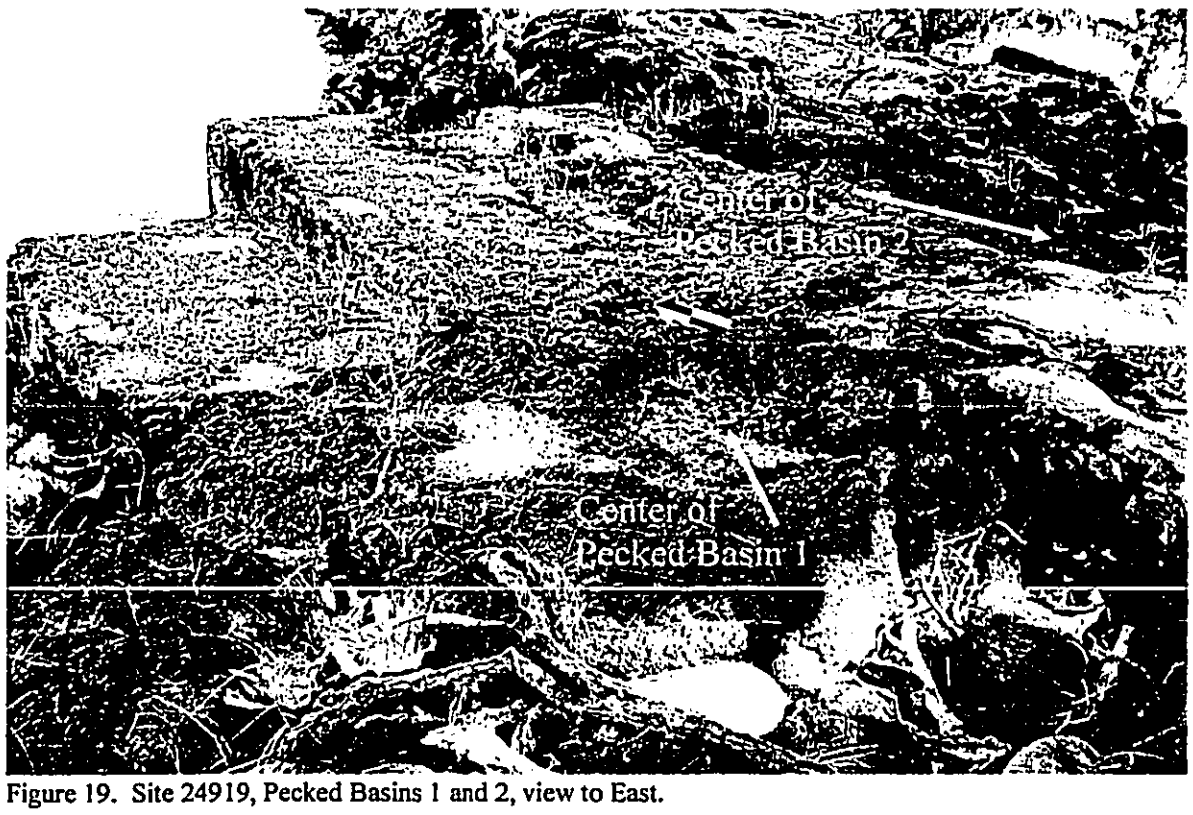


Figure 19. Site 24919, Pecked Basins 1 and 2, view to East.

These basins are similar in size and situation to salt basins found elsewhere on island shorelines. No salt was observed in these basins. It is conceivable that these were not salt collecting basins, because in contrast to the salt basins in Kona, these are not near a rugged, spray inducing shore. This is a calm bay shoreline, and salt-laden spray does not regularly waft over the basins here.

Alternatively, these could be salt basins. The long breakwater in Hilo Bay functions to prohibit waves from crashing on this shoreline. Prior to the construction of the breakwater, the natural wave forces here may have provided the spray necessary to fill pecked basins with saltwater necessary to create the desired salt production (via water evaporation) process.

Figure 20. Site 24919, Pecked Basin 3 (just to foreground of the North Arrow), view to North (Low tide).

The surfaces of the basins are not smooth, although they are a regular, shallow parabola shape (Table 5). This configuration indicates that they were not created as a byproduct of a grinding motion. Instead, the rough surfaces indicate that they were created by pounding or pecking. Something was crushed under pounding rock in these locales. Considering their location at the water's edge, it is possible that something was crushed in preparation for shoreline fishing, or something that was collected at the shoreline was processed here. For instance, shellfish may have been broken open under pounding stones here. Alternatively, or in addition to, it is possible that these areas were permanently land locked versions of the mobile "stone bait mortars" described by Hiroa (1957:353-355).

Table 5. Pecked basin morphology.

Pecked basin	Length (cm)	Width (cm)	Depth (cm)	Comment
1	< 50	37	3	Partially covered by cement walkway
2	63	>40	4	Partially covered by cement walkway
3	50	42	10	

A popular bait for catching small fish near the shore was called *palu*, a 'squid-ink bait'. It was created by pounding the roasted ink sac of *he'e*. Other ingredients were added, and each fisherman had their own special mix. Small stone or coconut shell mortars were used. Wooden pestles were used to mix the ingredients. These small portable implements were sufficient for a day's supply of bait. Although not identified as such by Hiroa (1957), the permanent and larger pecked areas at the ocean's edge could have served the same purpose. Repeated use over many years would account for their larger size. Alternatively, their larger size may indicate that larger quantities of bait were produced at these spots, perhaps for use by more than one fisherman at a time.

This site is represented by three pecked basins that are presumed to have been created as a direct result of pounding action associated with marine resource collection and processing activities. This activity was conducted during pre-Contact times, probably over a period of centuries, and may have continued at these locations into the historical era.

SIGNIFICANCE ASSESSMENTS

Sites identified during this project were assessed for their significance as outlined in the National Historic Preservation Act (Table 6). To be assessed as significant a site must be characterized by one or more of the following five criteria:

(A) It must be associated with events that have made a significant contribution to the broad patterns of our history, or be considered a traditional cultural property.
(B) It must be associated with the lives of persons significant in the past.
(C) It must embody distinctive characteristics of a type, period, or method of construction, or represent a significant and distinguishable entity whose components may lack individual distinction.
(D) It must have yielded or may be likely to yield, information important in prehistory or history.

Table 6. Site significance and recommendations.

Site	SIHP	Time of use	Significance Criterion	Recommended treatment
Railroad right-of-way and trestle ruins	7413	1916 to 1946	D	No further work on land portion: preserve trestle ruins within water portion
Kanakea Pond	18896	Prehistoric	D	Preservation of wall ruins
Scott-Legionnaire-Hotel	24918	1897 to 1967	D	No further work
Pecked Basins	24919	Prehistoric and possibly Historical	D	No further work

Traditional Cultural Properties are a type of site that may be included under Criterion A. Traditional Cultural Property means any historic property associated with the traditional practices and beliefs of an ethnic community or members of that community for more than fifty years. These traditions shall be founded in an ethnic community's history and contribute to maintaining the ethnic community's cultural identity. Traditional associations are those demonstrating a continuity of practice or belief until present or those documented in historical source materials, or both. The origin of the TCP concept is found in National Register Bulletin 38 published by the U.S. Department of Interior-National Park Service. "Traditional" as it is used, implies a time depth of at least 50 years, and a generalized mode of transmission of information from one generation to the next, either orally or by act. "Cultural" refers to the beliefs, practices, lifeways, and social institutions of a given community. The use of the term "Property" defines this category of resource as an identifiable place. Traditional Cultural Properties are not intangible, i.e., they must have some kind of boundary. TCPs are subject to the same kind of evaluation as any other historic resource, with one very important exception. By definition, the significance of Traditional Cultural Properties should be determined by the community that values them.

The railway line and the accompanying structural elements are expressed in many locations over the island (Site 7413). There is no physical evidence of the railroad on land within the project area, although the site right-of-way does intersect the southernmost portion of the project area. SHPD has commented on significance and treatment for this site as they pertain to the nearby Kūhiō-Kalaniana'ole park project (SHPD letter dated January 4, 2005, Log No. 2005:0010). SHPD concurs that the site is

significant for Criterion D only. SHPD has also expressed their desire to have the trestle ruins that are present within the water channel preserved.

The fishpond (Site 18896) is considered significant for its data content (Criterion D), and that was concurred by SHPD in their review of the site for the nearby Kūhiō-Kalaniana'ole park project (SHPD letter dated January 4, 2005, Log No. 2005:0010). Its size, location on the land, freshwater content, and wall structures provide information on fishpond technology and patterns of use. The pond is currently partially silted in, and the fishpond walls are in disrepair, precluding significance under Criterion C. The fishpond area is currently used for recreation. Although people fish off the shoreline, this area is not used in the traditional sense of the fishpond aquaculture. Consequently, the fishpond is not significant for Criterion A as a TCP. The speculation that a legendary *mo'o* may have been associated with the freshwater, deep cave, fishpond here (all criteria associated with *mo'o* residences) is just that, speculation, and is not sufficient to identify this as a TCP. Likewise, the location of place associated with the legend of Kaluakoko is not known.

The multiple historical occupational episodes at Site 24918 are considered significant for their data content (Criterion D). Although some physical remnants of each occupational episode are present, each is an isolated feature lacking continuity with other elements. Each of the existing features provides information on one small aspect of much larger, and complex activities and built landscapes that existed there. In addition, the vast majority of the site area has been burned and bulldozed (the latter on multiple occasions). Consequently, the site is not significant for any other criteria.

The three pecked basins (Site 24919) are considered significant for their data content (Criterion D). Their size, shape, and location provide information about their function.

TREATMENTS AND FUTURE ACTION

The recommendations have been devised based upon the significance of the site, and the proposed park plans in mind. Current and future use of Reed's Bay Beach Park will include fishing, lounging, walking, picnicking and swimming. The nearby Ice Pond sustains a greater density of use from family outings focusing on wading and swimming in the pond. When school is not in session, the southern portion of the project area has high density usage. The County of Hawai'i is considering linking this park with the nearby Kūhiō-Kalaniana'ole park via a pedestrian pathway that spans the waterway at the outer wall of the Kanakea Fishpond and the railroad trestle ruins.

There is no data recovery recommended for the resources in the Reed's Bay Beach Park project area. No further work and no preservation is recommended for the Scott-Legionnaire-Hotel site (24918), and the pecked basins (24919). No further work is recommended for the land portion of the Railroad line (7413), but the trestles within the water are recommended for preservation.

Preservation

A Preservation Plan is needed for the nearby, and conceptually linked, Kūhiō-Kalaniana'ole park (as indicated in SHPD letter dated January 4, 2005, Log No. 2005:0010). It is recommended that one Preservation Plan be created that includes measures for the both the Kūhiō-Kalaniana'ole and Reed's Bay Beach Parks.

Preservation of the trestles in the water may include incorporation into a new pedestrian walkway to link the two park segments that are on either side of the Kanakea Fishpond. Should the County pursue this option, the Preservation Plan will provide details of walkway construction, and how that will

articulate with the trestle. It will also include information on how the nearby outer wall of Kanakea Fishpond will be preserved in perpetuity and during construction activities.

Kanakea Fishpond links the two parks. If interpretive signs are planned for the pond, the text and materials and locations for those will be provided in the Preservation Plan.

Preservation is usually conceived of as creating a protective barrier between the site and outside impacts. That physical protection is important, but it applies only to those people and activities that are physically proximal to the site. Another kind of preservation can be affective: awareness, especially for people that can effect alteration to the resource. In this instance, presence of the Kanakea Pond should be made known to other regulatory agencies that have jurisdiction over that feature on the land and seascape. This is particularly important, because actions may be taken in good faith by those agencies, or their designates, without realizing that they are dealing with the archaeological remains of a fishpond. At a minimum, copies of the final draft of this report should be distributed to local, state, and federal agencies that may articulate with the fate of the fishpond. In addition, it is recommended that the County of Hawai'i consider creating a Powerpoint presentation to present to relevant agencies. This kind of personal presentation is likely to ensure that the message is transmitted, and in a way that is conducive to continued understanding and support between governmental and non-governmental concerns.

It is also recommended that the County of Hawai'i implement increase awareness of the resource to the community. This can be achieved with press releases to the local paper, and by sponsoring a Powerpoint presentation on the subject at currently existing communication forum such as the Keaukaha Community Association monthly meeting, After Dark in the Park monthly lecture series at the Hawai'i Volcanoes National Park, meetings of civic organizations such as the Rotary Club, and any other educational or community group that is interested.

REFERENCES CITED

Akoi, Rhea
1989 *Ku'u Home I Keaukaha: An Oral History.* Hui Ho'omau O Keaukaha Panaewa, Hilo.

Atoni & Associates, Inc. (Atoni)
1977 *Preliminary Planning for Small Craft Facilities in East Hawaii.* For U.S. Army Corps of Engineers, Honolulu.

Backwith, M.
1970 *Hawaiian Mythology.* University of Hawai'i Press, Honolulu.

Bonk, W.
1979 *An Archaeological Survey of a Portion of Hawaiian Home Lands of Panaewa, Tract 1, Waiākea, So. Hilo, Hawai'i.* University of Hawai'i, Hilo.

Borthwick, D., J. Collins, W.H. Folk, and H.H. Hammatt
1993 *Archaeological Inventory Survey and Testing of Lands Proposed for Research and Technology Lots at the University of Hawaii at Hilo.* Prepared for the University of Hawai'i, Hilo.

Bush, A.R., M. McDermott, and H.H. Hammatt
2000 *Archaeological Inventory Survey of an Approximately 20 Acre Parcel Porposed for the USDA Pacific Basin Agricultural Research Center.* Prepared for SSFM International. CSH, Kanoehe.

Carson, M.T.
1999 *Archaeological Inventory Survey of the 176-Acre Panaewa Campus Site, Waiākea Ahupua'a, Hilo District, Island of Hawai'i.* Prepared for PBR. SCS Report 168-1 for PBR, Honolulu.

Ching, F.K.W. and C. Staruder
1974 *The Archaeology of South Hilo, Hawai'i.* For Muroda and Associates, Inc., Lawai.

Dega, M.
2000 Addendum to: Archaeological Inventory Survey of the of the Pu'ainako Street Realignment/Extension Project, Expanded Corridor. SCS, Honolulu.

Deveroux, T.K., D.F. Borthwick, and H.H. Hammatt
1997 *Archaeological Reconnaissance Survey of Keaukaha Military Reservation, South Hilo District, Hawai'i Island.* For Earth Tech, Honolulu.

Eblé, F.J., T. Donham, and J. Panteleo
1997 *DRAFT Supplemental Archaeological Testing Conducted Along the Proposed Alternate Alignments of Pu'ainako Street.*

Elbert, S.H, editor
1959 *Selections from Fornander's Hawaiian Antiquities and Folk-lore.* University of Hawaii Press, Honolulu.

Escott, G.
2003 *An Archaeological Inventory Survey on Approximately 288 Acres of Land for the University of Hawai'i-Hilo Mauka Lands Development.* Prepared for PBR Hawai'i. SCS Report 361-4, Honolulu.

Escott, G., and W. Tolleson
2002 Archaeological Inventory Survey Work At Keaukaha Military Reservation, South Hilo District, Island of Hawai'i. Prepared for The Environmental Office Hawai'i Army National Guard. SCS Report 316, Honolulu.

George, M. C.
1948 *The Development of Hilo, Hawaii, TH.* The Edwards Letter Shop, Ann Arbor.

Handy, E.S.C., E.G. Handy, and M.K. Pukui
1991 *Native Planters in Old Hawai'i, Revised Edition.* Bishop Museum Press, Honolulu.

Henry, Teuira and Others
1995 *Voyaging Chiefs of Havai'i.* Kalamukū Press, Honolulu.

Hiroa, T. R. (Sir Peter H. Buck)
1957 *Arts and Crafts of Hawaii.* Bernice P. Bishop Museum Special Publication 45. Bishop Museum Press, Honolulu.

Hunt, T.L. and M.J. McDermott
1993 *Archaeological Inventory Survey Puainako Street Expansion Project.* University of Hawai'i for Okahara and Associates, Inc., Hilo.

I'i, J.P.
1959 *Fragments of Hawaiian History.* Bishop Museum Press, Honolulu.

Kam, W.
1983 *Unrecorded Heiau on State Lands, Waiākea, South Hilo, Hawai'i.* Historic Sites Section, Department of Land and Natural Resources, Honolulu.

Kamakau, S. M.
1961 *Ruling Chiefs of Hawaii (Revised Edition).* The Kamehameha Schools Press, Honolulu.

1976 *The Works of the People of Old.* B.P. Bishop Museum Special Publication No. 61. B.P. Bishop Museum, Honolulu.

Kelly, M., B. Nakamura, and D.B. Barrère
1981 *Hilo Bay: A Chronology History.* Bernice P. Bishop Museum Department of Anthropology. For U.S. Army Corps of Engineers, Honolulu District.

Kirch, P.V.
1985 *Feathered Gods and Fishhooks.* University of Hawai'i Press, Honolulu.

M&E Pacific, Inc.
1980 *Hilo Area Comprehensive Study.* For U.S. Army Corps of Engineers, Honolulu District.

Maly, K.
1996 *Historical Documentary Research and Oral History Interviews: Waiākea Cane Lots (12, 13, 17, 18, 19, 10, and 20-A).* Kumu Pono Associates, Hilo.

McDermott, M., and H.H. Hammatt
2001 *Addendum to Archaeological Inventory Survey of an Approximately 20-Acre Parcel Proposed for the USDA Pacific Basin Agricultural Center.* Prepared for SSFM International, Inc. Cultural Resources Surveys, Kaneohe.

McEldowney, H.
1979 *Archaeological and Historical Literature Search and Research Design. Prepared for U.S. Army Corps of Engineers, Pacific Division.* Department of Anthropology, Bishop Museum, Honolulu.

McGerty, L. and R.L. Spear
1999 *An Inventory Survey of an Additional Unsurveyed Portion of TMK:2-4-57:1, Land of Waiākea, South Hilo District, Island of Hawai'i.* Prepared for R.M. Towill. SCS Report 161-2, Honolulu.

Murabayashi, D.H., J. Murabayashi, E. Parker, L. Taguchi, P. Cleghorn, D. Davidson, G. Miller, J.J. Pantaleo, M.R. Riford, A. Sinoto, W.W.L. Yuen, and C.D. Charlton
1990 *Hawaiian Fishpond Study.* Prepared for Department of Land and Natural Resources. DHM, Inc., Moon, O'Connor, Tam, and Yuen, and Bishop Museum, Honolulu.

Pietrusewsky, M.
1989 Human Remains Found at Wailoa Bridge Renovation Project, Waiākea, South Hilo. Department of Anthropology, University of Hawai'i, Manoa.

Pukui, M.K, S.H. Elbert, and E.T. Mookini
1974 *Place Names of Hawai'i.* University of Hawai'i Press, Honolulu.

Pukui, M.K. with L.C.S. Green
1995 *Folktales of Hawai'i.* Bishop Museum Press, Honolulu.

Reed, F.
1987 *Hilo Legends.* Petroglyph Press, Hilo.

Rechtman Consulting
n.d. *Archaeological and Limited Cultural Impact Assessment for the Proposed Regional Solid Waste Sorting Station.* For County of Hawai'i, Hilo.

Rechtman, R.
2001 *Archaeological Inventory Survey and Limited Cultural Assessment for the Proposed Wastewater Treatment Facility at Kulani Correctional Facility.* Prepared for Geometrician. Rechtman Consulting Report RC-0078, Kea'au.

Robbins, J.J. and R.L. Spear
1996 An Inventory Survey of the Puainako Street Realignment/Extension Project Expanded Corridor. Prepared for Okahara and Associates. SCS Report 159, Honolulu.

Rogers, R.
1999 Shipwrecks of Hawai'i. Pilialoha Publishing, Haleiwa.

Rosendahl, M.L.K.
1988 Archaeological Reconnaissance Survey for Environmental Impact Statement (EIS), Hilo Wastewater Treatment Facility Site, Waiākea, Hilo, Hawai'i. PHRI Report 415-050588 for M&E Pacific, Hilo.

Rosendahl, M.L.K. and L. Talea
1988 Archaeological Reconnaissance Survey for Environmental Impact Statement (EIS) Proposed Irradiation Plant Site. PRHI Report 352-040888 for Westec Services, San Diego.

Rosendahl, P. H.
2002 Archaeological Assessment Survey at 14.99 Acre "Proposed Quarry Site". PHRI Report 2293.1-120302 for Jas. W. Glover, Ltd, Hilo.

1988 Archaeological Reconnaissance Survey for Environmental Impact Statement (EIS), Hilo Judiciary Complex Sites. PRHI Report 356-020588 for Wilson Okamoto and Associates, Inc., Honolulu.

Smith, M., and P. Tourtellotte
1988 Wailoa Bridge Renovation Project, Site No. 50-10-11,115 Burial Removal. Historic Sites Section, Department of Land and Natural Resources, Honolulu.

Summers, C. C.
1964 *Hawaiian Fishponds*. Bernice P. Bishop Museum Special Publicatin 52. Bishop Museum Press, Honolulu.

Stokes, J.F.G.
1991 The Heiau of the Island of Hawai'i. Bishop Museum Press, Honolulu.

Titcomb, M.
1952 Native Use of Fish in Hawaii. University of Hawai'i Press, Honolulu.

USCOE
1983a Hilo Area Comprehensive Study: A Draft Survey Report and Environmental Impact Statement. Volume I: Summary Report. U.S. Army Corps of Engineers, Honolulu District.

1983b Reed's Bay Harbor, Hawaii: A Reevaluation Report and Draft Environmental Impact Statement for Small-Craft Navigation Improvements. U.S. Army Corps of Engineers, Pacific Ocean Division.

Warshauer, K.
2005 Orchid Isle Hotel Once Stood on Banyan Drive Lot. *Hawai'i Tribune-Herald*, July 25, 2005, Hilo.

2004 Famed Trees of Banyan Drive Still Mislabeled. *Hawai'i Tribune-Herald*, April 11, 2004, Hilo.

2003a Early Development of Reed's Bay Shores. *Hawai'i Tribune-Herald*, August 3, 2003, Hilo.

2003b Some Banyan Drive Signs Need Correction. *Hawai'i Tribune-Herald*, April 27, 2003, Hilo.

Westervelt, W.D.
1963 *Hawaiian Legends of Ghosts and Ghost-Gods*. Charles E. Tuttle Company, Rutland, Vermont.

1999 *Hawaiian Legends of Volcanoes*. Mutual Publishing, Honolulu.

Wolfe, E.W., and J. Morris
1996 Geologic Map of the Island of Hawai'i. U.S.G.S. Miscellaneous Investigations Series. Department of the Interior, Washington, D.C.

Wolforth. T.R.
2004 *Inventory Survey for the Proposed Kūhiō-Kalaniana'ole Park, Hilo: Investigations into the Kanakea Fishpond at Reed's Bay*. SCS Report B1. Prepared for Rotary Club of East Hawaii District 5000. Scientific Consultant Services, Inc., Honolulu.

Wolforth. T.R., W. Wulzen and S.T. Goodfellow
1997 Archaeological Data Recovery at West Loch Estates Residential Increment I, and Golf Course and Shoreline Park. Prepared for City and County of Honolulu. PHRI Report 440-111197, Hilo.

Zambucka, K.
1992 *The High Chiefess Ruth Keelikolani.* Green Glass Productions, Honolulu.

ACKNOWLEDGEMENTS

Kepā Maly provided insights into Kaluakoko. Eric Komori went beyond the call of duty with data on fishponds and other archaeological sites in Hilo, Waiākea, and Pane'ewa area. Special thanks to Jill Sommer, Curator at the Pacific Tsunami Museum in Hilo for providing the photograph of the post-1946 tsunami impacts to the railway used in this report. Ashlee Mahi-Miyasaki assisted with communications with the Keaukaha Community Association. Lily Pa provided an opportunity to present this information with the Hawaiian Civic Club of Hilo. Many thanks to all of these groups and individuals for helping to make this a successful and enjoyable investigation

APPENDIX A: CONSULTATION WITH HAWAI'I SHPO

SCIENTIFIC CONSULTANT SERVICES, Inc.

1564 Lellehua Street Hilo, Hawai'i 96720

April 4, 2006

Melanie A. Chinen
Adminstrator
State Historic Preservation Division
Department of Land and Natural Resources
Kakuihewa Building, Room 555
601 Kamokila Blvd
Kapolei, Hawai'i 96707

Initiating Consultation for Section 106 Undertaking at Reed's Bay Park

Dear Ms. Chinen:

The County of Hawai'i Parks and Recreation Division is in the process of designing alterations to the Reed's Bay Park at the Waiakea Peninsula in Hilo (TMK 3-2-1-005:1 and 28). The Department of Housing and Urban Develop will supply some funding for the project. Consequently, this project is an undertaking pursuant to Section 106 of the National Historic Preservation Act 36 CFR Part 800.16(y).

Planned development includes creation of parking areas, bathroom facilities, landscaping, lawn recreation, kiosk, and walkways.

As part of the initial consultation process, this transmittal seeks input from Hawai'i SHPO on three items outlined in 36 CFR 800.4.

1. Area of Potential Effect (APE). The project area (attached) is along the shoreline of the eastern portion of the Waiakea peninsula, Hilo, Hawai'i. Considering that any new structures for the project will be low to the ground (walkways, benches, kiosk, bathroom), the APE will not be wide-ranging. Consequently, the APE for this project corresponds to the project area.
2. Please provide any information on historical resources that are on, or are eligible for listing on, the National Register of Historic Places.
3. Please identify any agencies or individuals that should be consulted in this process.

Thank you for your input on this project.

Sincerely,

Thomas R. Wolforth
Hawai'i Island Operations Manager

Encl. Project area maps

Cc: Dr. R. Terry, w/ encl.

Cultural Impact Assessment for the Proposed Reed's Bay Park

This Cultural Impact Assessment (CIA) has been prepared in accordance with both federal and State of Hawai'i guidelines and regulations. Part of the assessment centers on the concept of identifying Traditional Cultural Properties (TCP) and, if present, determining whether they would be impacted by the project. Traditional Cultural Property means any historic property associated with the traditional practices and beliefs of an ethnic community or members of that community for more than fifty years. These traditions shall be founded in an ethnic community's history and contribute to maintaining the ethnic community's cultural identity. Traditional associations are those demonstrating a continuity of practice or belief until present or those documented in historical source materials, or both. The origin of the TCP concept is found in National Register Bulletin 38 published by the U.S. Department of Interior-National Park Service. "Traditional" as it is used, implies a time depth of at least 50 years, and a generalized mode of transmission of information from one generation to the next, either orally or by act. "Cultural" refers to the beliefs, practices, lifeways, and social institutions of a given community. The use of the term "Property" defines this category of resource as an identifiable place. Traditional Cultural Properties are not intangible, i.e., they must have some kind of boundary. TCPs are subject to the same kind of evaluation as any other historic resource, with one very important exception. By definition, the significance of Traditional Cultural Properties should be determined by the community that values them.

Furthermore, this CIA includes consideration of the broader concept of cultural practices and beliefs provided in the Nov. 19, 1997 *Guidelines for Assessing Cultural Impacts* from the Hawai'i State Office of Environmental Quality Control (OEQC), which also outlines data sources and methods for consulting individuals and/or organizations with knowledge of the area's cultural resources, practices, and beliefs, or of its historical and natural resources.

According to the OEQC guidelines, cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man-made and natural, that support such cultural beliefs.

In assessing the cultural resources of the project area, cultural specialists reviewed traditional literature and Land Commission Award and Boundary Commission data. Archaeological information from previous and project-related surveys was also used. This section concentrates on the culture and history of the region up to about the late 1940s, which provided the foundation for cultural properties, resources and practices of the current era.

Before discussing the cultural context, it is important to review the basic physical environment, as traditional Hawaiian culture is closely linked to its environment. The ancient Hawaiians saw (as do many Hawaiians today) all things within their environment as being interrelated. That which was in the uplands shared a relationship with that which was in the lowlands, coastal region and even the sea. This relationship and identity with place worked in reverse as well. The ahupua'a as a land unit was the thread that bound all things together in Hawaiian life (Handy *et al.* 1991)

Entire *ahupua'a,* or portions of the land were generally under the jurisdiction of appointed *konohiki* or lesser chief-landlords, who answered to an *ali'i-'ai-ahupua'a* (chief who

controlled the ahupua'a resources). The *ali'i-'ai-ahupua'a* in turn answered to an *ali'i 'ai moku* (chief who claimed the abundance of the entire district). Thus, *ahupua'a* resources supported not only the *maka'äinana* who lived on the land, but also contributed to the support of the *ali'i* of regional and/or island kingdoms. As long as sufficient tribute was offered and *kapu* (restrictions) were observed, the *maka'äinana* who lived in a given *ahupua'a* had access to most of the resources from mountain slopes to the ocean. This right to gather resources was generally tied to residency within an *ahupua'a*, and also was tied to the obligation to pay tribute to the *ali'i* (Malo 1951:63-67; Kamakau 1992:372-377; and Boundary Commission testimonies cited in Maly 2000).

Legends and Traditional Developments

Hawaiian legends provide insights into the social structure, daily lives, relationship between the realms of people and nature, and remarkable events of the past (Beckwith 1970). In the project area, the importance of the coastal area, with its life-giving waters and many resources, is evident. There are many Hawaiian legends associated with Hilo and its environs. They relate to the gods, the people, and in some instances the relationship between the two. The content of some of the legends reflect the antiquity of occupation in the Hilo area, and the importance of the place as a seat of power. A selection of legends and historical events illustrating this point are presented below.

The Taming of the Wild

The uplands of Hilo were noted for their wild natural and cultural powers. *Mo'o*[1] lived there, and harassed the occupants of the lower elevations. The gods and goddesses of Hawai'i tamed these natural powers of drought, fire, wind, and the *mo'o*, and brought order and safety to the people of Hilo.

Pana'ewa was portrayed as a forested, uninhabited place in Hawai'i legend, as depicted in the trials and tribulations of Hi'iaka as she begins her trek from Kilauea westward: "Pana'ewa is a great *lehua* island; a forest of *ohias* inland" (Westervelt 1999:100). A *mo'o* named Pana'ewa ruled the wild forested uplands until Hi'iaka was successful in removing him from the land (Westervelt 1999). She also bested the two mischievous *mo'o*, named Piliamo'o and Nohoamo'o, that controlled passage at the mouth of the Wailuku River (Westervelt 1999).

Hina lived in a cave on the Wailuku River (Beckwith 1970; Thompson 1988). Her daughters were entrusted to care for the people living in the several *ahupua'a* of the Hilo area. One daughter brings food and creates a permanent freshwater spring for the inhabitants during a killing drought (Pukui and Green 1995; Westervelt 1987). One of the places that Maui is said to have been born and lived, is also the Wailuku River (Thompson 1988). Maui fought a *mo'o* there (variously named Kuna [Reed 1987; Thompson 1966] or Lonokaeho [Beckwith 1970; Westervelt

---

[1] The legendary beasts, goddesses, and gods known as *mo'o* have been described in a variety of ways. The following version covers some of that diversity. "Next in importance to the shark aumakua and possibly of older arrival in Hawai'i are the mo'o, reptile forms of the lizard kind but of monstrous size, believed to inhabit inland fishponds. Says Kamakau: The mo'o that guarded these ponds were not common gecko or skink; no, indeed.... They had a terrifying body such as was often seen in old days; not commonly, but they were often visible when fires were lighted on altars close to their homes... " (Beckwith 1970:125).

1987]), retreats upstream, flew his kite there, and learned the trick to making fire in the Hilo area (Beckwith 1970; Westervelt 1987).

A Royal Center from Antiquity to the Last of the Royalty

Hilo is likely one of the first two main settlement areas on the island (Kirch 1985), due to its calm and sizable bay, permanent supply of fresh water from the Wailuku River, and fertile and arable soils near the bay. Indeed, one of the early Polynesian travelers to Hawai'i was named Hiro, or Hilo (Beckwith 1970; Henry 1995), and the attachment of his namesakes to this place supplies some circumstantial evidence to the early occupation here.

The coming of Pa'ao to Hawai'i is commemorated in a legend associated with Hilo. Pa'ao is said to have made his first home in Hawai'i on a rock at the mouth of the Wailuku River (Reed 1987; Westervelt 1977). The subsequent history retained through tellings over the centuries is anchored on the events, often romantic and violent, of the struggle for power. Pa'ao affected the overthrown of the ancient lineages of power and supplanted them with the new Pili line by intrigues and warfare in Hilo (Westervelt 1977).

There is another story associated with Hilo that relates directly to the struggle between the old lineages of authority (Nanaula) versus the new ones represented by Pa'ao and Pili. Kaupe'epe'e, from the older Nanaula line, resisted the authority of the newcomers (Kalakaua 1990:84). He traveled to Hilo and captured a chiefess from her home in Hilo Bay, and returned to Molokai. A series of phenomenal battles transpired at his Molokai fortress, leading eventually to the return of the chiefess to her home (Beckwith 1970:464-466; Fornander 1996: 32; Pukui *et al.* 1974:42). This set of legendary events emphasizes the place of power that Hilo had during this pivotal time in Hawaiian history.

The chronology of developments in Hilo is portrayed in the oral traditions that were written down in the 19th century regarding struggles for power. Chiefs from Hilo and Puna banded together to raid O'ahu. They were slaughtered in Kipapa Gulch in 'Ewa, where "the head of Hilo was cut off and carried in triumph to Honouliuli, and stuck up at a place still called Poo-Hilo" (Fornander 1996:90). That did not deter Kulukulu, a subsequent Hilo chief, from successfully attacking O'ahu forces to retrieve a loved one (Elbert 1959:288-290). Not long after that, 'Umi spent time in Hilo soon after becoming ruler of the island, and before he was widely recognized as such. A lack of understanding with the Hilo chief Kulukulu was the purported reason for his attacking Hilo, but his subsequent actions, that of traveling around the island with his forces, indicates that 'Umi merely started his campaign of asserting his military authority over the entire island at the important seat of power of Hilo (Kamakau 1992:17).

The chiefs of Hilo fought those from Kona for "several centuries" (Kamakau 1992:62). "It is said that the cause which started the war between the chiefs of Hilo and Kona was the cruel treatment of Kua'ana, chief of Hilo, by the chiefs of Kona. He was the son of 'I..." (Kamakau 1992:62). Sometimes the victory went to the chiefs of Kona, but more often to the chiefs of Hilo. Locations of these battles are not disclosed in the written histories.

Hilo was one of the royal centers frequented by the island *mo'i* Alapainui. Kalaniopuu attempted, and failed, to abduct the young Kamehameha from his Hilo residence while Alapainui was at Piopio near Hilo in 1752. This precipitated an attack on the warriors of Kalaniopu'u at Kalepolepo "by Alapai's men, who had followed Kalaniopu'u from Hilo. First the warriors from the lowland gained, then those from the upland, until night fell and the battle was postponed until

the next day" (I'i:3). Later, Kalaniopu'u had a house in Piopio, and that is where he died (Fornander 1996:142, 201).

Hilo played a prominent role in the long campaign of conquest of the islands by Kamehameha. The first major battle campaign after the ascendance of Kamehameha at Moku'ōhai took place at Hilo, and is referred to as the Battle of the Bitter Rains. Kamehameha went by land from Kona to Hilo, and descended upon Keawemauhili at Pū'āinakō for three days of battle. Forces from Maui in support of Keawemauhili joined in the battle, and armies fought over the uplands and shoreline of Hilo for three more days. "Kamehameha's forces were badly used in these battles. Ka-lani-malokulolu-i-ke-po'o-ka-lani was almost killed at Hala'i. The army was saved only by getting to the sea and going aboard Ke'e-au-moku's fleet" (Kamakau 1992:125).

Years later, Keawemauhili became an ally of Kamehameha. While Kamehameha was battling for control over Maui, Kamehameha's Hawai'i island nemesis, Keouakuahuula, made a decisive move on Hilo.

> When *Keouakuahuula* heard of the assistance in men and canoes which *Keawemauhili* of Hilo had furnished to *Kamehameha* on his expedition to Maui, he was greatly irritated, and considered it as a breach of the agreement between them to jointly oppose *Kamehameha's* pretensions to sovereignty. To punish, therefore, his former ally, *Keoua* invaded Hilo. A battle was fought at Alae in Hilo-paliku, in which *Keawemauhili* was killed, and *Keoua* added the district of Hilo to his own possessions of Puna and Kau [Fornander 1996:240].

After another series of later battles in Hamakua between Kamehameha and Keoua, "Keoua retired to Hilo; Kamehameha went back to Waipi'o and Kohala" (Kamakau 1992:151-152). Keōua "stayed at Pi'opi'o for two days and on the third day he returned to Puna. From Puna he announced that he was the *mō'i* of all of Hawai'i Kuauli..." (Desha 00:271). It was immediately following this episode that a significant portion of Keōua's forces were destroyed by rock and ash spewing from the volcano Kilauea during their trek to Ka'u.

Kamehameha selected Hilo as his base of operations in preparation for launching an attack on the O'ahu and the western islands. Upon one trip to Hilo "(i)t is thought that there were as many as seven *mano* [twenty eight thousand] people who gathered at the shore at Kaipalaoa when the *ali'i* landed in their regal garments" (Desha 2000:369). Kamehameha developed a rapport with Vancouver. During on of Vancouver's visits to Hilo "he sent Lieutenant Puget ashore with a red British flag on a wooden staff to wave in the breezes of Hilo. By that flag, the island of Hawai'i was to escape being troubled by other governmental powers" (Desha 2000:379).

Even after Kamehameha was successful in subduing O'ahu at the battle of Nu'uanu, events in Hilo required his attention. A tabu chief from Maui named Namakeha' fomented rebellion in the eastern half of the island of Hawai'i while Kamehameha was in O'ahu.

> Kamehameha returned to Hawaii to make war on Na-makeha' and his followers. The battle took place at Hilo. Na-makeha' was defeated, fled, and hid in the bush until he was captured. He was made a mock of by his enemies, and in January, 1797, with the consent of Kamehameha, he was offered in sacrifice to the gods in the heiau of Kaipalaoa in Pi'ihonua, Hilo...This was the last of the battles fought by Kamehameha to unite the islands [Kamakau 1992:174].

Hilo continued to be place of power after the death of Kamehameha and after the breaking of the *kapu*. Kalakaua had a residence in Hilo, as did Governess Ruth Ke'eilikolani (Zambucka 1992). Ruth visited her Waiākea home (called Waiolama) near the mouth of the Wailoa River during her legendary stoppage of the 1880-1881 Mauna Kea lava flow that threatened Hilo. Through the sacrifice of red handkerchiefs and brandy, and the appropriate prayers and conversation with Pele conducted at the edge of the advancing flow, Ruth was able to convince Pele to stop the 8 month and 48 kilometer (30 miles) long flow (Zambucka 1991) just less than 2 kilometers from Hilo Bay.

Kamehameha III visited in 1829 and 1830 (Kelly *et al.* 1981). Governor Kuakini had a mill in Ponahawai. Several of the *ahupua'a* fronting Hilo Bay were personal lands of Kamehameha I (Kelly et al. 1981:40).

> Waiākea, which had been retained as a personal land by Kamehameha I ... was at some later time held by the chiefess Ka-unu-o-hua, a granddaughter of Keawe-mau-hili ... She surrendered it in the Māhele of 1848 and it became a Crown Land (Indices ... 1929:26) (Kelly *et al.* 1981:40).

There are no LCAs for the project area.

The Maka'āinana

Rulers and would-be rulers would come and go, but the *maka'āinana*, the common folk, lived on and farmed the land and fished for generations in the Hilo area. The settlement in Hilo Bay was concentrated in the eastern portion of the shoreline, with perhaps 2,000 people living in 400 houses there in 1823 (Ellis 1917:253 IN Kelly *et al.* 1981:19). Other habitations were distributed throughout the coastline well beyond the east and west limits of the bay. The map from Byron (1825) depicts the position of the shoreline further to the west than it is today.

It is conceivable that the shoreline was inaccurately drawn by those that created this map in the early 1800s. It can alternatively be argued, based on inspection of their rendition of the coastline elsewhere on this map, that the mappers generated a very accurate portrayal of the Waiākea shoreline, and that the shoreline was simply further west in the early 1800's than it is today. This proposition is supported by two lines of evidence. First, people that used to live on the Waiākea peninsula point out that there was much more water on the peninsula in the first quarter of the 20th century. For instance, Ms. Abbie Napeahi commented that "Where the golf course is now, that was all swamp land" (Akoi 1989:50). Second, this is the area that was filled with material dredged from Kuhio Bay (details to follow in section "Historical Developments"). Filling implies a space that needs to be filled, and that space is depicted in the Byron map.

The larger *heiau* were concentrated on the western portion of Hilo Bay (Stokes 1991). This may suggest a segregation between ceremonial and mundane precincts in the Hilo region, with the former being concentrated at the mouth of the Wailuku and the latter at the mouth of the Wailoa River. *Heiau* were also located along the Waiākea coast. These were smaller, or perhaps not as ceremonially prominent, and consequently went unreported to Stokes. One is on the east coast of Reed's Bay (Kam 1983), and this is the only *heiau* in the Hilo vicinity that still has observable architecture. Another *heiau* once existed at Leleiwi point to the east of the project area. This *heiau* was a "fish *heiau (heiau ho'oulu i'a)*, named Pū-hala (pandanas tree)" (Pukui et al. 1974:131).

There is a local variant of the popular legend regarding the growth of a plant from a person after their burial, particularly as it relates to sustaining a starving population (Beckwith 1970:98). A man named 'Ulu lived in Waiākea. He died of famine. Priests directed that his body be buried near a running stream, and an *'ulu* tree sprouted at that location the next day. The fruits of that tree saved the people from further starvation.

There is one tale involving Reed's Bay that has survived into print (Pukui and Green 1995:95-96). It was told by a policeman named Kaiama, a man that lived near the bay in the early 1900s. In ancient times a fisherman and his spouse lived near a hole at Reed's Bay. This man met a woman from Keaukaha, and this woman came to live with the man and his wife at Reed's Bay. Over time, the new, second wife became jealous of the first. Because the conduct of the family affects the outcome of a fisherman at sea, the husband forbade his wives from fishing until his return from the sea that day. But the Keaukaha wife urged the first wife to go net spawning fish as soon as the man left. The first wife resisted initially, but eventually consented to go catch shrimp in a net. While she was busy catching shrimp at the edge of a hole, the second wife pushed her in and covered her with a rock, exterminating the life of the first wife. Blood came from the body water and out into the sea foam, and reached the place where the man was fishing. He followed the trail of blood with his canoe to the hole, moved the stone, and found his first spouse. He confronted the second wife, listened to her lie, then beat her to death. Since that time the hole has been referred to as Kaluakoko, the Hole of Blood.

The specific location of Kaluakoko is not given in the written version of the legend. During consultation, described below, which included specific reference to Kaluakoko, no one identified a specific location for any of the events that are included in that legend.

Fishponds for the Ali'i and the Maka'āinana

Kikuchi (1973) recognized the variations and complexities of fishpond design, and devised a classificatory system that recognizes 7 variants of *loko kuapā*, 3 variants of *loko pu'uone*, 4 variants of *loko wai*, 1 *loko i'a kalo*, 12 variants of *loko 'ume'iki*, 2 variants of kaheka, and 2 variants of *kahē paniwai* (Kikuchi 1973:227-232). That report shows one fishpond associated with the southern perimeter of the Reed's Bay park project area. It is named Kanakea, and it corresponds with the Ice Pond.

Loko kuapā were controlled by the *ali'i*, and built by the local inhabitants (Summers 1964). Mullet (*'ama'ama*) and milkfish (*awa*) were the most common fish kept in this type of pond, in part, because their food (microbenthos) grew best in brackish water. Other fish raised and kept in ponds are *awa'aua, kaku, aholehole, 'o'opu, 'opae* and *puhi* (Summers 1964; Titcomb 1952). Pond caretakers could eat these as they wished, but "those kinds reserved for the chiefs they would eat secretly" (Kamakau IN Summers 1964:11). Ponds were built at least as early as the 1400s (Summers 1964:12). One pond on the West Loch of Pearl Harbor has been securely dated with radiocarbon assay to circa 1000 AD (Wolforth *et al.* 1997)

Royal fishponds were located in the western boundary of Waiākea (Kamakau 1992:152) with fish from these ponds were reserved for the *ali'i*. These ponds were said to be favorites of Hi'iaka and Pele. This was invoked as one possible explanation for the volcanic eruption that decimated Keoua's marching army across Kiluaea. Keoua had apparently not treated the Waiolama ponds with their due respect as he was passing through after a battle against chief Kamehameha (Desha 2000).

In 1823 Ellis observed small huts alongside the Waiākea ponds for the pond caretakers. In addition, it "was custom to build small watch houses from which to guard the fish from being stolen at high tide, of from being killed by pigs and dogs; when the tides receded the fish would return to the middle of the pond out of reach of thieves" (Kamakau 1976:48).

In addition to the royal ponds, there were *pu'uone* ponds that belonged to the commoners, and other non-royal inhabitants (Kamakau 1976:49).

> The *pu'uone* ponds near the sea (*loko kai pu'uone*) were much desired by farmers, and these ponds they stocked (*ho'oholo*) with fish. *Pu'uone* ponds were close to shore ponds, *loko kuapo*, or to the seashore, and next to the mouths (*nuku*) of streams. The farmer cleared away the *mokae* sedges, *'aka'akai* bulrushes, and the weeds, and deepened the pond, piling up the muck on the sides, until he had a clean pond. Then he stocked it with *awa* and fish fry, *pua i'a* - two or three gourds full - until the pond was full of fish [Kamakau 1976:49].

> There were at least two shore ponds within the bay area at Hilo, but no early information on them has been found. These ponds, Waihonu and Kanakea, were natural indentations of the shoreline and required little in the way of rock walls that characterize the typical shore ponds (Kamakau 1976:47-48: Summers 1964:2-12). Ponds such as these were called *loko i'a*,[2] and were used for storing excess fish rather than for fish culture (Summers 1964:I) [Kelly et al. 1981:15].

There are approximately 10 other fishponds to the east of Hilo along the Keaukaha shoreline (Kikuchi 1973: 34). One, the large pond named Lokowaka, is associated with the *mo'o* Waka (Kikuchi 1973:262). "Waka, a *mo'o*, dived into the pool to escape Pele who was jealous of Waka's interest in a man" (Pukui et al. 1974:134).

The exact configuration of the Kanakea pond is not known. The Kikuchi map does not show much detail, and the various maps of the place made during different times and for different reasons do not clarity the situation (see figures in Kelly *et al.* 1981). The TMK map provides the closest scale map of the pond, but transforms uncertain interior shapes (obscured by grasses) into lines and angles.

The historical events at Hilo have received significant attention and presentation elsewhere (Desha 2000; Kelly *et al.* 1981; George 1948). Those events and trends that do or may relate directly to the project area are synthesized below.

Sandalwood was being shipped out of Hilo Bay in the first 20 years of the 19th century (Kelly *et al.* 1981:25). In April of 1922, the first missionary, Auna, a Tahitian, preached Hilo. Many other missionaries soon followed. Whaling ships are documented as docking at Hilo by at least 1824. Whaling declined precipitously in the mid 1800s due to depredations by the U.S. Confederate fleet, increased use worldwide of kerosene, and increased cost of outfitting, among other things (George 1948:32). Whale hobbled on in the islands, and the wreck of the Tamerlane marks the end of commercial whaling in the area (Rogers 1999).

---

[2] Kamakau refers to the shore ponds as *loko kuapa*. He uses *loko i'a* as the generic term for all types of fishponds (Kamakau 1976:47-49).

Due to economic, cultural and natural forces, the focus of habitation had fully shifted from the Wailoa River side of Hilo Bay to the Wailuku River of the bay by 1885. "Hilo in 1885 was a small settlement with only a few hundred inhabitants. Waiākea had no frame buildings, just a few grass homes (after the tidal wave of 1877)" (Leithead 1974:59). The industrial and commercial concerns began to expand in the Wailoa River vicinity. Markets, landings, agriculture, and milling soon flourished in the Waiākea side of the bay (Kelly *et al.* 1981; Leithead 1974). Habitation then increased in the Waiākea area on the heels of the industrial developments in the late 1800s and early 1900s.

By 1901 sugar dominates the island's industry, and Hilo was the epicenter of production and export. Railroads connected sugar factors along the Hamakua, Puna, and Ka'u coasts to the mills and wharves at Hilo. An important spur of the railroad line connected the switch yard to the wharf. The first pier at Kuhio Wharf was built between 1912 and 1916 (Kelly *et al.* 1981:194). A second was added in 1923.

The railroad began operation in the Hilo area in 1899, and was abandoned in 1946 (Kelly *et al.* 1981). The first railroad to wharf connection was at the mouth of the Wailoa River. Railroad and sugar expansion coincided with one another, although not always productively (Kelly *et al.* 1981:154). The construction of Railroad Wharf on the west side of the Waiākea peninsula provided the access of oversea steamers to Hilo and the sugar and other industrialists, stimulating a growth in the local economy and making Hilo a central place for island merchants. This was improved with the construction of the Kuhio Wharves in 1916 and 1923.

The wharf was expanded again, and enlarged to accommodate bigger ships. A portion of Kuhio Bay was dredged, and the dredged material was placed in Waiākea peninsula and along Baker's Beach.

The history of Waiākea is linked to Keaukaha due to the Hawai'i Homes Commission Act of 1910. By 1926, many people that had once lived in Waiākea had begun to move and build residences in the newly opened lots in Keaukaha. This demographic shift continued through the 1930's when there were over 1,300 new residents along the Keaukaha shoreline and inland areas (Akoi 1989:44).

Banyan Drive was built in the early 1930's, and soon thereafter banyan trees were planted in regular intervals on both sides of the drive (Warshauer 2003, 2004). The first banyan tree was planted in 1933 (Warshauer 2003) The last tree was planted in 1972 by Mrs. Richard Nixon to replace one that was planted previously in 1952, but that had been destroyed by "seismic sea wave" in 1952 (Warshauer 2004:D3). Some trees that have been destroyed have not been replanted.

With the growing population, and an increase in recreational and industrial uses of the shoreline, the U.S. Army Corps of Engineers identified a shortage of berths, launching ramps, haul out and work space, and a need for harbors of refuge in eastern Hawai'i (M&E Pacific 1980). The Reed's Bay project was authorized in 1965, but was "not constructed because the harbor configuration would adversely affect existing recreation areas, Reed's Bay Beach and Ice Pond" (USCOE 1983a:4). Alternative plans were devised to minimize impacts (Atoni 1977). The land around Reed's Bay was already in State ownership at that time. Design configurations accommodated up to 100 boat berths.

During the Environmental Impact Statement process for the development of Reed's Bay small craft harbor, it was determined that there were "no Historic Resources in Reed's Bay"

(USCOE 1983b:19). The only historic resource in the entire larger bay study area that was eligible for listing on the National Register of Historic Places was the Hilo Breakwater (USCOE 1983b:19).

Reed's Bay has been a place of recreation since at least the time when the coral beach was created after the wharf dredging in 1916. Today the Ice Pond is a popular recreational location for families and young adults. The activity is focused along the western edge of the Ice Pond along Banyan Street, and at the mouth of the Ice Pond at the remnants of the railroad trestle (ruins of the spur that linked the trunk line to the wharf). Few individuals venture to the eastern fringes of the pond where sedimentation and muddy grass line the shallow area.

Archaeological Sites

The archaeological inventory survey report for this project (Wolforth 2006) identified four archaeological sites (Table 1). All four sites are recommended as being *significant for* Criterion D only. No further work is recommended for all four sites, and there is no data recovery recommended for any site. Preservation is recommended for Sites 7413, and 18896. A Preservation Plan will be made to proscribe how preservation will be conducted for these two sites.

Table 1. Site significance and recommendations.

Site	SIHP	Time of use	Significance Criterion	Recommended treatment
Railroad right-of-way and trestle ruins	7413	1916 to 1946	D	No further work on land portion: preserve trestle ruins within water portion
Kanakea Pond	18896	Prehistoric	D	Preservation of wall ruins
Scott-Legionnaire-Hotel	24918	1897 to 1967	D	No further work
Pecked Basins	24919	Prehistoric and possibly Historical	D	No further work

Consultation

Several agencies were contacted as part of the consultation process (Table 2). A Powerpoint presentation on the results of the historical documentation and archaeological fieldwork presented in this report was given at the monthly meetings of the Keaukaha Community Association and Hawaiian Civic Club Hilo. Approximately 50 local citizens, many older than 50 years old, some much older, and most that have lived here all of their lives, attended these meetings and participated in the discussions.

Table 2. Consulting Parties.

Agency	Process	Date	Status
Edith Kanaka'ole Foundation	Letter	November 30, 2005	No response
Keaukaha Community Association	Meeting	February 15, 2006	Presentation and discussion with the Association
Hawaiian Civic Club Hilo	Meeting	June 1, 2006	Presentation and discussion with the Club
Office of Hawaiian Affairs	Letter	April 7, 2006	OHA defers comment until the report is submitted

Input from the groups included specific reminiscences about walking along the railroad line, playing at the beach, seeing the first aquatic plane land and take off in Reed's Bay, and suggesting that the pecked areas (described below) were salt pans. Questions regarding legends associated with this area were asked, and no one provided information about these legends.

Cultural Properties, Resources and Practices

Traditional Cultural Properties

Typical examples of Traditional Cultural Properties include mountain tops associated with deities, groves of sacred trees specifically associated with a significant cultural practice, beliefs about the sacredness of certain areas, and important historical or legendary sites such as battlefields and other locations with these kinds of associations.

Although there are many legends associated with areas near the project area, the only two that might be directly associated are the story of Kaluakoko and the man named 'Ulu that lived in the Waiākea. The precise settings of these two stories is not known, however. Consequently, there are no Traditional Cultural Properties associated with these two stories.

Given the quantity of known references to distinctly different *mo'o* in the Hilo/Waiākea region (Hi'ika fought the three *mo'o* Pana'ewa, Piliamo'o, and Nohoamo'o, and Maui fought the *mo'o* Lonokaeho, and Pele fought the *mo'o* Lokowako), the correlations of *mo'o* with "large deep pools" of freshwater (Westervelt 1963:256-259), and the propensity for *mo'o* to reside in fishponds (Kikuchi 1973) with one nearby fishpond, Lokowaka, directly associated with *mo'o* (Pukui *et al.* 1974; Kikuchi 1973), it is not unreasonable to suggest that the cool, freshwater of Kanakea with its large, deep hole in the middle may have also been associated with a resident *mo'o* in the past. No written records were identified that mentioned *mo'o* together with this place. In addition, all consulting parties were asked about potential *mo'o* stories associated with the project area, and none were aware of any.

Based on the work presented above, there are no TCP present in the project area.

Cultural Resources and Practices

Examples of Hawaiian cultural practices include: gathering of subsistence items, commercial activities, loci of recreation, habitation, and agriculture, use of pathways to resources, and places where religions and spiritual customs are conducted. Based on observations made at the project area, there are two cultural practices that are conducted at the project area, and have been for many generations: fishing and recreation.

Fishing

Men and women have been observed fishing from the shoreline at all times of the day, and all times of the year at the project area. In addition, *limu* (sea weed) is collected by fishermen in the morning to be used as bait for fishing elsewhere and/or at other times.

Evidence of fishing during ancient times has been identified with the pecked areas at Site 24919. There are three basins that have been pecked into the bedrock near the ocean's edge in the northeast portion of the project area. Two of them are partially covered by the cement

walkway that is presumably associated with a previous historical occupation, and the other is near the water's edge. Additional pecked areas may have existed on lava that was subsequently removed to create the two boat docking areas.

These basins are similar in size and situation to salt basins found elsewhere on island shorelines. No salt was observed in these basins. It is conceivable that these were not salt collecting basins, because in contrast to the salt basins in Kona, these are not near a rugged, spray inducing shore. This is a calm bay shoreline, and salt-laden spray does not regularly waft over the basins here. Alternatively, these could be salt basins. The long breakwater in Hilo Bay functions to prohibit waves from crashing on this shoreline. Prior to the construction of the breakwater, the natural wave forces here may have provided the spray necessary to fill pecked basins with saltwater necessary to create the desired salt production (via water evaporation) process.

The surfaces of the basins are not smooth, although they are a regular, shallow parabola shape (Table 3). This configuration indicates that they were not created as a byproduct of a grinding motion. Instead, the rough surfaces indicate that they were created by pounding or pecking. Something was crushed under pounding rock in these locales. Considering their location at the water's edge, it is likely that something was crushed in preparation for shoreline fishing, or something that was collected at the shoreline was processed here. For instance, shellfish may have been broken open under pounding stones here. Alternatively, or in addition to, it is possible that these areas were permanently land-locked versions of the mobile "stone bait mortars" described by Hiroa (1957:353-355).

Table 3. Pecked basin morphology.

Pecked basin	Length (cm)	Width (cm)	Depth (cm)	Comment
1	< 50	37	3	Partially covered by cement walkway
2	63	>40	4	Partially covered by cement walkway
3	50	42	10	

A popular bait for catching small fish near the shore was called *palu*, a 'squid-ink bait'. It was created by pounding the roasted ink sac of *he'e*. Other ingredients were added, and each fisherman had their own special mix. Small stone or coconut shell mortars were used. Wooden pestles were used to mix the ingredients. These small portable implements were sufficient for a day's supply of bait. Although not identified as such by Hiroa (1957), the permanent and larger pecked areas at the ocean's edge could have served the same purpose. Repeated use over many years would account for their larger size. Alternatively, their larger size may indicate that larger quantities of bait were produced at these spots, perhaps for use by more than one fisherman at a time.

This site is represented by three pecked basins that are presumed to have been created as a direct result of pounding action associated with marine resource collection and processing activities. This activity was conducted during pre-Contact times, probably over a period of centuries, and may have continued at these locations into the historical era. No one has been observed using these pecked basins, or any natural rock formation to create bait, or process fish. Consequently, these pecked areas do not represent a Traditional Cultural Property, or any ongoing cultural practice.

There is an ancient Hawaiian fishpond (Site 18896) at the southern boundary of the project area. There are ruins of the walls associated with the fishpond. The fishpond is not

operational, and has not been used since pre-Contact times. There is no continuity of use of the fishpond with current aquaculture activities. Consequently, the fishpond is not part of the current cultural practices.

Recreation

The project area is currently a focal point for recreation. Families can be observed at the project area at all times of day, at all times of the year. Tourists also frequent the area. Organizations, such as Kama'āina Kids, also bring children to the area to swim. The types of recreation that take place there include swimming, walking, and picnicking.

Recreation at this area has been continuous since the creation of the beach approximately 80 years ago. There has been a continuity of use of the beach as a recreational and fishing area since the construction of the beach in the 1920's', over 50 years ago. Prior to the construction of the beach in the 1920's, this area was entirely underwater, so this kind of recreation did not take place there and then.

Use of the beach has been by a broad group of people, including native Hawaiians, immigrant families from China, Portugal, Korea, Europe, and North America, and tourists from all over the world. Consequently, this usage is not a particular culture's traditional property, and is not an example of at TCP.

Impacts to Cultural Resources and Practices

No Traditional Cultural Properties exist at the project area, so there are no impacts to TCP.

There are two ongoing practices at the project area: fishing and recreation. Because these practices are conducted by a great diversity of cultural groups, they cannot be attributed to any specific culture or group of people, and are not considered representative of any particular cultural practice. In addition, the beach was only built approximately 80 years ago, precluding any direct link to any kind of practice at this place prior to that time.

Although there are no distinct cultural practices here, the generalized practices of fishing and recreation will be enhanced and promoted by the proposed development. Indeed the goal of the project is to enhance an already existing park that provides opportunities to continue a variety of shoreline uses for a variety of people. The project is designed to provide parking and lavatory facilities for those that use the area. The fishing habitat will not be altered, and more places to swim will be created.

Referenced Cited

Akoi, Rhea
1989 *Ku'u Home I Keaukaha: An Oral History.* Hui Ho'omau O Keaukaha Panaewa, Hilo.

Atoni & Associates, Inc. (Atoni)
1977 *Preliminary Planning for Small Craft Facilities in East Hawaii.* For U.S. Army Corps of Engineers, Honolulu.

Backwith, M.
1970 *Hawaiian Mythology.* University of Hawai'i Press, Honolulu.

Elbert, S.H, editor
1959 *Selections from Fornander's Hawaiian Antiquities and Folk-lore.* University of Hawaii Press, Honolulu.

George, M. C.
1948 *The Development of Hilo, Hawaii, TH.* The Edwards Letter Shop, Ann Arbor.

Handy, E.S.C., E.G. Handy, and M.K. Pukui
1991 *Native Planters in Old Hawai'i, Revised Edition.* Bishop Museum Press, Honolulu.

Henry, Teuira and Others
1995 *Voyaging Chiefs of Havai'i.* Kalamukū Press, Honolulu.

Hiroa, T. R. (Sir Peter H. Buck)
1957 *Arts and Crafts of Hawaii.* Bernice P. Bishop Museum Special Publication 45. Bishop Museum Press, Honolulu.

Kamakau, S. M.
1992 *Ruling Chiefs of Hawaii (Revised Edition).* The Kamehameha Schools Press, Honolulu.

1976 *The Works of the People of Old.* B.P. Bishop Museum Special Publication No. 61. B.P. Bishop Museum, Honolulu.

Kelly, M., B. Nakamura, and D.B. Barrère
1981 *Hilo Bay: A Chronology History.* Bernice P. Bishop Museum Department of Anthropology. For U.S. Army Corps of Engineers, Honolulu District.

Kirch, P.V.
1985 *Feathered Gods and Fishhooks.* University of Hawai'i Press, Honolulu.

M&E Pacific, Inc.
1980 *Hilo Area Comprehensive Study.* For U.S. Army Corps of Engineers, Honolulu District.

Maly, K.
2000 *Historical Documentary Research and Oral History Interviews: Waiākea Cane Lots (12, 13, 17, 18, 19, 10, and 20-A).* Kumu Pono Associates, Hilo.

Pukui, M.K, S.H. Elbert, and E.T. Mookini
1974 *Place Names of Hawai'i.* University of Hawai'i Press, Honolulu.

Pukui, M.K. with L.C.S. Green
1995 *Folktales of Hawai'i.* Bishop Museum Press, Honolulu.

Reed, F.
1987 *Hilo Legends.* Petroglyph Press, Hilo.

Rogers, R.
1999 Shipwrecks of Hawai'i. Pilialoha Publishing, Haleiwa.

Summers, C. C.
1964 *Hawaiian Fishponds.* Bernice P. Bishop Museum Special Publicatin 52. Bishop Museum Press, Honolulu.

Stokes, J.F.G.
1991 The Heiau of the Island of Hawai'i. Bishop Museum Press, Honolulu.

Titcomb, M.
1952 Native Use of Fish in Hawaii. University of Hawai'i Press, Honolulu.

USCOE
1983a Hilo Area Comprehensive Study: A Draft Survey Report and Environmental Impact Statement. Volume I: Summary Report. U.S. Army Corps of Engineers, Honolulu District.

1983b Reed's Bay Harbor, Hawaii: A Reevlauation Report and Draft Environmental Impact Statement for Small-Craft Navigation Improvements. U.S. Army Corps of Engineers, Pacific Ocean Division.

Warshauer, K.
2004 Famed Trees of Banyan Drive Still Mislabeled. *Hawa'ii Tribune-Herald*, April 11, 2004, Hilo.

2003 Some Banyan Drive Signs Need Correction. *Hawa'ii Tribune-Herald*, April 27, 2003, Hilo.

Westervelt, W.D.
1999 *Hawaiian Legends of Volcanoes.* Mutual Publishing, Honolulu.

1987 *Myths and Legends of Hawai'i.* Mutual Publishing, Honolulu.

1977 *Hawaiian Historical Legends.* Charles E. Tuttle Company, Rutland, Vermont.

1963 *Hawaiian Legends of Ghosts and Ghost-Gods.* Charles E. Tuttle Company, Rutland, Vermont.

Wolforth, T.R.
2006 *Inventory Survey For The Proposed Reed's Bay Beach Park, Hilo: Investigations Into The Kanakea Fishpond At Reed's Bay.* SCS Report 648. Prepared for the County of Hawai'i. Scientific Consultant Services, Inc., Honolulu.

Wolforth. T.R., W. Wulzen and S.T. Goodfellow
1997 Archaeological Data Recovery at West Loch Estates Residential Increment I, and Golf Course and Shoreline Park. Prepared for City and County of Honolulu. PHRI Report 440-111197, Hilo.

Zambucka, K.
1992 The High Chiefess Ruth Keelikolani. Green Glass Productions, Honolulu.

ENVIRONMENTAL ASSESSMENT

REED'S BAY BEACH PARK IMPROVEMENTS

APPENDIX 4

FAUNA REPORT

A Survey of Avian and Terrestrial Mammalian Species, Reed's Bay Beach Park, South Hilo District, Island of Hawai'i.

DRAFT

Prepared by:

Reginald E. David
Rana Productions, Ltd.
P.O. Box 1371
Kailua-Kona, Hawai'i 96745

Prepared for:

Geometrician Associates, L.L.C.
HC 2, Box 9575
Kea'au Hawaii 96749

December 6, 2005

Table of Contents

Tables

Introduction

The County of Hawai'i, Department of Parks and Recreation is proposing to reconfigure and expand Reed's Bay Beach Park, Hilo, Hawai'i. This report summarizes the findings of an ornithological and mammalian survey conducted within the proposed park site. Fieldwork was conducted on November 23 and 26, 2005.

The primary purpose of the survey was to determine if there were any avian or mammalian species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawai'i's endangered species programs on, or within in the immediate vicinity of the proposed park boundaries. Federal and State of Hawai'i listed species status follows species identified in the following referenced documents (Division of Land and Natural Resources (DLNR) 1998, Federal Register 1999a, 1999b, 2001, 2002, 2004).

Avian phylogenetic order and nomenclature follows *The American Ornithologists' Union Check-list of North American Birds 7th Edition* (American Ornithologists' Union 1998), and the 42nd through the 46th supplements to *Check-list of North American Birds* (American Ornithologists' Union 2000; Banks et al. 2002, 2003, 2004, 2005). Mammal scientific names follow *Mammals in Hawaii* (Tomich 1986). Plant names follow *Manual of the Flowering Plants of Hawai'i* (Wagner et al. 1990, 1999). Place names follow *Place Names of Hawaii* (Pukui et al. 1976).

Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document, which may be unfamiliar to the reader, are included at the end of the narrative text on page 9.

General Site Description

Reed's Bay Beach Park wraps around Reed's Bay and the Ice Pond on the east (*makai*) side of Banyan Drive. The Park currently is in a poor state of repair, with few amenities and no paved parking. There are numerous concrete pads, seawalls and former bridge foundations scattered across the site. The vegetation on the western (*mauka*) side of the park is sparse, comprising of ruderal weedy alien species, and numerous Banyan (*Ficus microcarpa*), a few coconut (*Cocos nucifera*), pandanus (*Pandanus tectorius*), Cook pine (*Araucaria columnaris*), and ironwood trees (*Casuarina equisetifolia*). The vegetation around the Ice Pond is sparse as much of the area is developed, with Banyan Way forming the western boundary, Harrington's restaurant, parking lot and Kalaniana'ole Avenue along the southern boundary. The areas located east of the Ice Pond, which are slated for potential future expansion of the Park are vegetated with a denser version of the vegetation found along Banyan Drive. There is an abandoned railroad right-of-way running from east to west, and a collapsed railroad bridge just north of the Ice Pond.

Mammalian Survey Methods

With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or *'ōpe'ape'a* as it is known locally, all terrestrial mammals currently found on the Island of Hawai'i are alien species. Most are ubiquitous. No trapping program was proposed or undertaken to quantify the use of the property by alien mammalian species. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed and heard within the project area. Visual and electronic scans, using a Broadband AnaBat II® ultrasonic bat detector, were made for bats during crepuscular periods on the evening of November 26 and on the morning of November 23, 2005.

Mammalian Survey Results

Four mammalian species were detected during the course of this survey. All but one of the mammals recorded are considered alien to the Hawaiian Islands. Hawai'i's sole endemic terrestrial mammalian species, the endangered Hawaiian hoary bat, was detected foraging over Reed's Bay and the Ice Pond. A maximum number of two bats were seen at one time foraging over Reed's Bay on the night of November 26, 2005.

One dog (*Canis f. familiaris*) was seen nosing around one of the garbage cans on the northern end of the site, and several dogs were heard barking from within several private house lots located to the east of the Ice Pond. Two small Indian mongooses (*Herpestes a. auropunctatus*) were seen adjacent to Banyan Drive within the beach park, as were three cats (*Felis catus*).

Avian Survey Methods

Three avian count stations were sited within the proposed project area. One at the northern end of the site, in the middle of the leveled area abutting Kūhiō Bay, one at the intersection of Banyan Drive and Banyan Way, within the abandoned Railroad Right-of-Way, and a third in the middle of Centennial Park on the east side of Reed's Bay. Eight-minute point counts were made at each of the count stations. Each station was counted once. Field observations were made with the aid of Leitz 10 X 42 binoculars and by listening for vocalizations. Counts were concentrated between 06:45 a.m. and 10:00 a.m., the peak of daily bird activity. Additionally, the shoreline from the northern terminus of the site around Reed's Bay, the Ice Pond and east to the Hilo Clinic, Inc. eastern boundary was walked in its entirety. An additional two hours was spent within the project area on the evenings of November 22 and 26, and on the morning of November 23, 2005, in an attempt to detect nocturnally flying seabirds over-flying the project area. Time not spent counting was used to search the study site for species and habitats that were not detected during count sessions.

Avian Survey Results

One hundred and eighty two individual birds of 10 different species, representing nine separate families were recorded during station counts (Table 1). An additional species, Ruddy Turnstone (*Arenaria interpres*) was recorded as incidental observations while transiting the study area between count stations. Three of the species recorded, Pacific Golden-Plover (*Pluvialis fulva*), Wandering Tattler (*Heteroscelus incanus*) and Ruddy Turnstone, are indigenous migratory shorebird species that nest in the high Arctic, and spend their winters in Hawai'i and the tropical Pacific. The other seven species recorded are all considered alien species.

Avian diversity and densities were in keeping with the habitat present within the project area. Three species; Common Myna (*Acridotheres tristis*), Japanese White-eye (*Zosterops japonicus*), and Zebra Dove (*Geopilia striata*) accounted 62% of the total number of all birds recorded during station counts. The most common avian species recorded was Common Myna, which accounted for 21% of the total number of individual birds recorded. An average of 60 individual birds were recorded per station count.

Discussion

Mammalian Resources

The findings of the mammalian survey are consistent with numerous other surveys conducted in similar habitat in the South Hilo District over the past five years (David 2001, 2002a, 2002b, 2002c, 2003a, 2003b, David et al. 2004). Hawaiian hoary bats were recorded foraging for insects over Reed's and Kuhiō Bay. Bats have been recorded on at least five recent surveys within close proximity to the site (David 2001, 2002a, 2002b, 2002c, 2003a, 2003b).

The Hawaiian hoary bat is a typical lasurine bat, and as such, they primarily lead a solitary existence, described as "over-dispersed". They generally roost cryptically in foliage, which makes them difficult to study (Findley and Tomich 1983, Jacobs 1994, Carter *et al.* 2000). Very little research into the life cycle, distribution, or population estimates of this species, has been conducted; and much of what has been studied, were small, disconnected, or anecdotal studies as opposed to coherent controlled experiments. Fundamental research into this species distribution and life cycle has just begun (Bonaccorso et al. 2005).

Unlike nocturnally flying seabirds, which often collide with man-made structures, bats are uniquely adapted to avoid collision with most obstacles, man-made or natural. They navigate and locate their prey primarily by using ultrasonic echolocation, which is sensitive enough to allow them to locate and capture small volant insects at night.

Table 1

Avian Species Detected,
Reed's Bay Beach Park Project

Common Name	*Scientific Name*	*ST*	*RA*
	ANSERIFORMES		
	ANATIDAE - Ducks, Geese & Swans		
	Anatinae - Ducks		
Mallard x hybrid	*Anas platyrhynchos x spp?*	DA	1.67
	CHARADRIIFORMES		
	CHARADRIIDAE - Lapwings & Plovers		
	Charadriinae - Plovers		
Pacific Golden-Plover	*Pluvialis fulva*	IM	0.67
	SCOLOPACIDAE - Sandpipers, Phalaropes & Allies		
Wandering Tattler	*Heteroscelus incanus*	IM	0.67
Ruddy Turnstone	*Arenaria interpres*	IM	I-7
	COLUMBIFORMES		
	COLUMBIDAE - Pigeons & Doves		
Spotted Dove	*Streptopelia chinensis*	A	6.33
Zebra Dove	*Geopelia striata*	A	12.33
	PASSERIFORMES		
	ZOSTEROPIDAE - White-Eyes		
Japanese White-eye	*Zosterops japonicus*	A	12.33
	STURNIDAE - Starlings		
Common Myna	*Acridotheres tristis*	A	13.00
	CARDINALIDAE - Cardinals Saltators & Allies		
Northern Cardinal	*Cardinalis cardinalis*	A	0.67
	FRINGILLIDAE - Fringilline And Cardueline Finches & Allies		
	Carduelinae - Carduline Finches		
House Finch	*Carpodacus mexicanus*	A	7.33
	ESTRILDIDAE - Estrildid Finches		
	Estrildinae - Estrildine Finches		
Nutmeg Mannikin	*Lonchura punctulata*	A	3.67

KEY TO TABLE 1

ST	**Status**
A	Alien Species
DA	Domestic Alien Species, not considered established on the Island of Hawai'i
IM	Indigenous Migratory Species
RA	Relative Abundance: Number of birds detected divided by the number of count stations (3)
I	Incidental observation followed by the number of individuals recorded

The three other mammalian species detected, dog, small Indian mongoose and cat are all alien species, which are generally considered to have deleterious impacts on native species.

Although no rodents were recorded during the course of this survey, it is likely that Hawaii's four naturalized rodents, roof rat (Rattus r. rattus), the Norway rat (*Rattus norvegicus*), Polynesian rat (*Rattus exulans hawaiiensis*), European house mouse (Mus domesticus) use resources within the general project area.

Avian Resources

Avian diversity and densities were in keeping with the habitat present within the project area, and with numerous other surveys conducted in similar habitat in the South Hilo District over the past five years (David 2001, 2002a, 2002b, 2002c, 2003a, 2003b, David et al. 2004). Of the 11 different species of birds recorded during the survey, three are indigenous migratory shorebird species; the other nine are alien species.

Although not detected during this survey, it is possible that small numbers of the endangered endemic Hawaiian Petrel (*Pterodroma sandwichensis*), or *ua'u*, and the threatened Newell's Shearwater (*Puffinus auricularis newelli*), or *'a'o*, over-fly the project area between the months of May and November (Banko 1980a, 1980b, Day et al. 2003a, Harrison 1990).

Hawaiian Petrels were formerly common on the Island of Hawai'i (Wilson and Evans 1890–1899). This pelagic seabird reportedly nested in large numbers on the slopes of Mauna Loa and in the saddle area between Mauna Loa and Mauna Kea (Henshaw 1902), as well as at the mid to high elevations of Mount HualÅlai. Within recent historic times, Hawaiian petrels have been reduced to relict breeding colonies located at high elevations on Mauna Loa, and possibly, Mount HualÅlai (Banko 1980a, Banko et al. 2001, Cooper and David 1995, Cooper et al. 1995, Day et al. 2003a, Harrison 1990, Hue et al. 2001, Simons and Hodges 1998).

Newell's Shearwaters were formerly common on the Island of Hawai'i (Wilson and Evans 1890–1899). This species breeds on Kaua'i, Hawai'i, and Moloka'i in extremely

Newell's Shearwaters were formerly common on the Island of Hawai'i (Wilson and Evans 1890–1899). This species breeds on Kaua'i, Hawai'i, and Moloka'i in extremely small numbers. Newell's Shearwater populations have dropped precipitously since the 1880s (Banko 1980b, Day et al., 2003b). This pelagic species nests high in the mountains in burrows excavated under thick vegetation, especially *uluhe* (*Dicranopteris linearis*) fern.

The primary cause of mortality in both these species is thought to be predation by alien mammalian species at the nesting colonies (Ainley et al. 2001, Cooper and Day 1995, 1998, Day and Cooper 1997, Hue et al. 2001). Collision with man-made structures is considered to be the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds often collide with manmade structures, and if they are not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals (Ainley et al. 1995, 1997, 2001, Cooper and Day 1995, 1998, Day and Cooper 1997). There is no suitable nesting habitat within the project area for either of these pelagic seabird species.

Potential Impacts to Protected Vertebrate Species

Hawaiian Petrel and Newell's Shearwater

The principal potential impact that redevelopment of the Reed's Bay Beach Park poses to Hawaiian Petrels and Newell's Shearwaters is the increased threat that birds will be downed after becoming disoriented by exterior lighting that may be required in conjunction with the construction activities and/or the operation of the Park once completed.

Conclusions

It is not expected that the improvements proposed for the Reed's Bay Beach Park will have significant impacts to native avian or mammalian resources present within the project site.

Recommendation

To reduce the potential for interactions between nocturnally flying Hawaiian Petrels and Newell's Shearwaters with external lights and man-made structures, it is recommended that any external lighting used during construction, and any streetlights that may be installed as part of the project, be shielded (Reed et al. 1985, Telfer et al. 1987). This mitigation would serve the dual purpose of minimizing the threat of disorientation and downing of Hawaiian Petrels and Newell's Shearwaters, while at the same time complying with the Hawaii County Code § 14 – 50 *et seq.* which requires the shielding of exterior lights so as to lower the ambient glare caused by unshielded lighting to the astronomical

observatories located on Mauna Kea.

Glossary:

Alien – Introduced to Hawai'i by humans
Endangered – Listed and protected under the Endangered Species Act of 1973, as amended as an endangered species.
Endemic – Native and unique to the Hawaiian Islands
Feral – Wild untamed animals
Incidental observation – A species not counted during station counts, but seen within the project area
Indigenous – Native to the Hawaiian Islands, but also found elsewhere naturally
Mauka – Upslope, towards the mountains
Makai – Down-slope, towards the ocean
Nocturnal – Night-time, after dark
Pelagic – An animal that spends its life at sea – in this case seabirds that only return to land to nest and rear their young
Ruderal – Disturbed, rocky, rubbishy areas, such as old agricultural fields and rock piles
Threatened – Listed and protected under the ESA as a threatened species
Volant – Flying, capable of flight, as in flying insect

DLNR – Hawaii State Department of Land & Natural resources
ESA – Endangered Species Act of 1973, as amended
DOFAW – DLNR – Department of Fish & Wildlife / Hawaii State Department of Land & Natural resources

Literature Cited:

Ainley, D. G, R. Podolsky, L. Deforest, G. Spencer, and N. Nur. 1995. Kauai endangered seabird study. Volume 2: The ecology of Dark-rumped Petrels and Newell's Shearwaters. Final Report TR-105847-V2, Electric Power Research Institute, Palo Alto, California, by PRBO Stinson Beach, CA.

_____. 1997. New Insights into the Status of the Hawaiian Petrel on Kauai. Colonial Waterbirds, 20 (1): 24-30

_____. 2001. The Status and Population Trends of the Newell's Shearwater on Kaua'i: Insights from Modeling, *In*: Scott, J. M, S. Conant, and C. Van Riper III (editors) *Evolution, Ecology, Conservation, and Management of Hawaiian Birds: A Vanishing Avifauna.* Studies in Avian Biology No. 22:. Cooper's Ornithological Society, Allen Press, Lawrence, Kansas. (Pg. 108-123)

American Ornithologist's Union. 1998. *Check-list of North American Birds*. 7th edition. AOU. Washington D.C. 829pp.

_____. 2000. Forty-second supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 117:847-858.

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

_____. 2003 Forty-fourth supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 120:923-931.

_____. 2004 Forty-fifth supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 121:985-995.

_____. 2005 Forty-sixth supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 122:1031-1031.

Banko, W. E. 1980a. Population Histories- Species Accounts Seabirds: Hawaiian Dark-rumped Petrel ('Ua'u). Cooperative National Park Resources Studies Unit, University of Hawaii at Manoa, Department of Botany, Technical Report #5B.

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

Banko, P. C., R. E. David, J. D. Jacobi, and W. E. Banko. 2001. Conservation Status and Recovery Strategies for Endemic Hawaiian Birds, *In:* : Scott, J. M, S. Conant, and C. Van Riper III (editors) *Evolution, Ecology, Conservation, and Management of Hawaiian Birds: A Vanishing Avifauna.* Studies in Avian Biology No. 22. Cooper's Ornithological Society, Allen Press, Lawrence, Kansas (Pg. 359-376).

Bonaccorso, F. J., C. M. Todd and, A. C. Miles. 2005. Interim Report on Research to Hawaiian Bat Research Consortium for The Hawaiian Hoary Bat, Ope'ape'a, *Lasiurus cinsereus semotus*. 1 September 2004 to 31 August 2005.

Carter, T. C., M. A. Menzel, and D. Saugey. 2000. Population Trends of Foliage-Roosting Bats *in,* O'Shea, T. J. and M. A. Bogan (editors), Interim Report of the Workshop on Monitoring Trends in U. S. Bat Populations: Problems and Prospects. U. S. Geological Survey, Midcontinent Ecological Science Cneter, Fort Collins, Colorado, 124 pp. Also available on line from : http://www.mesc.usgs.gov/BPD/ireport.htm

Cooper, B. A. and R. E. David. 1995. Radar and Visual Surveys of Seabirds in the HELCO SSP Unit 71, Puna, Hawaii, During July 1995. Prepared for R. M. Towill Corporation & Hawaii Electric Light Co.

Cooper, B.A., R.E. David, and R.J. Blaha. 1995. Radar and Visual Surveys of Endangered Seabirds and Bats in the Pohakuloa Training Area, Hawai'i, During Summer 1995. Prepared for R.M. Towill Corporation and the U.S. Army Corps of Engineers, Pacific Division (POD).

Cooper, B. A and R. H. Day. 1995. Kauai endangered seabird study. Volume 1: Interactions of Dark-rumped Petrels and Newell's Shearwaters with utility structures on Kauai, Hawaii: Final Report, TR-105847-V1, Electric Power Research Institute, Palo Alto, California.

_____. 1998. Summer Behavior and Mortality of Dark-rumped Petrels and Newells' Shearwaters at Power Lines on Kauai. Colonial Waterbirds, 21 (1): 11-19.

David, R. E. 2001. A Survey of Avian and Mammalian Species Hilo International Airport Improvement Project, South Hilo District, Hawai'i. Prepared for: Wilson Okamoto & Associates and the State of Hawai'I Department of Transportation Airports Division (HDOT-A).

_____. David, R. E. 2002a. An Audio Playback Survey for Hawaiian Hawks on the Hawai'i Army National Guard, Keaukaha Military Reservation, Hilo, Hawai'i. Prepared for: Hawaii Army National Guard.

_____. 2002b. An Electronic and Visual Survey of Hawaiian Hoary Bats on the Hawai'i Army National Guard, Keaukaha Military Reservation, Hilo, Hawai'i. Prepared for: Hawai'i Army National Guard.

_____.2002c. An Audio Playback Survey for Hawaiian Hawks on the Hawai'i Army National Guard, Keaukaha Military Reservation, Hilo, Hawai'i. Prepared for: Hawaii Army National Guard.

_____. 2003a. A Survey of Avian and Terrestrial Mammalian Species on the Proposed Home Depot Site, South Hilo District, Hawai'i. Prepared for: Weston Solutions and the State of Hawai'i, Department of Hawaiian Homes (DHHL).

David, R. E. 2003b. Visual and Electronic Surveying for Hawaiian Hoary Bats and Audio Playback Survey for Hawaiian Hawks on the Hawai'i Army National Guard – A Field Training Workshop, Keaukaha Military Reservation, Hilo, Hawai'i. Prepared for: Hawaii Army National Guard.

David, R. E., R. Terry, and L. Yoshida 2004. A Survey of Avian, Terrestrial Mammalian and Botanical Resources on the L. D. S. Kilauea / Kaumana Wards, Ponohawai Street Site, TMK: 2-3-36:19 South Hilo District, Hawai'i. Prepared for: Edmond Akiona Architect and The Kilauea / Kaumana Wards of the Church of Later Day Saints

Day, R. H., and B. Cooper. 1997. Patterns of Movement of Dark-rumped Petrels and Newell's Shearwaters on Kauai. The Condor, 97: 1011-1027.

_____, and R. J. Blaha. 2003a. *Movement Patterns of Hawaiian Petrels and* Newell's Shearwaters on the Island of Hawai'i. Pacific Science, 57, 2:147-159.

_____, and T. C. Telfer. 2003b. Decline of Townsend's (Newell's Shearwaters (*Puffinus auricularis newelli*) on Kauai, Hawaii. The Auk 120: 669-679.

Department of Land and Natural Resources. (DLNR). 1998. Indigenous Wildlife, Endangered And Threatened Wildlife And Plants, And Introduced Wild Birds. Department of Land and Natural Resources. State of Hawaii. Administrative Rule §13-134-1 through §13-134-10, dated March 02, 1998.

Dole, S. B. 1879. List o f birds of the Hawaiian Islands. P.p. 41-58 *in* T. G. Thrum (comp.). Hawaiian almanac and annual for 1879. Honolulu.

Federal Register. 1999a. Department of the Interior, Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants. 50CFR 17:11 and 17:12 – December 3, 1999

_____. 1999b. Department of the Interior, Fish and Wildlife Service, 50 CFR 17. Endangered and Threatened Wildlife and Plants. Endangered and Threatened Wildlife and Plants; Review of Plant and Animal Taxa that are Candidates or Proposed for Listing as Endangered or Threatened; Annual Notice of Findings on Recycled Petitions, and Annual Description of Progress on Listing Actions. *Federal Register*, 64 No. 205 (Monday, October 25, 1999): 57534-57547.

_____. 2001. Department of the Interior, Fish and Wildlife Service, 50 CFR 17. Endangered and Threatened Wildlife and Plants. Notice of Findings on Recycled Petitions. *Federal Register*, 66 No. 5 (Monday, January 8, 2001): 1295 – 1300.

_____. 2002. Department of the Interior, Fish and Wildlife Service, 50 CFR 17. Endangered and Threatened Wildlife and Plants. Review of Species That Are Candidate or Proposed for Listing as Endangered or Threatened; Annual Notice of Findings on Recycled Petition; Annual Description of Progress on Listing Actions. *Federal Register*, 67 No. 114 (Thursday, June 13, 2002): 40657-40679.

Federal Register. 2004. Department of the Interior, Fish and Wildlife Service, 50 CFR 17. Endangered and Threatened Wildlife and Plants. Review of Species That Are Candidates or Proposed for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petition; Annual Description of Progress on Listing Actions. *Federal Register*, 69 No. 86 (Tuesday, May 4, 2004): 24876-24904.

Findley, J. S., and P. Q. Tomich 1983. Morphological Affinities of the Hawaiian Hoary Bat. Unpublished ms.

Harrison, C. S. 1990. *Seabirds of Hawaii: Natural History and Conservation*. Cornell University Press, Ithica, N.Y. 249 pp.

Henshaw, H.W. 1902. *Complete list of birds of the Hawaiian Possessions with notes on their habits*. Thrum, Honolulu. 146 pp.

Hue, D., C. Glidden, J. Lippert, L. Schnell, J. MacIvor and J. Meisler. 2001. Habitat Use and Limiting Factors in a Population of Hawaiian Dark-rumped Petrels on Mauna Loa, Hawai'i. , *in:* : Scott, J. M, S. Conant, and C. Van Riper III (editors) *Evolution, Ecology, Conservation, and Management of Hawaiian Birds: A Vanishing Avifauna*. Studies in Avian Biology No. 22. Cooper's Ornithological Society, Allen Press, Lawrence, Kansas (Pg. 234-242).

Jacobs, D. S. 1994. Distribution and Abundance of the Endangered Hawaiian Hoary Bat, *Lasiurus cinereus semotus*, on the Island of Hawai'i. Pacific Science, Vol. 48, no. 2: 193-200.

Pukui , M. K., S. H. Elbert, and E. T. Mookini. 1976. *Place Names of Hawaii*. University of Hawaii Press. Honolulu, Hawai'i. 289 pp.

Reed, J. R., J. L Sincock, and J. P. Hailman 1985. Light Attraction in Endangered Procellariform Birds: Reduction by Shielding Upward Radiation. Auk 102: 377-383.

Simons, T. R., and C. N. Hodges. 1998. Dark-rumped Petrel (Pterodroma phaeopygia). *In* A. Poole and F. Gill (editors). The Birds of North America, No. 345. The Acadamey of Natural Sciences, Philadelphia, PA. And the American Ornithologists Union, Washington, D.C.

Telfer, T. C. , J. L. Sincock, G. V. Byrd, and J. R. Reed. 1987. Attraction of Hawaiian seabirds to lights: Conservation efforts and effects of moon phase. Wildlife Society Bulletin 15:406-413.

Tomich, P.Q. 1986. *Mammals in Hawaii*. Bishop Museum Press. Honolulu, Hawaii. 37 pp.

Wagner, W.L., D.R Herbst, and S.H. Sohmer. 1990. *Manual of the Flowering Plants of Hawai'i*. University of Hawaii Press, Honolulu, Hawaii 1854 pp.

Wagner, W.L. and D.R. Herbst. 1999. *Supplement to the Manual of the flowering plants of Hawai'i*, pp. 1855-1918. *In:* Wagner, W.L., D.R. Herbst, and S.H. Sohmer, Manual of the flowering plants of Hawai'i. Revised edition. 2 vols. University of Hawaii Press and Bishop Museum Press, Honolulu.

Wilson, S. B., and A. H. Evans. 1890-1899. *Aves Hawaiiensis: The birds of the Sandwich Islands*. R. H. Porter, London.

ENVIRONMENTAL ASSESSMENT

REED'S BAY BEACH PARK IMPROVEMENTS

APPENDIX 5

COMMENTS IN RESPONSE TO PRE-CONSULTATION

United States Department of the Interior

FISH AND WILDLIFE SERVICE

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

In Reply Refer To:
1-2-2006-SP-058

DEC 5 2005

Mr. Ron Terry
Gemetrician Associates, LLC
HC 2 Box 9575
Kea'au Hawai'i 96749

Dear Mr. Terry:

Thank you for your letter dated November 21, 2005, requesting a list of threatened and endangered species that may occur in the vicinity of Reed's Bay (TMK 2-1-005-001 and 028; TMK 2-1-006-010 and 015) in Hilo on the island of Hawai'i. Your letter was received on November 23, 2005. The proposed project is for County park improvements and includes a parking lot, restrooms, trails, walkways, landscaping, picnic facilities, pavilions, and a pedestrian bridge. Your letter states that the U.S. Department of Housing and Urban Development is providing funds for this project.

We reviewed the information you provided and pertinent information in our files, including data compiled by the Hawai'i Natural Heritage Program. To the best of our knowledge, no federally listed or proposed threatened or endangered species, or designated or proposed critical habitats occur on the project site.

We appreciate your efforts to conserve endangered species. If you have questions, please contact Assistant Field Supervisor Gina Shultz (phone: 808/792-9400; fax: 808/792-9581).

Sincerely,

Patrick Leonard
Field Supervisor

Harry Kim
Mayor

Lawrence K. Mahuna
Police Chief

Harry S. Kubojiri
Deputy Police Chief

County of Hawaii
POLICE DEPARTMENT
349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-8869

December 6, 2005

Mr. Ron Terry
Geometrician Associates, LLC
HC 2 Box 9575
Keaau, Hawaii 96749

Dear Mr. Terry:

Subject: Environmental Assessment (EA) for County Park Improvement at Reed's Bay

Staff, upon review of the site and above-mentioned document, has neither concerns nor comments to offer in regard to this request at this time. Please send us a copy of the EA when it is completed.

Thank you for the opportunity to comment.

Sincerely,

James M. Day
JAMES M. DAY
ASSISTANT POLICE CHIEF
AREA I OPERATIONS

LW

Harry Kim
Mayor

Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii
PLANNING DEPARTMENT
101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-3043
(808) 961-8288 • Fax (808) 961-8742

December 8, 2005

Mr. Ron Terry
Geometrician Associates, LLC
HC 2 Box 9575
Keaau, HI 96749

Dear Mr. Terry:

Subject: **Pre-Environmental Assessment Consultation**
Applicant: **Department of Parks & Recreation**
Land Owner: **State of Hawaii**
Project: **County Park Improvements at Reed's Bay**
TMK: **2-1-5:1 & 28 and 2-1-6:10 & 15, Waiakea, South Hilo, Hawaii**

This is in response to your request for comments on the above-referenced project.

According to your submittal, the Department of Parks and Recreation proposes to develop a parking lot, restrooms, trails and walkways, landscaping, picnic facilities and pavilions, and a pedestrian bridge; to demolish a restroom; and to repair or remove various walls.

We have the following to offer for these parcels:

TMK	Area	State Land Use	LUPAG	County Zoning	SMA
2-1-5:1	3.817 ac.	Urban	Open	Open	Yes
2-1-5:28	2.319 ac.	Urban	Open/Resort	V-.75	Yes
2-1-6:10	2.4 ac.	Conservation	Open/Resort	Open	Yes
2-1-6:15	0.47 ac.	Conservation	Open	Open	Yes

Further, please note the following:

1. For parcels that are designated Conservation by the State Land Use Commission, there is no County zoning per se. Therefore, the Department of Land and Natural Resources (DLNR) has jurisdiction on any use which occurs on these parcels.

2. The General Plan Land Use Pattern Allocation Guide (LUPAG) Map's designation of Open allows for *"Parks and other recreational areas, historic sites, and open shoreline areas"*. For Resort, it states *"These areas include a mix of uses such as hotels, condominium-hotels (condominiums developed and/or operated as hotels), and support services"*.

3. The County zoning of Open (O) allows for *"Public parks"*. For Resort-Hotel (V), *"Parks, playgrounds, tennis courts, swimming pools, and other similar open area recreational facilities"* are permitted uses.

4. For all new structures and additions to existing structures on lands designated Urban by the State, Plan Approval will be required.

5. The project area consists of separate parcels. Therefore, on lands designated Urban by the State, all improvements must comply with the minimum setback requirements for each parcel.

Finally, we would like to have a copy of the Draft Environmental Assessment for our review and file.

If you have questions, please feel free to contact Esther Imamura or Larry Brown of this office at 961-8288, extension 257 or 258, respectively.

Sincerely,

CHRISTOPHER J. YUEN
Planning Department

ETI:cd
P:\WPWIN60\ETI\EAdraftPre-consul\TerryReed'sBayPark.rtf

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

REPLY TO
ATTENTION OF

January 6, 2006

Regulatory Branch

File No. **POH-2005-263-5**

Mr. Ron Terry
Geometrician Associates, LLC
HC2 Box 9575
Kea'au, Hawaii 96749

Dear Mr. Terry:

This responds to your request for comments or information pertaining to the environment or other impacts related to the County of Hawaii Park Improvements at Reed's Bay, TMKs (3)-2-1-05: parcels 1 and 28, (3)-2-1-06: parcels 10 and 15, an abandoned railroad right-of-way and access to Luana Street, Hilo, Hawaii. Your firm is preparing an Environmental Assessment (EA) in compliance with Chapter 343, Hawaii Revised Statutes. We have reviewed the information you submitted with respect to the Corps' authority to issue Department of the Army (DA) permits pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344).

Based on the preliminary information provided in your letter, we are unable to reach a conclusive determination whether a DA permit would be required. Any project related activity that would involve any discharge of dredge or fill material into waters of the United States, including the Pacific Ocean and adjacent wetlands will require a DA permit. Therefore, it is advised that the forthcoming EA include all water resources (i.e. identifies intermittent and perennial streams, ditches, drainage ways, wetlands, etc) and evaluates project impacts, if any, to these areas since this information is required to issue a final determination. Please send us a copy of the EA and design drawings for our review.

If you have any questions, you may contact Ms. Lolly Silva at 808-438-7023, by fax at 808-438-0460, or by electronic mail at *Laurene.L.Silva@usace.army.mil* and reference the above file number regarding this project in future correspondence.

Sincerely,

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

LINDA LINGLE
GOVERNOR OF HAWAII

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

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR

DEAN A. NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

FILE NO.: Corr HA-06-263

REF:OCCL:MC

JUN 21 2006

Ron Terry, Principal
Geometrician Associates
HC 2 Box 9575
Kea`au, HI 96749

Dear Mr. Terry:

SUBJECT: Redevelopment and Improvements
Reeds Bay Beach Park, Hilo, Hawai`i
TMKs (3) 2-1-05:1, 25; 2-1-06:10,13, 15

The Department of Land and Natural Resources (DLNR) Office of Conservation and Coastal Lands (OCCL) is in receipt of your letter of May 29, 2006 regarding the Hawai`i County Parks and Recreation Department's (P&R) proposed redevelopment of Reeds Bay Beach Park in Hilo, Hawai`i, TMKs (3) 2-1-05:1, 25; 2-1-06:10,13, 15.

While the majority of the project will occur outside the Conservation District, P&R plans to remove some concrete walkways and seawalls that are makai of the shoreline. These areas are in the Resource Subzone of the Conservation District, pursuant to Hawai`i Administrative Rules (HAR) §13-5-13 RESOURCE (R) SUBZONE (5) *Lands and state marine waters seaward of the upper reaches of the wash of waves, usually evidenced by the edge of vegetation or by the debris left by the wash of waves on shore to the extent of the State's jurisdiction, unless placed in a (P) or (L) subzone.*

The removal of the walkway and seawalls is an identified land use within the Conservation District, pursuant to Hawai`i Administrative Rules (HAR) §13-5-24 *Identified land uses in the protective subzone,* P-9 *STRUCTURES, EXISTING,* (C-1*) Demolition, removal, or alteration of existing structures, facilities and equipment.* **This use requires a permit from DLNR.** The final decision as to whether to grant or deny the permits lies with the Chair of the DLNR.

Pursuant to HAR §13-5-40 *Hearings*, a public hearing will not be required.

P&R will contract for an Environmental Assessment for the overall project.

I've enclosed a Conservation District Use Application (CDUA) for your use. You should request a Departmental Permit for the project. The permit process can run concurrently with the Environmental Assessment process. The CDUA will be given to the DLNR Chair for his consideration after all reviews and evaluations of the proposal have been made.

Should you have any questions, please contact Michael Cain at the Office of Conservation and Coastal Lands at 587-0048.

Aloha,

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

c: County of Hawai'i Planning Department

ENVIRONMENTAL ASSESSMENT

REED'S BAY BEACH PARK IMPROVEMENTS

APPENDIX 5b

COMMENTS TO DRAFT E.A. AND RESPONSES

Harry Kim
Mayor

County of Hawaii
POLICE DEPARTMENT
349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-8869

Lawrence K. Mahuna
Police Chief

Harry S. Kubojiri
Deputy Police Chief

February 12, 2007

Mr. Ron Terry
Geometrician Associates
P. O. Box 396
Hilo, Hawaii 96721

Dear Mr. Terry:

Subject: Reed's Bay Project Improvements

Staff, upon reviewing the provided documents and visiting the proposed site, does not anticipate any significant impact to traffic and/or public safety concerns.

Thank you for allowing us the opportunity to comment.

Sincerely,

James M. Day
JAMES M. DAY
ASSISTANT POLICE CHIEF
AREA I OPERATIONS

KV:lli

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

April 9, 2007

James M. Day,
Assistant Police Chief
Area I Operations
Hawai'i County Police Dept.
349 Kapiolani Street
Hilo HI 96720

Dear Mr. Day:

Subject: **Draft Environmental Assessment for Reed's Bay Beach Park Improvements, TMKs (3rd): 2-1-05:01 & 28, 2-1-6:10, 13, & 15 and portion of abandoned railroad right of way, Island of Hawai`i**

Thank you for your comment letter on the Draft EA dated February 12, 2007, in which you stated that your staff did not anticipate any significant impact to traffic or other public safety concerns. We appreciate your review of the document. If you have any questions about the project, please contact James Komata, Park Planner, at the County of Hawai'i Department of Parks and Recreation at 961-8311.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: James Komata, Park Planner, P&R
Leonard Bisel and Associates

Harry Kim
Mayor

Darryl J. Oliveira
Fire Chief

Glen P.I. Honda
Deputy Fire Chief

County of Hawai'i
HAWAI`I FIRE DEPARTMENT
25 Aupuni Street • Suite 103 • Hilo, Hawai'i 96720
(808) 981-8394• Fax (808) 981-2037

February 22, 2007

Mr. Ron Terry
Geometrician Associates
PO Box 396
Hilo, HI 96721

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
Project Name: Reed's Bay Beach Park Improvements
TAX MAP KEY: (3rd)2-1-05:01 & 28, 2-1-6:10, 13, & 15

We have no comments to offer at this time in reference to the above-mentioned Draft Environmental Assessment Consultation.

GLEN HONDA
Deputy Fire Chief

PBE:lpc

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

April 9, 2007

Glen Honda, Deputy Fire Chief
Hawaii County Fire Department
25 Aupuni Street, Suite 103
Hilo HI 96720

Dear Mr. Honda:

Subject: **Draft Environmental Assessment for Reed's Bay Beach Park Improvements, TMKs (3rd): 2-1-05:01 & 28, 2-1-6:10, 13, & 15 and portion of abandoned railroad right of way, Island of Hawai`i**

Thank you for your comment letter on the Draft EA dated February 22, 2007, in which you stated that you have no comments to offer at this time. We appreciate your review of the document. If you have any questions about the project, please contact James Komata, Planner, at the County of Hawai'i Department of Parks and Recreation at 961-8311.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: James Komata, Planner, P&R
Leonard Bisel and Associates

U.S. Department of Homeland Security
United States Coast Guard

Commander
Fourteenth Coast Guard District

300 Ala Moana Blvd, 9-216
Honolulu, HI 96850-4982
Staff Symbol: (dpw)
Phone: (808) 541-2320
Fax: (808) 541-2309

16590

Mr. Ron Terry
Geometrician Associates
P.O. Box 396
Hilo, HI 96721

FEB 20 2007

Dear Mr. Terry,

The Coast Guard has received your Draft Environmental Assessment for Reed's Bay Beach Park Improvements as well as your letter dated 4 February 2007 requesting our comments on your proposal to construct a pedestrian bridge over a neck of Reed's Bay. This information was used to determine the extent of the Coast Guard's involvement in the permitting process.

Kanakea Pond adjacent to Reed's Bay is tidally influenced and subject to Coast Guard jurisdiction. However, at the site of the proposed bridge, it does not appear that any vessels other than canoes, rowboats, rafts and small motorboats are able to transit the waterway. Therefore, this location is in our advance approval category for permitting the construction of bridges, pursuant to 33 CFR 115.70. Accordingly, a specific Coast Guard bridge permit will not be required for the project.

Plans for the proposed bridge must provide adequate clearances to pass existing and future high water stages and have no significant impact on the environment. Prior to construction of the proposed bridge, you must check with your local Floodplain Administrator. Where no formal permit is required, the bridge must meet all current needs and/or requirements of navigation. If conditions are found to differ significantly from those you have presented and by which this determination is granted, you could be required to apply for a permit and possibly alter the bridge to meet the needs of navigation.

This authorization is valid for a period of two years to commence construction and five years to complete construction from the date of this letter. Should you not adhere to this time frame, you must resubmit documents for Coast Guard review to ensure that conditions have not changed which would preclude the project from meeting the criteria for advance approval.

Maintenance of the bridge is the responsibility of the owner. If the bridge falls into disrepair or is no longer used for its intended purpose, it must be removed by and at the expense of the owner in its entirety. The bridge must be maintained free and clear of debris at all times.

As a condition to this approval, and pursuant to Title 33 of the Code of Federal Regulations, Part 118.40, you must submit a navigational lighting plan for the proposed bridge or a request to exempt the structure from Coast Guard navigational lighting requirements. Your statement of the reason for the exemption must fulfill the requirements of this section. Specifically, if it is determined that no significant nighttime navigation occurs at the bridge site, a statement to this effect is required before a decision can be made. If there is no nighttime navigation at the proposed replacement bridge site, please state so in your exemption request.

This determination does not relieve you of your responsibility to obtain appropriate permits from any other federal, state or local agency having jurisdiction in this matter.

If you have any questions or concerns, please do not hesitate to contact my representative in this matter, LT Doug Jannusch, at (808) 541-2319 or Douglas.A.Jannusch@uscg.mil

Sincerely,

B. A. HAVLIK
Commander, U. S. Coast Guard
Chief, Waterways Management Branch
By direction

Copy: Director, Office of Environmental Quality Control
Mr. James Komata, Hawai'i County Department of Parks and Recreation

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

April 9, 2007

B.A. Havlik, Commander
Chief, Waterways Mgmt. Branch
14th Coast Guard District
300 Ala Moana Blvd
Honolulu, HI 96850

Dear Commander Havlik

Subject: **Draft Environmental Assessment for Reed's Bay Beach Park Improvements, TMKs (3rd): 2-1-05:01 & 28, 2-1-6:10, 13, & 15 and portion of abandoned railroad right of way, Island of Hawai`i**

Thank you for your comment letter dated February 12, 2007, in which you stated that based on information supplied in the Draft EA, a Coast Guard bridge permit will not be required for the project. In response to your further statements, we would like to inform you that the Department of Parks and Recreation (P&R) is working closely with the Hawai'i County Department of Public Works on floodplain issues. If P&R decides to move forward with its plans for the bridge, it will submit a request to your agency to be exempt from navigational lighting requirements at the appropriate time, as there is no significant nighttime navigation. P&R is also aware of the need for a U.S. Army Corps of Engineers Section 10 or Section 404 permit as well as the possible need for a Conservation District Use Permit for the bridge. If the bridge is built, P&R will be responsible for maintenance and keeping the waterway free of debris.

Again, thank you for your comment. If you have any questions about the project, please contact James Komata, Park Planner, at the County of Hawai'i Department of Parks and Recreation at 961-8311.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: James Komata, Park Planner, P&R
Leonard Bisel and Associates

Harry Kim
Mayor

County of Hawaii
PLANNING DEPARTMENT
101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-3043
(808) 961-8288 • FAX (808) 961-8742

Christopher J. Yuen
Director

Brad Kurokawa, ASLA
LEED® AP
Deputy Director

February 22, 2007

Ron Terry, Ph.D.
Geometrician Associates, LLC
P.O. Box 396
Hilo, HI 96721

Dear Dr. Terry:

Draft Environmental Assessment (February 2007) Comments
Applicant: County of Hawaii –Department of Parks and Recreation
Request: Reed's Bay Beach Park Improvements
TMKs: 2-1-005:001 & 028, 2-1-006:010, 013 & 015

The following comments pertain to the Department of Parks and Recreation's proposal to redevelop and improve the beach park at Reed's Bay. It is our understanding that the proposed project will be constructed in two or more phases with an estimated cost of over $4 million. The overall project will include accessible walkways traversing over the entire project area, seven small pavilions, a restroom and storage structure with shower area at Reed's Bay, a restroom structure at Kuhio Kalanianaole Park, a 51-stall parking lot, a pedestrian bridge connecting Reed's Bay to Kuhio Kalanianaole Park, landscaping, drinking fountains, trash receptacles and the removal of existing structures along with a number of minor manmade obstructions that intrude within the shoreline setback area. The park will be maintained by the County's Department of Parks and Recreation.

After reviewing the Draft Environmental Assessment, the Planning Department has no objections to the project. In addition to comments within our December 8, 2005 letter, we have the following comments to be addressed within the Final Environmental Assessment:

1. Under Section 3.6.2 Hawaii County General Plan and Zoning, you note that the project site is classified as Resort. However, much of the project site is also designated as Open in the General Plan LUPAG Map. TMK: 2-1-5:1 and 2-1-6:15 are designated Open while TMK: 2-1-5:28 and 2-1-6:13 are designated Open and Resort. Please revise. Additionally, you note that the County Zoning is for the project site is Open. However, much of the project site is designated as Resort-Hotel (V-.75). TMK: 2-1-5:28 is zoned V-.75 and TMK: 2-1-6:13 is split zoned Open and V-.75.

2. Under Section 3.6.3 Hawaii State Land Use Law, you note that the property is in the State Land Use Urban District. However, TMK:2-1-6:10 is designated Conservation by the State Land Use Commission. Our Office needs to conduct further investigation into Tax Map Key: 2-1-6:10, as to the status of the property as a separate parcel. The Department of Land and Natural Resources (DLNR) has jurisdiction on any use which occurs within the Conservation District.

3. Certified Shoreline Survey: The parcels included in the request are shoreline parcels. A certified shoreline survey may be required to identify the shoreline and the 40-foot shoreline area at the time of SMA review and permitting. If improvements are proposed to be constructed within the 40-foot shoreline setback area, a Shoreline Setback Variance will need to be submitted along with the Special Management Area Use Permit.

4. According to Section 25-4-51 of the Zoning Code, off-street parking for parks shall be determined by the Planning Director at the time of Plan Approval. Parking for Phase I of the Reed's Bay Beach Park appears to be on TMK:2-1-5:28, which is proposed to be constructed in Phase II of the project.

5. Please provide an estimated time frame for the development of each phase and the overall project.

Thank you for the opportunity to provide comments on the proposed project. Please forward us a copy of the FEA upon its availability. If you have any questions, please feel free to contact Jeff Darrow at 961-8288, ext 259.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

JWD:smn

P:\public\wpwin60\CH343\2007\LTerry-ReedsBayImprov-DEAComments(2).doc

cc w/copy of letter: Office of Environmental Quality Control

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

April 9, 2007

Christopher J. Yuen, Director
Hawai'i County Planning Department
101 Pauahi Street, Suite 3
Hilo HI 96720-3043

Dear Mr. Yuen:

Subject: **Draft Environmental Assessment for Reed's Bay Beach Park Improvements, TMKs (3rd): 2-1-05:01 & 28, 2-1-6:10, 13, & 15 and portion of abandoned railroad right of way, Island of Hawai`i**

Thank you for your comment letter dated February 22, 2007, on the Draft EA. In answer to your specific comments:

1. *Project Site Zoning and LUPAG.* Section 3.6.2 of the Final EA has been amended to provide the additional detail on zoning and LUPAG categories that you have provided.

2. *Conservation District status of TMK 2-1-6:10.* This information has been added to the Final EA.

3. *Certified Shoreline Survey.* The Department of Parks and Recreation recognizes the need for a shoreline survey at the time of SMA approval and permitting and the consultant will be submitting the required documents necessary for determination by the State Surveyor as we get closer to needing it. The intent is to avoid unnecessary structures within the setback area, and the design will be modified if at all practicable to avoid the need for a Shoreline Setback Variance.

4. *Off-street parking.* Ron Thiel, P.E., Chief of the Department of Public Works' Traffic Division clarified that on street parking at both sides of Banyan Drive is currently allowable under the Hawai'i County Code provided the driveway accesses to the beach park site are restricted from public use as is the intent of this project. Upon elimination of these driveways, the parking control signs can be modified to allow parking as appropriate. Parking stalls should not be individually striped; street cleaning wears the paint away quickly and adds to the maintenance demands on DPW staff. The Department of Parks and Recreation will work with DPW to establish maximum allowable space for on-street parking to service the park.

5. *Estimated time frame.* The exact time frame for the project has not yet been established, however, it is projected that the Phase I construction work will begin following summer, in the latter part of 2007.

Again, thank you for your comment. If you have any questions about the project, please contact. James Komata, Planner, at the County of Hawai'i Department of Parks and Recreation at 961-8311.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: James Komata, Planner, P&R
Leonard Bisel and Associates

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

REPLY TO
ATTENTION OF

March 5, 2007

Regulatory Branch

File No. **POH-2005-263-5**

Ron Terry
Geometrician Associates, LLC
P.O. Box 396
Hilo, HI 96721

Dear Mr. Terry:

This is in response to your letter dated February 5, 2007 for comments on a draft Environmental Assessment (EA) prepared for Reed's Bay Beach Park Improvements, Hilo, Hawaii Island, Hawaii Island, Hawaii (TMKs: (3) 2-1-05:01 and 28; 2-1-6:10, 13 and 15 and a portion of an abandoned railroad right of way). We have reviewed the information you provided under the Corps' authority to issue Department of the Army (DA) permits pursuant to Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 USC 403) and Section 404 of the Clean Water Act (CWA) (33 USC 1344).

Based on the information provided on behalf of the applicant, the Department of Parks and Recreation, County of Hawaii, and our available resources we have determined certain portions of the proposed project described are located in or in the near vicinity Reed's Bay, a jurisdictional water of the U.S; **therefore, a DA permit will be required for the following proposed activities:**

a. Demolition and removal of the existing concrete slabs and sea walls as referenced as structures C and D in Photo Reference Sheet 2.

b. Construction of the proposed 175 ft clear span pedestrian bridge.

c. Any other related activity/construction within Reed's Bay

No permit is required for the proposed demolition and removal of the concrete sides walks (structures A and B) and existing restroom and shower (structures E and F) as referenced in Photo Reference Sheets 1 and 3, respectively, providing all demolition and removal is conducted without entry to the ocean and best management practices (BMPs) are implemented to prevent discharges of demolished material (fill) from entering the adjacent waters.

Should you have any questions regarding this jurisdictional determination and permit requirements, please contact Ms. Joy Anamizu by phone at 808-438-7023, or by e-mail at *joy.n.anamizu@usace.army.mil* and refer to the file number above.

Sincerely,

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

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

April 9, 2007

George P. Young, P.E.
Chief, Regulatory Branch
U.S. Army Engineer District,
Ft. Shafter, HI 96858-5440

Dear Mr. Young:

Subject: **Draft Environmental Assessment for Reed's Bay Beach Park Improvements, TMKs (3rd): 2-1-05:01 & 28, 2-1-6:10, 13, & 15 and portion of abandoned railroad right of way, Island of Hawai`i**

Thank you for your comment letter dated March 5, 2007, on the Draft EA. In answer to your specific comments:

1. *Permits required for demolition of Structures C and D, 175-foot clear-span bridge, and any related construction/activity within Reed's Bay.* Thank you for providing this determination. If and when these project components are implemented, the Department of Parks and Recreation will be contacting your office to initiate the permit process.

2. *No permits required for demolition of structures A, B, E and F, provided no ocean entry and appropriate BMPs.* Thank you for this determination. Construction will not require ocean entry, and a number of construction BMPs specific to the coastal context will be required as part of the NPDES permit and construction contract for the project.

Again, thank you for your review of the document. If you have any questions about the project, please contact James Komata, Park Planner, at the County of Hawai'i Department of Parks and Recreation at 961-8311.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: James Komata, Park Planner, P&R
Leonard Bisel and Associates

LINDA LINGLE
GOVERNOR OF HAWAI'I

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
LEIOPAPA A KAMEHAMEHA, SUITE 702
HONOLULU, HAWAI'I 96813
Telephone (808) 586-4185
Facsimile (808) 586-4186
Electronic Mail: OEQC@doh.hawaii.gov

March 02, 2007

Ms. Patricia G. Engelhard, Director
Department of Parks and Recreation, County of Hawaii
101 Pauahi Street, Suite 6
Hilo, Hawai'i 96720

Dr. Ron Terry
Geometrician Associates
P.O. Box 396
Hilo, Hawai'i 96721

Dear Ms. Engelhard and Dr. Terry:

The Office of Environmental Quality Control has reviewed the draft environmental assessment for the Reed's Bay Beach Park Improvements, Tax Map Key Number (3rd) 2-1-05, parcels 001 and 028, 2-1-06, parcels 10, 13 and 15, a a portion of the abandoned railroad right-of-way, in the judicial district of South Hilo, submitted to the Office of Environmental Quality Control by way of a January 25, 2007, agency letter. The Office of Environmental Quality Control offers the following comments for your consideration and response.

1. ***Sustainable Building and Landscaping:*** The Office of Environmental Quality Control's Internet site contains guidance that may be of use to the department in construction at the project site at http://www.state.hi.us/health/oeqc/guidance/sustainable.htm. We ask the department to consider the use of native and indigenous vegetation for landscaping purposes. An excellent resource to guide in the planning and design of such plantings can be found at http://www.state.hi.us/health/oeqc/garden/index.html.

Thank you for the opportunity to comment. If there are any questions, please call Mr. Leslie Segundo, Environmental Health Specialist, at (808) 586-4185.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON
Director of Environmental Quality Control

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

April 9, 2007

Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu HI 96813

Dear Ms. Salmonson:

Subject: **Draft Environmental Assessment for Reed's Bay Beach Park Improvements, TMKs (3rd): 2-1-05:01 & 28, 2-1-6:10, 13, & 15 and portion of abandoned railroad right of way, Island of Hawai`i**

Thank you for your comment letter on the Draft EA dated March 2, 2007, in which you supplied a reference to your guidelines on sustainable building and landscaping. We are aware of and appreciate these guidelines. The project, designed by a landscape architect with expertise in native plants, principally involves landscape improvements that take advantage of natural features and incorporates mainly native and Polynesian plants. Structures are minimal and utilize natural lighting and ventilation wherever practicable.

Thank you for your review of the document. If you have any questions about the project, please contact. James Komata, Planner, at the County of Hawai'i Department of Parks and Recreation at 961-8311.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: James Komata, Planner, P&R
Leonard Bisel and Associates

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

March 13, 2007

Mr. Ron Terry
Geometrician Associates, LLC
P.O. Box 396
Hilo, HI 96721

DRAFT ENVIRONMENTAL ASSESSMENT
REED'S BAY BEACH PARK IMPROVEMENTS
TAX MAP KEY 2-1-005:001 AND 028; 2-1-006:010, 013, 015, AND PORTION OF ABANDONED RAILROAD RIGHT-OF-WAY

This is in response to your Draft Environmental Assessment for the subject project.

Water is available from an existing 12-inch waterline within Banyan Drive and an existing 6-inch waterline within Kalanianaole Street. Tax Map Key 2-1-005:001 has an existing service lateral installed to it capable of accommodating a 1-inch meter. Tax Map Key 2-1-005:028 has an existing service lateral installed to it capable of accommodating a 4-inch meter. Tax Map Key 2-1-006:010, 013, and 015 does not have existing services.

The Department has no objection to the proposed project, subject to the following conditions:

1. Submit estimated maximum daily water usage calculations provided by a professional engineer licensed in the State of Hawai'i. The calculations should include the estimated peak flow in gallons per minute and the total estimated maximum daily water usage in gallons per day, including all irrigation/landscaping water use.

2. Based on the calculations provided in Item 1, the Department will determine the water commitment deposit and facilities charge (subject to change) to be paid, if necessary. If the existing meters cannot accommodate the estimated demand, a larger or additional meter will need to be installed. Construction plans for the larger meter installation would also be required.

3. A reduced pressure type backflow prevention assembly must be installed within five (5) feet of the existing meters on private property. If a larger or additional meter is required (per Item 2 above), a reduced pressure type backflow prevention assembly must also be installed within five (5) of the meter. The installation of the backflow prevention assembly(s) must be inspected and approved by the Department prior to commencement of water service.

4. Subject to other agencies' requirements to construct improvements within the road right-of-way fronting the property affected by the proposed development, the applicant shall be responsible for

the relocation and adjustment of the Department's affected water system facilities, should they be necessary.

Should there be any questions, you may contact Mr. Finn McCall of our Water Resources and Planning Branch at 961-8070, extension 255.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

FM:dfg

copy - Office of Environmental Quality Control
Mr. James Komata, County of Hawai'i, Department of Parks and Recreation

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

April 9, 2007

Milton D. Pavao, Manager
Hawai`i County Dept. of Water Supply
345 Kekuanaoa Street, Suite 20
Hilo HI 96720

Dear Mr. Pavao:

Subject: **Draft Environmental Assessment for Reed's Bay Beach Park Improvements, TMKs (3rd): 2-1-05:01 & 28, 2-1-6:10, 13, & 15 and portion of abandoned railroad right of way, Island of Hawai`i**

Thank you for your comment letter on the Draft EA dated March 13, 2007, in which you stated that water was available via a 12-inch waterline and that your Department had no objections to the proposed project, subject to certain conditions. The Department of Parks and Recreation has reviewed the conditions presented and agrees to comply with each at the appropriate times in the project's implementation.

Thank you for your review of the document. If you have any questions about the project, please contact James Komata, Park Planner at 961-8311.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: James Komata, Park Planner, P&R
Leonard Bisel and Associates

Harry Kim
Mayor

Bruce C. McClure
Director

Jiro A. Sumada
Deputy Director

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
Aupuni Center
101 Pauahi Street, Suite 7 · Hilo, Hawaii 96720-4224
(808) 961-8321 · Fax (808) 961-8630

March 12, 2007

Geometrician Associates
P. O. Box 396
Hilo, Hawaii 96721

SUBJECT: **DRAFT ENVIRONMENTAL ASSESSMENT**
Reed's Bay Beach Park Improvements
Tax Map Keys: 2-1-05:001 & 028, 2-1-06:010, 013, & 015

We have reviewed the subject project as described in the report attached to your memo received February 8, 2007 and offer the following comments for your consideration.

All development-generated runoff shall be disposed of on site and shall not be directed toward any adjacent properties. A drainage study should be prepared and the recommended drainage system shall be constructed meeting the approval of the Department of Public Works.

The subject parcels are located within Flood Zone VE as designated on the Flood Insurance Rate Map (FIRM) by the Federal Emergency Management Agency (FEMA). Flood Zone VE is the Special Flood Hazard Area inundated by the 100-year coastal flood with velocity hazard where base flood elevations have been determined. Construction within the designated flood zone shall conform to the requirements of Chapter 27, Flood Control, of the Hawaii County Code.

Access to Banyan Drive shall conform to Chapter 22, County Streets, of the Hawaii County Code and will require a permit from the Department of Public Works.

All earthwork activity, including grading and grubbing, shall conform to Chapter 10, Erosion and Sedimentation Control, of the Hawaii County Code.

Questions may be referred to Mr. Kelly Gomes of the Engineering Division at (808) 961-8327.

for GALEN M. KUBA, Division Chief
Engineering Division

KG

c: Director, Office of Environmental Control
James Komata, Hawaii County Dept. of Parks & Recreation

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

April 9, 2007

Galen M. Kuba, Division Chief
Engineering Division
Hawaii County Department of Public Works
101 Pauahi Street, Suite 7
Hilo HI 96720-4424

Dear Mr. Kuba

Subject: **Draft Environmental Assessment for Reed's Bay Beach Park Improvements, TMKs (3rd): 2-1-05:01 & 28, 2-1-6:10, 13, & 15 and portion of abandoned railroad right of way, Island of Hawai`i**

Thank you for your comment letter dated March 12, 2007, on the Draft EA. In answer to your specific comment:

1. *Disposition of runoff and drainage study.* The project will include a drainage study and will comply with all drainage regulations.

2. *VE Flood Zone.* Thank you for confirming the information contained in the EA. All elements of the project are expected to be fully compliant with Chapter 27 or a variance will be sought as allowed for thereby.

3. *Conformance with Chapter 22, County Streets.* The project will comply with this chapter.

4. *Conformance with Chapter 10, Erosion and Sedimentation Control.* Grading and NPDES permits will contain plans that specify how the project will comply with this chapter.

Again, thank you for your comments. If you have any questions about the project, please contact James Komata at 961-8311.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: James Komata, Park Planner, P&R
Leonard Bisel and Associates

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 12, 2007

Geometrician Associates
Box 396
Hilo, Hawaii 96721
Attention: Mr. Ron Terry

Office of Environmental Quality Control
235 South Beretania Street Suite 702
Honolulu, Hawaii 96813

Gentlemen:

Subject: Draft Environmental Assessment for Reed's Bay Beach Park Improvements, Hilo, Hawaii, Tax Map Key: (1) 2-1-5:1, 28; 2-1-6:10, 13, 15

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

Other than the comments from Land Division – Hawaii District, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Russell Y. Tsuji
Administrator

Attn JAMES KOMATA
3 pgs

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2007 FEB 13 A 2:19
RECEIVED
LAND DIVISION
HILO, HAWAII

2007 MAR -9 A 10:15
RECEIVED
LAND DIVISION

3.7.07

February 9, 2007

MEMORANDUM

From: To:

DLNR Agencies:
_x Div. of Aquatic Resources
_x Div. of Boating & Ocean Recreation
__Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
__Div. of Water Resource Management
_x Office of Conservation & Coastal Lands
_x Land Division – Hawaii District

To:

FROM: Russell Y. Tsuji
SUBJECT: Draft Environmental Assessment for Reed's Bay Beach Park Improvements
LOCATION: Hilo, Hawaii, TMK: (3) 2-1-5:1, 28; 2-1-6:10, 13, 15
APPLICANT: Geometrician Associates on behalf of Hawaii County Department of parks and Recreation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by March 11, 2007.

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

Attachments

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

Signed:
Date: 3/7/07

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HAWAII DISTRICT LAND OFFICE
75 Aupuni Street, Room 204
Hilo, Hawaii 96720
TEL: (808) 974-6203
FAX: (808) 974-6222

November 9, 2006

TO: **Russell T. Tsuji, Administrator**
DLNR-Land Division

FROM: **Gordon Heit, Land Agent**
Hawaii District Land Office

SUBJECT: **Request for Comments, Draft Environmental Assessment for Reed's Bay Beach Park Improvements, South Hilo, Hawaii, TMK: 3rd/2-1-05:28.**

HDLO staff has reviewed the Count of Hawaii's request for a draft EA and has comments pertaining to the above-mentioned property.

The property is currently encumbered under RP S-7164 issued to the county in 1999 for parking purposes and can be cancelled upon thirty days notice. Land Division staff is currently exploring possible alternative uses for this property including sale of leasehold for hotel and resort purposes. Any long term improvements made by the county should not be undertaken at this time.

As for other State-owned properties identified in the draft EA, HDLO has no objections.

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 PO Box 396 Hilo Hawaii 96721 rterry@hawaii.rr.com

April 9, 2007

Russell Y. Tsuji, Administrator
Hawai'i State DLNR-Land Division
P.O. Box 621
Honolulu HI 96809

Dear Mr. Tsuji:

Subject: **Draft Environmental Assessment for Reed's Bay Beach Park Improvements, TMKs (3rd): 2-1-05:01 & 28, 2-1-6:10, 13, & 15 and portion of abandoned railroad right of way, Island of Hawai`i**

Thank you for your comment letter dated March 12, 2007, on the Draft EA. The Department of Parks and Recreation understands that DLNR is exploring alternative uses for TMK 2-1-05:28. However, the County submitted a formal request to your department for set aside of the subject property for expansion of Reed's Bay Beach Park which your division acknowledged on September 1, 2005 (Ref No 05-HD 199). To date, we have not received an official response following your pursuit of agency comments nor has our request been forwarded to the Board of Land and Natural Resources for consideration. We had been advised by your department's staff to come up with prospective plans for the development of the site as a park to convey the County's commitment to improving the parcel and show the potential asset the site could be as additional park land. We took the opportunity to pursue this, to express our sincerity in obtaining the requested EO, in conjunction with developing plans to improve the existing park. This draft EA represents that effort; it provides for improvements to the existing park and illustrates the potential for expansion of the park onto parcel 28. While the improvements to the existing park may occur independently and ahead of the development of parcel 28, the conceptual plans clearly show that the expansion of the park onto parcel 28 exponentially enhances its overall character, quality and capacity. It allows us to provide sufficient public parking off of the beach area and away from the shoreline, it provides for numerous picnic pavilions and other beach park amenities to serve the public, it preserves for public use the popular children's swimming area immediately makai of the parcel, creates an attractive park area for all the public (residents and visitors alike) to enjoy, and it preserves and enhances the openness and scenic quality from and along Banyan Drive. It was also advantageous for us to include this work as a future second phase in the current Environmental Assessment process to gather necessary comments on feasibility of the effort, potentially unknown issues and offer the whole vision for comments and holistic impacts.

Also, I would like to thank you for distributing the EA among DLNR agencies for review and comment. If you have any questions about the project, please contact. James Komata, Park Planner, at the County of Hawai'i Department of Parks and Recreation at 961-8311.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: James Komata, Park Planner, P&R
Leonard Bisel and Associates

ENVIRONMENTAL ASSESSMENT

REED'S BAY BEACH PARK IMPROVEMENTS

APPENDIX 6

USFWS LIST OF BEST MANAGEMENT PRACTICES FOR PROJECTS INVOLVING WORK WITHIN SHORELINE AND SUBMERGED AREAS

The following list was provided from the U.S. Fish and Wildlife Service as part of an informal comment.

US Fish and Wildlife Service
Recommended Standard Best Management Practices

The Fish and Wildlife Service recommends that the following measures be incorporated into projects to minimize the degradation of water quality and impacts to fish and wildlife resources:

a. Turbidity and siltation from project-related work shall be minimized and contained to within the vicinity of the site through the appropriate use of effective silt containment devices and the curtailment of work during adverse tidal and weather conditions;

b. dredging/filling in the marine environment shall be scheduled to avoid coral spawning and recruitment periods;

c. dredging and filling in the marine/aquatic environment shall be designed to avoid or minimize the loss special aquatic site habitat (coral reefs, wetlands etc.) and the unavoidable loss of such habitat shall be compensated for;

d. all project-related materials and equipment (dredges, barges, backhoes etc) to be placed in the water shall be cleaned of pollutants prior to use;

e. no project-related materials (fill, revetment rock, pipe etc.) should be stockpiled in the water (intertidal zones, reef flats, stream channels, wetlands etc.);

f. all debris removed from the marine/aquatic environment shall be disposed of at an approved upland or ocean dumping site;

g. no contamination (trash or debris disposal, alien species introductions etc.) of adjacent marine/aquatic environments (reef flats, channels, open ocean, stream channels, wetlands etc.) shall result from project-related activities;

h. fueling of project-related vehicles and equipment should take place away from the water and a contingency plan to control petroleum products accidentally spilled during the project shall be developed. Absorbent pads and containment booms shall be stored on-site, if appropriate, to facilitate the clean-up of accidental petroleum releases;

i. any under-layer fills used in the project shall be protected from erosion with stones (or core-loc units) as soon after placement as practicable; and

j. any soil exposed near water as part of the project shall be protected from erosion (with plastic sheeting, filter fabric etc.) after exposure and stabilized as soon as practicable (with vegetation matting, hydroseeding etc.).

The Fish and Wildlife Service believes that incorporation of these measures into projects will greatly minimize the potential for project-related adverse impacts to fish and wildlife resources.