FINAL

ENVIRONMENTAL IMPACT STATEMENT
US DEPARTMENT OF THE ARMY
PERMIT APPLICATION

WAIKOLOA BEACH RESORT

Waikoloa, South Kohala District, Island of Hawai'i

US Army Corps
of Engineers
Honolulu District

September 1985

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ENVIRONMENTAL IMPACT STATEMENT

U.S. DEPARTMENT OF THE ARMY PERMIT APPLICATION
(FILE NO. PODCO-O 1812-SD)

WAIKOLOA BEACH RESORT

WAIKOLOA, SOUTH KOHALA DISTRICT, ISLAND OF HAWAI'I, STATE OF HAWAI'I

PREPARED BY:

U.S. ARMY ENGINEER DISTRICT

HONOLULU

SEPTEMBER 1985

ENVIRONMENTAL CENTER
University of Hawaii
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SUMMARY

1. This is a Final Environmental Impact Statement prepared by the U.S. Army Corps of Engineers, Honolulu District for U.S. Department of the Army permit application, File Number PODCO-0 1812. In the permit application, Transcontinental Development Co. and Atpac Land Co., the applicants, have requested authorization under Section 10, Rivers and Harbors Act of 1899 and Section 404, Clean Water Act, as amended, to excavate a 5-acre recreational lagoon at the head of Waiulua Bay and to fill anchialine ponds on portions of the Waikoloa Beach Resort (WBR) properties. The work would be performed in conjunction with their plans to construct three, luxury resort hotels and a luxury resort condominium, as part of a major resort destination complex. A 12-acre anchialine pond preservation area would be created as part of the proposed action, and the preserve would be managed by the U.S. Fish and Wildlife Service.

2. Purpose and Need for the Proposed Action

The applicants have stated that their proposed action would allow the construction of a major resort destination complex consistent with State and County land use plans for Waikoloa, and that their proposed development is part of the overall development that has already occurred at Waikoloa. They have further asserted that the proposed development would fulfill a publicly recognized need for more employment opportunities and increased economic activity on the island of Hawaii and would increase the range and number of recreational facilities available to residents of the island of Hawaii.

3. Beneficial and Adverse Impacts of the Proposed Action

a. Beneficial Impacts.

(1) The proposed resort development would increase employment opportunities and economic activity on the island of Hawaii, in conjunction with adjacent resort developments, at a time when the decline in Hawaii's sugar industry threatens to undermine the County's economic base. The proposed development would provide immediate and long-term employment based on tourism, and would increase in housing development and leisure recreational opportunities. Public access to the shoreline, low income/worker housing and public parks would also be provided in accordance with County of Hawaii approvals. Historic site preservation and restoration would be provided, and archaeological data recovery would be implemented for any sites destroyed by the development. A Hawaiian coastal trail would be reconstructed.

(2) The proposed lagoon would provide a safe water recreation area and the proposed fill would provide tsunami flood protection for structures built in the tsunami inundation hazard zone. Funding for management of a proposed Anchialine Pond Preservation Area would allow scientific investigations of the anchialine pond resource and would protect the remaining resource from human disturbance.

b. Adverse Impacts.

(1) The proposed action would fill about 70% of the anchialine ponds at the WBR. The remaining unfilled ponds would be protected in a managed, Anchialine Pond Preservation Area. This loss represents a 20% reduction in the number of anchialine ponds in the State of Hawaii. Some archaeological sites would be destroyed after archaeological data recovery. Groundwater flow and leakage near the coastline would be altered, but no adverse impact on the remaining anchialine pond biota is expected. The existing vegetation would be replaced by landscaped vegetation. The rugged lava fields and open space would be visually replaced by the development. No endangered or threatened species, potable water supplies, commercial and recreational fishing resources are affected by the loss of anchialine ponds.

(2) The proposed development would increase demands on water and power resources and infrastructure. Social conflicts and loss of traditional values could result from increased tourism and a change from an agricultural based economy to a service economy. A rise in crime is expected to occur with tourism and population increase. Although the proposed development would result in economic benefits to the County of Hawaii, economic diversification is needed for a balanced County economy.

4. Summary of Major Conclusions and Issues

a. The proposed action and 5 alternatives are evaluated in this Final EIS. The proposed action and Alternatives 1, 2, 3 and 5 involve the loss and preservation of anchialine ponds, and differ in the amount of anchialine ponds preserved at WBR. The proposed action and Alternatives 2 and 5 preserve 12 acres of ponds. Alternative 1 preserves about 14.5 acres. Alternative 3 preserves about 39 acres. Alternative 4 involves filling only a few ponds, and some development could occur. The Permit Denial Alternative and the No-Action Alternative could preserve all the ponds at the WBR.

b. However, all the preserved or unfilled ponds face the threat of degradation of habitat and loss of the unique anchialine pond organisms due to the human introduction of exotic fish into the anchialine ponds. Similarly, all the preserved or unfilled ponds face the probability of degradation due to human development around the ponds that can occur outside the jurisdiction of the Corps. Thus, the preferred environmental alternative allows some development while preserving, protecting and managing the greatest number of anchialine ponds in the area.

5. Areas of Controversy

a. The U.S. Environmental Protection Agency (EPA), Region IX, in review of the Draft Environmental Impact Statement (DEIS) expressed its opinion that the DEIS did not adequately assess significant impacts to the anchialine ponds, did not consider the rare and endangered status of the species, did not assess the State-wide loss of anchialine ponds, did not

assess alternatives subject to Section 404, CWA, and did not adequately explain the proposed development. EPA further indicated that it believed that the proposed action potentially violated Section 404, CWA.

b. The Corps of Engineers has considered EPA's opinions and concerns in development of the FEIS. A detailed response to EPA's opinions and concerns is provided in Appendix K. Several meetings were held between the Corps, EPA and the applicants to clarify EPA interpretation of Section 404 requirements. In a further attempt to resolve EPA's concerns, the Corps of Engineers invited EPA to participate in the preparation of the FEIS. A staff member of EPA, Region IX, was present at the Honolulu District Office during the initial stages of FEIS preparation.

6. Issues to be Resolved

a. The development of a Memorandum of Agreement for the protection of historic and archaeological sites with the U.S. Advisory Council on Historic Preservation would be completed prior to a decision on the Department of the Army permit.

b. The Anchialine Pond Management Plan and funding for the plan would be completed prior to a decision on the Department of the Army permit.

c. The Corps Section 404(b)(1), Clean Water Act, analysis would be completed prior to a decision on the Department of the Army permit.

CHAPTER I

PURPOSE AND NEED FOR THE PROPOSED ACTION

(a) The applicants, Transcontinental Development Co. and Atpac Land Co., propose to construct three luxury resort hotels and a luxury resort condominium on portions of the Waikoloa Beach Resort. The Waikoloa Beach Resort is a major-resort zoned area at Waikoloa, South Kohala District, Island of Hawaii. The applicants' proposed development involves about 130 acres of the coastal portion of the Waikoloa Beach Resort properties, and is intended to provide a resort destination in South Kohala in conformance with the existing County of Hawaii General Plan and land use zoning.

(b) The proposed development lies within the Coastal High Hazard (tsunami) Zone as determined by the Federal Insurance Administration. The Hawaii County Code requires elevating the lowest habitable floor of structures within a Coastal High Hazard Zone, so that their supporting members are above the 100-year base flood elevation (supporting pilings and columns may be below that elevation). The applicant proposes to use fill to raise the ground elevation of low-lying coastal areas above the base flood elevation to conform with County codes. The filling activities also involve the filling anchialine ponds at Waikoloa.

(c) The applicants have also sited the resort facilities on the anchialine ponds, such that structural fill is required for the building footings. The structural fill also involves filling anchialine ponds at Waikoloa.

(d) The rocky shoreline and periodic storm waves make water-contact recreation along the shoreline hazardous, and discourages the construction of a swimming area and beach along the shoreline. Thus, the applicants propose to create a 5-acre lagoon to include an artificial beach as a means of providing a safe water recreation area. A foot-bridge would connect the northern and southern sides of Waiulua Bay, allowing continuous public access along the shoreline. The excavation of the 5-acre lagoon involves the excavation of anchialine ponds.

(e) The applicants indicated that the proposed development would fulfill a publicly recognized need to increase employment and economic opportunities on the island, at a time when the decline of the sugar industry threatens the island's economy. The proposed resort would also increase the range and number of recreational facilities available to residents of Hawaii and serve as a major tourist destination.

CHAPTER II

ALTERNATIVES INCLUDING THE PROPOSED ACTION

I. REGIONAL BACKGROUND

(a) The South Kohala coastal area is recognized in the State of Hawai'i and Hawai'i County land use plans as a desirable location for large-scale resort development (see Figure II-1). The Queen Ka'ahumanu Highway, Keahole Airport, Kawaihae Harbor, and the Lalamilo Water System are the major Federal, State and County investments in infrastructure that were made to support anticipated development in the region. In conjunction with these government-sponsored and constructed projects, private landowners have developed several large resort complexes and water systems in the region. Aggregate private expenditures to date for the resorts are estimated to have exceeded $100-million (Belt, Collins & Associates, 1985).

(b) Plans for the 31,000-acre Waikoloa project were first announced by Boise Cascade in the late 1960s. In 1968 the State Land Use Commission granted Urban designation for approximately 500 acres of land bordering 'Anaeho'omalu and Waiulua Bays to allow development of the first phase of the Waikoloa Beach Resort (WBR). In 1971, the County of Hawai'i designated the WBR as a "Major Resort" in its general plan, and initial County zoning for the resort was granted by the County Council. In 1977 County Ordinance No. 265 adjusted zoning to match revised parcel boundaries. A Special Management Area Use Permit for the entire resort makai (seaward) of the King's Trail was also issued in 1977. Development plans for the shoreline portions of the WBR have subsequently been revised and necessary changes in County zoning obtained (see Figure II-2).

(c) The present County of Hawaii Land Use Plans for the WBR provide for the ultimate development of approximately 3,000 hotel rooms and 3,400 single- and multi-family residential units. However, the 543-room Sheraton Royal Waikoloa Hotel is the only hotel constructed thus far. Ground-breaking for the first increment of "The Shores at Waikoloa" condominium project occurred in mid-1984, and initial occupancy is scheduled for 1985. This leaves slightly over 2,200 additional hotel rooms and about 3,300 resort residential units still to be constructed within the WBR under approved land use plans.

(d) Mixohaline, landlocked ponds are a unique geological feature along the West Coast of Hawaii; the term "anchialine" has been coined and used to describe them (Holthius, 1977). The ponds provide a habitat for a distinctive and unique assemblage of organisms, including rare shrimp species. The most striking elements of the ponds are the red-pigmented shrimp, 'opae'ula (Halocaridina rubra) and the orange-rust colored algal mat (Schizothrix sp.). In April 1974, Maciolek and Brock published the first biological baseline survey of these ponds. The survey, administered in part by the County of Hawaii Planning Department, surveyed about 318 ponds in five County Districts, including South Kohala. Eight areas of "exceptional" and 4 areas of "significant" natural geological and biological quality were identified. One of the exceptional areas was the 'Anaeho'omalu-Waiulua bay area at Waikoloa. Maciolek and Brock indicated that the 'Anaeho'omalu-Waiulua Bay area had the largest single concentration of anchialine ponds on the Kona coast that included representative anchialine communities, an unusual occurrence of many marine fishes in low-salinity water, and the presence of a rare moray eel, Gymnothorax hilonis.

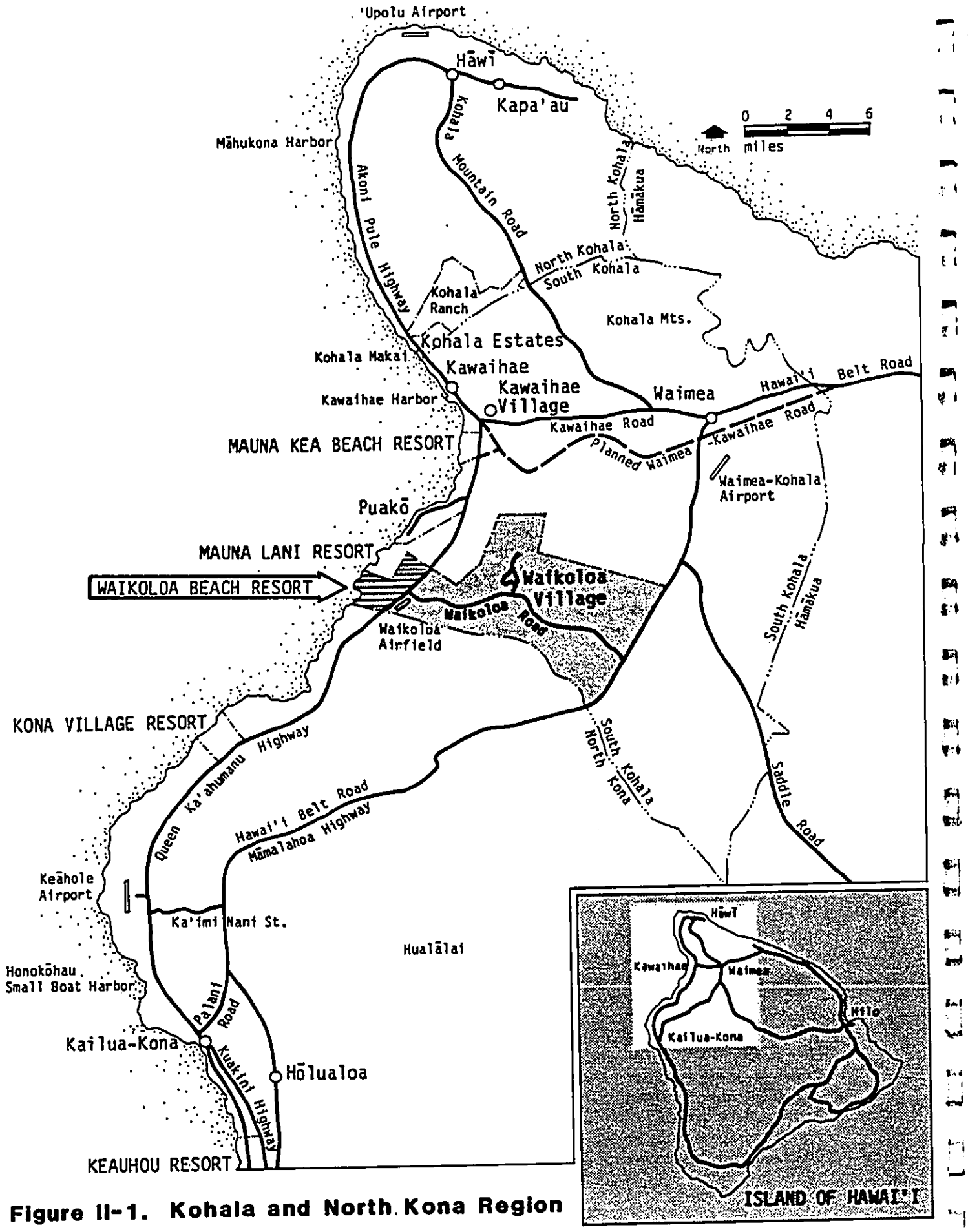


Figure II-1. Kohala and North Kona Region

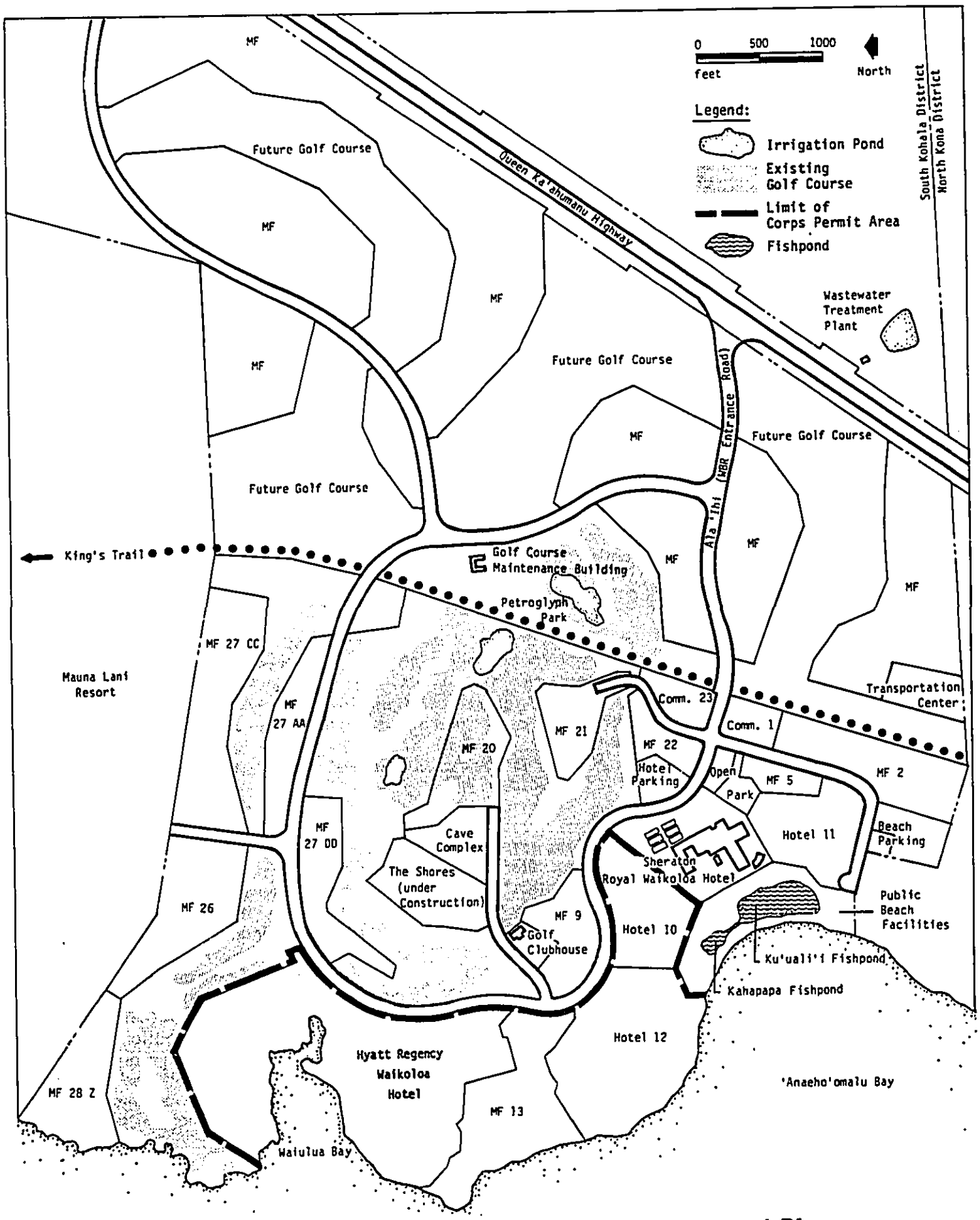


Figure II-2 Waikoloa Beach Resort Development Plan

(e) A detailed site inventory of Waikoloa (Oceanic Institute, 1977 and 1984), identified approximately 215 anchialine ponds within the WBR (see Figure II-3). The ponds are near the shoreline and extend from Waiulua Bay to 'Anaeho'omalu Bay. The survey indicated that the 'Anaeho'omalu-Waiulua Bay area of the WBR remains the largest, single concentration of anchialine ponds on the Kona coast, as well as the State of Hawaii. The anchialine ponds continue to contain representative anchialine communities, but the occurence of the marine fish has diminished and the rare eel has not been found (Oceanic Institute, 1984).

(f) In 1985, the Oceanic Institute, in response to a request from the Corps of Engineers, surveyed 311 ponds between Lahuipuaa and Kailua-Kona to determine the condition of the anchialine pond resource. About 57% of the areas surveyed showed a decrease in shrimp species and an increase in the spread of exotic fish. Of the 3 exceptional areas within the survey area identified by Maciolek and Brock in 1974, only one, the 'Anaeho'omalu-Waiulua Bay area, did not contain exotic fish. The remaining exceptional areas had declines in the distribution of the shrimp species and an increase in the presence of exotic fish.

(g) Kahapapa and Ku'uali'i fishponds are at the head of 'Anaeho'omalu Bay: they lie within an area zoned "open" by the County of Hawaii that also encompasses approximately 15 anchialine ponds. As part of the open-space zoning, an archaeological site near the ponds was restored, and a trail with interpretive signs was constructed. All the anchialine ponds and the two fishponds on the WBR, as well as in the shoreline area, are under the Corps of Engineers' regulatory jurisdiction.

2. ALTERNATIVES CONSIDERED

(a) In September 1984, Transcontinental Development Co. submitted a Department of the Army permit application requesting authorization to excavate and fill more than 80 anchialine ponds within a 60+ acre site at the WBR for the purpose of constructing a 1,250-room luxury resort hotel (the Hyatt Regency Waikoloa Hotel). The proposal did not provide for avoidance of any anchialine ponds within the hotel site or mitigation for those losses. Therefore, the Corps did not accept the permit for processing immediately. Rather, it engaged in the preliminary steps described below to reach the point where an application which gave consideration to those factors was submitted.

(b) Following discussions between the applicant, U.S. Fish and Wildlife Service and the Corps of Engineers to explore ways to avoid or mitigate anchialine pond loss on the property, the Transcontinental Development Co. revised the Hyatt plans, reconfiguring the parking lot, tennis courts and health spa in an effort to avoid ponds on the Hyatt Hotel site. As efforts to avoid filling ponds continued, Transcontinental Development Co. indicated that the successful development of the WBR would depend upon utilization of other WBR lands containing anchialine ponds. Accordingly, the U.S. Army Corps of Engineers recommended that Transcontinental Development Co. revise its permit application to consider of all the anchialine ponds on the WBR. The Corps of Engineers believed that broadening the scope of the permit application would provide a better means to evaluate comprehensively the anchialine pond resources at WBR, rather than by piecemeal evaluations of ponds on a permit-by-permit basis. The Corps of Engineers' basic objective was to assure that long-term management and maintenance of anchialine ponds at Waikoloa was considered together with other competing demands for the resource.

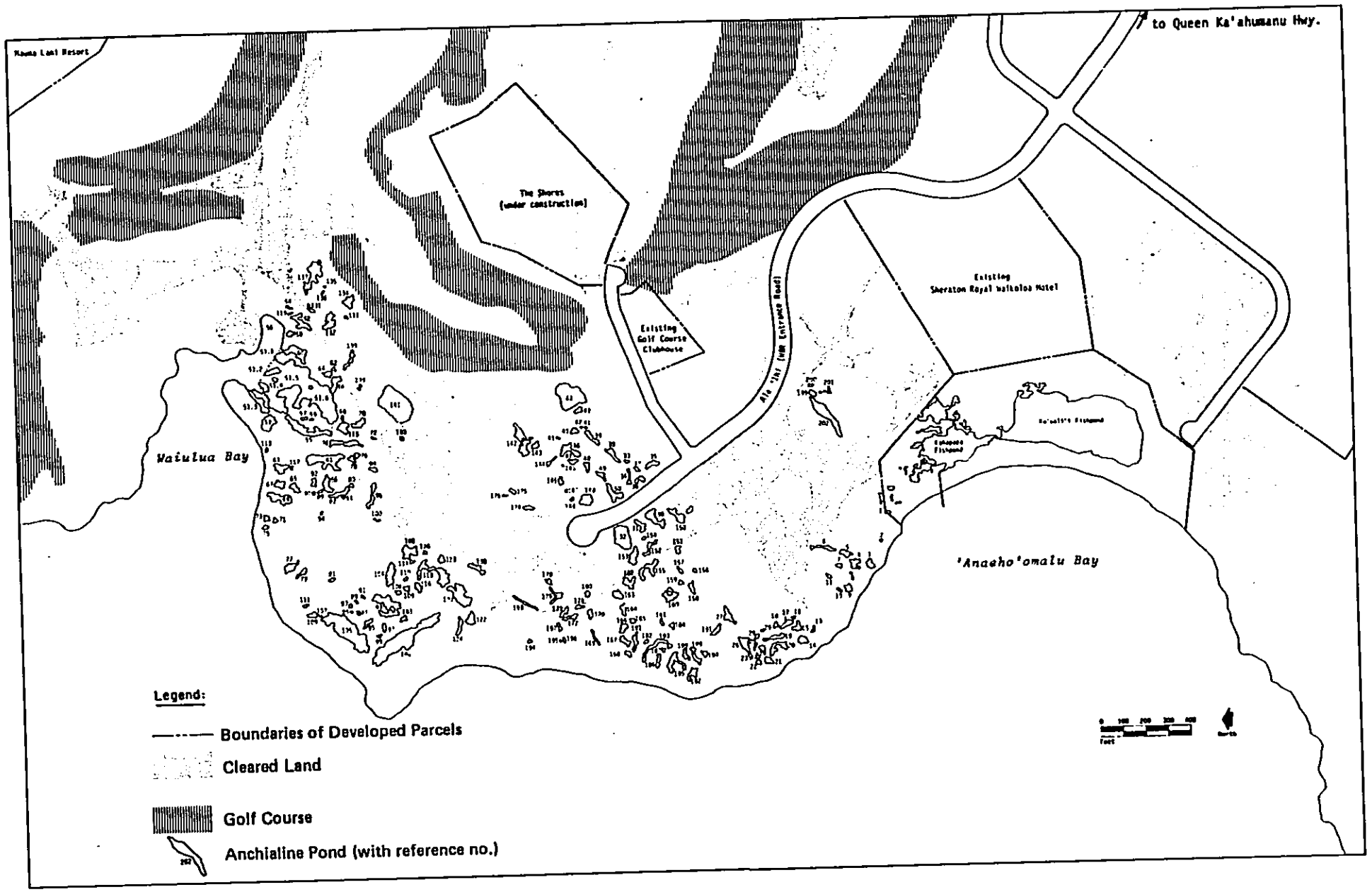


Figure II-3 Location of Anchialine Ponds within the Waikoloa Beach Resort

(c) In January 1985 Transcontinental Development Co. revised and broadened the scope of the permit application and included a 12-acre anchialine-pond-preservation area. The revised permit application is described below. Inasmuch as some of the land covered by the revised permit application is owned by Atpac Land Co., Atpac Land Co. became a joint applicant with Transcontinental Development Co.

2.2 DEVELOPMENT ALTERNATIVES

Within the properties under Corps jurisdiction, the applicant has developed specific site plans for the Hyatt Regency Waikoloa Hotel, and has County zoning approvals for a condominium and two hotels (see Figure II-2). Since the Corps of Engineers was evaluating long-term management of the anchialine pond resources, the principal issue considered by the Corps of Engineers in developing alternatives was compliance with regulatory requirements, focusing on avoidance, and anchialine pond preservation and protection. Based on present County "major resort" land use zoning for the area, the Corps did not believe it was significant whether the applicant built a specific hotel, condominium or other facility on the ponds, because any resort/residential facility, if constructed directly on the ponds would result in the destruction or loss of the ponds. Thus, for the purposes of the NEPA process, the alternatives considered by the Corps of Engineers dealt principally with the management of the pond resource, such as pond preserves or refuges, resource management, monitoring, reducing adverse *impacts and maintaining the pond resource. To the Corps, pond preservation results in* architectural and construction constraints that modify facility location, reduce fill or reduce the number of amenities, such as tennis courts or parking spaces. Thus, for the purposes of the NEPA process, the Corps of Engineers addressed a range of alternative reconfigurations that resulted in identifying a number of ponds to be preserved or protected, limiting the number of facilities or hotel units that could be built on the ponds. The range of alternatives included:

(1) Issuance of the permit as requested by the applicant;

(2) Issuance of a permit with modifications to the applicants' proposed project;

(3) Denial of the permit; and

(4) No Action.

In this context, denial of the permit and no-action would prevent the applicants from filling or excavating any anchialine ponds. Issuance of the permit as oriainally requested would fill all anchialine ponds at Waikoloa Beach Resort, and issuance of a permit for the proposed project or with modifications to the proposed project would fill some ponds. These alternatives, and several variations of them, have been examined in great detail by the applicant as part of the Clean Water Act, Section 404(b) process regarding practicability of alternatives. While the ultimate purpose of the 404 practicable alternatives analysis differs from that of the NEPA alternatives discussion, both analyses shed light on the alternatives which may be available for development. Both analyses have been considered by the Corps in its preparation and review of environmental documentation. Therefore, it may be useful to refer to the practicable alternatives discussion found in Appendix A in order to augment the information contained within the body of the EIS.

3. ALTERNATIVES WITHIN THE JURISDICTION OF THE CORPS OF ENGINEERS AND THE CAPABILITY OF THE APPLICANTS

3.1 ISSUE THE DEPARTMENT OF THE ARMY PERMIT FOR THE PROPOSED ACTION

3.1.1 The Proposed Action

The permit application requests Department of the Army authorization to:

- Excavate a 5-acre lagoon adjacent to Waiulua Bay under Section 10, Rivers and Harbors Act of 1899 (RHA) (Figure II-4) and Section 404, Clean Water Act (CWA);
- Construct, operate and maintain structures and a beach in the lagoon under Section 10, RHA and Section 404, CWA (Figure II-4 and Figure II-5);
- Maintain a 12-acre Anchialine Pond Area (Preservation area in Figure II-6) and implement a plan to manage and monitor the preserve;
- Fill all remaining anchialine ponds on the WBR properties under Section 404, CWA (Figure II-6), except those ponds located within the proposed "pond preservation area" or those at the head of 'Anaeho'omalu Bay. (The ponds at the head of 'Anaeho'omalu Bay are not the subject of the permit application.)

3.1.1.1 Lagoon

(a) The lagoon would be constructed using explosives. Bulldozers with rippers and cranes would remove the lava basalt. The work may take three months to complete. Prior to blasting bulldozers would roll over the excavation area, essentially leveling the area, filling depressions with volcanic basalt material to create a dry work area. The blast holes would be drilled and loaded with explosives; the use of the fill helps to direct the blast force into the basalt rock, moving and breaking the rock and reducing blast shock wave transmission through water into Waiulua Bay. Individual charges would be limited to no more than 400 pounds of explosives. A temporary berm constructed across the mouth of inner Waiulua Bay to control turbidity would also reduce shock wave transmission into Waiulua Bay. (See Figure II-8 for typical temporary berm section.)

(b) Blasting would be performed under the following conditions (to be included in the DA permit) to protect threatened sea turtles and endangered marine mammals:

(1) A natural or man-made berm shall separate the blast area from Waiulua Bay or the open ocean during blasting and excavation.

(2) All ponds in the blast area shall be filled before commencing blasting.

(3) No blasting shall be performed if endangered species or major marine mammals are within view from the shoreline.

(4) A surveillance for threatened sea turtles and endangered marine mammals shall be performed by helicopter during the first three days of blasting to insure that the bay and ocean areas to a depth of 5 fathoms are clear of threatened sea turtles and endangered or major marine mammals.

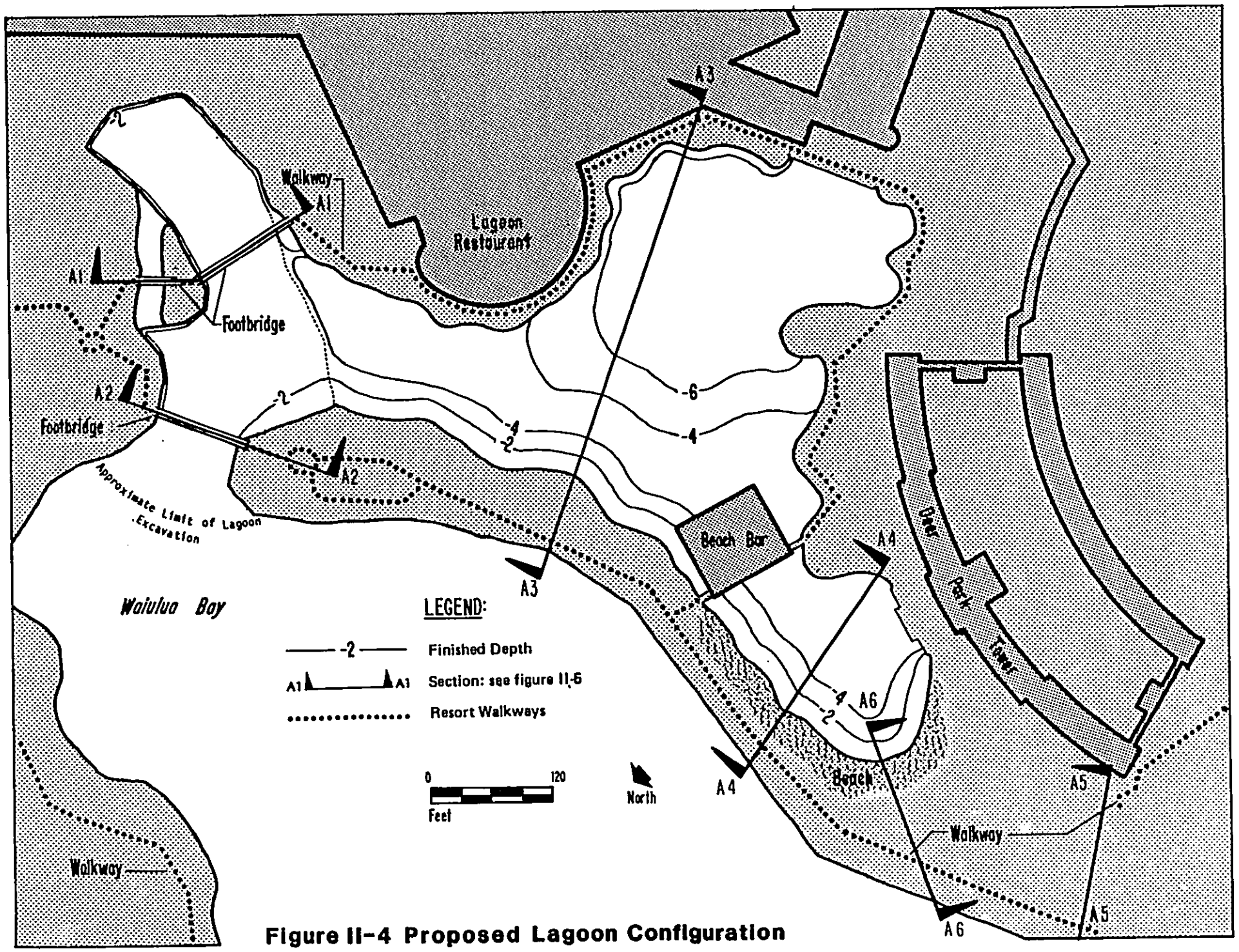


Figure II-4 Proposed Lagoon Configuration

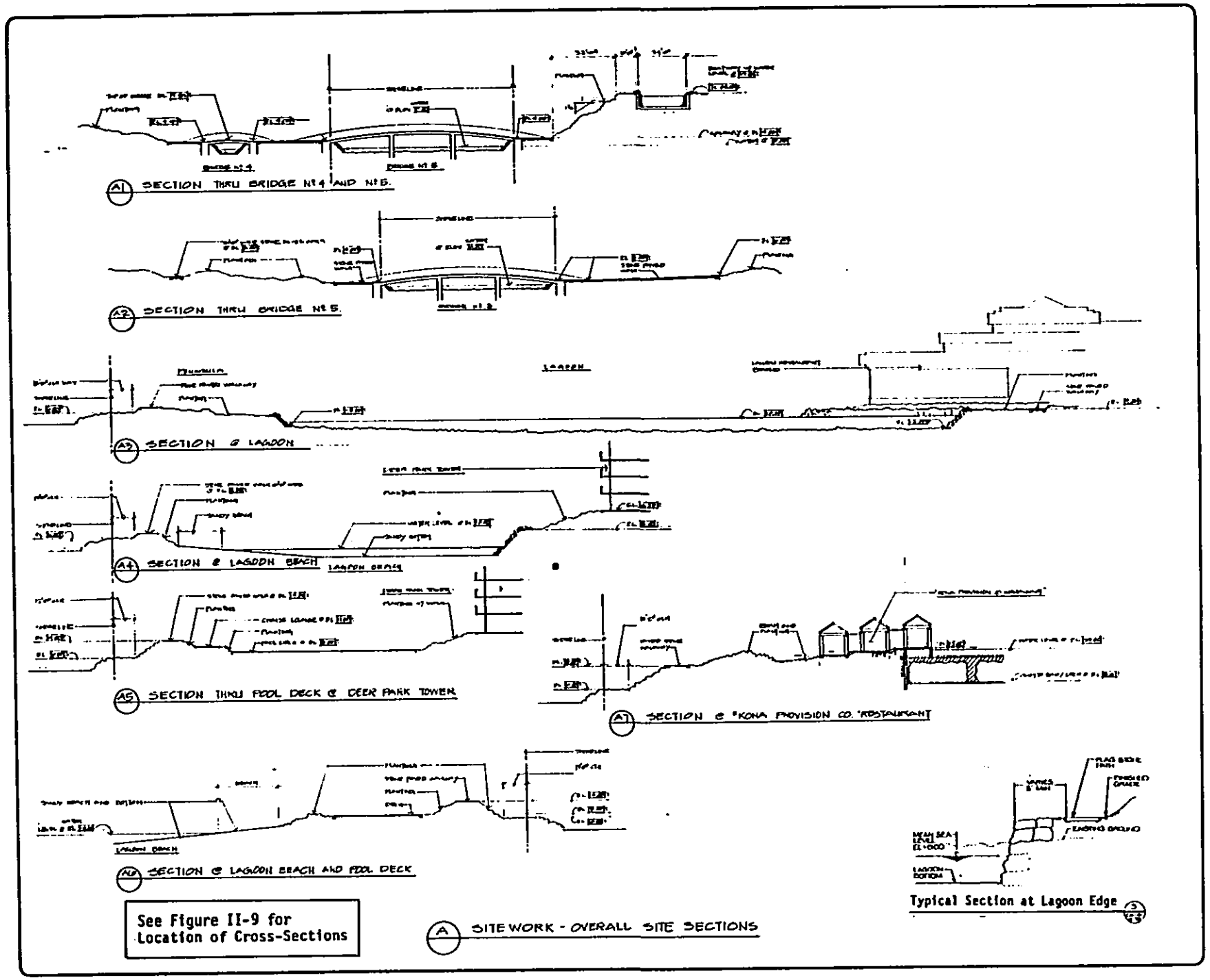


Figure II-5 Cross-Sections through Proposed Lagoon, Shoreline Berm, and Beach

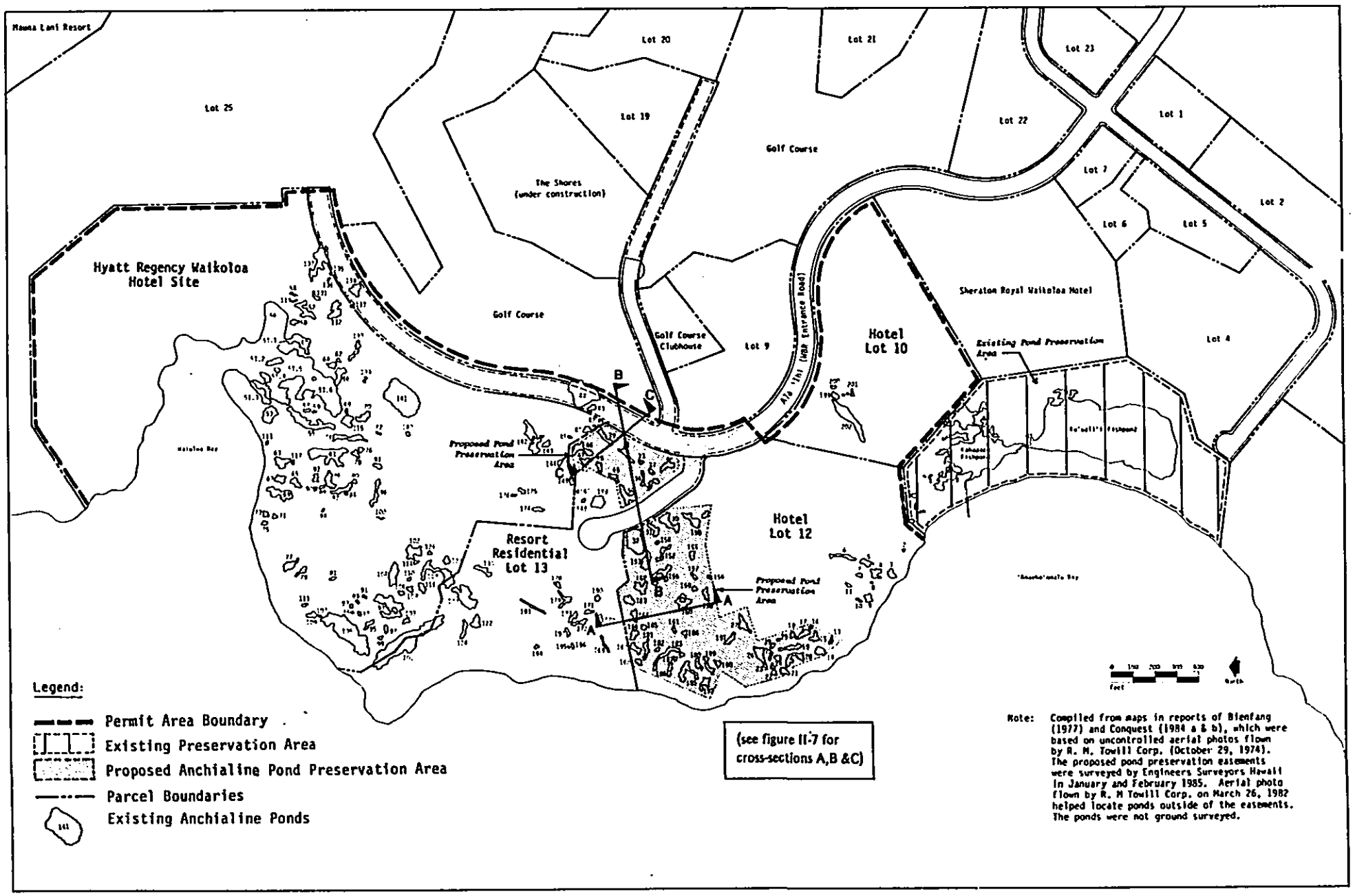
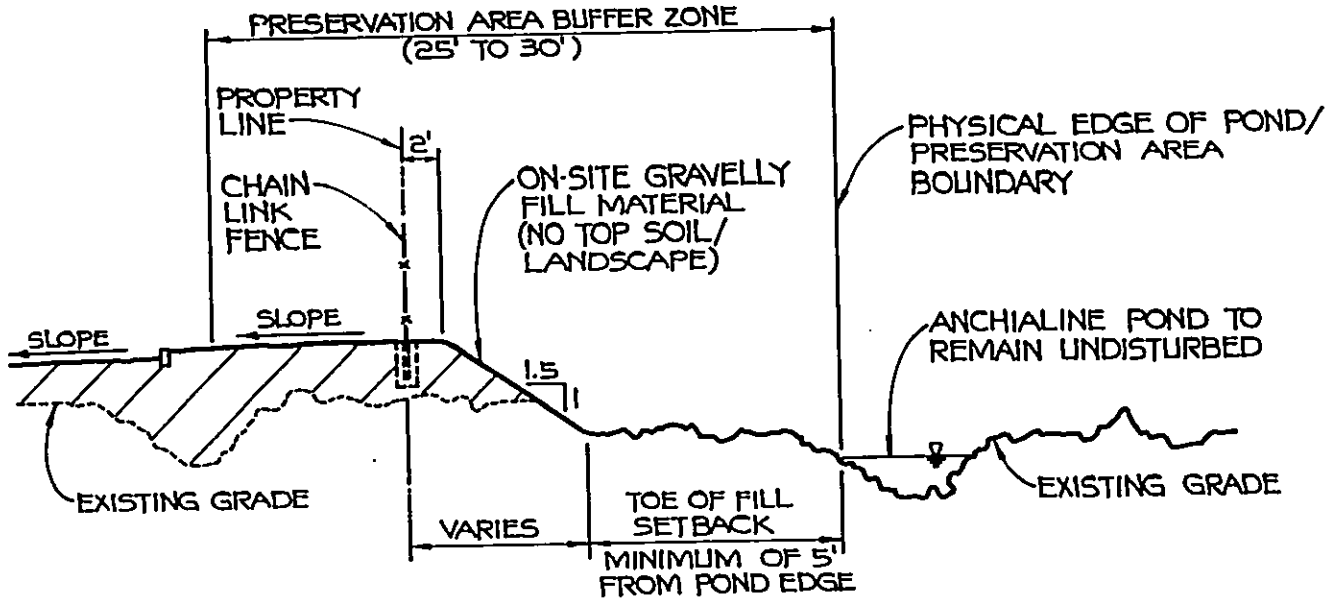
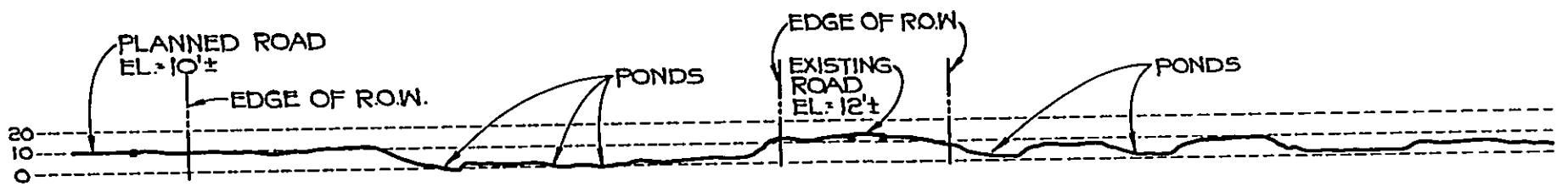


Figure II-6 Applicant's Proposal



TYPICAL SECTION AT EDGE OF POND PRESERVATION AREA



CROSS SECTION "B"
(FIGURE II-6)

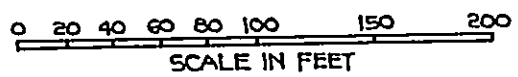
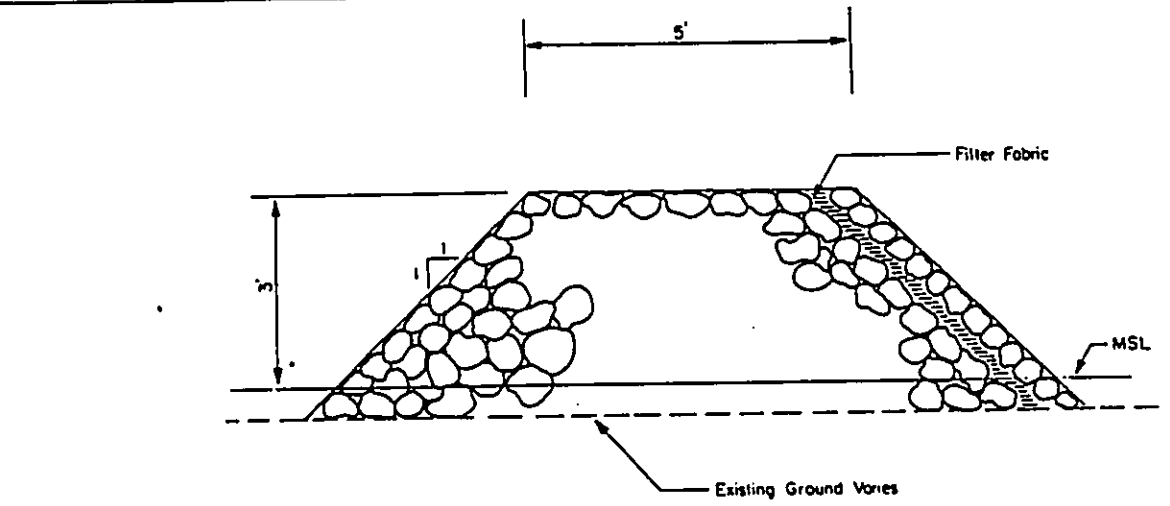
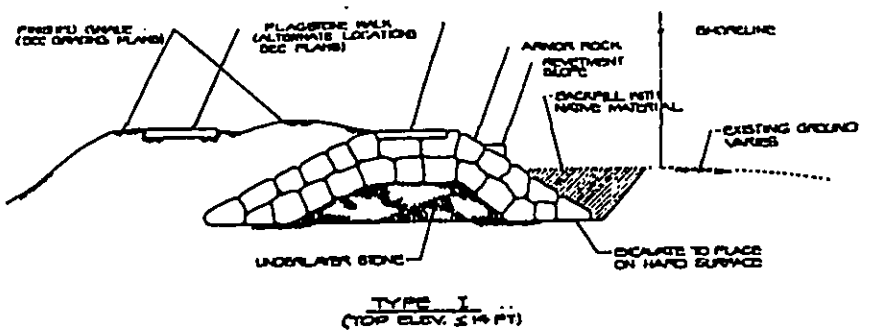


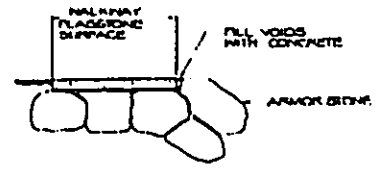
Figure II-7 Cross-Sections through Proposed Pond Preservation Area



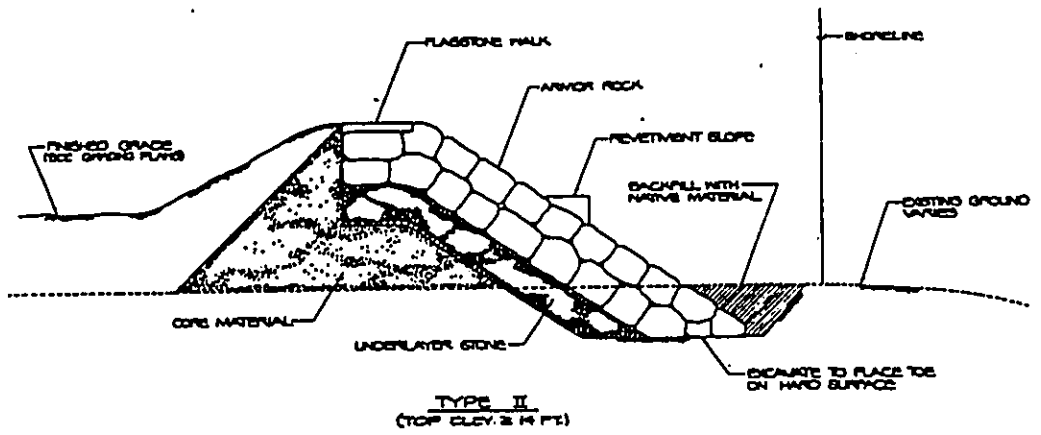
ROCK FILTER



TYPE I
(TOP ELEV. ≤ 14 FT)



TYPICAL WALKWAY OVER
STONE SURFACE DETAIL
NOT TO SCALE



TYPE II
(TOP ELEV. ≥ 14 FT)

TYPICAL BERM SECTIONS
NOT TO SCALE

Figure II-8 Detailed Cross-Sections of Proposed Shoreline Berm and Temporary Rock Filter Berm

(5) National Marine Fisheries Service personnel shall be permitted to monitor blasting operations from suitable platforms to assist in surveying for sea turtles and marine mammals that may be in the project vicinity.

(c) Approximately 40,000 cubic yards of basalt rock would be excavated to form the lagoon. The excavated material would be used to fill other ponds on low-lying coastal areas around the lagoon. Any material removed from State land in Waiulua Bay would be handled, stored or disposed of in accordance to conditions required by the State of Hawaii.

(d) The lagoon would have an average depth of approximately four feet and a surface area of approximately 5 acres (see Figure II-4). Its maximum depth would be approximately six feet below mean sea level. The mouth of the lagoon would be a shallow basalt shelf rather than a channel to avoid any tidal currents that could be hazardous to swimmers. The applicants have proposed to level or clear the sill as part of the lagoon excavation.

(e) In order to maintain water clarity and minimize stagnation or algal blooms, the applicants propose to pump 5.6 million gallons per day (4000 gallons per minute) of seawater into the lagoon. The seawater would be obtained from a well located near the shoreline at the head of the lagoon (see Figure II-4). The well would have a total depth of 80-100 feet. The well was sited to avoid impacts to the proposed pond preservation area, and to ensure the availability of seawater.

(f) Improvements in the lagoon would include a sand beach, swimming area for resort guests, footbridges, shoreline improvements and other recreational/resort structures (Figures II-4 and II-5). Approximately 2,000 cubic yards of natural sand would be used to create a beach in the lagoon. Since the lagoon is an artificial basin and is not subject to significant wave action or erosive water currents, maintenance of the beach would be minimal and no significant loss of sand is anticipated. Any sand that might be lost from the beach would be trapped in the lagoon.

(g) The lagoon excavation would convert about 17 tidal ponds, having a total water surface area of about 3.5 acres into a 5-acre tidal lagoon having an average depth of 4 feet.

(h) A revetted berm would be constructed on the existing shoreline above the mean high water level along the seaward side of the lagoon. This man-made berm would shelter the lagoon from storm waves that occasionally overtop the existing shoreline. The revetted berm, which would be designed to withstand storm waves and tsunamis; would range in height from 8 to 18 feet above mean sea level. Space would remain at the foot of the berm for pedestrian movement along the shoreline. A landscaped and lighted pathway would be provided along the top of the berm (see Figure II-5).

3.1.1.2 Pond Avoidance, Preservation and Management

(a) The applicants propose to create a 12-acre Anchialine Pond Preservation Area within the Waikoloa Beach Resort (see Figure II-6 and the cross-sections in Figure II-7). When added to the existing 16.3-acre open space area around the 'Anaeho'omalu Bay fishponds (which is not the subject of this permit application), this new anchialine pond preservation area would bring the total pond preservation area within the WBR to over 28 acres. The proposed 12-acre pond preservation area contains approximately 63 ponds having a total water surface area of about 3.4 acres.

(b) A buffer zone would be maintained around the pond preservation area to insulate the ponds from development and resort activities. No major above-grade structures would be constructed within the buffer zone or along the shoreline seaward of the preservation area. However, walkways, shaded rest stops, and landscaping with a predominance of native vegetation may be developed within the buffer zone.

(c) The areas surrounding the pond preservation area would be graded to prevent stormwater from flowing directly into it. Curbing or other means would be used to convey stormwater runoff from paved areas away from the ponds. The stormwater would be disposed of on lands adjacent to the pond preservation area, or into injection wells sufficiently removed from the ponds to avoid harmful contamination of the groundwater flow entering the ponds. Petrochemicals or other potentially hazardous materials would not be stored immediately adjacent to the pond preservation area. Features, such as lined containment dikes around fuel storage tanks and center sloping fueling areas would be incorporated into the design of fuel structures to minimize the possibility of accidental chemical spills flowing into the ponds or off the spill site.

(d) The pond preservation area is intended to provide a continued pond habitat for anchialine pond organisms, and to allow educational, research and public informational use of the ponds. Water quality and the status of anchialine pond biota would be periodically monitored to detect changes in pond health. The management and operation of the pond preservation area would be funded by the applicants and managed by the U.S. Fish and Wildlife Service for the applicants in perpetuity. The details of the tentative management plan are provided in Appendix B.

3.1.1.3 Pond Filling

(a) Anchialine ponds within the WBR that are outside the designated preservation area and not within the area to be excavated for the lagoon would be filled; approximately 12,000 cubic yards of volcanic basalt rock would be used as fill material. A bulldozer would roll over the area, leveling the ground, pushing material from high spots into the low spots, essentially filling the ponds.

(b) Additional lava basalt fill obtained from surrounding grading, lagoon excavation and an upland quarry would be used to raise the elevation of coastal areas. On the Hyatt site the minimum finished grade would be approximately 8 feet above mean sea level; this is the base flood elevation of the 100-year coastal flood (tsunami) for that area as specified in the Flood Insurance Rate Map (FIRM) (Federal Emergency Management Agency, May 3, 1982) and the County Flood Control Ordinance. In the case of the WBR shoreline, the highest base flood elevation shown on the FIRM map is approximately 8 feet above mean sea level.

(c) The lava basalt fill is exempt from chemical, biological, and physical evaluation and testing under U.S. Environmental Protection Agency Section 404(b)(1) guidelines (40 CFR 230.60), because (1) the fill site is adjacent to the extraction site and is composed of the same materials and (2) the fill material is not suspected of being a carrier of contaminants and is sufficiently removed from sources of pollutants.

3.1.1.4 Building Footings

Before constructing the proposed Deer Park Tower, Health Spa, Tennis Stadium and Lobby area, the underlying ground would be probed and any detected voids would be filled with grout. Filling the voids reduces the possibility that the building may settle. Probing could be done using a tractor mounted drill. Areas found to contain

voids would be filled with grout. For extremely large voids, the void would be exposed and backfilled with lava basalt rock (12" diameter or less) depending upon the size of the void. Table II-1 provides footing depths for the major structural components of the Hyatt Regency Waikoloa Hotel. The condominium and other two hotel structures would probably use similar footing construction methods.

Table II-1

Expected Footing Depths

Structure	Depth of Excavation
Hyatt Regency Waikoloa Hotel:	
Deer Park Tower	-15 feet below sea level
Health Facility	-5 feet below sea level
Tennis Stadium	-11 feet below sea level
Restaurant/Lobby Complex	-7 to -9 feet below sea level
Other Sites:	
Condominium	-15 feet below sea level
Hotels	-15 feet below sea level

3.1.1.5 Hotel/Resort

(a) The Hyatt Regency Waikoloa Hotel facilities that would be constructed partly or wholly atop filled anchialine ponds include the Deer Park Tower, a health spa, tennis courts, restaurants, a shopping village, automobile parking, and the hotel's main lobby, meeting areas and ballroom. Figure II-9 provides an illustration of the Hyatt Regency Waikoloa Hotel site plan. Figure II-10 shows the approximate relationship of the building footings of the proposed Hyatt Regency Waikoloa Hotel to the existing ponds.

(b) Site-specific development plans have not been developed for the condominium or two hotels within the Corps permit area. Because the parcels are zoned for hotel and condominium use by the County of Hawaii, the Corps believes that the condominium and hotels would eventually be developed in accordance with designated land uses shown on Figure II-2. The roadways and infrastructure necessary to support the uses are largely in place to support the addition of the condominium and two hotels. Under the proposed action, the applicant proposes to fill all anchialine ponds located on the condominium and two hotel sites.

3.1.1.6 Public Access

In accordance with County of Hawaii requirements, public access to the shoreline would be provided along an easement adjacent to each of the development sites. The locations of these easements are shown on Figure II-11. Public parking and the number of parking stalls for the public access areas would be provided close to the head of each path near the resort entrance road, subject to the approval of the County of Hawaii, Planning Department.

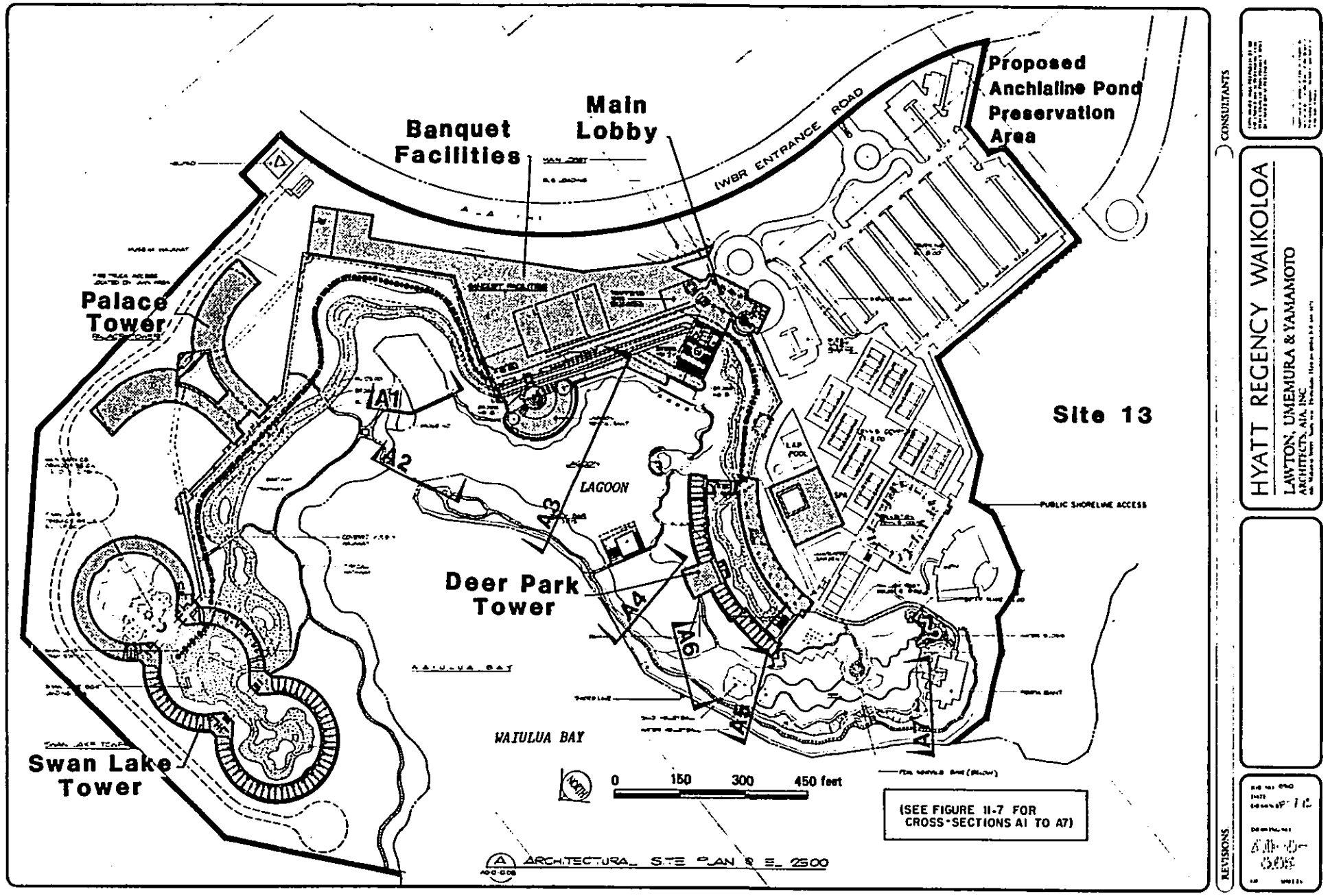


Figure II-9 Proposed Hyatt Regency Waikoloa Hotel Site Plan

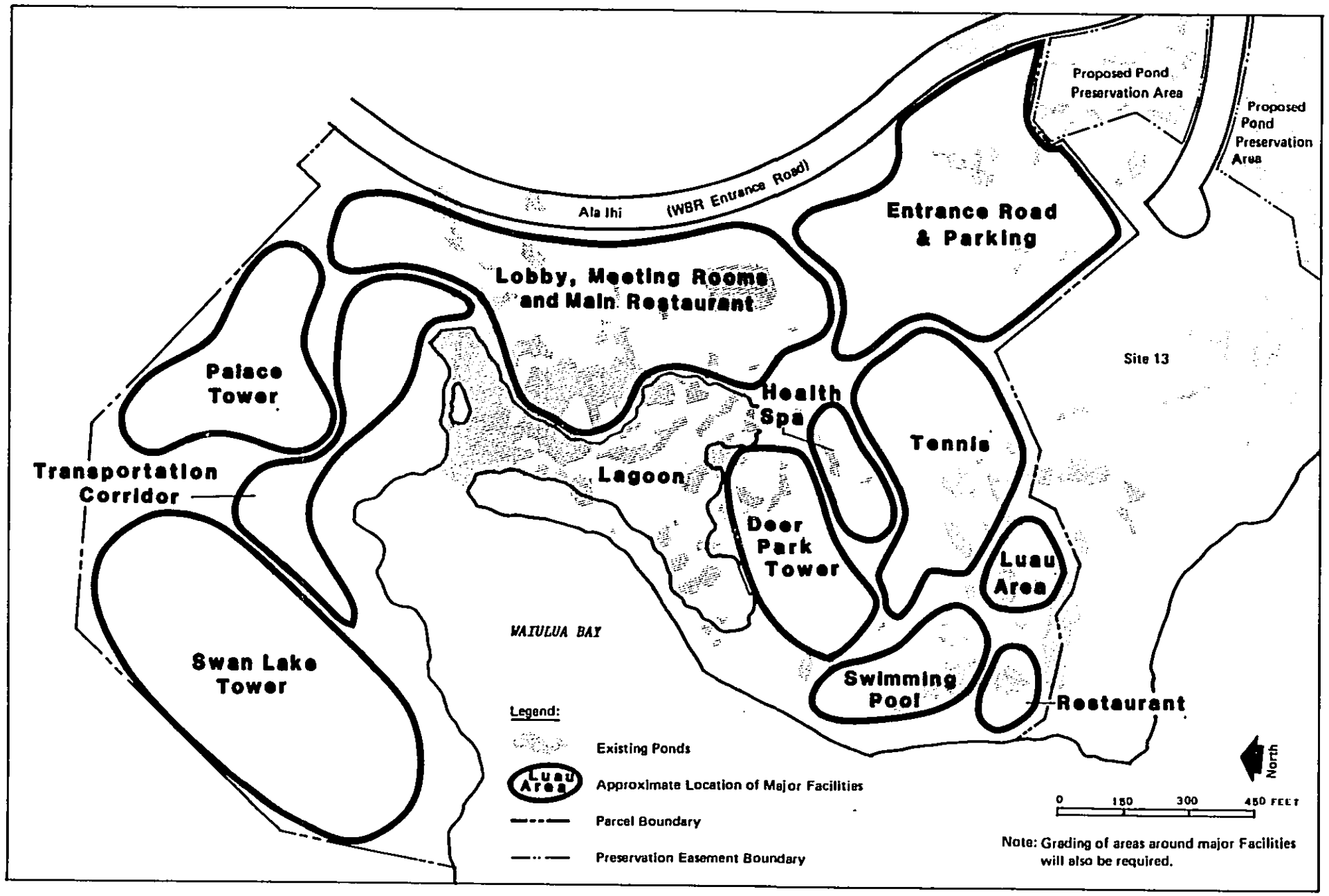


Figure II-10 Relationship of Proposed Hyatt Regency Waikoloa Hotel to Existing Ponds

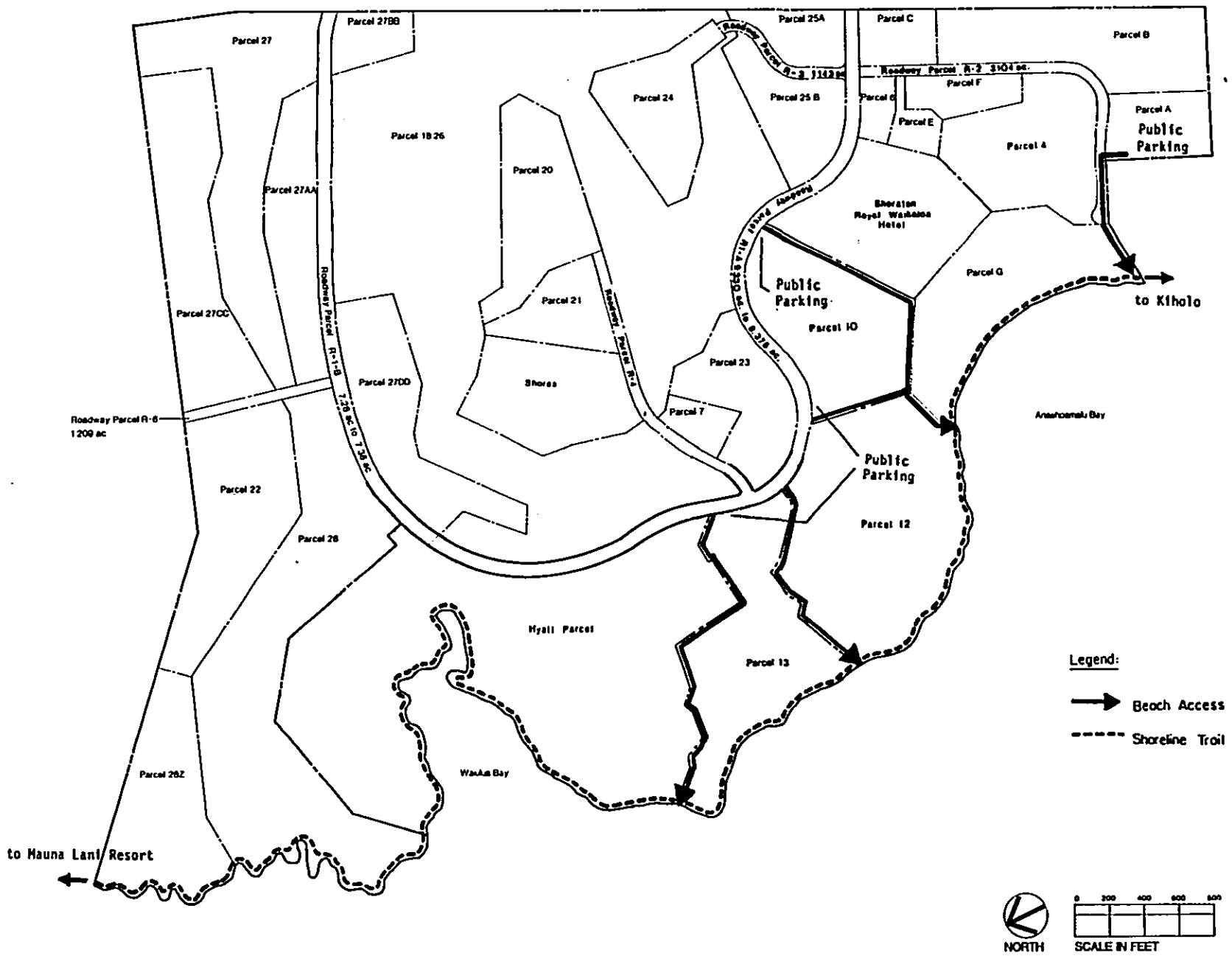


Figure II-11 Location of Public Beach Access - Waikoloa Beach Resort

3.1.1.7 Coastal Trail

Public use of the existing shoreline trail would not be obstructed by the development under provisions of the County of Hawaii, Special Management Area permit. A portion of the Waiulua Bay settlement site trail would be reconstructed (see Historic Sites below), and public walkways would be provided across the entire seaward front of the development.

3.1.1.8 Historic Sites

(a) In response to a request from the State Historic Preservation Officer (SHPO), the applicants propose to preserve the archaeological features within the "Kaniku Settlement Group" and the "Nawahine Settlement Group", two previously identified complexes along the coastline north of the Hyatt Regency Waikoloa Hotel site.

(b) The applicants plan to reconstruct the Hawaiian coastal foot-trail in the smooth stepping-stone style of Hawaiian trail construction as required by the County of Hawaii. In conjunction with this reconstruction, the applicants also plan to reconstruct three archaeological sites in the Waiulua Bay Settlement site, as requested by the Corps of Engineers (Figure II-12).

(c) On the condominium and other two hotel sites, the applicants, the State Historic Preservation Officer and the Corps have agreed to implementing any archaeological data recovery plan. However, the plan would not be implemented until after the applicants have first considered architectural designs that might preserve, enhance or restore some of the archaeological sites. Once specific construction plans are developed, the applicants would notify the Corps and the State Historic Preservation Officer that they intend to execute the Data Recovery Plan. The Advisory Council on Historic Preservation was asked to develop of a Memorandum of Agreement. The archaeological sites were determined to be eligible for inclusion on the National Register of Historic Places because the sites contained scientific data that could contribute to knowledge of Hawaiian history. The archaeological sites at the Hyatt Hotel site were not determined to be eligible because the scientific information was previously removed by archaeological data recovery and salvage.

3.1.1.9 State and County Permit Requirements

(a) The issuance of a Department of the Army (DA) permit would not negate or satisfy the applicants' need to obtain the necessary State of Hawai'i and County of Hawai'i permits and approvals. Thus far, the applicants have obtained a change in County Zoning, a Planned Unit Development permit, a shoreline setback variance, a Special Management Area permit, and some of the building permits. The applicants must satisfy the County's rezoning condition to provide adequate, affordable employee housing.

(b) A Federal Coastal Zone Management consistency statement is needed from the State of Hawaii, Department of Planning and Economic Development, prior to the issuance of a DA permit. The DA permit also contains a provision that all necessary State and County permits be obtained by the applicants prior to the start of construction.

(c) To construct the outer portion of the proposed lagoon, as well as to build the two pedestrian bridges that would cross the lagoon, a Conservation District Use Permit from the State of Hawai'i, Department of Land and Natural Resources would be required.

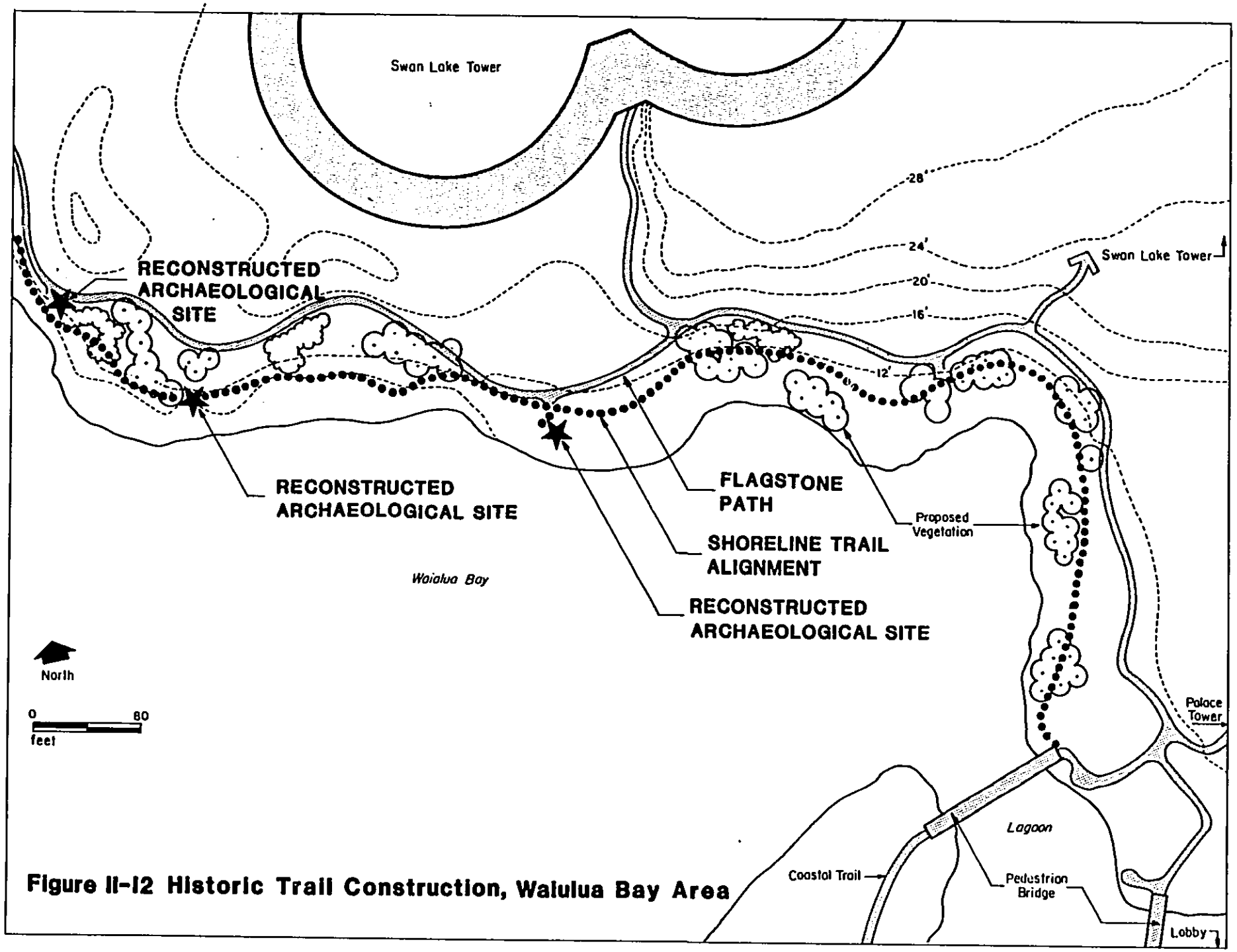


Figure II-12 Historic Trail Construction, Waialua Bay Area

(d) Based on a Corps inquiry, the State Department of Health does not require a permit for the discharge of groundwater into the lagoon as part of the applicants flushing design. The Department of Land and Natural Resources, Division of Water and Land Development indicated that a permit was required for the pumping of groundwater as part of the applicants' flushing design.

3.1.2 Issue a DA Permit for a Modified Action

3.1.2.1 Alternative 1 - Addition of 2.5 Acres of Ponds

(a) This alternative was suggested for consideration during the public hearing and the public review of the Draft Environmental Impact Statement. Under this alternative, discharge of fill would be prohibited in an additional 2.5 acres of land containing 12 ponds. This area would be added to the 12-acre pond preservation area proposed by the applicants (Figure II-13). The ponds are relatively unvegetated and geologically interesting, containing the orange-rust algal mats and the 'opae'ula. By comparison, the ponds in the pond preservation area are heavily vegetated while containing both the algal mat and opaeula. The additional ponds are also situated in collapsed lava tubes and fissures. One of the ponds has an arch and cave and is considered geologically interesting in comparison to the preservation ponds that are on flatter, older pahoehoe with less vertical relief.

(b) This alternative avoids filling 74 ponds in comparison with the proposed action that avoids filling 62 ponds. The alternative also reduces the amount of land available for condominium development from 17.7 acres to 15.2 acres. The alternative does not impact the Hyatt Regency Waikoloa Hotel plan or the other two hotel sites. Public access and historic preservation remain unchanged. While the elements of the pond preservation management plan remain unchanged from the proposed action, the additional ponds would not be filled, but could be included in landscaping as part of the condominium parcel.

3.1.2.2 Alternative 2 - Separate Pond Preservation Areas

Alternative 2 consists of two separate pond preservation areas, rather than one area as proposed by the applicants (Figure II-14). The alternative encompasses the same amount of land as the applicants proposed preservation area (12 acres), but includes 55 ponds rather than 62 ponds in the proposed action. The total water surface area of the 55 ponds is about 3.8 acres in comparison to the 3.4 acres in the proposed action. Under this alternative, the Hyatt Regency Waikoloa Hotel site would have to relocate or redesign the parking, tennis courts, luau area and health spa. Provisions for pond management, historic preservation, shoreline access and public parking for the beach rights-of-way, and other development features are essentially unchanged from the proposed action.

3.1.2.3 Alternative 3 - Large Pond Preservation Area

(a) As depicted in Figure II-15, this alternative would include the establishment of an anchialine pond preservation area nearly 39 acres in size. The preservation area contains approximately 122 ponds having a total water surface area of about 6.6 acres. The pond preservation management elements would be similar to those discussed for the proposed action. More archaeological sites would be preserved within the expanded pond preservation area. No change would occur in the preservation of the Nawahine and Kaniku, and the restoration of the Waiulua Bay settlement sites or the data recovery on the hotel sites.

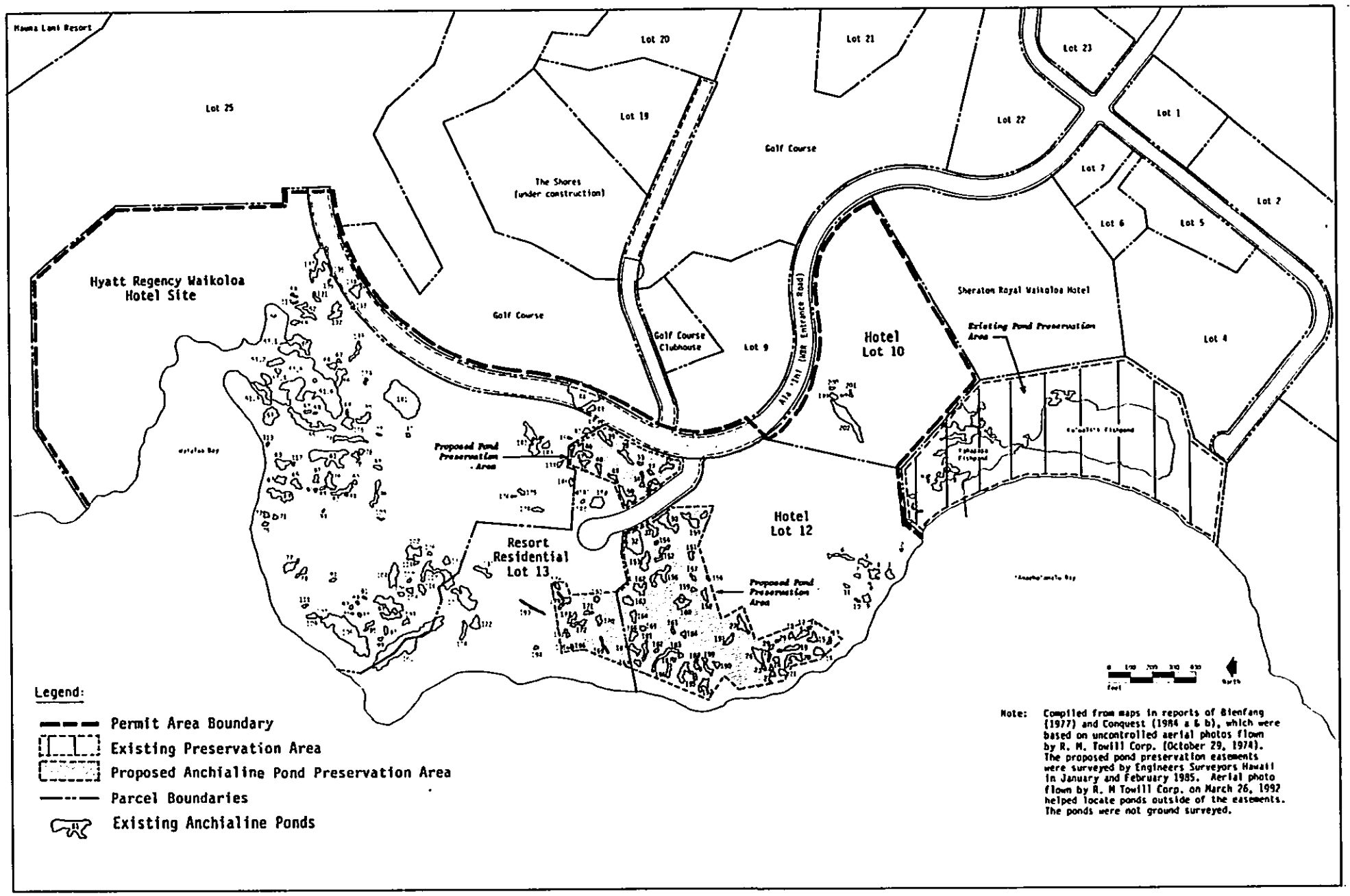


Figure II-13 Alternative 1 - 15-acre Pond Preserve

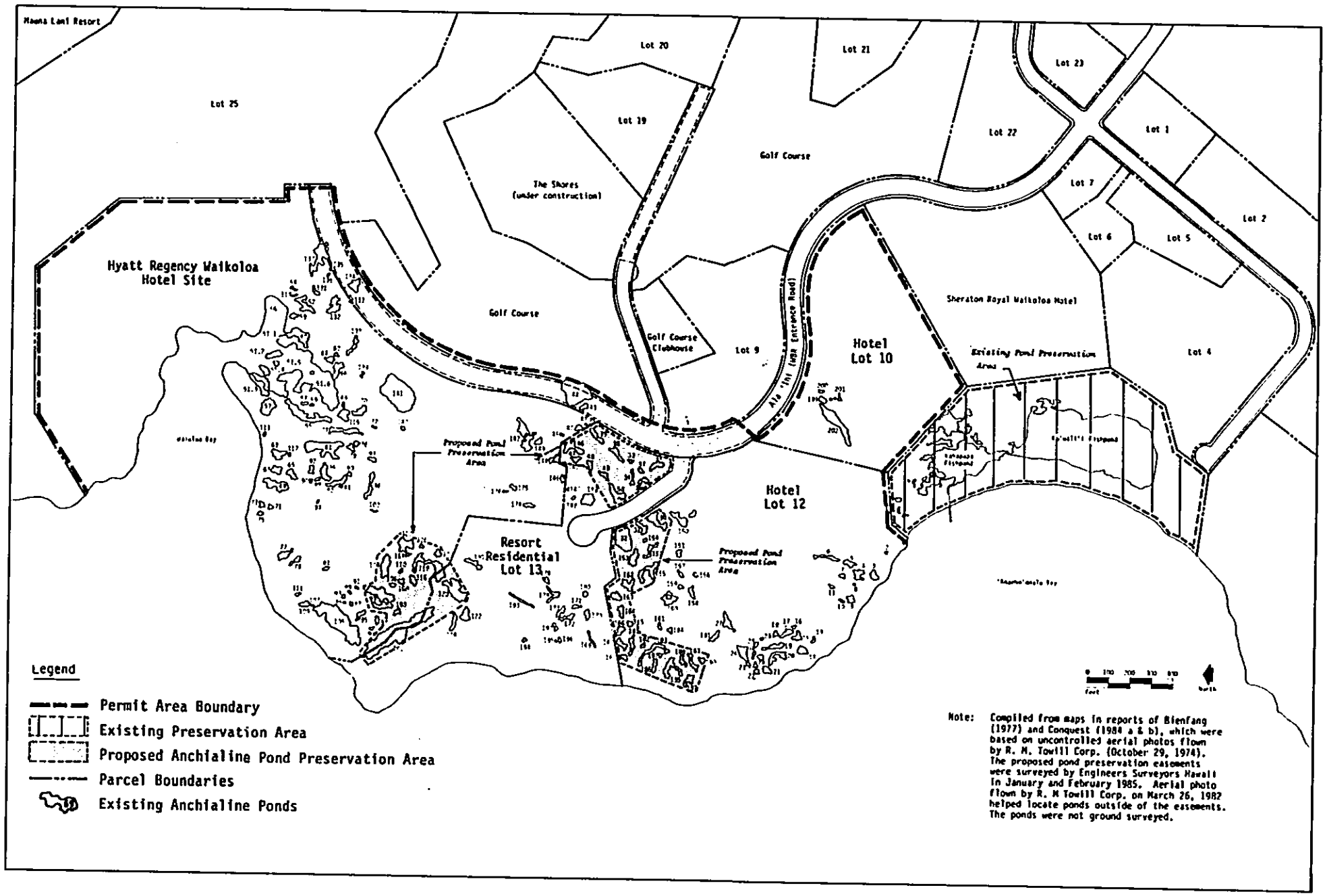


Figure II-14 Conceptual Plan for Alternative 2 - Separated Pond Preservation Areas

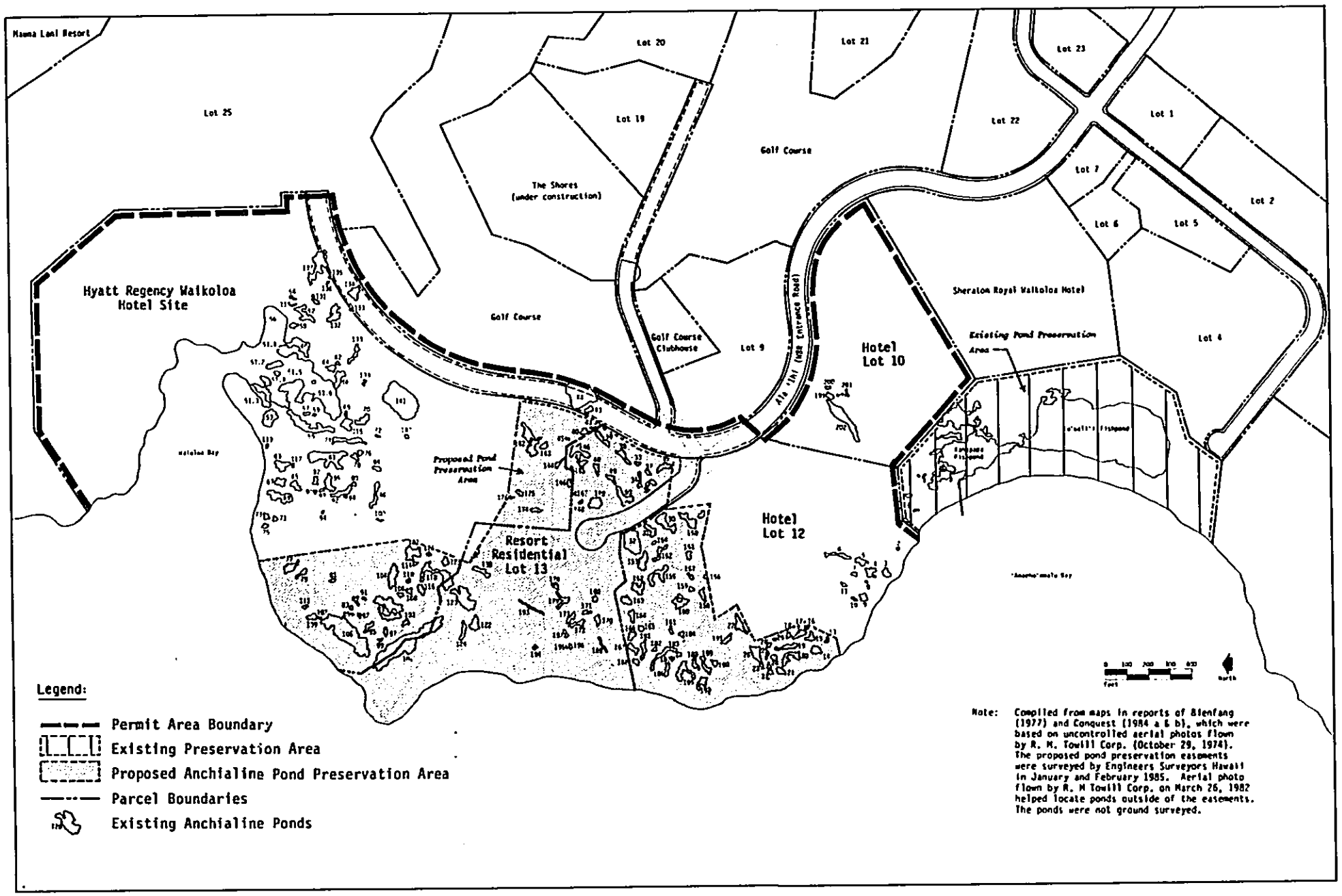


Figure II-15 Conceptual Plan for Alternative 3 - Large Pond Preservation Area

(b) As compared to the plan proposed by the applicants, the site intended for the Hyatt Regency Waikoloa Hotel would be substantially smaller. There would be no room for the Deer Park Tower, the southern-most and smallest of the three Hyatt hotel towers. Also, the hotel parking area would have to be reduced in size or relocated, fewer tennis courts could be built, and the health spa facilities would have to be redesigned and/or relocated. The lagoon would be reduced in size and the restaurant would be eliminated. The last 500 feet of the existing entrance road would be abandoned. Development of the two hotels sites on lots 10 and 12 could proceed without significant change in land area, but the condominium would be eliminated.

3.1.2.4 Alternative 4 - Lower Density Alternative

(a) Under this alternative the applicants would build a lower density resort, similar to Kona Village, concentrating their construction in areas between the ponds (Figure II-16). This alternative would require a major change in land use zoning eliminating the proposed Hyatt Regency Waikoloa Hotel, and the condominium. One hotel site would remain unchanged, but the other would have a reduced land area.

(b) This alternative is similar to Alternative 3, but increases the number of ponds not filled from 122 to 194. Historic site preservation and public access similar to Alternative 3 would be applicable. The nature of the proposed management plan would probably change because the large preservation area may influence arrangements for research and funding, particularly when the majority of the WBR ponds are not filled. Management of human activities in and around the pond to prevent the introduction of exotic fish, waste and trash would continue to be essential elements of the management plan.

3.1.2.5 Alternative 5 - Applicant's Proposal Without the Lagoon

(a) This alternative is virtually identical to the applicants proposal as depicted in Figure II-4, except that permission to excavate the proposed recreational lagoon would be denied. This would mean that an estimated 17 additional ponds with a total water surface area of about two acres would not be excavated. Many of the features of the applicants proposed resort complex related to the lagoon, such as boat docks, waterside restaurants, swimming area and beach, etc., would not be constructed.

(b) The applicants have indicated that the absence of a swimming lagoon and beach would greatly handicap their efforts to create a viable resort hotel on the site proposed for the Hyatt. Waiulua Bay does not have a broad sandy beach comparable to that found at 'Anaeho'omalu Bay to the south. The shoreline is rocky, and recreational swimming in coastal waters by visitors, unaccustomed to such an environment, could be both unattractive and hazardous.

3.1.3 Lagoon Flushing Alternatives

(a) The applicants preliminary lagoon circulation scheme featured two shallow wells to be located south of the hotel structures. Their potential impacts on the pond preservation area required relocating and redesign of the circulation system. The applicants estimated that approximately 5.6 million gallons of lagoon water would need to be exchanged daily in order to maintain water quality and to minimize algal blooms. Filtration and treatment of that amount of water for recirculation was found to be too expensive. Deepening the opening to middle bay would probably result in strong tidal currents that may be hazardous to swimmers. Thus, pumping water into or out of the lagoon was considered by the applicants to be a better approach.

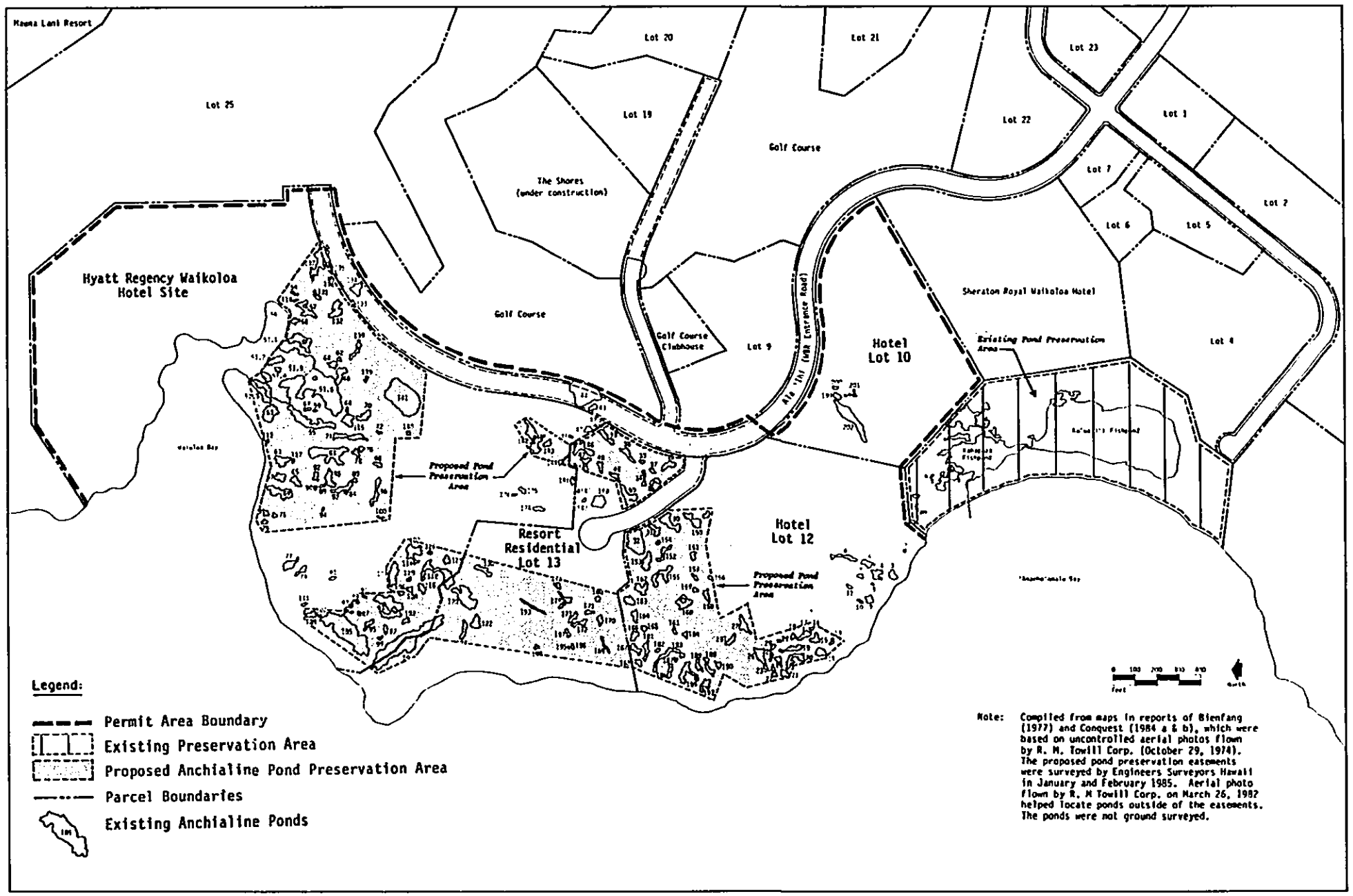


Figure II-16 Conceptual Plan for Alternative 4 - Minimal Fill

(b) Pumping water out of the lagoon into a disposal well would allow water from the middle bay to be drawn into the lagoon through its mouth. Concern for the maintenance reliability of the air lift pump and acid treatment of the water caused the applicants to chose the proposed method of water exchange. (The applicants indicate that acid treatment of water is necessary for successful injection well operations.) Whether or not the geological porosity of the area could accomodate the discharge of seawater into the injection well at the rate of 4000 gallons per minute is also questionable. At the Natural Energy Laboratory injecting waste water into the ground at 800 gallons per minute was found to be a reasonable rate without flooding the well.

3.1.4 Off-Site Pond Preservation

(a) This alternative considers allowing the applicants to fill all the ponds at Waikoloa and requiring the applicants to purchase other lands containing anchialine ponds to create an "off-site" pond preservation area. This alternative requires that another area with similar anchialine ponds be available and capable of being purchased by the applicant at reasonable cost. Based on the Maciolek and Brock (1974) and Corps (1985) surveys, the only areas containing large clusters of ponds are located in West Hawaii at 'Opae'ula-Makalawena, Kohanaiki and Aimakapa-Honokohau. 'Opae'ula-Makalawena and Aimakapa-Honokohau are presently degraded due to the presence of exotic fish throughout the pond systems. Thus, extensive fish eradication efforts would be required to remove the fish and possibly restock the ponds with opaeula. While Brock (1985) and the Corps believe that fish eradication and natural recolonization is feasible, actual field tests have not been conducted to determine if fish eradication is feasible, practical, and capable of long-term success. Preliminary tests indicate that mechanical efforts, electro-shocking, netting, and trapping are time-consuming and reach a point where other methods would have to be tried to totally eradicate the fish from the ponds. Since most of the degraded ponds are on private lands, further tests were not possible due to the lack of landowner permission to conduct the tests. Use of fish poisons may be possible provided the poisons do not kill the anchialine pond organisms in the water table and can be neutralized before entering coastal waters.

(b) Aimakapa-Honokohau and Kohanaiki pond are being filled with trash from human recreational activities in the area. However, the Kohanaiki area is presently cleaner than Aimakapa-Honokohau. Although Kohanaiki has nearly the same number of ponds as Waikoloa, the ponds are smaller and shallower than the Waikoloa ponds and contain exotic fish. Human refuse in and around Kohanaiki ponds could be cleaned and future human activity in the area could be regulated at a cost and an inconvenience to fisherman and surfing activities in the area. Again, the success of removing fish has not been tested.

(c) Under this alternative the applicants would be required to purchase the off-site ponds prior to the issuance of a permit, and would be required to provide funds for restoring and cleaning the ponds and for a pond management program. The applicants probably could not purchase the land at a reasonable cost as long as the prospective seller knows that the applicant's proposed project cannot proceed without purchasing the seller's land. Thus, the alternative is considered unfeasible at the present time due to inherent problems, i.e., lack of a fair market, uncertainty of the success of removing fish, and lack of a suitable replacement area.

3.1.5 Anchialine Pond Creation and Restoration

Based on limited field tests and observation of previously disturbed areas, anchialine ponds may be created. Thus, anchialine pond creation could be used to replace ponds filled. An example of natural anchialine pond recovery can be found on the WBR. In a previous borrow area, a bulldozed low spot that floods during high tide, Schizothrix re-established itself and opae'ula and Metabetaeus lohena could be found in the pond. The re-established pond had little physical relief and was dry during extreme low tide periods. Construction workers and planners have indicated that ditches and holes, that penetrated the water table, were soon filled with 'opae'ula. Test holes excavated in previously filled and graded areas were colonized by 'opae'ula with 10-14 days (Corps of Engineers, 1985). Based on these limited observations, anchialine pond creation and restoration may be possible and may possibly be used to replace or restore filled ponds as long as the shrimp are in the water table.

3.1.6 Deny the Permit

This alternative prevents the applicants from constructing the development as proposed, and essentially forces them to undertake alternatives outside the jurisdiction of the Corps of Engineers. The applicants can also consider doing nothing, the no-action alternative.

3.2 ALTERNATIVES WITHIN THE CAPABILITY OF THE APPLICANT, BUT OUTSIDE THE JURISDICTION OF THE CORPS OF ENGINEERS

Under these alternatives, the applicants could proceed with the development without a DA permit. The applicants would have to modify their plans to eliminate or avoid filling or excavating any anchialine ponds and proceed without a Department of the Army permit, i.e., reducing fill by use of piles, avoiding ponds, or siting the project inland from the ponds.

3.2.1 Reducing or Eliminating the Fill by Using Pile-Supported Structures

(a) Since the applicants proposed to fill the low lying areas in order to comply with the County of Hawaii codes for construction in a flood hazard area, this alternative considers the use of pile-supported structures to reduce or eliminate the fill activity reducing the number of ponds lost to the development.

(1) One design could be similar to hotel designs in Hilo, where the ground floor is used for non-habitable functions, such as restaurants, meeting or conference rooms. The design could then possibly limit the number of ponds filled by the development to the footprint of the buildings, as well as the lagoon, roadways, walkways, and recreational amenities the could be built at ground level. Potential flood damages and the frequency of damages is expected to be more than the proposed action, because the proposed action provides flood protection for the 100-year tsunami inundation event. The alternative would subject ground level structures and amenities to wave damage and flooding from less severe and more frequent storm waves, as well as tsunamis.

(2) Another design could mount the buildings on piles, such that the building would appear to stand on stilts. The concentration of ponds in the area means that piles may have to be driven into some ponds possibly resulting in their loss due to construction activities associated with driving piles. Since

construction is not a clean affair, rubbish, concrete, wood, paint, debris of all sorts would probably fall into adjacent ponds, and construction easements would also require equipment operations in adjacent ponds. Parking areas, lagoon, tennis courts, roadways and walkways would be constructed at ground level requiring the filling of other ponds increasing the number of ponds loss to development. Pile-supported structures would also shade directly the ponds covered by the structure, and possibly block the sun and wind from adjacent ponds. Shading would reduce the amount of algae growth in the ponds. Blocking or altering wind patterns could influence water mixing and dissolved oxygen concentrations in the ponds. These factors could reduce the amount of algae available as a food source for the 'opae'ula and may reduce dissolved oxygen levels in the ponds, possibly degrading the pond ecosystem.

(3) Another design could also combine parking, hotel rooms and amenities, i.e., tennis courts, restaurants, conference rooms, into one structure. One possible configuration is placing parking on the ground level, hotel rooms on the next and tennis courts and swimming pools at the top of the buildings. Such a design would increase the building heights in excess of allowable County of Hawaii building height restrictions. Pond loss would occur within and immediately adjacent to the building footprints, including the roadways, accessways and walkways and other amenities associated with a resort development.

(4) Piles are also difficult to drive into lava. Rock density, porosity and hardness are factors affecting use of piles versus another method of providing foundation support.

(b) In summary, pile structures may not be feasible in recent lavas with high voids. Pile-designed structures would not significantly reduce the number of ponds loss, unless the applicant reduces the size of the development, i.e., the density, number of room, and the types of facilities, or reconfigures the proposed development layout.

3.2.2 Alternative Configurations

Additional alternative configurations were considered in detail by the applicants as part of the Clean Water Act, Section 404(b)(1) practicable alternatives analysis. While the ultimate purpose of the Section 404 practicable alternatives analysis differs from that of the NEPA alternatives discussion, both analyses shed light on the alternatives which may be available for development. As mentioned previously, the practicable alternatives analysis is found in Appendix A.

3.2.3 Alternative Development Sites Outside the WBR

The applicants own 31,000 acres of land at Waikoloa. The WBR Development began in the late 1960's under Boise Cascade. The applicants purchased the land in 1978 and developed an extensive infrastructure with the expectation that development would proceed as allowed in State and County land use plans. The applicants indicated that they do not wish to abandon their investment in the WBR and develop their resort elsewhere on the Big Island. Further the applicants have indicated that the development plans and marketing approaches of the Keauhou Resort, the Mauna Lani Resort or the Mauna Kea Resort are not consistent or compatible with their objectives, and that it is unreasonable to expect them to undertake the action at another resort. However, as part of the NEPA process the Corps of Engineers has reviewed the following off-site development alternatives with respect to the resort development trends in Hawai'i.

3.2.3.1 Other Islands Within the State of Hawai'i

(a) A review of resort development trends and elements of successful resort developments in Hawai'i shows that the successful development of a large-scale, luxury resort in Hawaii depends upon the presence of certain attributes, among which are:

- o infrastructure to support the development, i.e., airport to handle direct mainland flights, highways to move travelers, sufficient water and power.

- o diverse attractions, such as landscapes, activities, challenging areas and recreational opportunities, expensive and inexpensive entertainment areas and lodgings in order to attract and entertain visitors. For example, Maui has the scenery and sunrise at Haleakala, the road to Hana, the rugged road around East Maui and West Maui, the whaling town of Lahaina and the luxury resorts at Kaanapali; on Oahu one finds the concentrated hotel mass around world-famous Waikiki Beach, physical attractions such as the Blow Hole, Waimea Falls Park, and Sacred Falls, and cultural centers of various Pacific Island and Asian ethnic groups.

- o location in a sunny area - normally the leeward side of the islands.

- o location along an attractive, exciting coast preferably with white sand beaches.

- o large land areas with single landowner rather than public lands, land areas with many small landholdings or previously developed areas. This is desirable so that the development deals with one landowner, can acquire spinoff profits from sales of adjoining properties, and maintain the character of the area as a luxury resort.

(b) Of the major Hawaiian Islands, the islands of Kaua'i, Oahu, Maui, and Hawaii all have the infrastructure to support large luxury resort developments. Individual island potential can be summarized as follows:

Lana'i - insufficient land mass and geographic diversity to support large, luxury resort; insufficient infrastructure.

Molokai - same as above.

Kaua'i - insufficient land area available at this time for large-scale, luxury resort; Poipu area is saturated and other potential leeward coastal areas are public beaches.

Oahu - only available leeward coast site is Waianae coast; residents oppose development there and racial tensions exist. Coastal properties are small holdings and much of the beach areas are public.

Maui - leeward coast is saturated with resort development; water is critical item in areas south of Makena.

Hawai'i - leeward coast consists of large tracts of open lava fields and pocket beaches often held by single landowners. Large open tracts of land provide flexibility in development design; Hawai'i has greater land mass than other islands

and more climatic, scenic and activity diversity. Rather than saturate area, presence of other world class hotels (Mauna Kea, Mauna Lani, Kona Village) compliments proposed development and increases visitor attraction.

(c) Since the 1970's, the State Department of Planning and Economic Development has recognized large-scale, luxury resort developments were focusing attention on the outer islands, particularly on the leeward coast of Hawai'i. Resort growth in Hawaii has developed a trend that filled Kauai and Maui, and Keahou, Hawaii. In recognition of the impending development of the West Hawaii coast, the State and Federal governments have invested in water, harbor, highway and airport infrastructure to support and encourage anticipated growth in West Hawai'i. In 1972, the State analyzed the impacts of tourism on West Hawaii in order to assist in long-term planning for the development of the region. In this plan, they recognized the need for a "critical mass", amenities and infrastructure, that would be centered around the resort to accomodate visitors and residents and would permit the greatest return of capital to the developer, as well as the community. They also recognized the "spillover" effects that would benefit the developer, as well as the community. They further recognized that development would result in impacts to the community, and stressed the need to center development around the resort rather than have the resort sprawl along the coastline.

3.2.3.2 Areas on the West Hawai'i Coast

(a) In addition to the WBR, there are three other areas on Hawai'i Island designated for development of major, destination resort facilities. These are the Mauna Lani Resort, the Mauna Kea Resort and the Keahou Resort. The latter is located in the North Kona District of the island, while the other two are in South Kohala north of the WBR. Resort hotels in Hilo and elsewhere on the island have had extremely low occupancy rates in recent years. Hilo's relatively wet weather and the emergence of alternative resort destinations on the drier, West Hawaii coast, most likely contribute to the low occupancy rate in Hilo.

(b) Keauhou Resort. The Keauhou Resort is situated around Keauhou Bay in the North Kona District, about five miles south of the village of Kailua-Kona. The area has been the scene of ongoing resort development since the early 1970s. The applicants indicated several physical characteristics which make this North Kona location less attractive than sites in South Kohala. First, the Keauhou Resort is situated on moderately sloping land with a rocky shoreline; it lacks a sandy beach such as is found at 'Anaeho'omalu Bay, and the configuration of the coastline is such that creation of an artificial beach would be expensive. Second, there are no coastal parcels of sufficient size to accommodate a project such as the proposed WBR. The Keauhou Resort area receives substantially more rainfall than does the South Kohala coastal region, and afternoons are often overcast, with frequent light rains.

(c) Mauna Kea Resort Area. The Mauna Kea Resort (MKR) is the oldest of the major resort projects in South Kohala. The world famous Mauna Kea Beach Hotel was constructed there in the mid 1960s, and 40 condominiums (the Villas) and 65 single-family houselots (The Fairways North and South) were subsequently developed. Like the WBR, it is designated as a "major resort" on the Hawai'i County General Plan. UAL, Inc., the owner, recently received State Land Use Commission approval for a 350-room hotel and 700 to 1,000 single- and multi-family resort residential units on both sides of Queen Ka'ahumanu Highway. The plans call for construction of a luxury hotel that taps a market similar to that of the existing Mauna Kea Beach Hotel. The UAL marketing plans, which are aimed at a small, super-luxury market, are inconsistent with those of the applicants. With the development of another hotel near Hapuna Beach, there is little ocean frontage left for a project like the WBR.

(d) Mauna Lani Resort. The Mauna Lani Resort is located immediately north of the applicants' property and has zoning approval for approximately 3,000 hotel rooms and 3,200 resort residential units. Presently, only the 350-room luxury Mauna Lani Bay Hotel and 80 luxury resort condominium apartment units have been completed. The applicants feel that the remaining hotel sites within the Mauna Lani Resort are too small to accommodate their development plans unless the hotel sites were consolidated. If consolidation were possible, two sites might be large enough for a project the size of that proposed for the WBR. The first area surrounds Pauoa Bay and also contains some anchialine ponds along the shoreline. The second area borders Honoka'ope Bay. It has not yet been designated for Urban use by the State Land Use Commission, although a re-districting request is being processed at the present time.

(e) The applicants have indicated that it requires many years (a minimum of 3 to 6 years) to obtain the necessary State and County land use designations, permits, and approvals for a major resort. The design and construction of major resort facilities typically adds at least four more years to the process, so that the earliest the first units in a new project could be in operation is 1992. In view of the time delay and the great uncertainty of obtaining approvals to develop an entirely new resort, particularly in view of the large amount of their own land already zoned for resort use, consideration of an alternate resort location is not a viable alternative to the proposed action.

3.2.4 No Action Alternative

(a) Under this alternative the applicants abandon their project and no other private or government interest undertakes the proposed project or any other project. Under this alternative all the ponds at Waikoloa would not be filled or excavated.

(b) Based on Corps field observations and surveys of the anchialine ponds by Oceanic Institute (1985) and Brock (1985), the threat of exotic fish introduced into the anchialine ponds is high and that the continued existence of the anchialine ponds as a habitat for the endemic Hawaiian fauna depends upon regulating and controlling human activities. Thus, under the no action alternative, the Corps foresees the continued degradation of anchialine ponds as a result of the human introduction of exotic fish, a factor that can occur at any time in any of the anchialine ponds. Since a source of exotic fish presently exists at Waikoloa in the irrigation water, holding ponds and exotic fish was introduced into one anchialine pond in the golf course, the threat of exotic fish appearing in the remaining Waikoloa anchialine ponds is considered extremely high.

(c) The Corps does not know of any regulatory agency that can prevent or regulate the introduction of exotic fish into the anchialine ecosystem. While some anchialine ponds are protected by their inclusion in State Natural Area Reserves and Parks, the management of the majority of the anchialine pond resource is lacking. Secondly, there are no guarantees that ponds in the Natural Area Reserves or Parks could not also be degraded by the introduction of exotic fish.

(d) In comparison to filling, which eliminates the anchialine pond as a water body, as well as the pond organisms, exotic fish eliminates only the presence of the pond organisms. With the introduction of exotic fish, the shrimp fauna would disappear from the ponds together with some mollusks, particularly the hapawai (Theodoxus sp.). Changes in the algal community would also occur. These changes are would eliminate the unique anchialine pond character, reducing the presence of the unique shrimp species and creating more exotic fishponds.

(e) Even when exotic fish are in the ponds, some of the hypogeal shrimp, those that can exist underground in the subterranean water table, would continue to exist where the fish cannot "reach" them. This factor suggests that restoration of the anchialine pond ecosystem may be possible by eradicating the exotic fish and allowing natural recolonization or transplanting anchialine pond organisms. Fish eradication field tests are not presently substantial to ascertain whether or not fish eradication, as a pond restoration method, is practical, feasible or successful over the long-term. However, causal observations have indicated that filled ponds may be restored by man, and previously disturbed ponds can reestablished naturally within a six-year period.

4. FORESEEABLE ALTERNATIVES BEYOND THE CAPABILITIES OF THE APPLICANTS, BUT WITHIN THE JURISDICTION OF THE CORPS OF ENGINEERS

This category is intended to explore the possibility of the Corps of Engineers accomplishing the objectives of the applicants' proposal. Presently, the Corps of Engineers has no authority or program which could accomplish the same purposes or objectives as those which would be met by the applicants' proposal.

5. REASONABLY FORESEEABLE ALTERNATIVES BEYOND THE CAPABILITY OF THE APPLICANTS AND OUTSIDE THE JURISDICTION OF THE CORPS OF ENGINEERS

This alternative is intended to explore the availability of any other interest besides the applicants or the Corps of Engineers that might accomplish the same objectives. To the Corps' knowledge, no other agent, public or private, is available who could achieve the same purposes as the action proposed by the applicants.

6. ENVIRONMENTALLY PREFERRED ALTERNATIVE

(a) The environmentally preferred alternative allows some development concurrent with the establishment of managed pond preservation areas. In conjunction with the ponds preserved in the Natural Area Reserves and parks, the environmentally preferred alternative maintains and actively manages more anchialine pond resource on the island of Hawaii, as well as the State of Hawaii. While development pressures on the anchialine ponds can destroy and eliminate ponds through fill or excavation activities, man's use or mis-use of the ponds, particularly the introduction of exotic fish into the ponds, has also contributed to the degradation of the anchialine pond resource by eliminating the unique and rare shrimp assemblages in the ponds.

(b) In the case of the proposed action at the WBR, the preservation and management of some anchialine ponds at Waikoloa is preferred over filling or excavating all the ponds, and is preferred over permit denial, where the lack of controls on human intervention could degrade the resource. The alternative that preserves and manages more anchialine ponds than the proposed action is also environmentally preferred.

Table II-2: Comparison of Alternatives

Resource	Deny Permit	No Action	Proposed Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Resort Facilities:								
Zoned and Existing at WBR:								
Existing Hotel	543	543	543	543	543	543	543	543
Zoned Hotel	3000	3000	3000	3000	3000	3000	3000	3000
Existing Residential	0	0	0	0	0	0	0	0
Zoned Residential	3400	3400	3400	3400	3400	3400	3400	3400
Hyatt Area:								
Hotel	0	0	2150	2150	2150	800	0	2150
Residential	0	0	200	>200	200	0	0	200
Remainder of WBR:								
Hotel	1000	1000	850	850	300	500	>500	300
Residential	3300	3000	3100-3200	>3100	3200	3200	0	3200
Direct Employment (in Average No. of Persons Employed):								
Construction:								
Hyatt	None	None	700	700	700	~ 500	0	650
Later	None	None	240	>240	240	~ 150	>150	240
Resort Operation:								
Hyatt	None	None	1900	1900	1900	~ 1300	0	1900
Later	None	None	1600	1600	1600	~ 1000	>1000	1600
Operational Total	None	None	3500	3500	3500	2300	1000	3500
Personal Income Generated by Construction Expenditures: County/Other Hawai'i (in millions of dollars):								
Hyatt Hotel	None	None	46/39	46/39	Same as Proposed Project	Substantially Less Than Proposed Project	None	Slightly Less Than Proposed Project
Other Projects	None	None	38/32	>38/32				
Total	None	None	84/71	>84/71				
Personal Income Generated by Visitor Expenditures: County/Other State (in millions of dollars/year):								
Hyatt Hotel	None	None	46/39	46/39	Same as Proposed Project	Substantially Less Than Proposed Project	None	Slightly Less Than Proposed Project
Other Projects	None	None	38/32	>38/32				
Total	None	None	84/71	>84/71				

Table II-2: Comparison of Alternatives (continued)

Resource	Deny Permit	No Action	Proposed Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Tax Revenues From Operation (in million dollars/year)								
County	Decrease	Decrease	Increase by $3 million	Increase by $3 million	Approx. Same as Proposed Project	Substantially Less Than Proposed Project	Substantially Less Than Proposed Project	Slightly Less Than Proposed Project
State	Decrease	Decrease	Increase by $14 million	Increase by > $14 million	Approx. Same as Proposed Project	Substantially Less Than Proposed Project	Substantially Less Than Proposed Project	Slightly Less Than Proposed Project
Utility Demand:								
Highway Improvements	None Needed	None Needed	Queen Ka'ahu-manu Highway	Queen Ka'ahu-manu Highway	Same as Proposed Action	Same as Proposed Action	None Needed	Same as Proposed Action
Potable Water Supply Est. Use (in MGD)	0.66	0.66	Increase by 1.2 MGD	Increase by 1.2 MGD	Increase by 1.2 MGD	Increase by 0.5 MGD	Less than Altern. 3	Increase by 1.2 MGD
Wastewater Treatment Facilities:								
Wastewater Generated (MGD)	0.15	0.15	0.95	>0.95	Same as Proposed Project	0.38	0.38	Same as Proposed Project
Expansion Required?	No	No	Yes	Yes		Possibly	Possibly	
Solid Waste Generated	3,000 lbs/day	3,000 lbs/day	13,500 lbs/day	>13,500 lbs/day	13,500 lbs/day	5,000 lbs/day	5,000 lbs/day	13,500 lbs/day
IMPACTS								
Topographic Changes								
Lagoon:								
Quantity Excavated	None	None	40,000 c.y.	40,000 c.y.	40,000 c.y.	40,000 c.y.	None	None
Blasting Required?	None	None	Yes	Yes	Yes	Yes	None	None
Amount of Fill Required for Total Project	None	None	200,000 c.y.	200,000 c.y.	200,000 c.y.	200,000 c.y.	None	240,000 c.y.
Anchialine ponds								
% available	~198	198	62	72	55	122	194	77
Total water surface area (acres)	12.2	12.2	3.4	3.9	3.8	6.6	~12	5.4
Ponds lost (number/%)	0/0%	0/0%	136/69%	126/64%	143/72%	76/38%	4/2%	119/60%
Total water surface area (acres/%)	0/0%	0/0%	8.8/72%	8.3/68%	8.4/69%	5.6/46%	0.2/2%	6.8/56%

Table II-2: Comparison of Alternatives (continued)

Resource	Deny Permit	No Action	Proposed Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Preservation Area Size (Acres)	None	None	12 acres	14 acres	12 acres	39 acres	57 acres	17 acres
Estimated revenue loss from land in the preservation area ($ million) with Hyatt in place	None	None	$12 million	$14 million	$12 million	$39 million	$57 million	$17 million
Interference with groundwater flow	None	None	Deflection	Deflection	Deflection	Deflection	Possible Deflection	Possible
Fill material contamination of ground and marine waters	None	None	None	None	None	None	None	None
Change in Coastal Groundwater Quality by resort and upland uses	Probable Small Increase in Nutrient Levels	Probable Small Increase in Nutrient Levels	Probable Slightly Greater Increase in Nutrient Levels Than Deny Permit Alternative	Same as Proposed Action	Same as Proposed Action	Less Increase Than Proposed Action	Less Increase Than Proposed Action	Same as Proposed Action
Amount of existing vegetation unaffected by development	All	All	12 acres	14 acres	12 acres	39 acres	57 acres	17 acres
Birds/Wildlife Change	No Change From Present	No Change From Present	Decrease in herons and migratory waterbirds; increase in exotic birds	Decrease in herons and migratory waterbirds; increase in exotic birds	Decrease in herons and migratory waterbirds; increase in exotic birds	Decrease in herons and migratory waterbirds; increase in exotic birds	No change in herons; human activities affect migratory birds; slight increase in exotic birds	Decrease in herons and migratory waterbirds; increase in exotic birds
Threatened and Endangered Species Present in Region: Hawaiian stilt, hoary bat, green sea turtle, humpback whale	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Historic Properties	Waiulua Bay; Nawahine; Kaniku Settlements Anaehoomalu Burials	Waiulua Bay; Nawahine; Kaniku Settlements Anaehoomalu Burials	Restored Preserved Preserved Salvaged	Restored Preserved Preserved Salvaged	Restored Preserved Preserved Salvaged	Restored Preserved Preserved Salvaged	Restored Preserved Preserved Salvaged	Restored Preserved Preserved Salvaged

CHAPTER III

AFFECTED ENVIRONMENT

1. PROJECT LOCATION

(a) The Waikoloa Beach Resort (WBR) is located in the South Kohala District of the Island of Hawai'i along the northern boundary of the North Kona District (see Figure II-1). The Mauna Lani Resort is just to the north. Most of the land along the WBR's southern edge is owned by the State of Hawai'i, but Richard Smart owns a 10-acre shoreline parcel.

(b) The project area encompasses almost all of the parcels containing shoreline and anchialine ponds within the WBR from the head of Waiulua Bay south to 'Anaeho'omalu Bay. This involves approximately one-half of the resort's total shoreline acreage (see Figures II-2 and II-3). The project area does not include the preservation parcel containing Kahapapa and Ku'uali'i fishponds which are located in back of the sandy beach at 'Anaeho'omalu Bay. The fishponds and anchialine ponds in this parcel are also within DA regulatory jurisdiction, but no development or other action requiring a DA permit is proposed for this fishpond area.

2. TOPOGRAPHIC AND GEOLOGICAL FEATURES

2.1 VISUAL ELEMENTS

(a) Open space characterizes much of the Waikoloa Beach Resort. A large portion of the inland acreage consists of grassed areas that are part of the Waikoloa Beach Resort golf course. The project area consists of the land near the coast composed largely of rugged and jumbled, brown/black pāhoehoe lava interspersed with sparse vegetation. The dominant visual elements along this portion of the coast are the lava, clusters of kiawe trees, seascape, open waters of Waiulua Bay, and the coral cobble beach berm (see Figure III-1). The coastal parcel to the south of the project area is a preservation area containing Kahapapa and Ku'uali'i fishponds, a white sandy beach curving around 'Anaeho'omalu Bay, and a number of anchialine ponds. The northern portion of the Waikoloa Beach Resort is on the Kanikū lava flow; its rough 'a'ā lava surface is unrelieved by any vegetation except where the WBR golf course has been developed.

(b) The golf clubhouse, the Sheraton Royal Waikoloa Hotel complex, the paved and unpaved roads, the graded areas, and the golf course are the only man-made elements present. The slopes and peaks of the Kohala Mountains, Hualālai, Mauna Kea, and Mauna Loa are the principal background features. During very clear weather, Haleakalā on Maui can be seen on the horizon.

2.2 TOPOGRAPHY AND GEOLOGY

(a) The project area extends from the northern side of Waiulua Bay south to 'Anaeho'omalu Bay encompassing at least two prehistoric lava flows that probably resulted from eruptions of Mauna Loa volcano. The oldest of these is composed of pāhoehoe lava covering the entire Waikoloa Beach Resort. The younger Kanikū lava flow is composed of 'a'ā lava and lies on top of the pāhoehoe from the head of Waiulua Bay northwards.

(b) The surface of the Kanikū flow ranges in elevation from 20 to 40 feet above mean sea level, forming an escarpment along the northern side of Waiulua Bay. The pāhoehoe flow ranges in elevation from 0 to 10 feet above sea level. Depressions, fissures, cracks, and collapsed lava tubes in the pāhoehoe flow extend below sea level, forming ponds and tide pools throughout the WBR coastal area south of the Kanikū flow. Groundwater passing through the porous volcanic lavas discharges into the ocean all along the shoreline of the WBR, as it does elsewhere along the West Hawai'i coastline. The groundwater discharge mixing with the ocean water in the below-sea-level depressions inland of the shoreline has produced the distinctive anchialine pond habitat. Waiulua Bay is an area of conspicuous groundwater discharge. Previous investigators (Cox, et al., 1969; Fisher et al., 1969; Key et al., 1971; and Young et al., 1977) estimated the discharge there to be on the order of 1 to 4 million gallons per day per mile of coastline. Belt, Collins & Associates (1985) estimated groundwater discharge at Waiulua Bay at 0.5 mgd for purposes of lagoon flushing design. Recharge occurs over an extensive upland area stretching miles inland on the rainy slopes of Mauna Kea.

(c) On an earthquake risk zone scale of 1 to 4, the entire Island of Hawai'i is classified as Risk Zone 3. While most earthquakes that affect the island are associated with swelling and deflation of the volcanoes, the most damaging earthquakes have been the result of crustal block movements under or near the southern part of the island. At its epicenter, the great earthquake of 1868 was estimated to have had a magnitude of 7.25-7.75, and probably intensities in the 7 to 8 range at the WBR. The most intense, the 1951 earthquake, is estimated to have had an intensity of about 5 at the WBR (Macdonald and Abbott, 1970). The 1975 earthquake probably had an intensity of 5 at WBR (Environmental Center, see Appendix K). Its location on the flank of Mauna Loa places the WBR in "Overall Volcanic Risk Zone E" (risk increases from A through F) as defined by Mullineaux and Peterson (1974), but Dames and Moore (December 1969) concluded that the risk of damage from new lava flows within the next 100 years is remote.

2.3 SOILS

The Soil Conservation Service of the U.S. Department of Agriculture (SCS) has identified and mapped three different soil and land types within the project area: 'a'ā lava flows (mapped as rLV), pāhoehoe lava flows (rLW), and Beach (BH). Little or no soil covering exists, and all three land types are mapped as a miscellaneous land type in capability class VIII -- soils and land forms with limitations that preclude their use for commercial plants. None of the three land types are identified as important agricultural land (U.S. Department of Agriculture, Soil Conservation Service, December 1973).

2.4 DRAINAGE

The WBR is at the seaward end of a large drainage basin whose upper reaches (Mauna Kea) receive substantially more rainfall than the WBR, and intermittant flows undoubtedly occur in upland areas. However, this water infiltrates into the porous lava well before reaching the shoreline, and there is no evidence of significant surface runoff within the project area. As a result, there are no well-defined drainageways at WBR.

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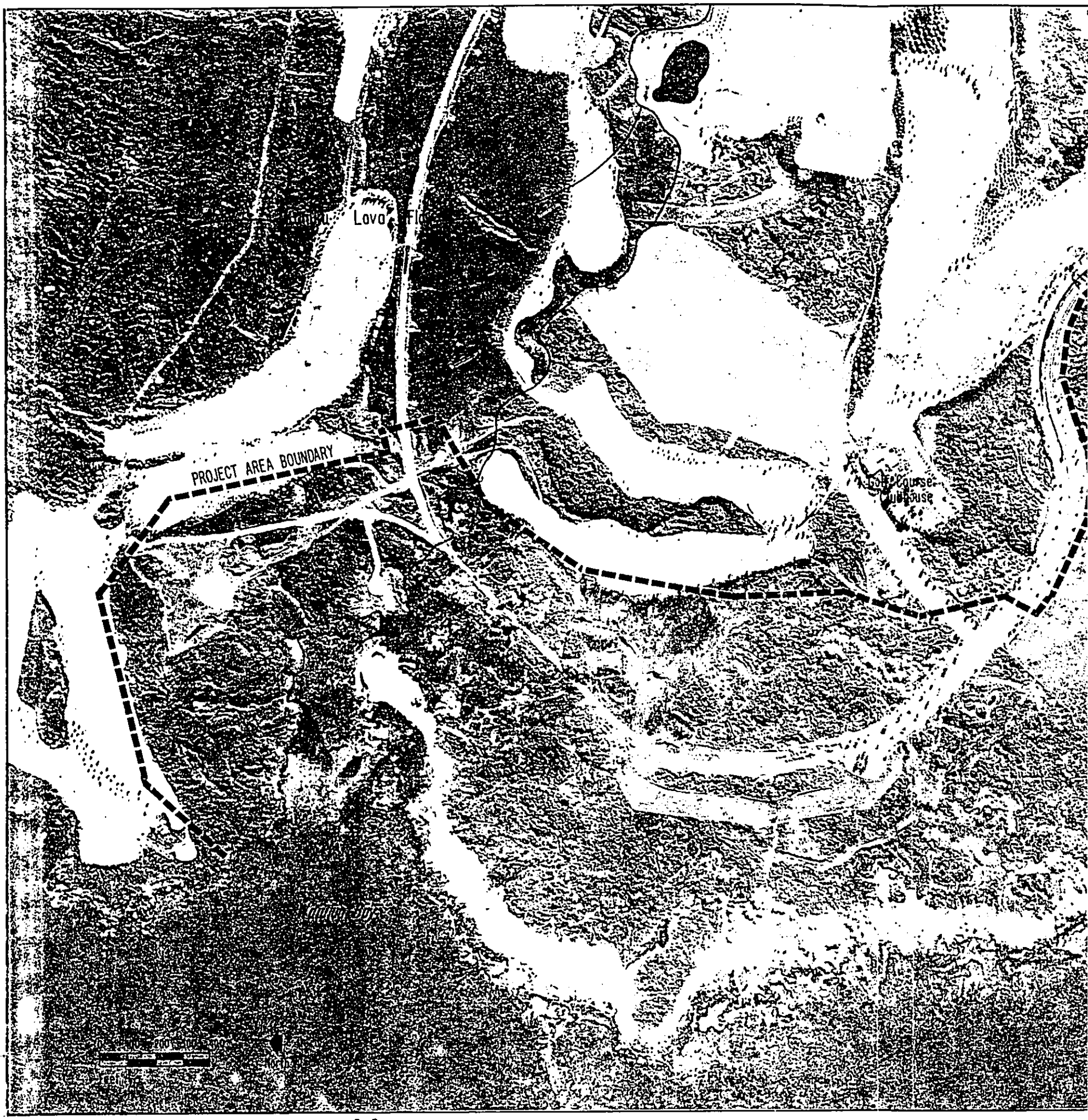


3-3

RECEIVED AS FOLLOWS

Figure III-1 Existing Site Conditions

3. COASTAL FEATURES

(a) Most of the shoreline of the project area consists of exposed basaltic lava backed by a low, storm-tossed, coral cobble beach berm. The shoreline along the Kanikū lava flow is a sea cliff averaging about 20 feet in height. At 'Anaeho'omalu Bay, a wide sand beach has formed, possibly contributing to the creation of the two large fishponds (Kahapapa and Ku'uali'i) (Figure III-2).

(b) Waiulua Bay is an embayment with an area of less than 15 acres. The bay can be divided into three distinct zones -- inner, middle, and outer. The inner bay is essentially a low-lying area in the pāhoehoe lava that is flooded during high tide. At low tide, a large portion of the lava substrate of the inner bay is exposed, with the remaining areas submerged in the form of ponds. During high tide, this entire zone is covered with water ranging from 1 to 3 feet in depth, so that it forms one large water body.

(c) The middle bay extends from the inner bay approximately 500 feet seaward to a submerged lava basalt ridge and emergent rocks that separate it from the outer bay. The average depth of the water in the middle bay is less than five feet, and the bottom consists primarily of smooth basalt rock. Small pockets of calcareous sand can be found on the bottom. Basalt cobbles cover the submerged ridge where the water depth ranges from three to four feet during low tide. The emergent rocks and the submerged ridge reduce wave action in the middle and inner zones of the bay.

(d) The outer zone of the bay begins at the basalt ridge and extends seaward. The water depth in this zone is generally 12 feet or less, and the bottom consists primarily of basalt shelves, scattered basalt cobbles, and pockets of calcareous sand.

4. OCEANOGRAPHIC CHARACTERISTICS

4.1 TIDE AND CURRENTS

(a) The tidal range along the coast is small (generally about 2 feet in a day), with a mean tide level of 0.8 feet above mean lower low water. Tidal fluctuations are usually semidiurnal, the higher of the two tides averaging 1.1 feet above mean sea level. The highest tide is about 3.5 feet above mean lower low level. The maximum tidal range is about 4.5 feet.

(b) The Hawaiian Archipelago lies within the geostrophic east-to-west current coinciding with the northeast tradewind drift. Within the islands, however, particularly near shore, this current is weak (Mann, 1968; U.S. Department of Commerce, National Oceanographic and Atmospheric Administration, 1974). Along the leeward coast of the Big Island, the current on a rising tide is typically to the north and tends to move in towards the coast. Nearshore, a representative rising-tide current velocity is 0.4 knots (Mann, 1968). This current generally produces clockwise eddies in bays along the coast, such as at 'Anaeho'omalu. On a falling tide, the nearshore current usually reverses, weakens (to about 0.1 to 0.2 knot), and produces counter-clockwise eddies within the bays. Because the flood tide currents are stronger, the resulting net current drift is northward along the coastline of the WBR (Boise Cascade Home and Land Corp., 1976:187).

(c) Currents in the inner and middle zones of Waiulua Bay are driven primarily by the tide, creating eddies on a rising and falling tide. The large discharge of brackish groundwater, noted previously, produces a predominantly seaward current on the surface of the bay.

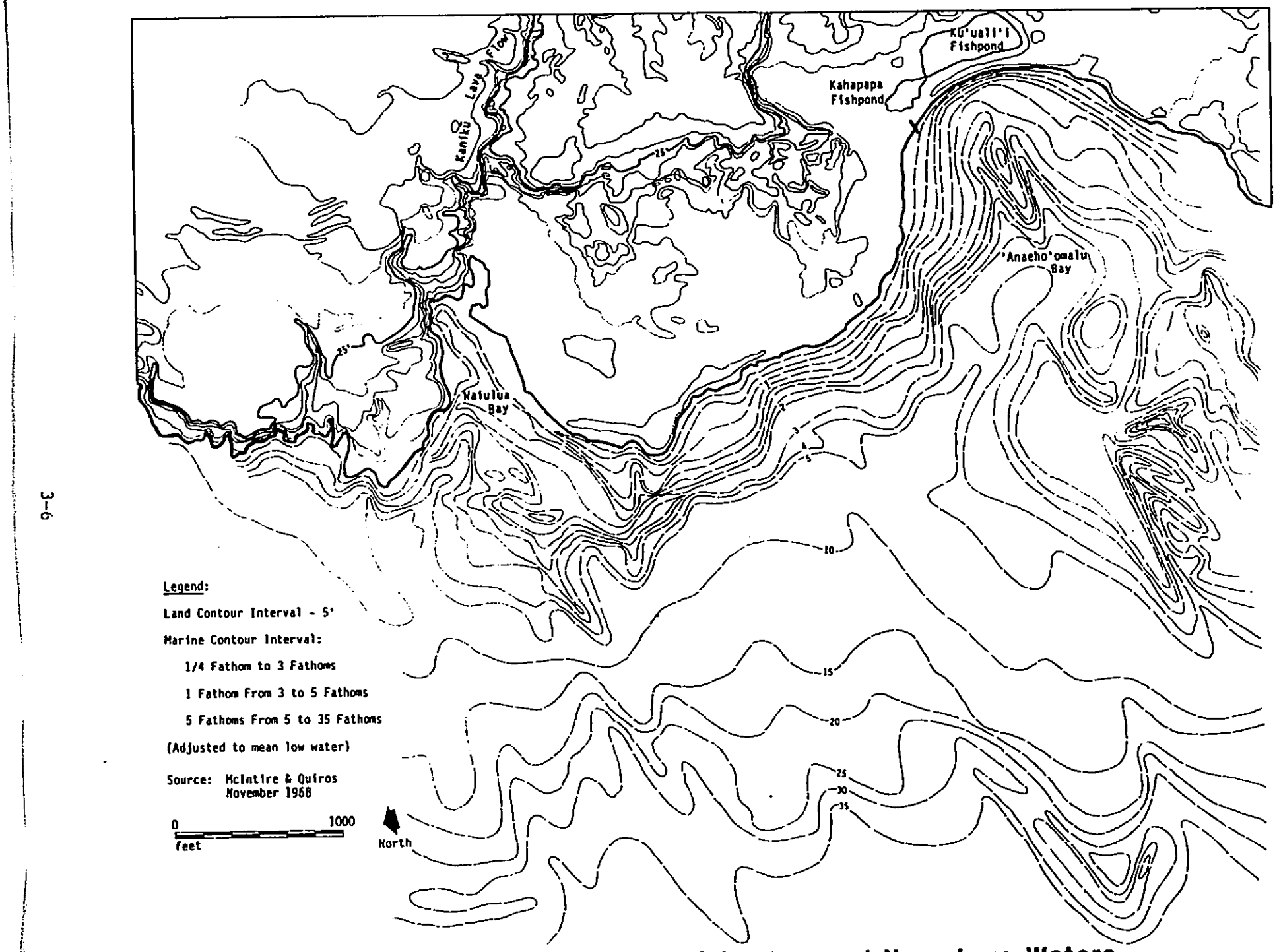


Figure III-2 Bathymetry of Waiulua Bay and Nearshore Waters

4.2 STORM WAVES

(a) With respect to the design of coastal structures, waves generated by Kona storms (i.e., storms from the south), hurricanes, and large open-ocean disturbances to the south of the island are of greatest concern on the South Kohala coast. The North Pacific swell and swells generated by the northeast tradewinds are of little consequence as the South Kohala coast is not directly exposed to these waves. The probable deep-water storm wave heights in the area of the Waikoloa Beach Resort were estimated by Sea Engineering, Inc. (December 1984), using available wave data from stations throughout the Hawaiian islands. The estimated deep-water wave heights for selected storm conditions are presented in Table III-1.

(b) Under typical weather conditions, waves along the shoreline of the site are small. However, large waves can be generated by Kona storms. In general, such storms typically produce waves with heights of 8 to 15 feet and periods of 6 to 12 seconds along exposed West Hawai'i shorelines. Once in every 10 years, wave heights may reach 25 feet with periods of 15 seconds in places (U.S. Army Corps of Engineers, 1970). Southern swells have produced high-breaking waves on occasion; for example, southern swell breakers of up to 18 feet with periods of 20 seconds were recorded at Hāpuna Beach (Gayman and Greenbaum, 1968). Based on his observation of wave-tossed debris, Mann (1968) plotted what he termed a "storm-wave run-up" line ranging from 500 to 700 feet in from the shoreline at the WBR.

4.3 TSUNAMIS

(a) Historical data covering 85 tsunamis indicate that the tsunami of 1946 produced the highest runups in Kawaihae and Kailua-Kona, the points closest to the Waikoloa Beach Resort for which data were recorded. At Kawaihae the 1946 wave runup was 12 feet above mean low, low water (MLLW), or about 11 feet above mean sea level. The runup of the 1946 wave at Kailua-Kona was 11 feet above MLLW (University of Hawai'i, Department of Geography, 1983; 58).

(b) As shown on Figure III-3, the shoreline of the WBR lies within a special flood hazard area as indicated on the Flood Insurance Rate Map for the area (Federal Emergency Management Agency, 3 May 1983). Structures built within the flood hazard area must comply with the County of Hawai'i's flood control regulations (Chapter 27 of the Hawai'i County Code), which are based on the Federal flood control guidelines.

(c) Portions of the project area are located in a flood hazard zone designated V15; the base flood elevation for the land nearest the ocean is 8 feet MLLW. Areas zoned V1 to V30 (the "V" stands for velocity -- a measure of wave action) are termed "Coastal High Hazard" (tsunami) zones, or V zones, in the County Code; structures built within them must meet specified design and construction standards. Portions of structures within the V-zoned area must be elevated "...so that the lowest supporting member of the lowest habitable floor, excluding pilings and columns, is above the base flood elevation" (Section 27-37(b) of the Hawai'i County Code).

5. CLIMATE

Situated between latitudes 19 and 22 degrees north, approximately 2,500 miles southwest of San Francisco, the Hawaiian Islands are well within the tropics. Hawai'i's climate is notable for its mild and equable year-round temperatures, moderate humidity, generally prevailing northeasterly tradewinds, infrequency of severe storms, and large differences of rainfall within short distances due to the varied topography (see Figure III-4).

Table III-1

Selected Projections of Deep-Water Storm Waves: Waikoloa Beach Resort

Source of Wave	Height (feet)	Period (Seconds)	Direction	Estimated Return Period (years)
Storm Swell	10	12 & 20	West and NW	1
	15	12 & 20	West and NW	1
	20	12 & 20	West and NW	2 - 10
	25	12 & 20	West and NW	10 - 25
	30	12 & 20	West and NW	25 - 50
Kona Storm	17	19	SW and W	10 - 30
Hurricane	27	12	SW and W	50

NOTES:

(1) The heights are presented as "significant wave heights, i.e., the average of the highest one-third waves."

(2) Estimated return periods are based on an inspection of published frequency-of-occurrence data, which are limited and qualitiative in nature for storm wave events applicable to the study area. No new or additional statistical analysis was undertaken; hence, the return periods are very approximate.

Source: Sea Engineering, Inc. (December 1984:28).

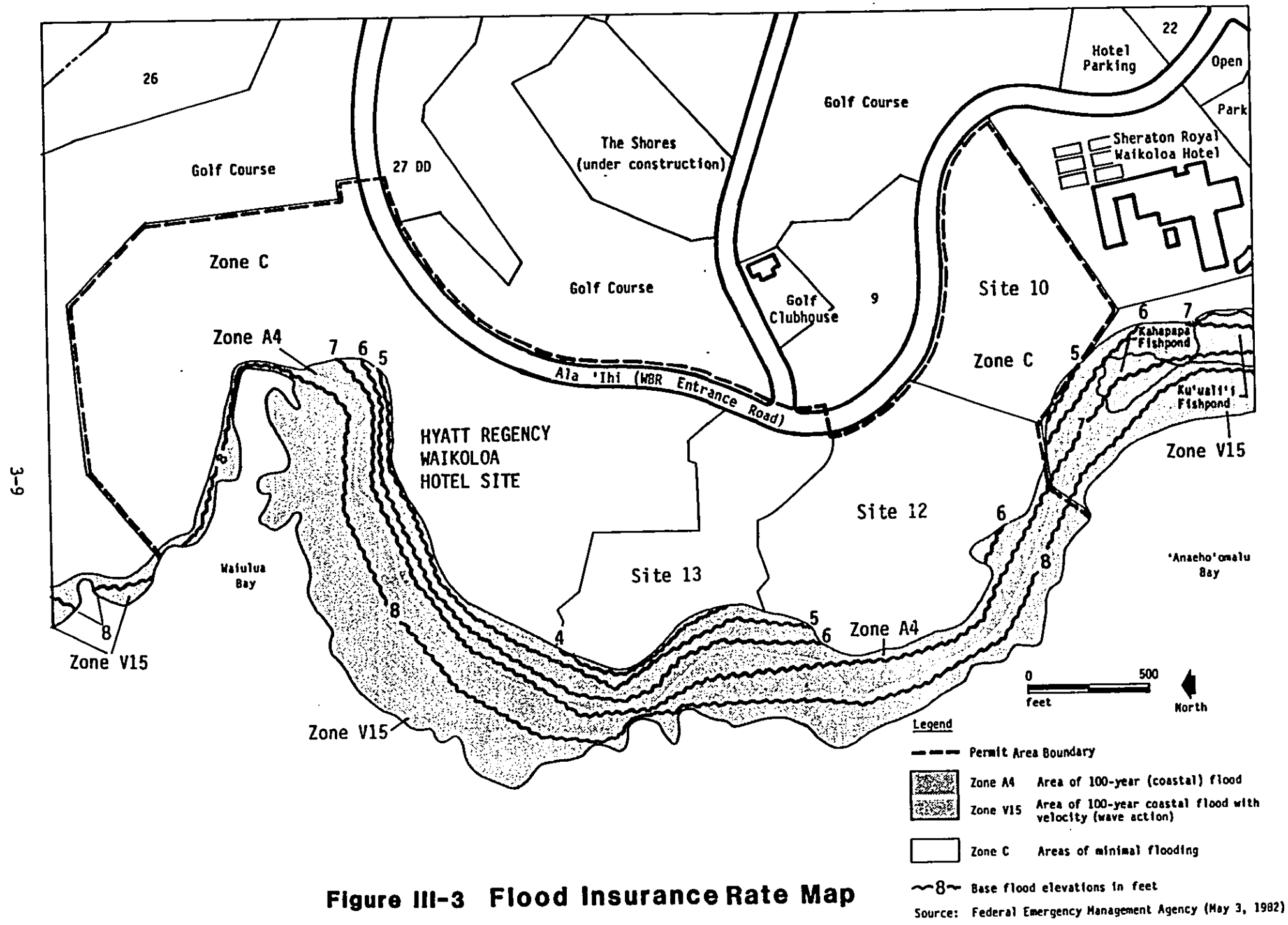
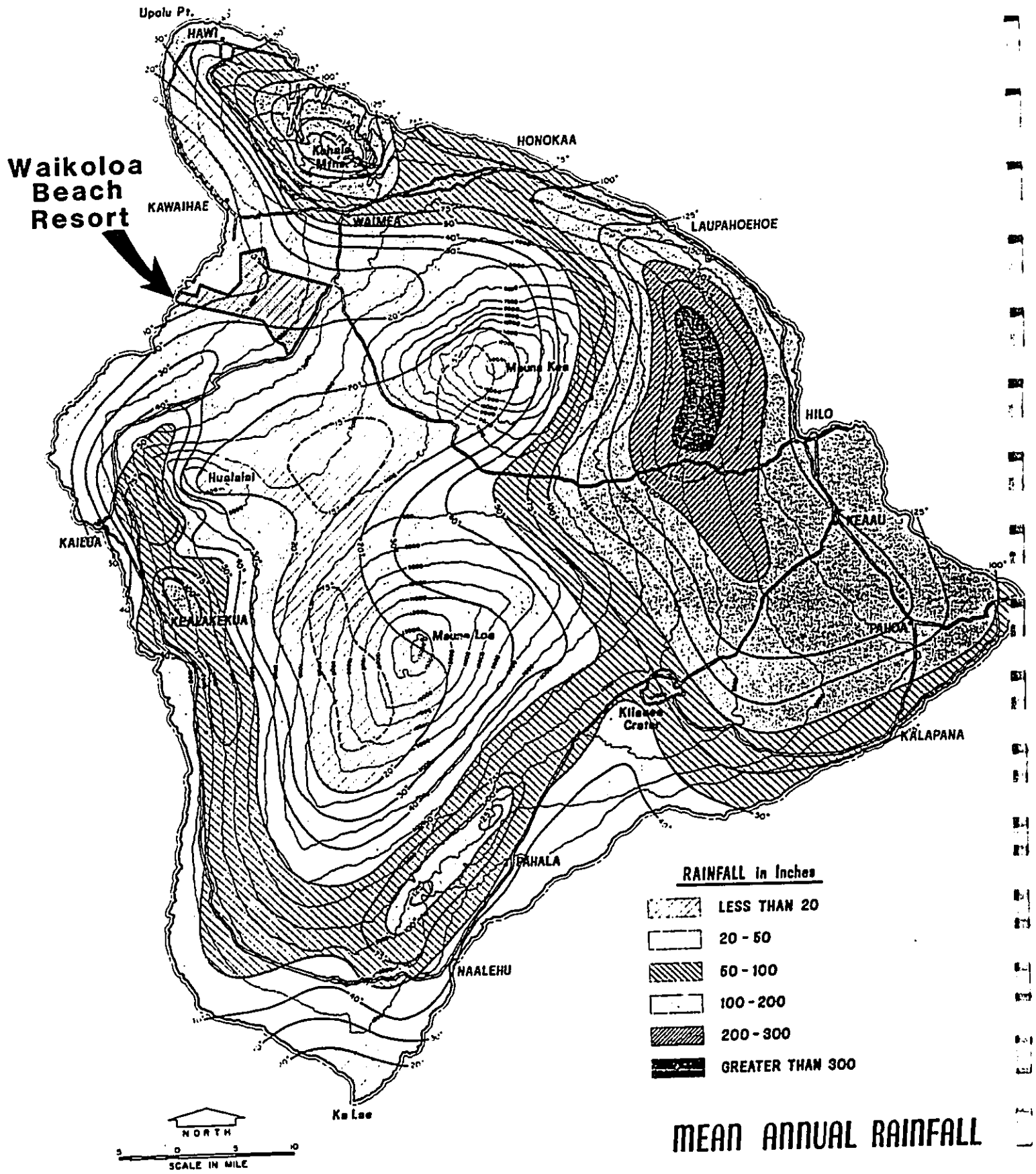


Figure III-3 Flood Insurance Rate Map



Source: State of Hawaii, Department of Land and Natural Resources, Report R34

Figure III-4 Rainfall Map

5.1 WIND

(a) The South Kohala coast is generally sheltered from the prevailing northeast tradewinds. An on-shore breeze is usually present from mid-morning until about sunset. From about sunset until the next morning, the wind direction typically reverses and becomes an offshore breeze. This diurnal pattern is in contrast to the prevailing northeasterly tradewinds found in most parts of the state. Wind velocities average 7-8 miles per hour. However, gusty winds blowing down from the saddle between the Kohala Mountains and Mauna Kea do reach the shoreline under certain atmospheric conditions.

(b) The surface wind regime for the area is depicted in the wind rose shown in Figure III-5. The wind rose is based on hourly wind data (3,785 hours) collected at the Mauna Kea Beach Hotel in 1967 and analyzed by Morrow (February 1979). The data clearly indicate an east-west dichotomy, and a closer examination reveals that the ESE-ENE winds generally occur during the night, early morning, and evening hours, while the WNW-West winds predominate during the daytime.

5.2 RAINFALL

The Waikoloa Beach Resort is located along the island's leeward coastline. Long-term records show it to be one of the driest areas in the state. Based on rainfall data collected over a 36-year period at the National Weather Service station at Puakō (about five miles north of the WBR), the rainfall at the resort averages about nine inches per year (Boise Cascade Home and Land Corp., 1976:166). The majority of the rain which does fall occurs during the winter.

5.3 TEMPERATURE

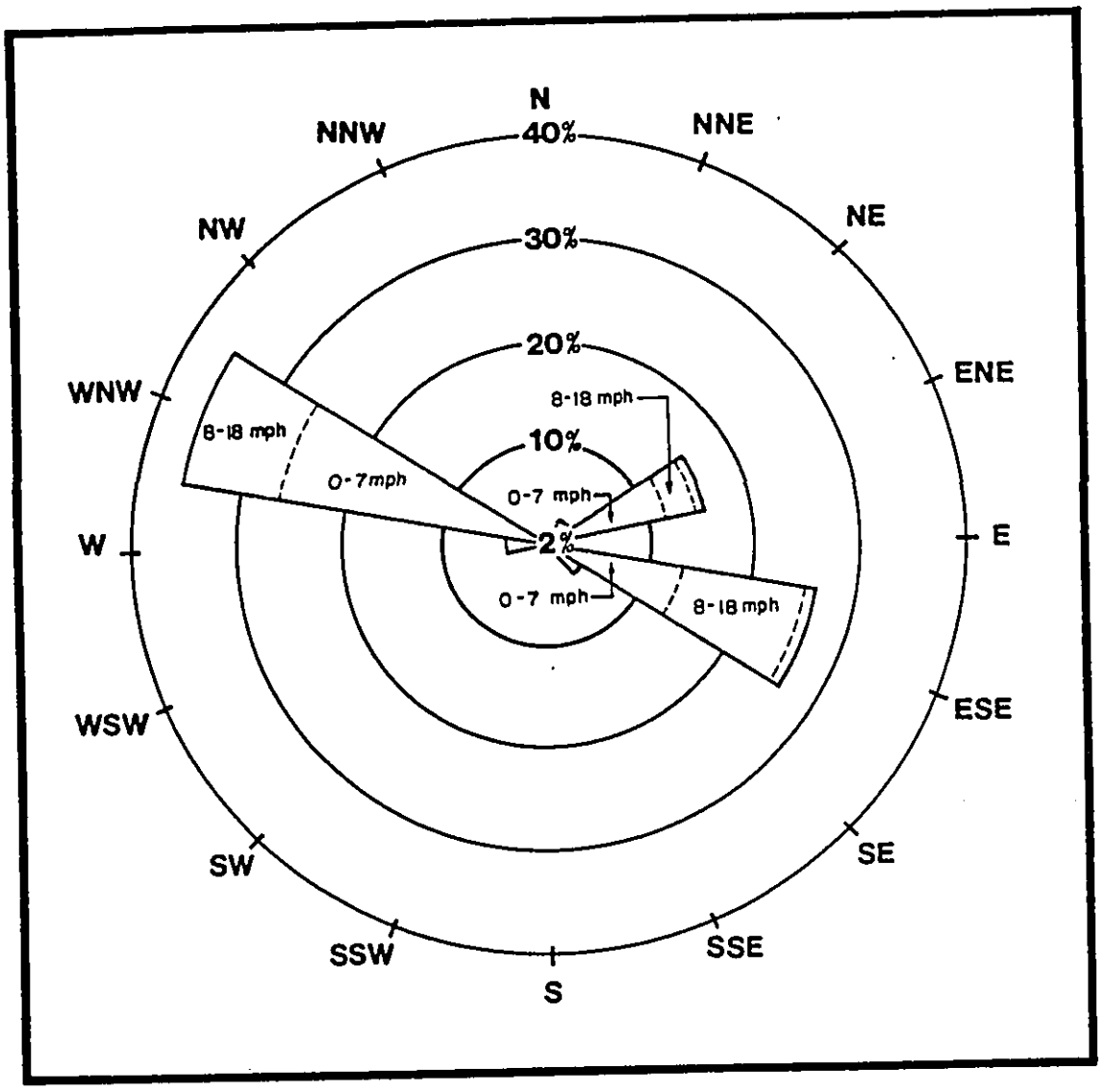
Although the resort area is quite dry and sunny, the temperatures along the shoreline are typically mild. Daytime highs above 88 degrees Fahrenheit (F) and lows below 63 degrees F are rare. The mean annual temperature is 78 degrees F, with relatively small daily and seasonal fluctuations (Boise Cascade Home and Land Corp., 1976:169).

6. AIR QUALITY

(a) The closest continuous State Department of Health air quality monitoring station is located in Hilo, some 60 miles to the east. Only total suspended particulates (TSP) and sulfur dioxide are measured, and in 1983 both State and Federal ambient air quality standards for these were met. A second monitoring station (which measured only TSP) was maintained at Honoka'a, also on the windward side of the island, for a few years. This station was closed in 1981, but records from the years during which it operated indicate that both State and Federal ambient air quality standards for TSP were being met there as well. Levels of nitrogen oxide (NOx), one of three principal automotive pollutants, were last measured in Hilo in 1975. At that time they ranged from less than 5 to approximately 29 micrograms per cubic meter (ug/m3); the average in Hilo was 16 ug/m3. The wind conditions at Waikoloa tend to rapidly disperse emissions.

(b) Volcanic eruptions are the most significant factor affecting air quality on the island. Volcanic emissions are somewhat variable and have not been fully characterized, but in addition to the obvious particulates, they contain substantial amounts of mercury and sulfur dioxide. Areas close to the eruptive vent can experience greatly

Figure III-5 Frequency Distribution of Wind Direction



Notes:

Based on data gathered by the U.S. Army Corps of Engineers for March through December 1967 and compiled by J.W. Morrow.

Center value indicates percentage of calm time.

elevated concentrations of both mercury and sulfur dioxide. Sampling during the 1983 eruption indicated that concentrations in Kona were relatively low. This is probably accounted for by its distance from the active vent and constant changes in wind direction during the eruption. However, volcanic haze and gas accumulation do occur particularly in the lee of Mauna Kea and Mauna Lani when winds are light and variable.

7. VEGETATION AND WILDLIFE

7.1 VEGETATION

(a) Oceanic Institute (1977, August 1984, September 1984a&b) and Earthwatch (September 1984) surveyed the aquatic and terrestrial vegetative communities on the site of the proposed Hyatt Regency Waikoloa Hotel and around the WBP's anchialine ponds. The information contained in their reports, together with aerial color photography of the coastal portions of the resort, provides a basis for characterizing the vegetative communities throughout the project area. Four natural cover types are present: (1) Kiawe Woodland, (2) Coastal Strand, (3) Marsh, and (4) Barren Lava (largely unvegetated lava surfaces). The approximate location and extent of these natural cover types, as well as areas that have been landscaped and cleared during development of the resort, are shown on Figure III-6. The plant species present outside the landscaped areas are listed in Table III-2. Oceanic Institute and Earthwatch have identified several endemic plant species in the Barren Lava, Coastal Strand, and Marsh communities. These communities, and the species which comprise them, are found in numerous similar locales throughout Hawai'i. No plant species listed on the Federal list of threatened and endangered species were observed during the course of the field surveys.

(b) The Coastal Strand community is more sharply defined than the other communities because it is generally limited to areas covered by coral cobble and coarse sand along the shoreline of the resort. The indigenous plants growing along the shoreline are naupaka-kahakai, hinahina, nena, 'ākulikuli, 'ōhelo-kai, and 'aki'aki. 'Ākulikuli is the most frequently observed shrub, and nena and naupaka-kahakai are the most prominent beach plants.

(c) The Marsh community is found in and around some of the anchialine ponds, but some ponds have virtually no vegetation near them. Where anchialine ponds are located close to the coast, the Marsh and Coastal Strand communities intermix. Sedges and rushes are commonly found in combination with grasses. Widgeon grass is abundant on the bottom of some ponds. The Marsh community contains more indigenous plant species than the other community types.

(e) The Kiawe Woodland community is closely associated and overlaps with the Marsh community because they are both dependent upon the brackish water in the anchialine ponds. As its name implies, kiawe trees are the dominant plant in this cover type, towering over, and often crowding out, other plant types. Exotic species dominate this community. However, noni and beach naupaka are also found here.

(f) Areas identified as "Barren Lava" cover type actually contain scattered grasses and forbs. These grow in soil accumulated in tiny crevices and typically cover a very small percentage of the surface. Of the 14 species of plants recorded in this community, three were endemic to Hawai'i, and one was indigenous to the Pacific.

Table III-2

Plant Species Checklist: Waikoloa Beach Resort

Scientific Name[1]	Common Names[2]	Origin[3]	Location[4]	Found in OI Surveys[5]
MONOCOTYLEDONEAE				
GRAMINEAE (Grass Family)				
Aristida adcensionis L.	Sixweeks threeawn	X	B	
Cynodon dactylon (L.) Pers.	Bermuda grass; mānienie	X	M, K	
Pennisetum setaceum (Forsk.) Chiov.	Fountaingrass	X	B, K	+
Pennisetum setosum (Sw.) L.C. Rich in Pers.	Feathery pennisetum	X	B	
Sporobolus virginicus (L.) Kunth	Beach dropseed; 'aki 'aki	I	C, M	+
CYPERACEAE (Sedge Family)				
Cladium leptostachyum Nees & Meyen	Native sawgrass; 'uki	E	M	+
Cyperus laevigatus L.	Makaloa; 'ehu 'awa	I	M	+
Cyperus polystachyus Rottb.	---	I	M	
Eleocharis geniculata (L.) R.&S.	---	X	M	
Eleocharis obtusa (Willd.) Schult.	Pipi wai	I	M	
Fimbristylis dichotoma (L.) Vahl	Tall fringe rush	I	M	
Fimbristylis pycnocephala Hbd.	---	I	M	+
Fimbristylis littoralis Gaud.	---	---	M	
Scirpus maritima var. paludosus (A. Nels) Kuk.	Makai	I	M	
PALMAE (Palm Family)				
Cocos nucifera L.	Coconut; niu	P	M	+
RUPPIACEAE (Ruppia Family)				
Ruppia maritima*	Widgeon grass; tassel pond weed	I	M	+
DICOTYLEDONEAE				
CHENOPODIACEAE (Goosefoot Family)				
Atriplex semibaccata R. Br.	Australian saltbush	X	B, C, K	
Chenopodium murale L.	Nettle-leaved goosefoot	X	C, K	
AIZOACEAE (Carpetweed Family)				
Sesuvium portulacastrum (L). L.	'Ākulikuli; sea purslane	I	C, M	+
PORTULACACEAE (Purslane Family)				
Portulaca cyanosperma Egler .	Blue-seeded portulaca; 'ihi	E	B	
Portulaca oleracea L.	Common purslane; 'ihi	X	B	
CARYOPHYLLACEAE (Pink Family)				
Spergula spp.	---	X	B	
PAPAVERACEAE (Poppy Family)				
Argemone glauca Pope	Prickly poppy; pua-kala	F	B	
CAPPARACEAE (Caper Family)				
Capparis sandwichiana var. zoharyi Deg. & Dea.	Native caper; pua-pilo	E	B	
LEGUMINOSAE (Pea Family)				
Prosopis pallida (Humb. & Bonpl. ex Willd.) HBK	Mesquite; kiawe	X	B, K	+
EUPHORBIACEAE (Spurge Family)				
Euphorbia prostrata Ait.	Prostrate spurge	X	B	
MALVACEAE (Mallow Family)				
Sida spp.	'Ilima	---	B	
Thespesia populnea (L.) Soland. ex Correa	Milo; portia tree	P	C	+
Hibiscus tiliaceus*	Hau	I	M	+
STERCULIACEAE (Cocoa Family)				
Waltheria indica var. americana (L.) R.Br.	Waltheria; hi'aloha; 'uhaloa	I	B	
BORAGINACEAE (Heliotrope Family)				
Heliotropium anomalum H. & A.	Hinahina-ka-kahakai	I	C, M	+
Heliotropium curassavicum L.	Nena; seaside heliotrope	I	C	
Messerschmidia argentea (L.f.) Johnston	Tree heliotrope	X	C	+
SOLANACEAE (Nightshade Family)				
Lycium sandwicense Gry	'Ohelo-kai	I	C, M	+
SCROPHULARIACEAE (Figwort Family)				
Bacopa monnieria (L.) Wettst.	Water hyssop	I	M	+
RUBIACEAE (Coffee Family)				
Morinda citrifolia L.	Noni; Indian mulberry	P	M, K	+
GOODENIACEAE (Naupaka Family)				
Scaevola taccada (Gaertn.) Roxb.	Beach naupaka; naupaka-kahakai	I	C, M, K	+
COMPOSITAE (Sunflower Family)				
Pluchea odorata (L.) Cass.	Pluchea; sourbush; Indian pluchea	X	K	+
Sonchus oleraceus L.	Sow thistle; pua-lele	X	B	
Wedelia trilobata*	Wedelia	X	M	+
CONVOLULACEAE (Morning Glory Family)				
Ipomea pes-caprae*	Pōhuehue, beach morning glory	I	M	+

--- Footnotes on following page.

FOOTNOTES TO TABLE III-2:

[1] Families are arranged according to St. John (1973). Genera and species are listed alphabetically within each family. Taxonomy and nomenclature generally follow St. John except where more commonly accepted names are listed. Author citation of scientific names are given. See footnote 5 regarding names with asterisks (*).

[2] Hawaiian name also given when known.

[3] Species origin:

E = Endemic to the Hawaiian Islands; occurring naturally nowhere else in the world.

I = Indigenous: native to the Hawaiian Islands but also occurring naturally elsewhere in the world.

P = Polynesian Introduction: plants brought by the Polynesian immigrants prior to contact with the Western World.

X = Exotic: plants of accidental or deliberate introduction after contact.

[4] Location:

B = Barren Lava
C = Coastal Strand
M = Marsh
K = Kiawe Woodland

[5] The scope of the vegetation surveys conducted by Oceanic Institute (1977, August 1984, September 1984a&b) was limited to the plants growing in and around the anchialine ponds, but included areas beyond the Hyatt site that Earthwatch did not cover. Only four additional species, besides those noted by Earthwatch, were found; these are marked with an asterisk (*).

Source: Earthwatch (1984) except as noted above.

7.2 WILDLIFE

7.2.1 Birds

(a) Within the West Hawai'i region, large coastal ponds, such as 'Opae'ula, Kaloko and 'Aimakapā to the south of the WBR support large populations of native and migratory waterbirds, including the endangered Hawaiian stilt, the coot and the duck. Many migratory waterbirds winter in Hawai'i at these large ponds. Bachman (1984) indicated that the endangered Hawaiian stilt and other migratory waterbirds used the Kahapapa and Ku'uali'i fishponds prior to the development of the Sheraton Royal Waikoloa Hotel. No migratory waterbirds or endangered Hawaiian stilt were observed in the fishponds during Corps and U.S. Fish and Wildlife Service site visits in November and December 1984, while many waterbirds were observed in ponds to the south of the WBR. The U.S. Fish and Wildlife Service has been attempting to purchase 'Opae'ula pond as a waterbird wildlife refuge.

(b) A reconnaissance survey (Bruner, September 20, 1984) found that bird populations on the WBR property were not significant. No species on the Federal list of threatened or endangered species were found, although the U.S. Fish and Wildlife Service reported that the endangered Hawaiian stilt had been seen in the anchialine ponds. The endangered stilt was not seen by either the Corps of Engineers or the U.S. Fish and Wildlife Service during November and December 1984 site visits; nor was it sighted by the Corps of Engineers during site visits over a period from January to June 1985.

(c) Bruner reported finding one family (two adults and one juvenile) of Black-crowned Night Heron, an average of 12 Pacific Golden Plovers per day, 4 Wandering Tattlers, and a flock of 6 Ruddy Turnstones. The Night Heron is a resident indigenous species, while the others are migratory species that winter in Hawai'i. The Night Heron family is believed to roost in a kiawe thicket on the Hyatt site, and may have nested there earlier in 1984. The plovers were observed defending territories around the anchialine ponds, and are believed to represent a stable population of about 15 birds. The tattlers and the turnstones forage around the ponds or the rocky shoreline; both are non-territorial. The tattlers were observed alone, while the turnstones feed in small flocks.

(d) Nine species of exotic birds were observed, with the Zebra dove the most abundant bird observed. The House Finch, Japanese White-eye, and Northern Cardinal were common in the area, as they are throughout other areas of Hawai'i.

7.2.2 Mammals

Mongoose were seen on the WBR, although Bruner did not find any mongoose or mongoose scat. Gnawed remains of human refuse scattered along the beach suggested to Bruner that rats and mice could be found in the area. On September 24, 1984, a dead specimen of the endangered Hoary Bat was found on the grounds of the Sheraton Royal Waikoloa Hotel. The specimen was donated to the Brigham Young University-Hawai'i Campus Museum of Natural History. Bruner did not find any evidence that a significant bat population existed on the Waikoloa Beach Resort. A feral cat was the only feral mammal observed by Bruner.

RECEIVED AS FOLLOWS

RECEIVED AS FOLLOWS

Figure III-6 Vegetation Map

8. AQUATIC RESOURCES

8.1 WAIULUA BAY

(a) The distribution and abundance of benthic organisms within Waiulua Bay is related to water depth and substrate type. The existing distribution and species composition of marine fauna within the inner two zones of the bay is the result of long-term exposure to significant freshwater discharge. Water in the Bay's outer zone is well-mixed by wave action, and no freshwater influence is apparent in the biota found there. The outer portion of the bay appears typical of coral communities found along the coast (Key et al., 1971; ORCA, Ltd./D.P. Chaney, 1981). Thirteen species of stony coral have been observed within Waiulua Bay, but most of these are restricted to the outer zone. Porites lobata and Pocillopora meandrina were the most abundant corals found. Generally, P. meandrina was most abundant along the outer edges of the bay and just outside the basalt ridge separating the outer bay from the middle bay. P. lobata was most common in the deeper water at the mouth of the bay. Several species of sea urchins were found in this part of the bay, as well as several different types of molluscs. Most of the coral heads within the bay were dead and cemented with coralline algae, although some cemented heads showed signs of regrowth.

(b) The middle bay is practically devoid of corals or major coral coverage. The corals present form only small colonies and cover less than one percent (1%) of the available hard substrate. They share this substrate with tube-forming molluscs, barnacles, and bivalves. The bivalve Isognomon californicum, which tolerates relatively high temperatures and low salinities, was found in crevices on rough basalt in shallow areas toward the head of the bay. A closely related species, I. perna, which is less tolerant of low salinity, was found nearby, but at greater depths. The observed positions of the two species indicates that the salinity and temperature stratification observed at the time of the surveys is probably persistent over time. Much of the bottom was covered with fine, white sediment, probably a calcite precipitate, and had isolated pockets of coralline sand. Basalt outcrops extending off the bottom into the freshwater layer were virtually devoid of marine life, although the relief attracted some fish.

(c) The inner zone Waiulua Bay is a basalt, tidal flat devoid of coral. The mouth of the inner bay was the site of unauthorized fill activities on two separate occasions. In 1971-1972 Boise Cascade placed a road fill across the mouth of the inner bay in violation of Section 10, Rivers and Harbors Act of 1899. The Corps of Engineers ordered restoration of the area in January 1974. Restoration was completed in June-August 1974. In 1984 Transcontinental Development Co. also placed a road fill across mouth of the inner bay at the same location. The Corps of Engineers ordered restoration which was completed in September 1984. In addition, Transcontinental Development Co. was assessed a penalty of $30,000.

(d) Key et al. (1971) observed a gradation of species number, abundance and diversity of fishes within Waiulua Bay. These values were lowest in the inner bay and increased towards the mouth. Hīnālea, parrot fish, sturgeon fish, and damselfish were common throughout the area, although the two species of sturgeon fish were less common in the middle bay and even more rare in the innermost portion of the bay. A wrasse and a damsel fish species were abundant in the middle of the bay and were not observed farther inside the bay. An unidentified species of needlefish was observed only in the middle portion of the bay.

(e) Juvenile reef fish were found foraging over the inner bay at high tide and some fish were found in the anchialine ponds. A reconnaissance survey by marine biologists from OI Consultants, Inc. (October 1984) and by the Corps of Engineers (January-July 1985) observed large schools of fish composed primarily of juvenile āholehole mixed with manini, weke, and pipefish foraging over the basalt flat in the inner bay during high tide. OI Consultants, Inc. observed a large school of juvenile parrot fish and hīnālea was observed on the shallow, algal-covered bench adjacent to the north bank of the middle zone of the bay. The Corps also observed that juvenile reef fish, i.e., kupipi, manini and alaihi, resided in the a'a lava along the bay shoreline. Similar observations by the National Marine Fisheries Service suggest that middle and inner Waiulua Bay are a reef fish nursery area. Adult and juvenile marine reef fish found in the low salinity anchialine ponds are a unique feature of the pond habitats.

(f) The threatened Green Sea Turtle and the endangered Hawksbill Sea Turtle may be found in the offshore waters. Duncan (September 26, 1984:2) reported that local fishermen rarely found sea turtles in Waiulua Bay. The National Marine Fisheries Service reported that turtles are often observed along the open coast just to the north and south where there is limu (seaweed) on which they feed.

(g) The National Marine Fisheries Service indicated that sightings of endangered Humpback Whales in coastal waters off South Kohala are common between the months of January and April.

8.2 COASTAL WATER QUALITY

(a) Key et al. (1971) found that water quality in the outer zone of Waiulua Bay was similar to open ocean conditions; nitrate and phosphate values were low, and salinity values (32 to 34 parts per thousand) were close to oceanic levels.

(b) Salinity levels near the surface throughout the middle portion of Waiulua Bay ranged from 10 to 18 parts per thousand (ppt), while bottom salinities ranged between 28 and 33 ppt. This salinity stratification is caused by the significant quantities of brackish water naturally discharged at the shoreline. Levels of phosphate and nitrate in the water samples showed patterns opposite to salinity; both were much higher in the fresher surface layer than in the water near the bottom. The phosphate and nitrate values were similar to those observed in the shoreline anchialine ponds (Oceanic Institute, 1977, August 1984 and September 1984 a&b).

8.3 ANCHIALINE PONDS

8.3.1 Overview

(a) Anchialine ponds are landlocked coastal ponds having salt or brackish water and showing dampened tidal fluctuations (Holthuis, 1973). These ponds are a unique geological feature that provide a habitat for a distinctive assemblage of organisms.

(b) Maciolek and Brock (1974) surveyed "coastal ponds" which included "water exposures not definitely part of the littoral marine ecosystem." They used the term "pond" broadly to include open wells, excavations, fissures, fractures and waters under lava overhangs. Their survey was of all ponds, not only anchialine ponds. They defined ponds without surface connection as "closed" ponds and ponds with restricted or occasional surface connection to the sea as "open" ponds. The closed ponds could be classified as anchialine.

(c) In the open pond ecosystems the faunal assemblage resembles marine and estuarine ecosystems. In the closed pond ecosystems, the faunal assemblages resemble estuarine ecosystems, but include a unique and striking organism, the red-pigmented shrimp, or 'opae'ula, as well as several other relatively rare organisms. Brock (1985) grouped anchialine organisms into epigeal organisms (those preferring the sunlit ponds) and hypogeal organisms (those that use the ponds but can also spend extended periods of time in the subterranean water table). The hypogeal organisms consist principally of shrimp species. Quantitative information on Hawaiian anchialine ponds is essentially lacking, i.e., energy flow, population size and species turnover, but an adequate understanding of the pond systems can be synthesized from available information.

(d) Ponds can also occur as low areas behind shoreline berms composed of depositional material (sand, coral rubble, small rocks, etc.). Typically, ponds occur in fissures, in collapsed "lava tubes" or "bubbles", or simply in lava depressions and interstices. The ponds can occur several hundred yards inland from the shoreline, as long as lava tubes, depressions or fissures extend into the groundwater table.

(e) The hypogeal shrimp and other anchialine pond organisms are not being harvested for any significant commercial or recreational fishing. Some shrimp from anchialine ponds are harvested on a small scale for sale to the Waikiki Aquarium and use in home aquariums.

(f) The shrimp and anchialine pond organisms are not known to be a major part of any food chain that could occur in bays or estuaries. Rather, the anchialine pond ecosystems are isolated systems that are not known to contribute to the nearshore food web or significant commercial recreational fishery food web. The ponds do not appear to support any significant avian food web.

8.3.2 Distribution

(a) Anchialine ponds are known to occur in highly porous substrates such as lavas and fossil reefs. Anchialine ponds have a disjunct world-wide distribution and have been recorded from Fiji, Egypt, and Hawaii (Brock, 1985). In the United States, anchialine ponds are known to exists only on the islands of Oahu, Maui and Hawaii. On Maui and Hawaii anchialine ponds are found in recent lavas flows where depressions and fissures in the lava extend below the water table. On Oahu anchialine pond environments occur in limestone caves and sinkholes. Excavated holes that penetrate the water table can also become anchialine ponds with the colonization of the holes by anchialine organisms (Brock 1985; Corps of Engineers 1985).

(b) On Maui, anchialine ponds are found in the Cape Kinau Natural Area Reserve, on Cape Hanamanioa, in the recent lava flows flows further to the northeast of Cape Hanamaniua, and in caves at Wainapanapa State Park. In West Hawaii, major clusters of anchialine ponds are found at 'Anaeho'omalu/Waiulua Bay (Waikoloa Beach Resort), Makalawena/'Opae'ula Pond, Kaloko Pond/Kohanaiki, and Honokohau/Aimakapa Pond. In addition, many individual ponds or small pond groups, and fissures occur along the coast from the South Kohala District to South Point in the Kau District. Several areas in East Hawaii are known to contain anchialine ponds, and the potential for finding more anchialine systems is considered high (Brock, 1985). On Oahu, anchialine pond environments occur in limestone sinkholes and substrates at Kailua Bay, Barbers Point, Ewa Beach and Kahuku (Brock 1985, Corps of Engineers, 1985). Figure III-7 illustrates the distribution of anchialine ponds in the State of Hawaii.

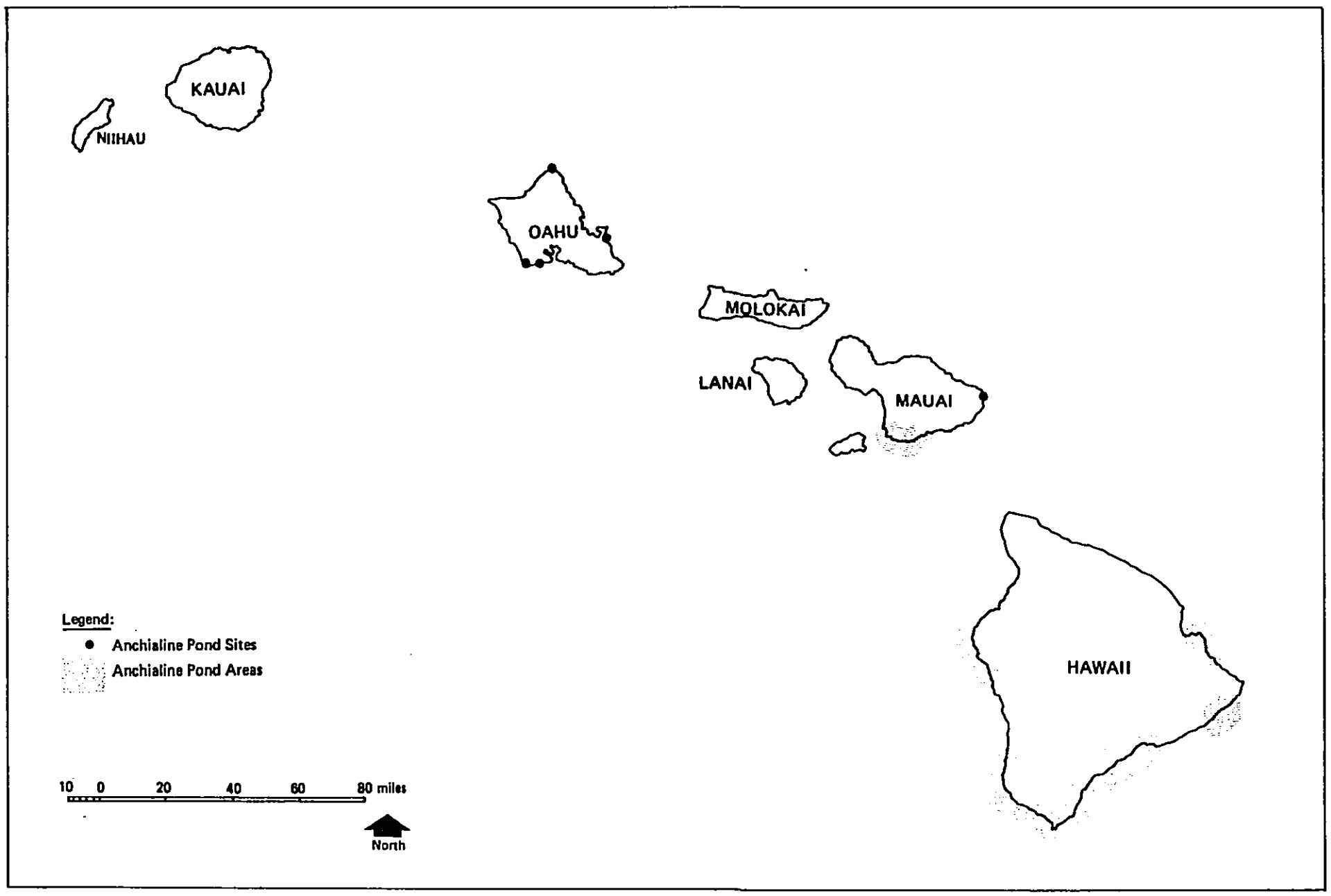


Figure III-7 Distribution of Anchialine Ponds

(c) The total number of ponds in Hawaii is not completely known due in part to the lack of sufficient surveys and investigations, to the difficulty in defining a pond when looking at pond complexes, to difficult access to some pond areas, and to the problem of finding ponds in rugged terrain. Based on recent surveys by the Oceanic Institute (1985) and a study by Brock (1985) there may be as many as 600-650 ponds on the island of Hawaii, about 60 ponds on the island of Maui (U.S. Army Corps of Engineers, 1985), and four on the island of Oahu.

(d) The WBR encompasses the largest concentration of anchialine ponds in West Hawaii as well as the State of Hawaii. Approximately 215 ponds were counted on the property (Figure II-3). Based on a conservative estimate of 600 ponds on the island of Hawaii, the WBR ponds represent 35% of the total pond resource on Hawaii and 32% of the total State resource. Using pond water surface area as a measure of usable habitat, the WBR ponds have a usable habitat of about 12 acres. The measurements were made by the Oceanic Institute (August 1984, September 1984 a&b) during high tide and using simple geometric shape calculations. Thus, calculations may have overestimated pond water surface area. Data to calculate the total water surface area of all other anchialine ponds on the island of Hawaii are not available.

(e) The number of anchialine ponds on the WBR prior to the initiation of development by Boise Cascade, the previous landowner, was never enumerated. Brock (personal communication, 1985) indicated that road access construction in 1972 had destroyed some ponds. Analysis of 1972 aerial photographs also indicate that grading probably eliminated more ponds. In July 1977, the Corps issued a permit to Boise Cascade (PODCO-O 1358) to fill 20 ponds on Hotel Site 12. After partially completing the grading work, the hotel project was sold and terminated by the new owners. In March 1977, Boise Cascade withdrew a permit that requested authorization to fill 90 ponds and preserve 89 in the development of the Waikoloa Beach Resort.

8.3.3 Pond Ecology

8.3.3.1 Hydrology

(a) Anchialine ponds contain brackish water. As topographic depressions, the ponds intercept the basal lens. In general, salinity of the lens increases with depth below sea level until a point where the salinity is identical to seawater. Basal groundwater is also less saline with increasing distance inland from the shoreline. Both vertical and horizontal salinity gradients are a result of seawater intrusion. The extent of intrusion is primarily influenced by the flowrate of fresh groundwater from inland to the shoreline; permeability of the lava formation; aides; and pumping stresses of wells (see Figure III-8).

(b) Belt, Collins & Associates (1976) reported that estimates by others of the rate of groundwater discharge along the South Kohala coast range from 2.5 to 7.0 million gallons per day (MGD) per mile of shoreline. If 5.0 MGD per mile is taken as a reasonable estimate for the Waikoloa region, then approximately 4.0 MGD discharges along the shoreline between 'Anaeho'omalu to Waiulua Bays, a distance of 0.8 mile. Discharge into Waiulua Bay alone is estimated to be in the range of 0.5 MGD.

(c) Foundation investigation for the proposed Hyatt Waikoloa Hotel has revealed that the nearshore area around Waiulua Bay is extremely permeable (Harding Lawson Associates, 1985). Voids created by cooling cracks, lava tubes, and lava flow layering provide the predominate permeability for groundwater movement. As a result, groundwater flow is locally quite variable. Salinity measurements by Oceanic

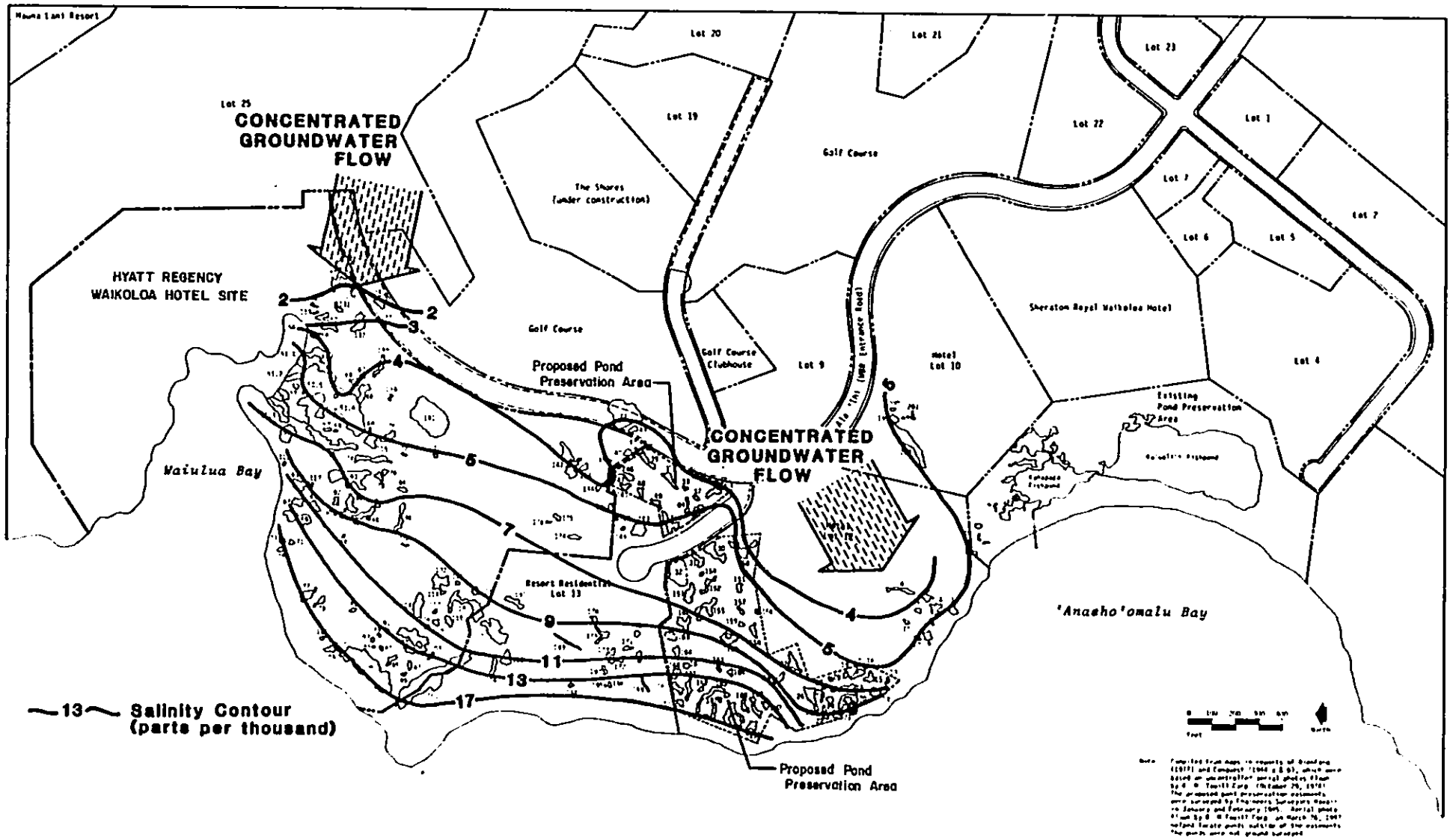


Figure III-8 Salinity Contours of Groundwater (in parts per thousand) as Determined by Anchialine Pond Measurements

Institute (1977 and 1984) differentiate areas of greater and lesser groundwater flux. They also clearly show a salinity change with tidal phase. Because of extreme permeability variations, it is misleading to visualize groundwater in a simple Ghyben-Hersberg configuration this close to the shoreline.

(d) High lava permeability, i.e., voids, clinker, allows the frequent exchange of pond water with tidal fluctuations. During high tide, pond depth, volume and area can increase significantly over low tide conditions (Oceanic Institute, 1977; 1984). Some ponds have no water in them at low tide, or become very shallow and heat up during low tide. During low tide the ponds can become fresh, then highly stratified during high tide. Given Hawaii's semi-diurnal tidal cycles, an anchialine pond can experience two total changes of tidal volume per 24 hours, or can experience extreme salinity variations in a 24-hour period.

8.3.3.2 Water Quality

(a) Water salinity in West Hawai'i anchialine ponds averages 7 ppt (parts per thousand) (Maciolek and Brock 1974); in comparison, ocean water has a salinity of about 35 ppt. None of the West Hawai'i pond water meet the potable water standard of 0.5 ppt, and only a few ponds have salinities below the generally acceptable maximum for irrigation water of about 1.9 ppt. Maciolek and Brock reported some values of 1 ppt for ponds around 'Anaeho'omalu Bay, but more recent and extensive measurements by Oceanic Institute (1977; 1984) recorded salinity readings of 2 to 18 ppt; the average salinity was 9 ppt.

(b) Maciolek and Brock (1974) measured water temperatures in West Hawai'i ponds ranging from a low of 19 degrees Centigrade (66 degrees Farenheit) to a high of 35 degrees Centigrade (95 degrees F.). Most often water temperatures were in the range of 22-28 degrees Centigrade (71-82 degrees F.). Solar heating, shallow pond depth and a low rate of water exchange are believed to account for the relatively high water temperatures recorded in some ponds. The lowest water temperature recorded (19 degrees C.; 66 degrees F) "was in a narrow fissure.... with a noticeable outflowing current of groundwater" (Maciolek and Brock, 1974:7) at Kaloko Point. Water temperatures in WBR ponds did not differ substantially from those measured in other West Hawai'i ponds (Oceanic Institute, 1977, August 1984, September 1984 a&b).

(c) The nutrient levels in most ponds are high in comparison to the ocean, and the Oceanic Institute (1977) did find that nutrient input into the groundwater by golf course irrigation around anchialine ponds did increase nutrient concentrations in the ponds. Recorded nutrient concentrations in the WBR ponds were high relative to similar groundwater concentrations. A comparison (Oceanic Institute, 1977; August 1984) of pre- and post-golf course development nutrient levels in certain ponds recorded elevated levels of nitrates (98% increase), phosphates (55% increase) and ammonium (134% increase) over pre-development conditions. The elevated nutrient levels were related to golf course fertilization and irrigation with sewage effluent. Despite the elevated nutrient concentrations, there is no apparent change in phyto-plankton activity or increase in water turbidity. Rapid flushing (twice-daily water exchange and possible groundwater outflow) is believed to prevent a buildup of phytoplankton concentrations that would otherwise reduce pond water clarity (Oceanic Institute, August 1984). Brock (1985) noted that negative impacts are not presently observable in anchialine ponds surrounded by the Mauna Lani Resort golf course and condominium development.

77/84 – no control – single samples Data is not comparable
50 ponds must be statistically related

(d) Anchialine pond water is normally very clear, and WBR pond water clarity is no exception. However, individual WBR ponds may be turbid, probably related to differences in flushing rates. Those ponds in which seasonal pond water clarity was observed, especially large ponds, may have reduced water exchange rates and high water residence times that allow the growth of phytoplankton within the nutrient rich waters (Maciolek and Brock, 1974). Large fishponds along the West Hawai'i coast are probably more susceptible to reduced water clarity due to phytoplankton growth that is not characteristic of anchialine ponds.

(e) All investigators of anchialine pond systems in Hawai'i have found that dissolved oxygen concentrations were near saturation in most ponds, and that pond waters are typically clear. Early investigations suggested that the high dissolved oxygen concentrations might be related to wind mixing in shallow ponds. However, subsequent investigations indicate that photosynthesis in algal mats and oxygen trapped in the porous rock during tidal cycles may contribute to the relatively high dissolved oxygen levels. Dissolved oxygen concentrations at the WBP ranged from 5.6 mg/l (milligrams per liter) to 14.3 mg/l, indicating saturated - supersaturated conditions.

8.3.3.3 Aging

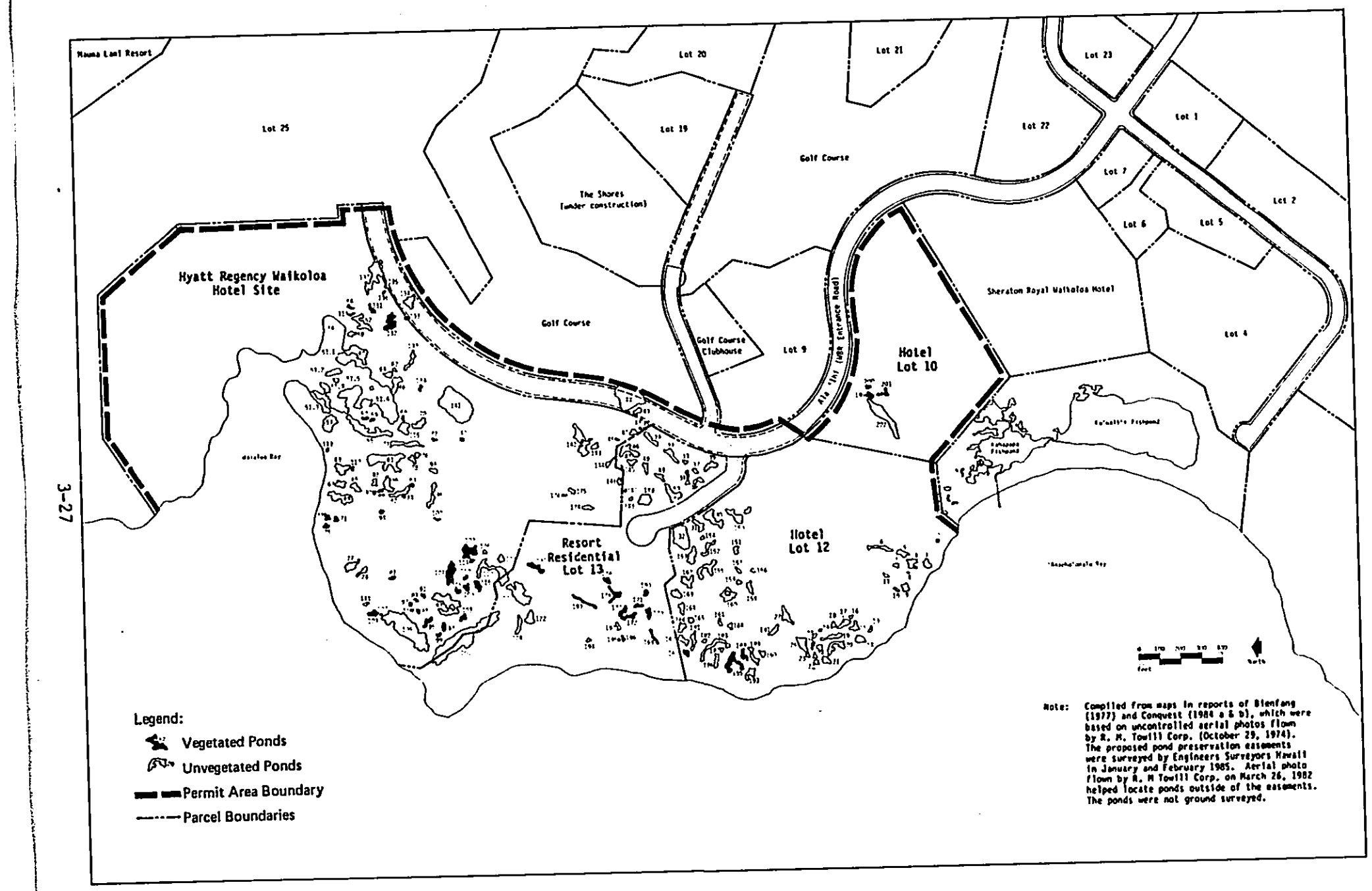
(a) Anchialine ponds are relatively temporary features on a geologic time scale, and are rare or absent on old or ancient lava flows. Ponds undergo a natural process of aging that is directly related to variable rates of sedimentation. Plant growth and calcifying algae may be principal agents in pond sedimentation. As organic material and sediment accumulation increases, the interstitial voids in the geologic foundation are filled becoming less porous, thereby retarding water exchange or flushing. Emergent plants take root in the accumulating material increasing the rate of sedimentation, resulting in the development of a coastal marsh, wetland environment, that may become a dry land environment. Brock (1985) hypothesized that senescence could occur within as short a time as 100 years based on field observations.

(b) Other factors that may increase the rate of pond aging could be the degree of flushing (Brock 1985). Field observations on closely associated anchialine ponds frequently showed one to have a considerable deposit of sedimentary carbonate material while others nearby are devoid of sediment. Brock hypothesized that the degree of flushing could be responsible for the differences in sedimentation rates, i.e., the rapid flushing may lower the rate of sediment accumulation.

(c) Vegetation may accelerate aging by trapping sediment and introducing leaf litter. Figure III-9 illustrates the distribution of vegetated ponds and unvegetated ponds on WBR. The WBR ponds are basically situated in a pahoehoe lava flow that is older than the adjoining Kaniku, a'a lava flow.

8.3.3.4 Pond Diversity

Besides having the greatest concentration of anchialine ponds at WBR, the WBR also contains the greatest diversity of pond types on the island of Hawaii. Figure III-9 illustrated the distribution of vegetated and unvegetated ponds. Figure III-10 illustrates the distribution of open and closed ponds. During high tide several of the open ponds at the head of Waiulua Bay are joined to form one large tidal pond. At low tide the pond becomes several individual ponds. The total area of the one large tidal pond was estimated at 3.5 acres.



3-27

Figure III-9 Distribution of Vegetated and Unvegetated Ponds at the Waikoloa Beach Resort

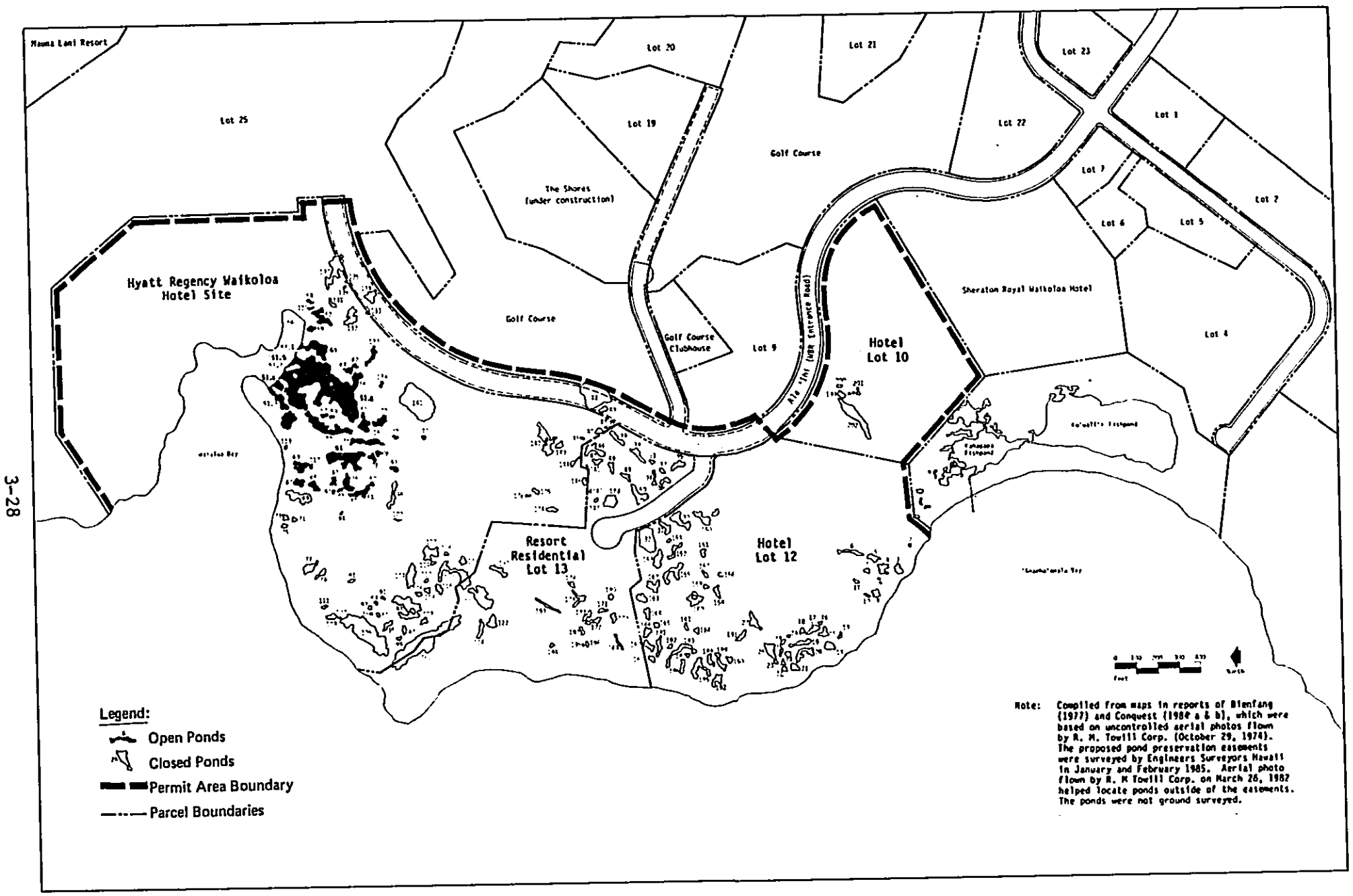


Figure III-10 Distribution of Open and Closed Ponds at the Waikoloa Beach Resort

8.3.3.5 Anchialine Pond Organisms

(a) Anchialine Pond Ecosystems

(1) As indicated previously, anchialine ponds provide a habitat for a distinctive assemblage of organisms. The first distinction in anchialine pond organisms is made between open pond ecosystems and closed pond ecosystems. In open pond ecosystems the organism assemblage resembles marine and estuarine assemblages in Hawaii. A list of species recorded by Maciolek and Brock (1974) for open pond systems in West Hawaii is provided on Table III-3. In closed pond ecosystems, the most striking organisms in the ponds are the red-pigmented shrimp, particularly 'opae'ula (Halocaridina rubra). Table III-4 provides a list of common closed pond organisms in comparison to their presence at the WBR.

(2) Due to the presence of euryhaline and marine organisms, species diversity is higher within the open ponds than it is within the closed ponds. Maciolek and Brock (1974) found 65 species in the open ponds surveyed as compared with 55 species in closed ponds. The average salinity of the open ponds was usually higher than the closed ponds, but much less than ocean water. A unique feature of the WBR open pond systems in 1974 was the presence of marine fish in nearly fresh water (Maciolek and Brock, 1974). A rare eel, Gymnothorax hilonis, first described from a specimen found in a Hilo fish market in 1903, was collected for the first time since 1903 from open anchialine ponds at Kapoho and Waiulua Bay in 1972 (Brock 1985). The eel has not been seen or collected at Waiulua since 1972. Brock (1985) related finding in 1972 several dead rare eels that were caught by fishermen and discarded, and also observed that the presence of the marine fish in the ponds has significantly declined since the Maciolek and Brock survey (Brock, personal communication, 1985).

(3) The closed pond system may be considered the "representative" anchialine pond habitat. Organisms diversity is lower and more distinctive in the closed ponds than in the open ponds, reflecting restricted organism range and distribution. Maciolek and Brock (1974) listed 55 species and species groups of closed pond organisms; 27 species or groups were considered "common" anchialine pond organisms because they occurred in 10 or more ponds (see Table III-4). The closed anchialine pond ecosystem has a characteristic orange-rust appearance due to the carbonate producing, Schizothrix /Lyngbya algal community covering the bottom. Snails and shrimp are the most obvious and abundant faunal elements in the ponds. The fauna is characterized by four shrimp, three mollusk, and two fish species. Two of the shrimp species, the 'opae'ula and Metabetaeus lohena are considered rare, found only in anchialine ponds, but are the most abundant shrimps in the ponds. Two other shrimp -- 'opae huna (glass shrimp) and 'opae'oeha'a -- are also common in Hawaiian estuaries and streams. The snails, Assiminea, Melania and hapawai (Theodoxus sp.), are typically found on damp beaches, in lowland areas, in estuaries, and in tidal pools along the coasts of the Hawaiian islands. 'Opu'u 'akupa and aholehole are two native fish species, also common in Hawaiian waters.

(4) The algal mats on the bottoms of many ponds are the predominant aquatic plant community present. These mats are composed of blue-green algae associated with diatoms and macroscopic algae. The algal mats are more easily distinguished by their different colors. Orange-rust colored algal communities are found in ponds with low salinities; the whitish coloration associated with the algal mat is a precipitated aragonite, a form of calcium carbonate encrusting the pond bottom. The algal mats and carbonate deposits form irregular terraces in the ponds. Dark-green and black algal mats are most often seen in the deeper and more saline ponds. When the mats intermingle with macro-algae, they can form patches of green, velvet spheres, or green, finger-like tufts.

Table III-3

List of Aquatic Species Found in Open Ponds on the West Hawai'i Coast

PHYLUM PORIFERA

Two unidentified sponges

PHYLUM COELENTERATA (ANEMONES, ETC.)

Anthozoa: Aiptasia sp.

PHYLUM ANNELIDA (WORMS)

Polychaeta-Errantia
- Eurythoe complanata
- Namalycastis sp.
- Protula atypha
- Spiophanes bombyx

Polychaeta-Sedentaria
- Janua knightjonesi
- Janua nipponica
- Leodora knightjonesi
- Mercierella enigmata
- Pileolaria militaris
- Pileolaria pseudomilitaris
- Salmacina dysteri

PHYLUM MOLLUSCA

Gastropoda (snails, nudibranchs)
- Dolobrifera olivacea
- Hipponix sp.
- Littorina pintado (pipipi akolea)
- Mitra auriculoides
- Morula granulata (pupu makaawa)
- Natica marochiensis
- Nerita picea (pipipi)
- Teredo parksi
- unidentified nudibranch
- unidentified vermetid

Pelecypoda (clams, oysters, etc.)
- Hormomya crebristriatus
- Isognomon costellatum (papaua)
- Isognomon sp.
- Ostrea sandvicensis (olepe)
- Spondylus zonalis
- Tellina rugosa

PHYLUM ARTHROPODA

Crustacea-Cirripedia (barnacles)
- Chthamalus sp. (pioe)

Crustacea-Decapoda (shrimps, crabs)
- Calcinus laevimanus
- Carpilus maculatus
- Clibanarius zebra
- Epixanthus sp.
- Grapsus grapsus (aama)
- Leptodius sanguineus
- Palaemonella burnsi
- Portunus pubescens
- Thalamita crenata
- unidentified Xanthidae

PHYLUM ECHINODERMATA

Ophiuroidea (brittle stars)
- Ophiocoma erinaceus
- unidentified species

Holothuroidea (sea cucumbers)
- unidentified species

PHYLUM CHORDATA

Osteichthys (bony fishes)
- Acanthurus nigrofuscus
- Adioryx lacteoguttatus (alaihi)
- Asterropteryx semipunctatus
- Awaous stamineus (oopu kawa)
- Chaetodon lunula (kikakapu)
- Diodon hystrix (oopu kawa)
- Flammeo sammara
- Gomphosus varius (akilolo)
- Gymnothorax hilonis (puhi)
- Istiblennius sp.
- Microcanthus strigatus
- Mulloidichthys samoensis (weke)
- Oxyurichthys lonchotus (oopu kauleloa)
- Parupeneus multifasciatus (moano)
- Parupeneus porphyreus (kumu)
- Polydactylus sexfilis (moi)
- Pomacentrus jenkinsi
- Scarus dubius
- Scarus perspicillatus (uhu)
- Stethojulis axillaris (omaka)
- Stolephorus purpureus (nehu)
- Thalassoma duperryi (hinalea lauwili)
- unidentified Gobiidae

Note: Includes open ponds at the Waikoloa Beach Resort.

Source: Maciolek and Brock (1974).

(5) In ponds with heavy sediment accumulation, widgeon grass and sedges are abundant, particularly when sediment accumulations are sufficient to support root structures. Upland plants are also associated with the anchialine ponds where roots can tap the fresh basal water, and where periodic tidal flooding provides frequent watering and fertilization. Mangrove, reeds, milo, and bulrush can be found in ponds that have become coastal marshes. On Maui, 'opae'ula and Metabetaeus lohena are found in the coastal marsh water amongst the vegetative growth (Corps of Engineers, 1985).

(b) Fish

(1) Fish are not a common element of closed anchialine pond environments. Generally if fish are present, shrimp are not present or are present in reduced numbers, presumably as a result of predation by fish (Maciolek and Brock, 1974). Brock (1977) hypothesized that native fish enter the ponds as post-larval forms: becoming trapped in the ponds as they mature. Man has also introduced both native and exotic fish, such as mullet, manini, top minnows, guppies and tilapia, into the ponds. The introduction of exotic fish has resulted in the significant decline of the shrimp and mollusc fauna in anchialine ponds, and may contribute to long-term changes in the anchialine pond ecosystems (Brock 1985). Maciolek and Brock (1974) found that exotic fish were not compatible with native fish, and that exotic fish were less compatible with 'opae'ula than native fish. Where native fish require marine and mixohaline waters in their life cycles and reproduction, exotic fish can breed entirely in mixohaline waters expanding their numbers in the ponds. Where Maciolek and Brock (1974) found exotic fish in 10% of the ponds they sampled between Lahuipua'a and Kailua-Kona, the Oceanic Institute (1985) found exotic fish present in 32% of the ponds they sampled, indicating the spread of exotic fish in the anchialine pond system in West Hawaii. This observation also corresponds with a decline in the presence of 'opae'ula (found in 67% of the ponds sampled in 1974 and 39% of the ponds sampled in 1985) and Metabetaeus lohena (40%/4%) between 1974 and 1985 (see Table III-5).

(2) Between Lahuipua'a and Kailua-Kona, Oceanic Institute (1985) and Brock (1985) recorded the introduction of exotic fish into 57% of the pond systems in comparison to the Maciolek and Brock (1974) survey of the same area in 1972. In general, the survey indicated an increase in the presence of Schizothrix and exotic fish in the anchialine ponds and an decrease in the presence of 'opae'ula, Metabetaeus lohena, Assiminea, Melania and Theodoxus. Table III-6 provides a list of areas surveyed by the Oceanic Institute. The survey also compared the condition of exceptional and significant anchialine pond areas identified by Maciolek and Brock (1974) and found that with the exception of Waikoloa, all the areas had significant reductions in anchialine pond organisms and significant increases in the presence of exotic fish (Table III-7).

(3) The spread of exotic fish into anchialine ponds is related to man. The problem stems principally from unregulated and uncontrolled human introduction of biological agents incompatible with the anchialine pond ecosystem. Brock (1985) hypothesized that once the exotic fish are in the ponds, their larvae and fry can spread throughout the pond system. At Makalawena, exotic fish are found throughout the pond system suggesting that the larvae and fry can also migrate through the porous ground like the shrimp. The 'opae'ula are still found at Makalawena-'Opae'ula, but only in areas inaccessible to the fish. Brock (1985) hypothesized that with the disappearance of the 'opae'ula the anchialine pond ecosystem changes, and that the changes may be permanent. The orange-rust algae would be replaced by a different algae possibly resulting in a change in pond biological characteristics and rate of sedimentation.

Table III-4

Comparison of Pond Biota Surveys for the Waikoloa Beach Resort

Species	Maciolek[1] & Brock	Oceanic Institute[2] Head of[3] Waiulua Bay	Oceanic Institute[2] Remainder of WBR
ALGAL CRUSTS:			
Schizothrix/Microcoleus algal mat (Orange-rust/white crust)	cc	X	X
Schizothrix/Rhizocolonium algal mat (Dark-green, non-mineralized mat)	cc	X	X
Chaetophora spp. (Green finger-like tufts)	n.o.	X	X
Cladophora/Enteromorpha algal mat (Green, velvet spheres)	n.o.	n.o.	X
Synctonema coactile (Dark encrusting algae)	n.o.	X	X
VASCULAR PLANTS:			
Ruppia maritima (Widgeon grass)	cc	X	X
CRUSTACEANS:			
Halocaridina rubra ('opae 'ula, red caridean atyid shrimp)	cc	X	X
Metabetaeus lohena (red alpheid shrimp)	cc	n.o.	X
Palaemon debilis ('opae huna)	cc	X	X
Macrobrachium grandimanus[4] ('opae 'oeha'a)	cc	n.o.	n.o.
Macrobrachium lar[4] (Tahitian prawn)	cc	n.o.	n.o.
Amphipod spp.	cc	n.o.	X
Crabs:			
Grapsus grapsus	n.o.	X	X
Metopograpsus sp.	cc	X	X
Unidentified crab molts	n.o.	X	n.o.
Unidentified burrowing shrimp	n.o.	X	n.o.
MOLLUSCS:			
Assiminea sp. (herbivorous snail)	cc	X	X
Melania sp. (herbivorous snail)	cc	X	X
Theodoxus sp. (hapawai, black neritid snail)	cc	X	X
Nerita sp.	n.o.	X	n.o.
Isognomon californicum (mussel)	lcc	n.o.	n.o.
Unidentified mussel	--	X	n.o.
FISH:[5]			
Mugil cephalus (mullet)	cc	X	X
Kuhlia sandvicensis ('aholehole)	cc	X	X
Bathygobius fuscus (goby)	lcc	X	n.o.
Acanthurus triostegus sandvicensis (manini)	n.o.	X	X
Arothon hispidus (balloon fish)	n.o.	X	n.o.
Echnida nebulosa (puhi kapa)	n.o.	X	n.o.
Gymnothorax eurostus (puhi)	n.o.	X	n.o.
Gymnothorax hilonis[5] (rare eel)	oo	n.o.	n.o.
Acanthurus nigrofuscus[5]	oo	X	n.o.
Stenogobius genivittatus ('o'opu kani'o)	lcc	n.o.	n.o.
Kelloggella oligolepis	lcc	n.o.	n.o.

-- Footnotes on following page

Footnotes to Table III-4

1 Appendix B of the Maciolek and Brock (1974) report lists (by pond numbers that correspond to maps indicating general location) the species considered "common" to closed anchialine ponds. "Common" is defined as located in more than 10 ponds along the West Hawai'i coast. Appendix C gives a taxonomic list, with distribution data, of the less-common fauna in West Hawai'i closed anchialine ponds. Appendix D of their report lists anchialine pond macrofauna that occurs only in open ponds along the West Hawai'i coast, but does not give specific locational data. Thus, the following symbols are used in the column under Maciolek and Brock:

cc = common to closed ponds (Appendix B)
lcc = less common to closed ponds (Appendix C)
oo = observed only in open ponds (Appendix D)

In all columns of the table:

n.o. = not observed

2 The Oceanic Institute (1977, August 1984, September 1984a&b, and October 1984) studies constitute a more definitive survey of the Waikoloa Beach Resort anchialine ponds than the Maciolek and Brock survey, that surveyed only a few ponds. The Oceanic Institute gives comprehensive water quality data for the WBR ponds. Their biota surveys may not be as complete, since several species listed in Maciolek and Brock were not inventoried by Oceanic Institute. This may be due to the fact that Oceanic Institute did not survey the same area as Maciolek and Brock, and to differences in survey purposes and reporting format, and perhaps to errors in identification. Detailed comparison of the Maciolek and Brock data with the Oceanic Institute information is not possible for those reasons.

3 See Figure III-6 for the ponds included in this category.

4 The maps in the Maciolek and Brock report indicate that these species were observed in ponds in the area of the WBR that was not surveyed by Oceanic Institute.

5 Maciolek and Brock may have observed more fish in the WBR open ponds than are listed, but Appendix D does not give locational data. Since the Acanthurus nigrofuscus is listed in Appendix D and included in the Oceanic Institute species list, it is assumed Maciolek and Brock also observed this species in the WBR open ponds.

Source: As noted above.

Table III-5

Summary of Change in Four Native and Two Exotic Aquatic Species Found in Kona Coast Anchialine Ponds Located Between Lahuipuaa and Kailua-Kona: 1972-1985

Species	% Ponds Examined 1972 n=192	% Ponds Examined 1985 n=311
Schizothrix calcicola	31	41
Theodoxus cariosa	22	6
Halocaridina rubra	67	39
Metabetaeus lohena	40	4
Oreochromis mossambicus	5	14
Poeciliidae spp.	10	32

Source: Brock, 1985.

Table III-6

Summary of Anchialine Ponds Surveyed by Oceanic Institute, 1985

Location	Ground Surveyed Yes/No	% Occurrence in Ponds Sampled									
		Theodoxus		Opae'ula		Metabetaeus Lohena		Tilapia		Poeciliids	
		1972	1985	1972	1985	1972	1985	1972	1985	1972	1985
Lahuipuaa (Mauna Lani Resort)	No	13	0	78	50	47	13	0	22	0	13
Anaehoomalu	Yes	20	10	80	73	67	0	0	0	0	0
Kapalaoa	Yes	44	0	100	56	67	9	0	0	0	55
Akahu Kaimu	Yes	50	0	100	100	50	0	0	0	0	0
Weliweli	No	100									
Pueo Bay	Yes	0	0	80	40	60	0	20	33	0	33
Keawaiki	No	0		0		50		50		25	
Kiholo	Yes	50	0	0	0	50	0	0	0	0	0
Keanalele Waterhole	No	0		0		0		0		0	
Waiaelepi	Yes	0	0	0	0	50	0	0	50	0	50
Luahinewai	Yes	0	0	100	0	100	0	0	0	0	100
Kaupulehu (Kona Village)	Yes	0	0	44	0	56	0	11	100	0	50
Waiakuhi	No	0	0	100	100	100	0	0	0	0	0
Kukio Bay	Yes	0	0	83	64	100	0	0	0	0	0
Maniniowali (Kua Bay)	Yes	0	0	100	100	0	0	0	0	0	100
Awakee-Makalawena	Yes	35	27	70	18	13	5	4	0	13	55
Opaeula	Yes	0	0	0	0	0	0	0	0	0	100
Puu Alii Bay	Yes	0	0	80	25	40	0	20	25	60	75
Natural Energy Laboratory	Yes	33	0	33	40	0	0	0	0	0	0
Wawaloli Beach	Yes	0	0	100	100	100	0	0	0	0	0
Kohanaiki	Yes	43	2	50	46	11	5	0	5	0	21
Kaloko	Yes	50	6	75	11	75	0	0	0	75	67
Honokohau	Yes	24	5	60	40	12	10	0	5	0	0
Kealakehe	Yes	56	33	67	42	11	0	11	15	0	33
Queen Liliuokalani Pond	Yes	0	0	50	20	0	13	0	0	50	0
Old Kona Airport	Yes				100		100				
King Kamehameha Hotel	Yes	0	0	33	7	13	0	47	100	53	43

Note: Direct comparisons between the Maciolek and Brock (1974) survey and the Oceanic Institute (1985) survey are not possible because of the inability of finding the same ponds, the loss of some ponds and the loss of data from the 1972 survey. Data presented on this table is a relative comparison complicated by differences in the number of ponds surveyed between the two studies, as well as surveying different ponds.

Table III-7

Summary of Change in Organism Occurrence in Exceptional and Significant Anchialine Ponds Identified by Maciolek and Brock (1974), from Lahuipuaa to Kailua-Kona

Species	Exceptional Areas						Significant Areas							
	Anaehoomalu Waikoloa		Puuwaawaa Luahinewai		Kohanaiki		Lahuipuaa		Awakee Makalawena		Honokohau		Kealakehe	
	1972 N=15	1985 N=96	1972 N=1	1985 N=1	1972 N=28	1985 N=56	1972 N=23	1985 N=22	1972 N=23	1985 N=22	1972 N=25	1985 N=20	1972 N=9	1985 N=12
Schizothrix Sp.	40	69	100	100	14	36	13	22	39	50	4	25		8
Rhizoclonium Sp.	33	22			11	11	21	22	22	14	16		11	
Chaetophora Sp.		16		100		30				14				8
Entromorpha Sp.						18								
Ruppia Maritima	7	13	100	100	11	32	4	5	30	18	44	5		
Assiminea Sp.	7				4	13	26		4	14	72	2	33	
Melania Sp.	20	15	100	100	50	68	65	59	57	32	76	10	44	50
Thoedoxius Cariosa	20	10			43	2	13		35	27	24	5	56	33
Amphipoda	40	1	100		4	11	52	13	30	5	56		33	
Metabetaeus Lohena	67		100		11	5	47	3	13	5	12	10	11	
Halocaridina Rubra	80	73	100		50	46	78	50	70	18	60	40	67	42
Palaemon Debilis	7	34	100		39	27		9	48	23	20	10	11	8
Macrobrachium Sp.					7		22	5	4		8		11	
Metopograpsus Thukuhar	7	4			7	2	9	9	43	18	20	15	11	8
Mubil Cephalus		7							4		4	5		
Kuhlia Sandvicensis		13					4	5	17	5	4	15		8
Eleotris Sandwicensis							9	13	4	9	12		11	
Oreochromis Mossambicus						5		22	4			5	11	25
Poeciliidae				100		21		13	13	55				33

Source: Oceanic Institute, 1985; Maciolek and Brock, 1974.

Development of green algal films at Aimakapa (Corps of Engineers, 1985) and Kohanaiki (Brock, 1985) and increased algal growth at a pond in the WBR golf course (Corps of Engineers, 1985) indicate that changes in the algal community may be related to the presence of exotic fish. The algal contents of exotic fish guts could also introduce new algal species into the anchialine pond ecosystems.

(4) The lack of exotic fish in WBR ponds may be related to the lack of a major residential community in the immediate area that probably limits the number of people using the WBR ponds. The 'Anaeho'omalu Bay Beach Park may also attract more people than the ponds located in the rugged lava field. However, human use does occur and is expected to increase over time. Fishermen, picnickers, surfers and sightseers are frequently seen in the area crossing the ponds and lava to the beach. Trash is somewhat collected from the beach area by Transcontinental, but trash and human waste do accumulate along the shoreline and in the lava fields and ponds.

(c) Epigeal and Hypogeal Organisms

(1) Brock (1985) grouped anchialine pond organisms into two classes: epigeal (those organisms preferring the sunlit ponds) and hypogeal (those organisms preferring the subterranean water table).

(2) The epigeal organisms include organisms typically found in Hawaiian estuaries and nearshore waters. Major epigeal anchialine pond organisms include the Schizothrix/Lyngbya algal mat, 'opae huna, and hapawai. These organisms prefer the sunlit pond environment. In contrast, the hypogeal organisms spend much of the time in the subterranean water table. One phenomenon of organisms recorded by Maciolek and Brock (1974) was the appearance of ecotypes or morphological variants within species apparently caused by environmental conditions in the ponds. For example, Maciolek and Brock noted anatomical differences in the shrimp, Palemon debilis, from 'Opae'ula-Makalawena. The rare eel, Gymnothorax hilonis could be considered an epigeal organism. One rare epigeal shrimp, Palaemonella burnsi was found at Cape Kinau, Maui and in Kaloko Pond, Hawaii. P. burnsi has not been found at the WBR. Other unique and rare species also found in the anchialine ponds are listed in Table III-8.

(3) The hypogeal organisms in Hawaiian anchialine ponds consist principally of shrimp species (Table III-9). Figure III-11 illustrates the distribution of hypogeal shrimp in Hawaii. Only 'opae'ula and Metabetaeus lohena were found at WBR (Oceanic Institute, 1977, 1984 and 1985; Corps of Engineers, 1985; Maciolek and Brock, 1974). Figure III-12 illustrates the distribution of 'opae'ula and M. lohena at WBR. Little is known about the life requirements of any hypogeal shrimp due to their habits. The hypogeal shrimp display tidal linked migration, emerging from the rock interstices in the groundwater table with the incoming tide to feed in the pond, and later returning via the interstices to the subterranean labyrinth with the falling tide. The 'opae'ula are known to feed on the Schizothrix/Lyngbya mat. In turn, Metabetaeus lohena enter the pond system to prey on 'opae'ula and may occur in densities of 1 per 100 'opae'ula (Brock, 1985). While many egg-carrying Metabetaeus lohena can be found in the ponds (Corps of Engineers, 1985), egg-carrying 'opae'ula are not found in the ponds, probably preferring and requiring the hypogeal environment for completion of the reproductive process (Couret and Wong, 1978). Since 'opae'ula carrying eggs in their carapace and egg-carrying M. lohena are found in the ponds, reproduction is not rare (Brock, 1985).

Table III-8

Some Rare and Unique Anchialine Pond Organisms

Group/Scientific Name	Distribution
Sponge	
Tethya diploderma	Cape Kinau NAR, Maui
Several unidentified species	
Hydroid	
Ostromouvia horii	Aimakapa-Honokohau, Hawaii
	Oahu marine caves
Shrimp	
Palaemonella burnsi	Cape Kinau NAR, Maui
	Kaloko Pond, Hawaii
Amphipod spp	
(Eight species)	----------
Mollusk	
Neritilia hawaiiensis	Kiholo, Hawaii
snail	Kaloko Pond, Hawaii
Vertebrate	
Gymnothorax hilonis	Kapoho, Hawaii
rare eel	Waiulua Bay, Hawaii

Source: Brock 1985.

Table III-9

Hypogeal Shrimp in Hawaiian Anchialine Ponds

Scientific/Hawaiian Name	Distribution
Halocaridina rubra 'opae 'ula	Hawaiian Islands Oahu, Maui, Hawaii
Metabetaeus lohena	Hawaiian Islands Maui, Hawaii
Procaris hawaiana	South Point, Hawaii Cape Kinau, Maui
Antecaridina lauensis	Kahuku and South Point, Hawaii Cape Kinau, Maui Fiji Mozambique, Red Sea
Calliasmata pholidota	South Point, Hawaii Cape Kinau, Maui Ellice Is. Sinai Peninsula

Source: Brock, 1985.

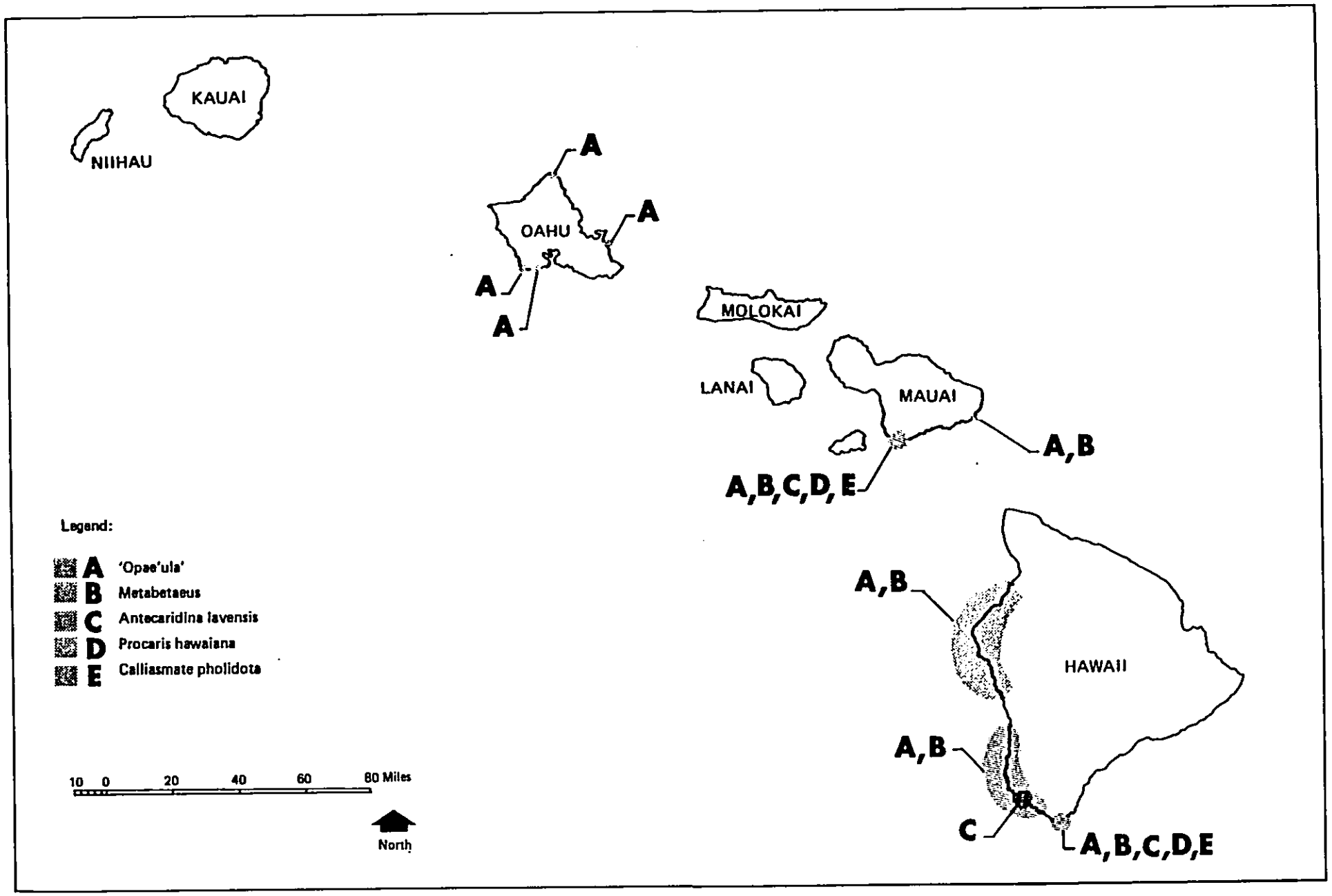


Figure III-11 Known Distribution of Hypogeal Shrimp in Hawaii

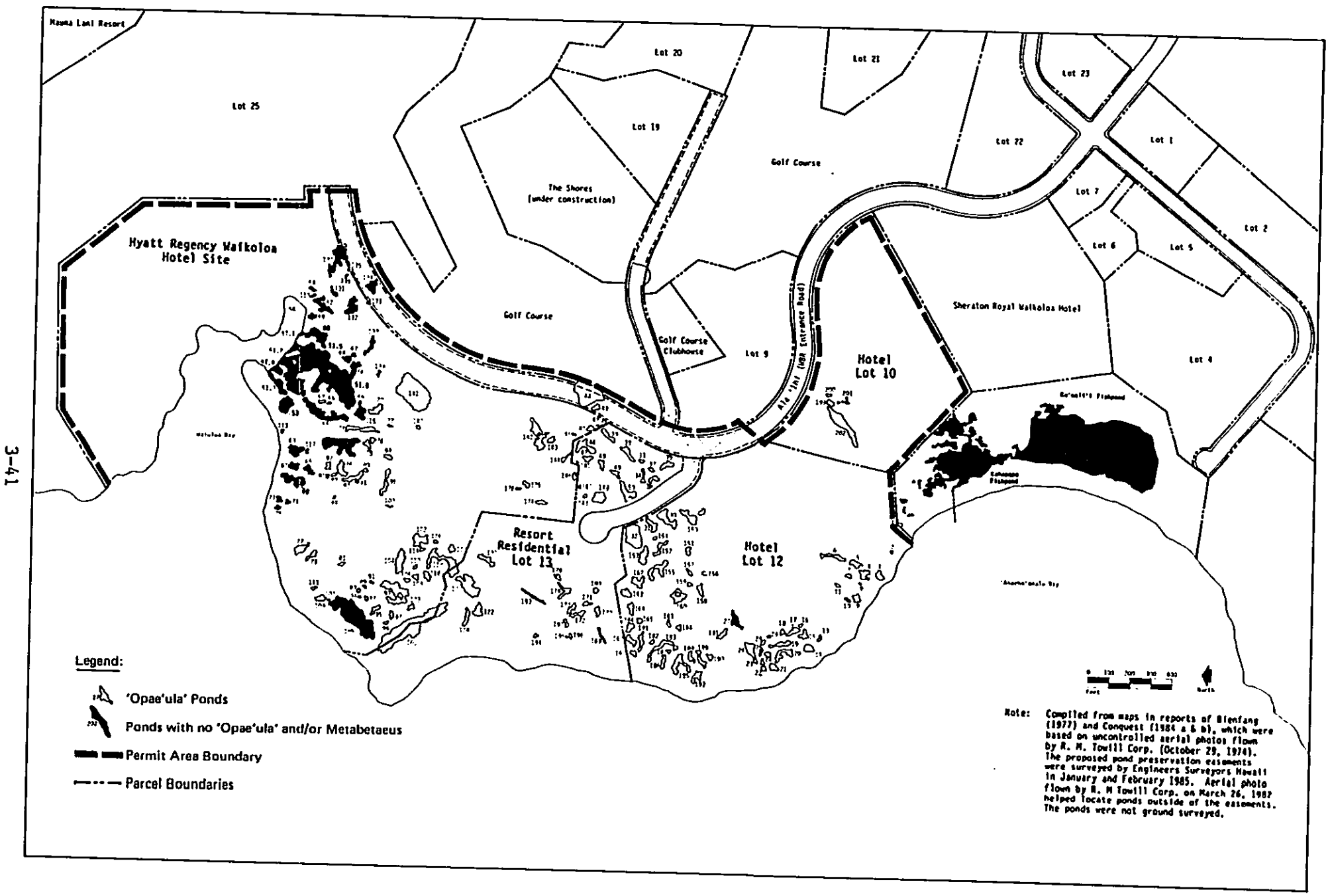


Figure III-12 Distribution of 'Opae'ula' and Metabetaeus Lohena at the Waikoloa Beach Resort

(4) 'Opae'ula is the most abundant of the Hawaiian hypogeal shrimp (Brock 1985). They frequently occur in concentrations exceeding hundreds of individuals per square meter in a given pond on a rising tide, but may be scarce in adjacent ponds. The apparent abundance of the 'opae'ula may be misleading for nothing is known of the population size in the subterranean water table. Metabetaeus lohena is the next most abundant species and has been found wherever 'opae'ula occur; supporting the predator-prey relationship in Maciolek and Brock (1974) and Brock (1985). Figure III-12 illustrates the distribution of both species at the WBR. P. hawaiana and C. pholidota are not common (Brock 1985) and have not been found at WBR. A. lauensis and P. hawaiana have been found only in dimly illuminated anchialine ponds (Brock 1985) and have not been found at WBR.

(5) Anchialine pond flora and fauna are adapted to a wide range of salinities and temperatures, to withstand long periods of dessication, and to subsist on limited and restricted food resources. Some pond organisms can escape high water temperatures and dessication by retreating into wet, dark crevices and spaces in the ponds or by moving into subterranean passages or ponds which retain water during low tide. Brock (1985) hypothesized that water salinity is an important factor in the distribution of the shrimp species in the anchialine ponds. Based on field observations, 'opae'ula, Metabetaeus lohena, and Antecaridina lauensis have been found in salinities ranging from 2 to 36 ppt. Calliasmata pholidota and Procaris hawaiana have not been found in salinities less than 10 ppt. All the shrimp have been found in water temperatures ranging from 22 to 33 degrees Centigrade.

(6) The subterranean nature of the resource makes it difficult to sample and quantify the resource, and to determine population sizes or geographic extent of the population. Because of the hypogeal nature of the shrimp, new species may possibly be found as observations and research into hypogeal habitats continue. Hypogeal shrimp may have a wider distribution than expected and the rarity of some species may be related to man's inability to collect specimens in a largely unsampled and difficult to sample habitat (Brock 1985). Brock (1985) cites several recent cases where sampling has extended the distribution of some hypogeal shrimp, e.g., Metabetaeus lohena previously reported only from the Hawaiian Islands was found in Madagascar reefs; Ligur uveae previously reported from other areas in the tropical Indo-Pacific was recently found in Hawaiian marine caves. The appearance of 'opae'ula in drilled wells on Oahu and Maui and in newly excavated holes in porous lava or coralline substrates, and the appearance of other hypogeal shrimp in submerged marine rock, as well as emergent rock, in the tropical Indo-Pacific, indicate that hypogeal shrimp can spend considerable periods of time in the subterranean water table and may migrate through underground connections and interstices to other ponds (Brock 1985). These factors may help the species survive the destruction of the ponds and modification of surface features (Brock 1985).

(7) Geologic investigations at WBR indicated that the pahoehoe flow is highly porous; 15-25% voids by volume to a depth 30 feet from the surface. By contrast, the Kaniku flow is 30-40 feet thick with a dense core extending below sea level. Because of the high ground porosity, the anchialine ponds could be viewed as small surface expressions of the basal groundwater table, especially when the area lies within one hydrologic regime. The porosity creates a vast labyrinth that interconnects the ponds. Since the hypogeal organisms can spend considerable amounts of time underground and appear to migrate underground, any highly porous area could contain a vast underground habitat of hypogeal organisms. Thus, the WBR and adjacent areas may be a vast underground habitat for hypogeal shrimp, particularly the 'opae'ula and Metabetaeus, and that this habitat could extend for miles in any direction from WBR,

except where dense volcanic rock (such as the Kaniku flow) present a barrier. The distribution of the hypogeal organism may be an indicator of the distribution of the available habitat (See Figure III-11). An example of the extensive distribution of 'opae'ula and Metabetaeus lohena at WBR is based on their appearance in an anchialine pond and a skimming well at distances of 3500 and 4000 feet inland from the shoreline, respectively.

(8) Hypogeal organisms also appear to be highly resilient to surface modifications. As an example, the 'opae'ula and M. lohena are found in previous borrow and quarry areas at the WBR (Corps of Engineers, 1985). These areas often dry out during low tide and have no Schizothrix algal mats, although one borrow area is a re-established anchialine pond with algal mats, wetland vegetation, snails and hypogeal shrimp. 'Opae'ula have re-entered holes excavated in previously filled areas within 10-14 days of opening the holes (Corps of Engineers, 1985). These observations also support the hypothesis that the whole porous WBR area might provide a habitat for the hypogeal shrimp.

8.3.4 Endangered Species Status

The U.S. Fish and Wildlife Service (USFWS) recently classified several anchialine pond organisms as Category 2 for purposes of the Endangered Species Act. Category 2 reflects that the organisms probably should be listed as endangered or threatened, but *insufficient data* prevents an assessment of their status for listing on the Federal List of Threatened and Endangered Species. Thus, the organisms are still considered rare, but are not listed on the Federal List of Threatened and Endangered Species and are not proposed as candidates for listing. Of those species considered on Table III-10, only Metabetaeus lohena was observed at Waikoloa Beach Resort.

Table III-10

Species Classified as Category 2 by the U.S. Fish and Wildlife Service

Metabetaeus lohena	- a shrimp
Procaris hawaiana	- a shrimp
Palaemonella burnsi	- a shrimp
Ostromouvia horii	- a hydroid
Neritilia sp.	- a snail

8.3.5 Future Trends

(a) At least six trends influence the continued existence of anchialine ponds in Hawai'i.

- natural aging or other natural phenomenon (e.g., lava flows),
- increased rates of aging,
- the introduction of exotic fish and other foreign material,
- filling or alteration by man,
- creating new ponds by natural or man-made events, and
- restoring ponds by exotic fish removal.

(b) The natural aging process eventually results in the loss of the anchialine pond habitat. Brock (1985) hypothesized that this natural aging process may be as short as 100 years. However, the natural aging process may be much longer if flushing rates do not allow sedimentation to occur.

(c) Increased rates of aging may occur as a result of reduced flushing and increased sedimentation. This could occur as a result of modifications to groundwater recharge and flow or alteration of the carbonate production in the algal community or algal blooms.

(d) The human introduction of exotic and native organisms into the anchialine ponds poses a serious threat to anchialine pond habitats. Recent surveys (Oceanic Institute, 1985; Brock, 1985; Corps of Engineers, 1985) have documented a decline in the anchialine resource since 1972 as a result of the introduction of exotic fish into the anchialine pond ecosystem. This decline is judged to be occurring faster than the loss of anchialine ponds due to filling. While some homeowners and developers have built adjacent to the ponds, retaining them for aesthetic reasons, they have also introduced fish into the ponds resulting in a loss of anchialine pond organisms. Presently, there are no government regulatory controls that can prevent the introduction of exotic fish into the ponds.

(e) Filling and altering anchialine ponds similarly eliminates the ponds at a rate faster than normal aging. Some anchialine ponds were modified by the ancient Hawaiians to serve as fishponds: Lahupua'a, 'Anaeho'omalu, 'Aimakapa, 'Opae'ula and Kaloko ponds, as well as 'opae'ula culture ponds where the shrimp were used as fish bait. The influence of the Hawaiian culture on the anchialine pond resource must have been slight compared to the alterations and loss posed by modern land development, principally because the ancient Hawaiians utilized the ponds for their subsistence, whereas modern man does not.

(f) Urban and resort development at Puako, Waikoloa Beach Resort, Kailua-Kona and other private landholdings along the West Coast of Hawai'i have already filled and eliminated some anchialine ponds. Future developers and private landowners have expressed a desire to fill ponds in conjunction with their development plans, thereby contributing to a further decline in the pond resource, subject to Federal, State and County regulatory controls. As the majority of ponds are presently located on private landholdings, development plans could result in a large decline in the number of anchialine ponds. However, in areas where development has left ponds intact, i.e., Mauna Lani Resort golf course ponds, short-term observations were not able to detect any negative impact directly attributable to construction or subsequent use of the surrounding terrain (Brock 1985). Brock's observations indicate that pond preservation is possible. Secondly, field observations also suggest that filled ponds can be restored and created indicating that pond replacement could be considered where developments proposed to fill and eliminate ponds.

(g) Even if ponds are not filled, adjacent land uses and increased human activity can degrade anchialine ponds. Hikers, fishermen and other shoreline users use the ponds for bathing or as toilets, and dispose of trash in and around the ponds. Recent surveys (Oceanic Institute, 1985) suggest that the ponds appear to tolerate a certain amount of bathing including the use of soaps and shampoos. While trash and human waste may be unattractive, the unique anchialine pond shrimps appear to tolerate a certain level of trash accumulation (Oceanic Institute, 1985; Brock 1985). However, the disposal of oils in the ponds appears to eliminate the shrimp fauna (Brock 1985). Thus, if anchialine ponds were preserved in developed or conservation areas, human activities around the ponds need to be regulated and controlled.

(h) Anchialine ponds located on conservation- or open space-zoned lands are somewhat protected from development, changes to land use zoning can occur at any time within the State and County land use systems. Conservation and open space zoning by itself would not prevent the degradation of the pond resource without enforcement and management efforts. Institutionally, only the anchialine ponds located in the Cape Kinau, Maui and Manuka, Hawaii, Natural Area Reserves and in Wainapanapa State Park are provided any long-term preservation.

(i) Both the Corps of Engineers and the U.S. Fish and Wildlife Service (USFWS) are studying the rare anchialine pond organisms. The USFWS may decide to include some of the species on the Federal List of Endangered and Threatened Species and may designate critical habitats; the action would place the species and the critical habitats under the protection of the Endangered Species Act. The Corps can only speculate about the outcome of the studies, but any future permits to fill or excavate anchialine ponds could be prohibited in areas designated as critical habitat, subject to satisfying compliance with the Endangered Species Act. The USFWS would also regulate any capturing or killing of the listed species, and could possibly undertake action to stop the introduction of exotic fish into critical habitat areas.

9. HISTORICAL AND CULTURAL RESOURCES

(a) The identification and study of archaeological sites within the Waikoloa Beach Resort was initially performed in 1969-1970 by archaeologists of the Department of Anthropology of the Bernice P. Bishop Museum (Barrera, 1971). This study identified four major clusters of archaeological remains within or near the project area. Detailed maps have not been included in this report to reduce the potential for vandalism of the sites. Three other archaeological investigations of nearby areas conducted during the 1970s contribute archaeological data for the area. These include the investigations of coastal sites and site complexes at Kalāhuipua'a (the Mauna Lani Resort) prepared by Kirch (1979) and the archaeological surveys of the Queen Ka'ahumanu Highway road corridor (Ching, 1971; Rosendahl, 1972 and 1973).

(b) More recent reconnaissance surveys of the project area were commissioned by the applicants (Rosendahl, August 1984 and January 1985). Following the August 1984 reconnaissance survey of the Hyatt hotel site, Shun (September 1984) completed an intensive survey of that area. The intensive-level survey included recording and locational mapping of all sites, photographs and plan mapping of most sites, controlled surface collection of artifacts where found, subsurface testing of sites with apparent excavation potential, subsurface excavation of beach deposits along the south side of Waiulua Bay, and age determinations of charcoal samples and a volcanic glass specimen. All but eight sites recorded earlier by Barrera were definitely relocated by Rosendahl and/or Shun; and they found five additional sites plus some additional cairns. The 39 sites listed in Shun's report (September 1984b) consisted of three trail segments, 13 cairns and 23 others (most categorized as shelters, cleared areas, or walls). Most of the sites were located in the Waiulua Bay Settlement, a cluster of sites near the water on the north side of the bay. Shun's test excavations of the beach berm to the south of Waiulua Bay showed no signs of buried cultural deposits. The intensive survey did not include the Kanikū or Nāwāhine settlement site clusters, which are not on a parcel where resort structures would be built.

(c) Age determinations (by radiocarbon analysis and hydration-rind analysis) conducted of material recovered by Shun suggested that Waiulua Bay was occupied for short durations, possibly in association with fishing trips, as early as 1400 A.D. He hypothesized that the users of the sites probably resided in upland areas where they

farmed; trips were made to the coast via the region's trail system to exploit the marine resources of the ocean, bay, and anchialine ponds.

(d) On the basis of these findings, Shun concluded that the archaeological sites in this area had limited significance in terms of their value for scientific research and that they did not qualify for inclusion on the National Register of Historic Places. The State Historic Preservation Officer concurred with these conclusions, but recommended preservation of the foot trail segment and Waiulua Bay Settlement including the Kanikū and Nāwāhine sites on the Kanikū lava flow, if possible. The applicants included the recommendations in their plans and intend to develop interpretive displays as part of the preservation plan.

(e) The results of Shun's intensive archaeological survey of the Hyatt hotel site confirmed the basic accuracy of the information for that area, which was surveyed by the Bishop Museum in 1971. To determine the likelihood that the 1971 conclusions regarding other WBR areas were also accurate, a reconnaissance survey of the remaining area makai of the golf course (north of the Sheraton and fishpond parcels and south of the Hyatt site) was conducted (Rosendahl, January 1985). Barrera had identified 27 sites, incorporating 52 component features, within this area. Six sites (7 features) could not be relocated and appear to have been destroyed by bulldozing. In addition, 22 previously unidentified sites, comprising 25 component features, were found. Fifteen of these were cairns, ten of which could be of modern construction, being constructed of boulders or containing wooden planks. The beach area between the head of 'Anaeho'omalu Bay and Ka'au'au Point was inspected for indications of the presence of buried cultural deposits, but was considered to have a low potential as an area where undisturbed deposits were likely to be found.

(f) The reconnaissance survey (Rosendahl, January 1985) of this area concluded that several components of the Ridge Settlement Complex (which is on a parcel outside of the project area) and of the 'Anaeho'omalu Point Cluster complex have moderate research potential, and that the newly identified burial cave have both moderate research value and high cultural value. All of the other archaeological remains were considered of limited significance in terms of potential research, interpretive, or cultural values. A program of intensive archaeological survey was recommended by Rosendahl to include the same tasks undertaken for the Hyatt site, together with preservation, or removal and reburial, of human skeletal remains.

(g) At the present time, the following historic sites are preserved on the WBR: the Kiholo-Puako (King's) Trail, a petroglyph area in the golf course, a burial cave complex in the golf course, a "camel" area of geological interest, and the Ku'uali'i and Kahapapa Fishponds and a reconstructed site. Some of the petroglyphs were salvaged and put on display in the Sheraton Hotel. WBR plans to include a Museum to hold some of the artifacts found on the property and to provide information about the ancient inhabitants of 'Anaeho'omalu area.

10. SOCIO-ECONOMIC CHARACTERISTICS

10.1 EXISTING ECONOMIC ACTIVITY -- HAWAI'I ISLAND AND SOUTH KOHALA

(a) With an area of 4,038 square miles, the island of Hawai'i comprises 63 percent of the State's total land area. Politically, the entire island comprises the County of Hawai'i, and is divided into nine judicial districts: North and South Kohala, North and South Kona, Hāmākua, Ka'ū, Puna, and North and South Hilo (see Figure III-13).

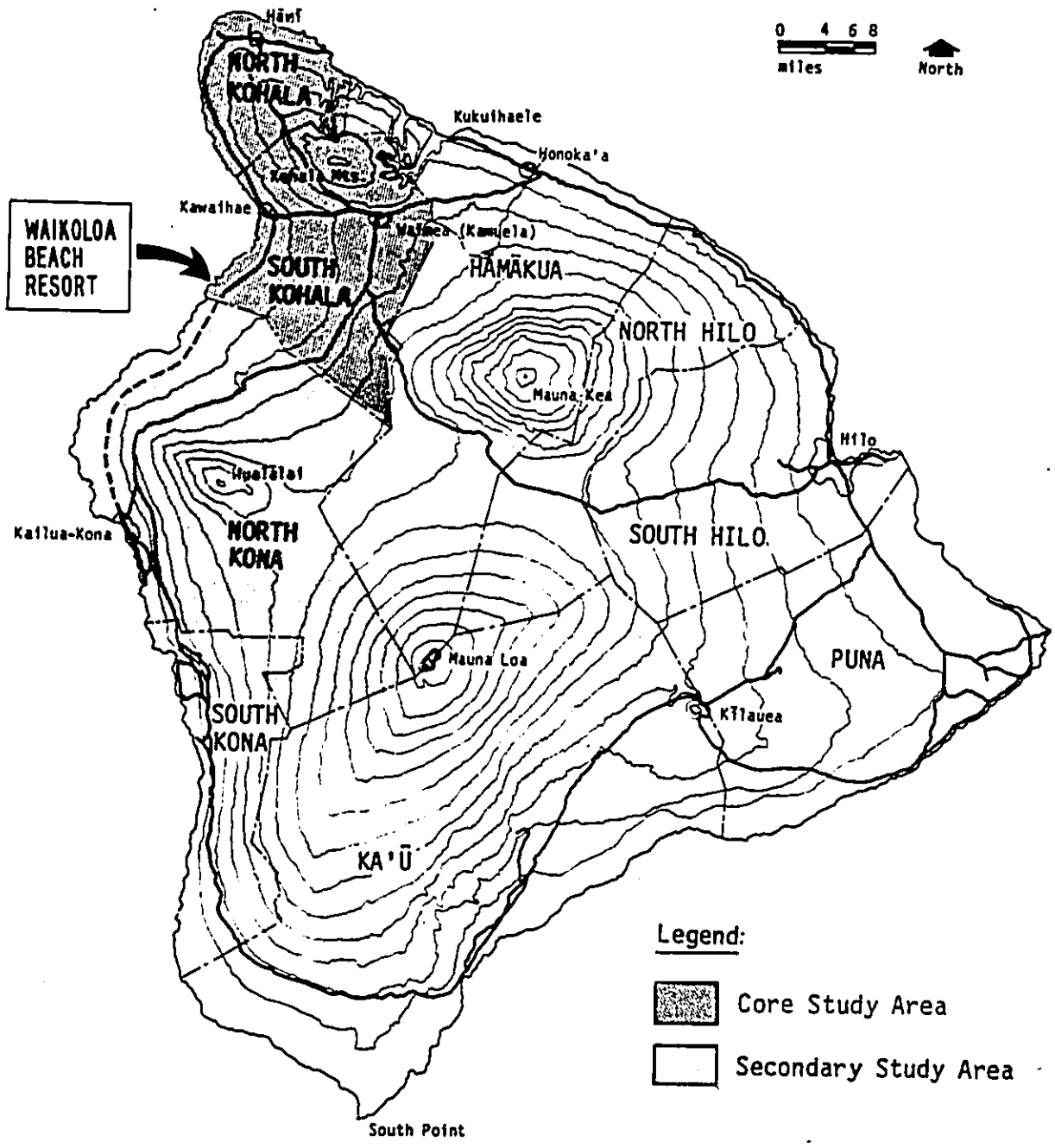


Figure III-13 Districts of Hawaii Island

(b) The primary economic activities in the South Kohala District are agriculture and tourism. Cattle ranching and diversified agriculture are located principally in the upland areas around Waimea. The Parker Ranch, one of the largest privately owned ranches in the world, is headquartered in Waimea. The area around Waimea is also the most productive on the island with respect to the production of vegetable crops.

(c) Visitor-related activities and accommodations in West Hawai'i have traditionally been centered in Kailua-Kona in the North Kona District. However, South Kohala's white sand beaches, dry and sunny climate, and majestic mountains make it exceptionally attractive, and it has long been recognized in State, County, and private-sector plans for its potential as a major resort destination area. The pace of resort development, which began with the opening of the Mauna Kea Beach Hotel at the Mauna Kea Resort in 1965, has accelerated during the past few years with the opening of the first hotels in the Mauna Lani and Waikoloa Beach Resorts. Continued development of extensive visitor facilities is underway in these three South Kohala resorts.

10.2 COUNTY LAND USE PLANS AND CONTROLS

10.2.1 Overview

(a) The County of Hawai'i General Plan, adopted in 1971, sets forth the County's long-range plans for development of the island. The General Plan was revised in 1979-80, and a second update is currently underway. The General Plan recognizes the opportunity for, and desirability of, resort development within the South Kohala District that proceeds in an orderly fashion, consistent with the physical and social goals of the County's citizens.

(b) Hawai'i County's General Plan is the primary policy document of a multi-level land use control system that is designed to insure that development meets the island's needs and proceeds in an orderly fashion. In the General Plan, major resort areas in South Kohala have been designated at Kawaihae-Hapuna (Mauna Kea Beach Resort area), Puakō-Honoka'ope Bay (Mauna Lani Resort area), and 'Anaeho'omalu (Waikoloa Beach Resort). In addition to its land use sections, the General Plan also addresses the County's goals, policies, and standards in the following areas: flood control and drainage, historic sites, housing, natural beauty, natural resources and shoreline, public facilities, public utilities, recreation, and transportation. Often, specific objectives concerning development in South Kohala are stated in the General Plan, such as providing for employee housing needs, developing basal groundwater supplies, developing parks and ensuring public shoreline access, and developing highway, port and airport facilities. Some of these actions have been implemented; the water system developed by Boise Cascade for the Waikoloa project was followed by the Lālāmilo water system developed by the State, County, Mauna Lani and Mauna Kea Resorts. The water systems plus the construction of the Queen Ka'ahumanu Highway, Kawaihae Harbor, and Keāhole Airport have provided major infrastructure to support resort development in South Kohala.

(c) The County adopted land use strategies to guide development and to meet the needs identified in the General Plan. In the area of housing, the General Plan requires that resort developers provide employee housing where necessary to avoid housing shortages. The General Plan also requires the development of adequate water supply systems prior project approval. Resort developments are required to provide public access to beach areas. Through land use zoning allocations, housing/resort unit

densities are regulated so that the capacities of support facilities will not be exceeded. The implementation of these strategies rests with the County of Hawai'i through its Planning Department, Department of Public Works, and Office of Housing and Community Development. Implementation is accomplished through various land use controls, including Zoning, Planned Unit Development permits, Special Management Area permits, and shoreline setback requirements.

10.2.2 The Waikoloa Project

(a) The Waikoloa project is a planned community encompassing 31,000 acres of land (see Figure III-14). Extending 12 miles between Māmalahoa Highway and the shoreline, it is composed of two main parts. The uppermost lies above Queen Ka'ahumanu Highway and is by far the largest; it includes zoning for large- and medium-size agricultural lots, as well as low- and medium-density residential land and commercial areas within Waikoloa Village. The 1,360 acres below Queen Ka'ahumanu Highway comprise the Waikoloa Beach Resort (WBR).

(b) The WBR is designated as a "major resort" on the Hawai'i County General Plan. Initial zoning for the area of the WBR makai (seaward) of the King's Trail was granted in 1971. Adjustments in zoning lot boundaries needed to accommodate revised golf and roadway plans were granted by the County with the adoption of Ordinance No. 265 in 1977. Approved plans and zoning at the WBR provide for the ultimate development of approximately 3,000 hotel rooms and 3,400 multi-family resort residential units, but the 543-room Sheraton Royal Waikoloa is the only hotel built, thus far. Ground-breaking for the first resort condominium project within the WBR, the 114-unit "The Shores at Waikoloa", took place in mid-1984, and initial occupancy is scheduled for 1985. This leaves about 2,450 additional hotel rooms and approximately 3,300 additional resort multi-family units still to be constructed. The existing zoning district boundaries within the Waikoloa Beach Resort are shown in Figure III-15.

10.3 COMMUNITY PROFILE

Descriptions of the major communities in North and South Kohala, North Kona and Hāmākua Districts are provided in Tables III-11 and III-12.

10.3.1 Population

(a) The population of the South Kohala District remained nearly constant between 1960 and 1970, but rose by 2,297 (an increase of 99 percent) during the following decade (see Table III-13). During this same period, the Mauna Kea Resort was the only South Kohala resort to experience significant growth, suggesting that the increase in the population of the South Kohala District was probably driven by other factors, such as growth in Waimea and the resort development that occurred in North Kona. In comparison, the North Kona District population rose from 4,832 in 1970 to 13,748 in 1980, an increase of 8,646, or 185 percent.

(b) The U.S. Army Corps of Engineers (November 1984) has estimated that the population of the South Kohala District will reach approximately 7,000 by 1990 and 12,000 by the year 2040. Population projections contained in environmental impact statements prepared for major resort projects in the region are substantially higher. It is expected that the major cause of this population growth will be the resort development planned along the South Kohala coastline. Belt, Collins & Associates, for example, project that the operation of the Hyatt hotel alone will increase the area population by 4,000 before 1990, bringing the area's population to 10,000 by 1990.

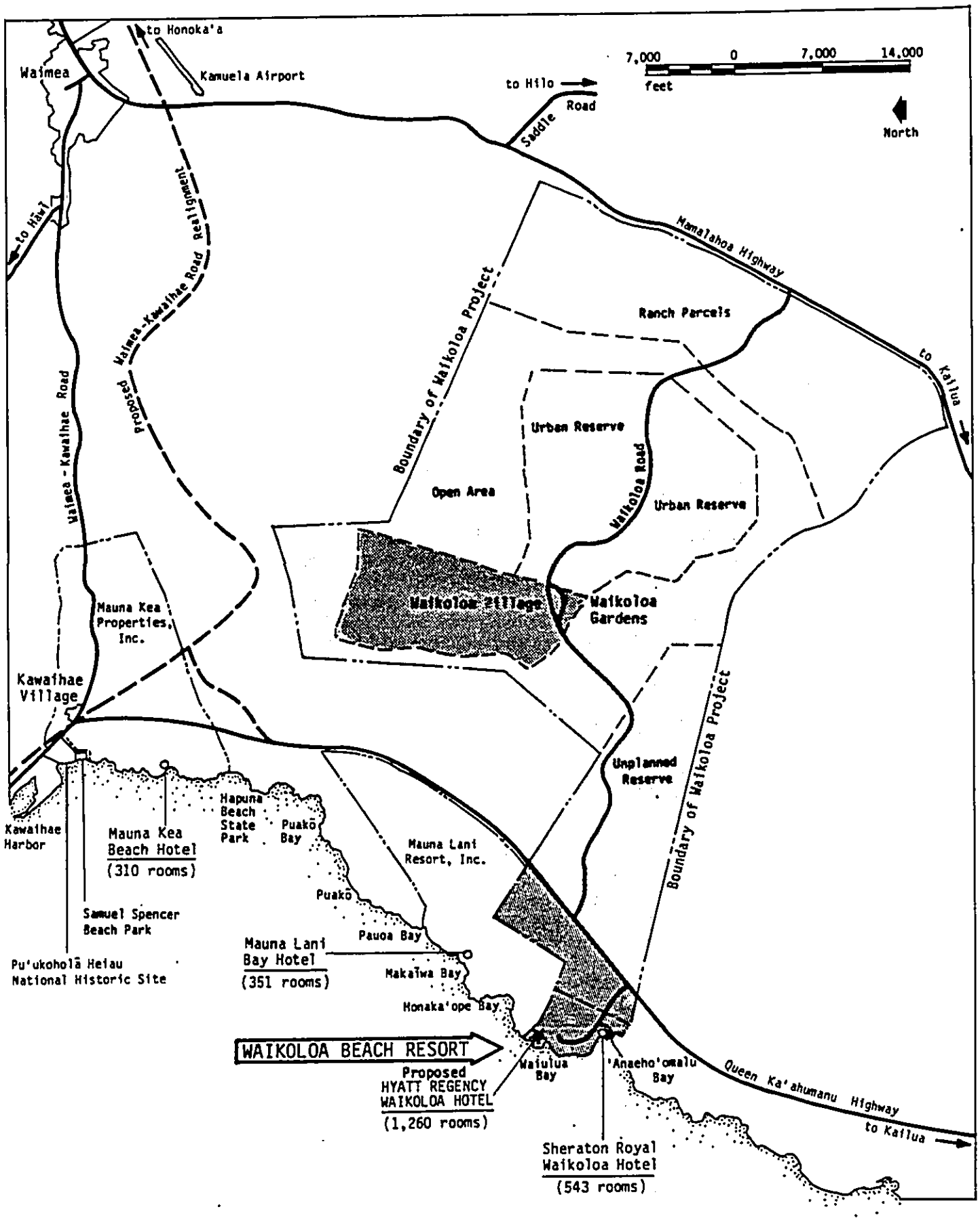


Figure III-14 Waikoloa Lands and the South Kohala Region

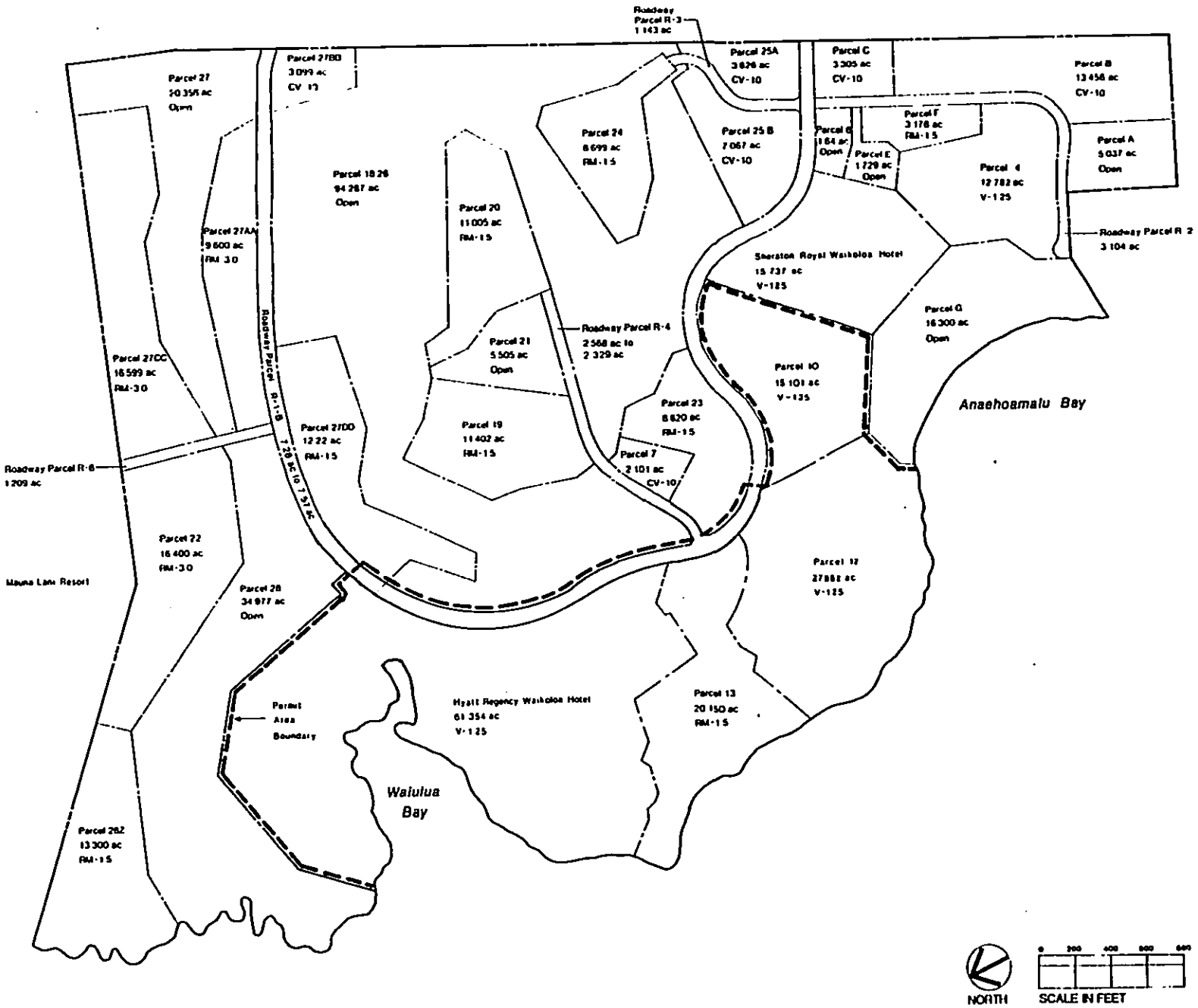


Figure III-15 Existing Zoning - Waikoloa Beach Resort

Table III-11

Principal Communities of Kohala

Community	Capsule Description	Major Economic Activities	Population Characteristics
North Kohala			
Hāwī, Kapa'au, Hala'ula	Adjacent former sugar towns; contain most of N. Kohala's population and all commercial activity & government services.	Small retail outlets; nursery operation; small-scale industrial activities (kim chee factory, heavy equipment repair, etc.)	Longtime residents tend to be aging, former plantation workers, with less formal education. An unknown proportion consists of relatively younger in-migrants from the Mainland.
Makapala, Hālawa, Niuli'i	Sugar activities long abandoned, low population, rural setting.	Only agriculture or subsistence activities; no commercial businesses.	Relatively more part-Hawaiian.
South Kohala			
Waimea (Kamuela)	Commercial & population center for both South and North Kohala.	Parker Ranch HQ and shopping center; telescope basecamp; two large private schools; professional offices; restaurants; retail outlets; small tourist attractions.	Longtime residents of paniolo tradition; influx of newcomers (professional); vacation homes for O'ahu residents.
Waikoloa Village	Resort/residential community; homes built on 270 of 985 lots; 222 condo units.	Project development; golf course; clubhouse, a convenience store.	About 30% retirees (mostly Mainland) and 70% younger working people (mostly local).
Kawaihae	Most population in Kawaihae Village subdivision; few homes in old area near harbor.	Harbor and storage; one gas station; two stores; one restaurant; wood-chipping plant.	Village residences intended as employee housing for Mauna Kea Hotel, but most residents work elsewhere.
Puakō	Vacation beach homes.	No stores; one condo bldg. serving as apt./hotel.	Retirees/younger people renting old cottages.

Source: Community Resources (1980); updated by Community Resources, Inc. (September 1984).

Table III-12

Principal Communities of North Kona and Hāmākua

Community	Capsule Description	Major Economic Activities	Population Characteristics
North Kona			
Kailua	Visitor destination area; agricultural activity, primarily in mauka regions.	Tourism; retail and commercial activity; agricultural production related to coffee, ranching and macadamia nuts.	Primarily Caucasian; employed in professional, retail, and service work.
Hāmākua			
Honoka'a	Plantation town which serves as regional economic center.	Sugar production; retail and commercial activity; macadamia processing; some visitor-oriented shops.	Multi-ethnic population with expanding Filipino community.

NOTE: For the secondary study area, only the largest community for each district is discussed in this table and text.

Source: Community Resources, Inc. (September 1984).

Table III-13

1970 and 1980 Census Data on Population and Demographics, by Area

	Hawaii County		North Kohala		South Kohala		Honokaa-Kukuihaele		North Kona	
	1970	1980	1970	1980	1970	1980	1970	1980	1970	1980
TOTAL POPULATION	63,468	92,053	3,326	3,249	2,310	4,607	2,829	3,287	4,832	13,748
AGE	%	%	%	%	%	%	%	%	%	%
under 5 years	8.58	9.09	10.01	9.20	9.31	10.18	7.60	9.43	9.13	9.11
5 to 17 years	27.82	21.50	29.43	22.87	28.27	23.57	27.08	22.27	27.03	20.29
18 to 64 years	54.40	59.22	51.08	54.36	56.06	58.58	55.04	54.49	55.69	63.88
65 and older	9.20	10.19	9.47	13.57	6.36	7.66	10.29	13.81	8.15	6.72
ETHNICITY[1]										
Caucasian (White)	28.83	34.98	25.59	27.83	39.22	46.54	36.94	37.85	43.98	53.77
Chinese	2.90	1.74	4.27	1.01	1.30	1.37	2.72	1.18	3.66	1.59
Filipino	16.47	13.85	29.22	23.95	6.58	5.57	21.77	21.90	8.40	7.17
Hawaiian	12.30	18.81	15.33	24.74	26.45	28.51	7.14	12.24	19.33	22.10
Japanese	37.53	26.56	23.84	16.07	24.42	14.56	30.01	24.88	23.14	11.83
other	1.97	4.07	1.74	6.41	2.03	3.45	1.41	1.94	1.49	3.54
PLACE OF BIRTH[1]										
Hawaii	76.99	70.54	69.29	75.63	70.34	64.85	77.90	77.19	67.40	54.38
other U.S.A.	NC	20.04	NC	13.62	.NC	30.43	NC	9.48	NC	39.92
foreign country	10.83	9.41	16.26	10.75	6.09	4.71	14.60	13.34	5.77	5.70
RESIDENCE 5 YR. AGO[1]										
same house	62.49	52.89	49.89	68.85	45.64	50.74	66.18	68.33	51.08	38.78
elsewhere on island	NC	24.86	NC	12.10	NC	17.33	NC	16.45	NC	28.13
different island	NC	8.11	NC	4.40	NC	14.86	NC	8.89	NC	7.01
different state	NC	11.06	NC	11.59	NC	16.42	NC	4.33	NC	23.12
different country	NC	3.09	NC	3.06	NC	.65	NC	2.00	NC	2.97
EDUCATION (pop. 25+)[1]										
8 years or less	37.16	20.11	44.24	28.98	24.09	8.58	45.73	30.30	28.85	7.95
high school grad	31.60	35.52	29.97	38.98	34.23	37.02	27.46	35.68	65.98	40.93
college grad., more	7.54	15.16	5.93	8.12	13.06	20.73	5.33	9.82	8.77	18.79

[1]Figures based on 15 percent sample; hence, numbers represent estimate.

"NC" = 1970 categories or bases "Not Comparable" to 1980 (1970 Census kept a "non-response category, while 1980 census allocated non-responses to other categories shown).

Sources: U.S. Bureau of the Census, 1972, Census of Population and Housing, 1970, Census Tracts (Final Report, PHC(1)-88, Honolulu, Hawaii SMSA); State of Hawaii, Department of Planning and Economic Development, 1973, Community Profiles for Hawaii; U.S. Bureau of the Census, 1980, Summary Tape Files 1-A and 3-A.

(c) In contrast to the dramatic population changes observed in both South Kohala and North Kona over the past ten years, population decline or slow growth are characteristic of the North Kohala, Hāmākua, and the North Hilo Districts. The decline is probably related to the lack of employment opportunities as a result of the termination of sugar agriculture in North Kohala and Hāmākua. The slight decline in North Kohala's population is definitely related to the demise of the Kohala Plantation Co. and to the stagnation in ranching. The lack of economic opportunity has led many young persons to leave the area in search of employment. As a consequence, the average age of the residents in North Kohala, Hāmākua, and North Hilo has increased. In 1980, for example, persons over age 65 accounted for 14 percent of the North Kohala District's population, up from 9 percent in 1970. Hāmākua showed modest growth over the period, and had more of both younger and older persons in 1980 than in 1970. Both North Kohala and Honoka'a-Kukuihaele (the northern part of the Hāmākua District) have high dependency ratios, with 84 persons younger than 17 or older than 64 for each 100 persons in the prime working age of 18 to 64.

(d) Revised estimates of resident population growth in Hawai'i County since 1980 show an average annual increase of three percent (Hawai'i, State of, Department of Planning and Economic Development, 1984). District level population estimates are not available, but indicator statistics such as school enrollment strongly suggest that the number of people in South Kohala and North Kona has continued to rise faster than the County-wide average.

(e) The populations of South Kohala, North Kohala, and North Kona are more Hawaiian and more Caucasian than that of the island as a whole. The Caucasian in-migrants have generally higher educational levels than longtime island residents. There is also greater wealth in the South Kohala and North Kona Districts than in areas to the north and east. There has been substantial in-migration of young persons to North Kona to take visitor industry jobs. In the North and South Kohala, North Kona, and Hāmākua districts and in the major towns within them, the number of families has increased much faster than the number of households.

10.3.2 Labor Force and Employment

(a) Overall, Hawai'i County's labor force participation rate remained relatively steady during the 1970s, with about 60 percent of the potential labor force actually working or looking for work. South Kohala has historically showed a slightly higher than average labor force participation rate, and this has not changed. The decline in the participation rate in Honoka'a-Kukuihaele is related to the natural aging of that population and to out-migration of working-age persons. North Kona shows a significant increase in the tendency to work, with civilian labor force participation rate increasing one and one-half times as fast as the potential labor force. In 1980, 72 percent of all persons age 16 or more residing in North Kona were in the labor force, well above the County-wide average of 61 percent. The higher-than-average rate is believed to be a function of North Kona's younger, less family-based population. Pertinent labor force characteristics of North and South Kohala, North Kona, and Honoka'a-Kukuihaele, as well as County-wide totals, are shown in Table III-14.

(b) The female component of the labor force has increased in the County as a whole. In 1980, it was largest (44 percent) in North Kohala and smallest (36 percent) in Honoka'a-Kukuihaele. Except in the latter area, female unemployment tends to be lower than male unemployment. This last relationship is the reverse of the situation which prevailed in 1970, when female unemployment rates were one to three times as high as men's.

Table III-14

1970 and 1980 Census Data on Labor Force Characteristics

	Hawaii County		North Kohala		South Kohala		Honokaa-Kukuihaele		North Kona	
	1970	1980	1970	1980	1970	1980	1970	1980	1970	1980
POTENTIAL LABOR FORCE (aged 16 or above)	43,075	67,205	2,240	2,286	1,446	3,290	2,092	2,418	3,632	10,115
	%	%	%	%	%	%	%	%	%	%
not in labor force	39.46	38.67	38.39	39.76	34.23	35.87	40.58	46.69	44.33	27.85
armed forces	0.43	0.31	1.12	.96	0.00	0.00	0.24	0.00	0.00	0.06
civilian labor force	60.10	61.02	60.49	59.27	65.77	64.13	59.18	53.31	55.67	72.09
CIVILIAN LABOR FORCE	25,889	41,006	1,355	1,355	951	2,110	1,238	1,289	2,022	7,292
	%	%	%	%	%	%	%	%	%	%
male	63.60	58.53	63.17	55.72	65.62	62.99	68.01	64.31	66.62	57.52
female	36.40	41.47	36.83	44.28	34.38	37.01	31.99	35.69	33.38	42.48
unemployed	2.74	6.96	1.85	9.23	4.10	6.26	1.86	5.35	4.80	5.20
(male unemployment)	(2.12)	(7.18)	(1.40)	(9.40)	(2.40)	(7.37)	(1.66)	(5.07)	(4.08)	(6.20)
(female unemployment)	(3.82)	(6.66)	(2.61)	(9.00)	(7.34)	(4.35)	(2.27)	(5.87)	(6.22)	(3.84)
TOTAL EMPLOYED CIVILIAN LABOR FORCE	25,180	38,150	1,330	1,230	912	1,978	1,215	1,220	1,925	6,913
	%	%	%	%	%	%	%	%	%	%
OCCUPATION										
service (not pvt. hh.)	16.29	16.47	24.66	34.23	13.82	17.95	18.68	11.15	18.65	21.50
managerial/profess.	NC	20.05	NC	15.20	NC	20.58	NC	12.46	NC	21.15
technical, sales & administrative	NC	26.10	NC	13.74	NC	19.16	NC	18.93	NC	28.18
farm, fish, forestry	NC	10.29	NC	14.23	NC	14.00	NC	12.62	NC	7.10
precision, craft, repair	NC	12.71	NC	9.67	NC	16.53	NC	17.54	NC	12.14
operators, fabricators, laborers	NC	14.39	NC	12.93	NC	11.78	NC	27.30	NC	9.94
INDUSTRY (selected)										
agriculture, forest, fish, mining	NC	11.20	NC	8.05	NC	16.84	NC	16.23	NC	6.22
construction	10.60	9.11	2.56	4.96	13.60	12.29	9.88	8.03	23.58	11.24
manufacturing	15.01	8.33	29.25	8.13	2.30	5.11	26.42	29.43	2.81	1.49
wholesale trade	4.32	3.87	.75	1.95	.88	3.39	.00	1.64	1.04	1.88
retail trade	14.82	17.52	2.93	6.99	15.90	13.80	10.29	13.77	13.09	23.55
financial, insurance, real estate	2.80	5.70	1.13	2.28	3.51	7.63	.41	1.15	3.95	8.64
personal, entertain. & recreat. services	NC	10.89	NC	31.38	NC	16.03	NC	6.56	NC	20.73
educational services	7.61	8.10	8.57	12.52	10.09	9.61	6.91	7.05	4.52	4.79
public adminis.	6.49	7.26	5.49	8.05	3.07	2.07	8.64	5.25	4.16	2.73
COMMUTE TO WORK										
45 minutes or more	N/A	5.95	N/A	22.03	N/A	13.90	N/A	13.44	N/A	4.80
mean travel (minutes)	N/A	16.5 m	N /A	24.1 m	N/A	21.7 m	N/A	17.6 m	N/A	16.4 m

NOTE: All figures based on 15 percent sample; hence, numbers represent estimate.

"N/A" = "Not Available" "NC" = 1970 categories or bases "Not Comparable" to 1980

Source: U.S. Bureau of the Census, 1970, 1980; State of Hawaii, Community Profiles for Hawaii, 1973

(c) In 1980, unemployment in all districts was higher than in 1970. The highest unemployment rate within the study area was recorded in North Kohala (9.23 percent), the lowest in North Kona (5.20 percent) (see Table III-14). Unemployment tended to be slightly lower in urban places (see Table III-15) than elsewhere.

(d) North Kohala and North Kona residents tend to be employed in the service sector, especially in businesses serving the visitor industry. The increasing dominance of service sector employment is most pronounced in North Kohala; where the number of service sector employees increased by 28 percent during the ten-year period. At the same time, total employment declined by 7 percent. These changes indicate a major transition in North Kohala from a dependence on sugar growing and processing to hotels and other personal, entertainment, and recreational industries.

(e) South Kohala, though closer to the tourism center in North Kona, was less directly involved in service sector employment at the hotels developed during the 1970s. In 1980, about 40 percent of employees in South Kohala worked in managerial, professional, technical, administrative, or sales occupations. The Honoka'a-Kukuihaele area also remained relatively untouched by the trend toward service sector employment, and in 1980 it still showed greater employment in skilled occupations and in agriculture-related industries.

(f) Commuting statistics confirm the importance to North Kohala residents of visitor-related employment in North Kona, with almost one-quarter (22 percent) spending more than 45 minutes to reach their place of employment. In contrast, less than 5 percent of North Kona workers spent as much time commuting.

(g) The 1980 Census data presented above are the most recent data available for most demographic parameters. Unemployment, which is a key factor in judging the effect of the proposed project, tends to fluctuate somewhat more than other factors. The State Department of Labor and Industrial Relations estimates that Big Island unemployment has increased from about six percent in 1980 to nine percent in 1983. District-level unemployment data are not available for 1983, but the Department has prepared estimates based on relationships observed in 1980. These are presented in Table III-16.

10.3.3 Housing

(a) Table III-17 presents selected data on the housing stock of the study area for the years 1970 and 1980. As with population, housing stock increased most dramatically in the North Kona and South Kohala districts. North Kona's housing stock grew by 247 percent over the course of the decade, three times the county-wide rate. In contrast, the number of housing units in North Kohala and in Honoka'a-Kukuihaele grew only modestly during the 1970s.

(b) The proportion of homes occupied by owners rather than renters increased in all regions, but the greatest rise was in North Kona and South Kohala. However, home ownership is still greatest in North Kohala and Honoka'a-Kukuihaele, the two regions that have been least affected by in-migration.

(c) The incidence and share of homes lacking some or all plumbing is down in all regions from the 1970 level, reflecting the higher building standards that now exist and a gradual replacement of old and dilapidated homes by new units. All areas show comparable or lesser percentages of "crowded" conditions (defined as more than 1.5 persons per room in a unit). However, in absolute terms the number of "crowded"

Table III-15

Percent Unemployment in Urban Areas: 1980

	% Unemployment by Census Defined Place: 1980			
	Hāwī	Waimea	Honoka'a	Kailua-Kona
Total	9.12	5.55	2.48	3.02
Male	9.68	7.45	3.84	3.15
Female	8.44	1.79	2.27	2.84

Source: 1980 U.S. Census.

Table III-16

Estimates of Unemployed Since 1980

Area	1980	1981	1982	1983
Hawai'i County	2650 (6.3%)	3400 (7.6%)	4450 (9.8%)	4250 (9.1%)
North Kohala	100 (8.4%)	150 (10.1%)	200 (12.8%)	200 (12.0%)
South Kohala	100 (5.7%)	150 (6.9%)	200 (8.8%)	200 (8.2%)
Honoka'a/Kukuihaele	50 (4.9%)	100 (5.9%)	100 (7.5%)	100 (7.1%)
North Kona*	350 (4.7%)	450 (5.7%)	600 (7.5%)	550 (6.9%)
Kailua-Kona	150 (4.9%)	200 (5.9)	200 (8.8%)	250 (7.1%)

* Census Tracts 215 and 216 combined.

Source: Unpublished State Department of Labor and Industrial Relations data.

Table III-17

Census Data on Housing Stock: 1970 and 1980

	Hawaii County		North Kohala		South Kohala		Honokaa-Kukuihaele		North Kona	
	1970	1980	1970	1980	1970	1980	1970	1980	1970	1980
TOTAL YEAR-ROUND HOUSING UNITS	18,972	33,954	941	1,121	798	1,959	880	1,114	1,982	6,894
vacant	9.02	13.89	6.59	8.83	18.55	24.30	8.07	6.46	27.80	33.25
(pct. vacancies held for occasional use)	N/A	(18.08)	N/A	(18.18)	N/A	(21.85)	N/A	(54.17)	N/A	(14.70)
TOTAL YEAR-ROUND OCCUPIED UNITS	17,260	29,237	879	1,022	650	1,483	809	1,042	1,431	4,602
TENURE										
owner-occupied	56.87	60.65	66.55	67.71	48.77	59.27	59.70	64.30	44.65	55.11
renter-occupied	43.13	39.35	33.45	32.29	51.23	40.73	40.30	35.70	55.35	44.89
SELECTED CONDITONS										
lacking some plumbing	17.06	8.12	17.63	9.88	15.38	2.43	17.43	7.87	26.28	7.32
1.51 or more persons/room	6.52	4.97	9.67	3.13	8.15	5.26	4.20	4.61	14.12	6.06
PERSONS PER HOUSEHOLD:	3.61	3.09	3.75	3.16	3.51	3.07	3.40	3.13	3.36	2.92
NUMBER OF OWNER-OCCUPIED NON-CONDOMINIUM UNITS FOR WHICH VALUE DATA AVAILABLE	NC	15,703	NC	613	NC	773	NC	597	NC	2,132
MEDIAN VALUE:	$24,800	$70,300	$16,100	$64,200	$31,800	$95,700	$19,400	$60,600	$35,000 to $49,999	$114,000
NUMBER OF RENTER-OCCUPIED CASH RENTAL UNITS FOR WHICH RENTAL DATA AVAILABLE	NC	9,667	NC	226	NC	492	NC	301	NC	1,720
MEDIAN RENT:	$54	$223	$38	$153	$116	$307	$37	$128	$150 to $199	$331

"N/A" = "Not Available." "NC" = 1970 categories or bases "Not Comparable" to 1980.

Source: U.S. Bureau of the Census, 1970, 1980; State of Hawaii, Community Profiles for Hawaii, 1973

homes increased in South Kohala, North Kona, and Honoka'a-Kukuihaele. In North Kona, at least, this is probably related to an increase in the number of single persons sharing housing. However, the high average number of persons per room in South Kohala and Honoka'a-Kukuihaele may indicate that some "doubling-up" has occurred among families as well.

(d) As would be expected, 1980 property values and rental rates were highest in North Kona and South Kohala, but the 1970 figures indicate that these two areas have historically been expensive ones. Changes in property values and median rents during the 1970s were greatest in the northern areas where housing stock grew slowly. Rents and property values in North Kohala, for instance, tripled over the decade.

(e) Within districts, census data shows 1980 property values were higher within the towns of Waimea and Hāwī than in their surrounding areas. On the other hand, Kailua-Kona, which has a substantial number of multi-family units, showed a lower median property value than did the North Kona district as a whole.

10.3.4 Public Services and Facilities

As previously described, substantial investments have been made in the public infrastructure needed to stimulate and support resort development in the South Kohala District. Construction projects include the Queen Ka'ahumanu Highway, Keāhole Airport, the Lālāmilo water system, and Kawaihae Harbor. Public investment in the infrastructure is over $40 million. In conjunction with these government-sponsored efforts, private landowners are developing several major resort projects along the South Kohala coast. Aggregate private expenditures for the resorts exceeds $100 million. The joint State, County, and private funding of the Lālāmilo water system is an exemplary cooperative effort to solve water supply problems in the region.

10.3.4.1 Schools and Libraries

(a) Public schools serving the South Kohala District include Waimea Elementary and Intermediate School (kindergarten through grade 9) and Honoka'a High School (grades 10 through 12) situated in the Hāmākua District. South Kohala district high school students are bussed to Honoka'a High School. Two private schools are located in Waimea: Parker School (grades 7 through 12), and Hawai'i Preparatory Academy (grades 1 through 12). The Thelma Parker Memorial Library in Waimea serves the South Kohala area.

(b) Other schools and libraries situated outside the District, but in the general area, include Kohala High and Elementary (kindergarten through grade 12) in Honomaka'u (near Hāwī), the Kohala Mission School (grades 1 through 8) in Hāwī, Bond Memorial Library in Kapa'au, and the Honoka'a Library.

10.3.4.2 Health Care Facilities

(a) Four medical facilities are available to residents and visitors in West Hawai'i: Lucy Henriques Medical Center in Waimea, Honoka'a Hospital in Honoka'a, Kohala Hospital near Hawi, and the Kona Hospital in Kealakekua, Kona.

(b) The facility nearest to the WBR is the privately owned Lucy Henriques Medical Center; this is a modern facility staffed by six physicians and three dentists (two full-time and one part-time). While it is the most modern of the four, it is not certified to operate as a hospital. Emergency treatment is available at the Center, and patients may be treated and held for up to 24 hours.

(c) The three hospitals are State operated. The number of full-time equivalent practicing physicians is 8.7 in Kohala, 5 in Honoka'a, and 35.1 in Kona.

(d) Kohala Hospital is a 26-bed facility (10 acute care, and 16 long-term care), which offers 24-hour emergency care as well as a range of other medical services including surgery. Honoka'a Hospital has 35 beds (27 acute care, and 8 long-term care), and offers a range of medical services including surgery, child delivery, laboratory, and emergency room. The largest of the four hospitals is the Kona Hospital which serves West Hawai'i, with 53 acute care and 22 long-term care beds. All three hospitals have been operating well below their capacity, and there are currently no plans to expand facilities (Park; October 4, 1984).

10.3.4.3 Recreational Facilities

(a) Kohala and North Kona recreational facilities include golf courses, tennis courts, beaches, riding stables, historic sites, small boat harbors, and other facilities. Their locations are shown on Figure III-16. The County's Samuel Spencer Beach Park and the Hāpuna Beach State Recreation Area are the principal developed recreational facilities in the immediate vicinity of the WBR. They offer white sand beaches, picnicking, camping, and restroom and parking facilities. Other County beach parks are located in the Kailua area and at Mahukona, Kapa'a, and Kēōkea. A large State Historic Park is being developed at Lapakahi in North Kohala. At Honokōhau and Kawaihae there are small boat harbors and ramps, and just south of Hāpuna Beach is the Puakō Boat Ramp. An electric boat hoist is available at Mahukona. A number of additional recreational facilities are proposed for Kohala and North Kona in the Hawai'i County Recreation Plan (Hawai'i, County of, Department of Parks and Recreation and Planning Department; 1973).

(b) The Waikoloa Beach Resort currently has an 18-hole championship golf course and clubhouse, and at the Sheraton Royal Waikoloa Hotel there are tennis and swimming facilities available to guests. The 'Anaeho'omalu Bay shoreline area includes a white sand beach and two fishponds. This area has been extensively cleaned and rehabilitated by the developers of the WBR. The two fishponds have been restored and restrooms, showers, and parking for the public have been provided, making the area a popular beach for residents as well as resort guests.

(c) Waiulua Bay and the nearshore waters area fronting the Hyatt site are used for fishing, diving, surfing, and hiking. Use of these waters for fishing and diving seems to have increased in popularity since the opening of the Sheraton Royal Waikoloa Hotel, probably because of improved access. Both pole and throw net fishing occur in the area; some of the more popular fish caught there are mullet, wowo, uhu, and 'oama. According to Duncan (September 26, 1984), as many as one to two dozen people may use Waiulua Bay for some form of recreation during the course of a sunny weekend day. The diving that occurs is often by boat; it is done at night, as well as in the day. Surfing occurs just south of Waiulua Bay, where wave conditions are very favorable.

(d) In addition to the ocean-related activities, hiking also occurs on portions of old Hawaiian trails that are in the area. Waiulua Bay includes one segment of the Ala Kahakai, a foot trail that hugs the shoreline from Pu'ukoholā to just south of the Keāhole Airport. This segment is one of those hiked by such groups as the Kona Hiking Club and Na Ala Hele, as well as by informal groups. The anchialine ponds in the shoreline area of the WBR, including the southern portion of the Hyatt site, are visited by many of the hikers and by others interested in their beauty or unique biological features. These pools also provide an oasis for the hikers; providing water in an emergency and a place to rest and cool off.

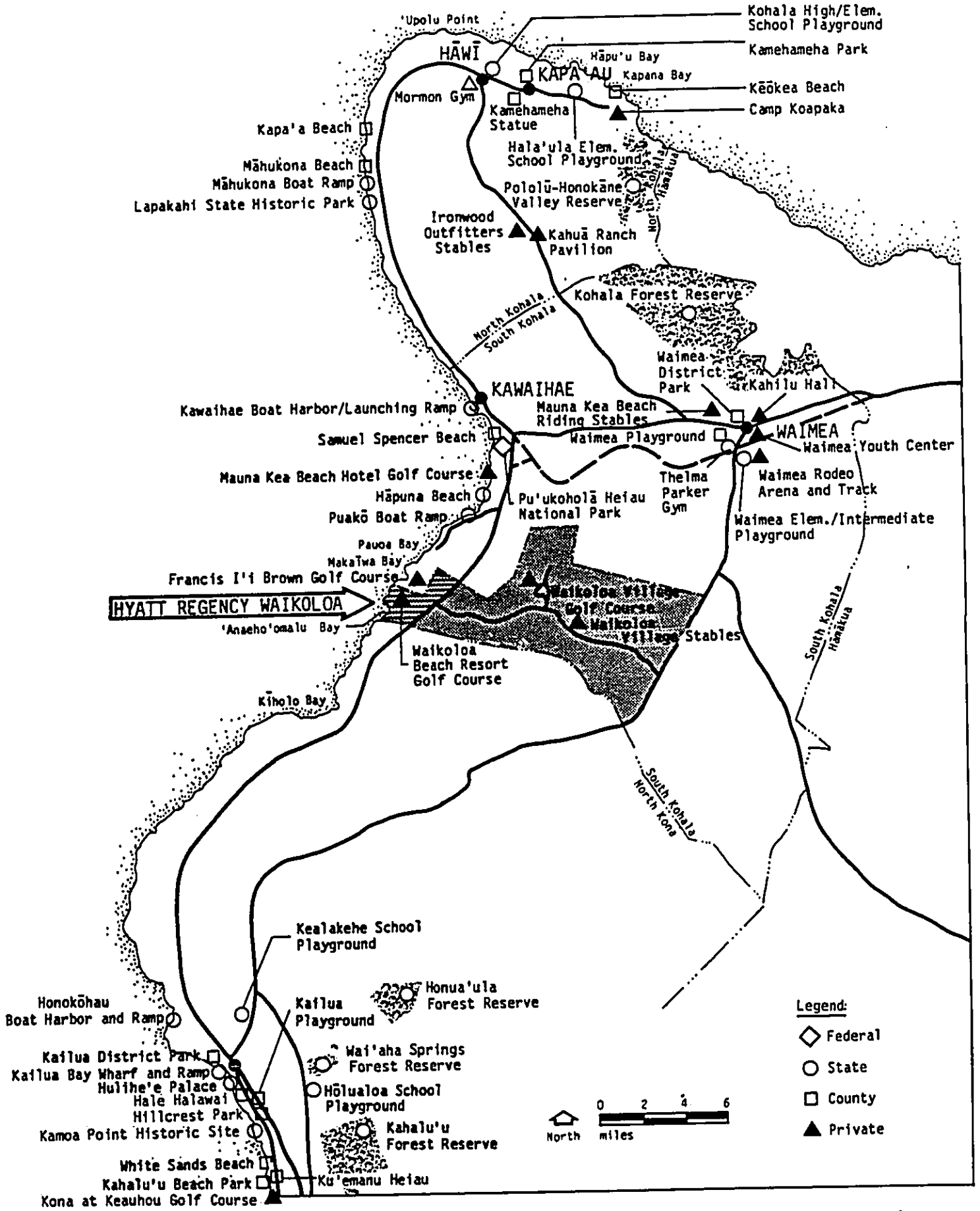


Figure III-16 Recreational Facilities in Kohala/N. Kona Region

10.3.4.4 Protective Services

(a) The Hawai'i County Police Department currently maintains two police stations in the South and North Kohala region. The larger facility is at Waimea and consists of a modern station and jail structure which serves as headquarters for a 20-person full-time staff. The Kapa'au Police Station in North Kohala is housed in a building that adjoins the court building and is staffed by approximately 13 persons. Both police stations were constructed relatively recently, and there is room within the buildings for additional staff.

(b) Existing fire protection facilities in the South Kohala district consist primarily of a County-operated fire station in Waimea, about 20 miles from the WBR. This station has 24-hour staffing with a six-person crew and is equipped with pumper, water tanker, and rescue van. To supplement the Waimea station, the County has a single fire truck, one-person facility in Kawaihae which is staffed only between 8 a.m. and 4 p.m. There are also two County fire trucks, one at Puakō and another at Waikoloa Village, manned solely by volunteers (Yoshizumi; November 9, 1984). Additional fire protection capacity is provided by a privately owned fire truck at the Mauna Kea Beach Hotel, manned by volunteers.

10.3.4.5 Transportation Facilities

(a) Highways: Major roadways in the West Hawai'i resort region are shown on Figure II-1. Access to the Waikoloa Beach Resort (WBR), as well as to the other major resort projects within the Kohala Coast Resort Region, is provided by Queen Ka'ahumanu Highway. Completed in 1975, this 33-mile long, two-lane, controlled-access State highway has a capacity of 2,000 vehicles per hour. It links the major resort development along the coast with Keāhole Airport and Kailua-Kona to the south and Kawaihae Harbor and the Waimea-Kawaihae Road to the north. The Hawai'i Belt Road (Māmalahoa Highway) serves the upland areas of North Kona and South Kohala. Connections between Queen Ka'ahumanu Highway and the Hawai'i Belt Road are provided by the Waimea-Kawaihae Road (located about eight miles north of the WBR), Waikoloa Road (located just north of the WBR entrance road), Ka'imi Nani Street, also known as the Kona Palisade Subdivision Road (located a short distance south of the Keāhole Airport), and Palani Road at Kailua-Kona.

(b) Airports: Three airports serve the Kohala coast resort region. Two, Keāhole and Kamuela, are operated by the State Department of Transportation. The third, the recently opened Waikoloa Airstrip, is operated by Princeville Airways. The Kamuela and Waikoloa facilities are used primarily by commuter airlines and private aircraft, although daily jet service is still available between Kamuela and Honolulu. Keāhole Airport is located approximately 20 miles south of the WBR. It is served by all three of the major interisland air carriers, as well as by several commuter airlines and air cargo companies. In 1982, Keāhole Airport handled over 1.1 million passengers, and the number has increased substantially since then. Its 6,000-foot long runway is adequate for the largest interisland aircraft, and wide-bodied jet aircraft now fly directly to the airport from the West Coast. However, the runway is too short to permit these aircraft to take off with a full load of fuel; therefore, return flights to the mainland must proceed via General Lyman Field in Hilo or Kahului Airport on Maui, where the aircraft top off their fuel tanks.

(c) Harbors: In 1959 the U.S. Army Corps of Engineers constructed Kawaihae Harbor, which is used primarily for inter-island barge service. Building materials, consumer goods, and equipment, as well as the provisions and supplies needed to

operate the hotels in South Kohala and Kona, pass through the harbor. Harbor capacity is considered ample to accommodate the expected long-term growth of West Hawai'i's tourist industry.

10.3.4.6 Solid Waste Disposal

The Kailua landfill is located near Kailua-Kona and will serve the North Kona and South Kohala coastal area until a planned new landfill site becomes operational. The County Sewers and Sanitation Bureau is considering a new landfill site which would be located about 10 miles east of the Kona Village Resort, in the vicinity of Pu'uanahulu. The new site is expected to be operational in about three or four years, and would accommodate solid waste generated by planned resort development in South Kohala (Sugiyama; September 20, 1984). Refuse generated by the Sheraton Royal Waikoloa Hotel, the golf course clubhouse, and other existing WBR facilities is currently being collected by a privately contracted firm which trucks the waste to the County-operated Kailua-Kona landfill.

10.3.4.7 Water Supply

(a) A preliminary analysis of municipal water supply problems and needs in the South Kohala District was completed by the Corps of Engineers in 1984. Within the South Kohala District water demand could increase from 2.5 million gallons a day (mgd) to 20 mgd by the year 2010. The principal cause for increased demand is resort development along the coast. The present supply of 4.5 mgd would be increased to 17 mgd by private development of groundwater. The development of groundwater is regulated by the State of Hawai'i, Department of Land and Natural Resources, Division of Water and Land Development. Approval from the State Department of Health must also be obtained.

(b) The principal sources of water in the coastal region of the South Kohala District are the Lālāmilo water system operated by the County of Hawai'i, and the private Waikoloa water system.

(c) The Waikoloa Water Co. owns the wells, reservoirs, and primary transmission mains that supply potable water to both Waikoloa Village and the Waikoloa Beach Resort. Waikoloa Resort Utilities owns the water distribution and sewer lines and the sewage treatment plant (STP) that serve the Beach Resort. Brackish water wells and effluent from the STP provide the irrigation water for the Waikoloa Beach Resort golf course.

(d) The Waikoloa potable water wells serve the WBR as well as the Waikoloa Village area, drawing from the Waikoloa aquifer, discovered in 1969. Parker wells No. 4 and No. 5, located at the 1,200-foot level nearly five miles inland from Puakō Bay, tap high-quality water (25 ppm chloride content versus chloride levels well above 200 ppm for most wells in the region (Boise Cascade Home and Land Corp.; 1976:179). The storage capacity of the Waikoloa aquifer is estimated to be in excess of 100,000 million gallons, with an estimated flow through the aquifer in the vicinity of the existing wells on the order of 3.0 to 5.0 mgd (Bowles, Ms.).

(e) The Parker wells Nos. 4 and 5 were tested in 1972 to determine their pumping capacity, and were found to have a combined capacity of just under 2.0 mgd (Boise Cascade Home and Land Corp.; 1976:238). The pump in well No. 5 is currently operating below capacity, but will be replaced; with a new pump, capacity of the two wells should be very close to 2.0 mgd. Under County of Hawaii standards, one pump is held in reserve for safety. Thus, the sustained yield is 1 mgd based on the use of one pump.

(f) In addition to the two potable water wells, the existing water system includes a one-million-gallon (mg) capacity reservoir near the wells, a transmission main connecting to a second reservoir of 1.0-mg capacity located about a mile inland of Queen Ka'ahumanu Highway. The lower reservoir is connected to the WBR by a transmission main which enters the resort complex at the intersection of the WBR entrance road and the highway. Inside the resort the main runs within the road right-of-way, terminating where the pavement now ends a few hundred feet south of the proposed Hyatt site.

(g) The average annual potable water sales by the Waikoloa Water Company over the last four years amounted to 0.66 mgd. About half of this was used within the Waikoloa Beach Resort, while the remainder was consumed by residential and commercial users in the Waikoloa Village area. This is well within the 1.0-mgd capacity of the source (two 1.0-mgd capacity wells, with one held on standby). Water sales and hotel occupancy data indicate that average water use by the Sheraton Royal Waikoloa Hotel is approximately 400 gallons per day per occupied unit.

(h) The two existing 18-hole golf courses (one in the village area and the other in the WBR) are irrigated primarily with brackish water from Waikoloa wells (two at lower elevations supplying the WBR course, and one at the 800-foot elevation supplying the Village course). Water from these wells is not of potable quality (the chloride content exceeds 250 mg/l), but is satisfactory for golf course irrigation. Treated effluent is mixed with the brackish water and provides part of the golf course irrigation water requirements of approximately 0.5 mgd. Two holding ponds for the effluent/brackish water mix (with capacities of about 2.0 and 4.0 million gallons) are located within the resort golf course.

(i) The South Kohala District has always been known as a dry, water poor area. Water for the coastal communities at Puako and Kawaihae was previously obtained from surface impoundments in Waimea/Kamuela. The discovery of potable groundwater at Waikoloa in 1969 fostered the development of the County Lalamilo groundwater system, that relieved the Waimea system of servicing the coastal area. The discovery of sufficient groundwater to support development opened the coastal area for resort development allowing the realization of County plans for the area. Under present County of Hawaii planning constraints for the region, developers must prove that they have sufficient water to support their planned development in order to obtain County zoning and building approvals. As previously indicated, the Waikoloa Water System, when fully developed, has the capability of supporting a demand of 3-6 mgd.

10.3.4.8 Wastewater Treatment and Disposal System

Waikoloa Resort Utilities, Inc. provides for the collection, treatment, and disposal of Waikoloa Beach Resort wastewater. The utility's treatment plant is located 1,000 feet south of the WBR entrance road intersection on the inland side of Queen Ka'ahumanu Highway. It meets State Department of Health standards for private wastewater treatment facilities providing a secondary level of treatment. The primary units of the plant consist of an aerated lagoon, a clarifier, and a contact tank. The State Department of Health has approved the use of effluent for irrigation of the WBR golf course. The treated effluent flows by gravity to the golf course holding ponds, where it is mixed with brackish water. The existing wastewater treatment plant (WWTP) has an average flow capacity of 0.570 mgd. In 1983 actual flow ranged between 0.080 and 0.150 mgd. The WWTP was designed so that it could be expanded to an average flow capacity of 2.330 mgd. Existing sewage pump station (SPS) peak capacity is 1,600 gallons per minute (gpm), and the system was designed for a planned capacity of 2,400 gpm.

10.3.4.9 Electrical Power

Electrical power for Hawai'i Island is mainly from oil-fired turbines and diesels, but bagasse-fired boilers at the island's sugar companies currently provide about one-fifth of the Island's total generating capacity of 125,900 KW. The WBR is estimated to currently use about one percent of this capacity. Electrical power to the WBR is supplied by the Hawai'i Electric Light Company (HELCO) through a 69-KV transmission line connected to the Waikoloa substation. This is located on the inland side of Queen Ka'ahumanu Highway along Waikoloa's southern boundary. The resort distribution system is through underground conduits, and these extend to the end of the paved section of the WBR entrance road (Ala 'Ihi) a few hundred feet south of the Hyatt site. Current electrical power consumption at the WBR is estimated to be about nine MWH/year.

10.3.4.10 Telecommunications

Telephone service to the WBR is provided by the Hawaiian Telephone Company. A telephone substation is located on the south side of the resort's wastewater treatment plant, and a recently constructed Hawaiian Telephone radio station near the Sheraton provides telephone service to the resort via microwave. Telephone lines are located underground in conduits similar to those used for electrical power distribution lines. An empty conduit for cable television lines is also located within the road right-of-way. These also currently terminate at the end of the paved section of Ala 'Ihi.

CHAPTER IV

ENVIRONMENTAL CONSEQUENCES

1. INTRODUCTION

This chapter discusses the environmental consequences of the alternatives described in Chapter II, and consists of eleven sections indicated below.

Section Number	Section Title
1	Introduction
2	Topographic and Oceanographic Alterations
3	Anchialine Ponds
4	Coastal Water Quality and Marine Resources
5	Historical and Cultural Properties
6	Vegetation, Birds and Terrestrial Wildlife
7	Socio-Economic Resources
8	Recreational Resources and Activities
9	Public Services and Facilities
10	Air Quality
11	Noise

2. TOPOGRAPHIC AND OCEANOGRAPHIC ALTERATIONS

2.1 THE LAGOON

(a) The proposed lagoon would be constructed in the inner bay and does not modify the middle or outer zones of Waiulua Bay. All the work is confined to the intertidal, basalt flat of the inner bay. The lagoon would deepen the inner bay and would have a gradual sloping basalt bottom as depicted in Figure II-4. The sides of the lagoon would be constructed to maintain aesthetics (using natural rock) and to increase wave attenuation insuring safe water conditions (Figure II-5). A shallow sill would be left in place between the inner and middle bay to prevent the formation of any tidal rip currents that could be hazardous to swimmers or other lagoon users.

(b) The natural wave attenuation characteristics of the outer and middle bay would continue to protect the inner bay area and the proposed lagoon. At present, the relatively shallow water depth in the outer and middle bay (2 to 12 feet water depths), the basalt sill separating the middle and outer bay, the right-angle bend into the inner bay, and the basalt sill between the inner and middle bay act as a natural storm wave barriers for the inner bay. The construction of the shoreline berm seaward of the lagoon on the existing cobble shoreline would also protect the lagoon from periodic storm waves that normally overtop the natural shoreline.

(c) The shoreline berm would be constructed using basalt rock, and is designed to withstand storm waves based on an analysis of Sea Engineering, Inc. (1984). Figure II-10 provides some design details of the berm. The shoreline berm would vary in elevation from mean sea level to +14 feet mean sea level.

(d) In comparison to the proposed action, Alternatives 1, 2 and 3 could accommodate a lagoon resulting in changes similar to the proposed action, although Alternative 3 would require some redesign to accomodate the lagoon and health spa and sport facilities. Alternatives 4 and 5 would eliminate the lagoon, while accommodating some resort development. Denial of the permit would eliminate the lagoon and resort development as presently designed and planned, resulting in none of the changes discussed.

2.2 THE LAGOON RELATED TO TSUNAMI AND STORM WAVE HAZARDS

(a) The lagoon related to tsunami and storm wave hazards. The proposed lagoon is not expected to increase the susceptibility of the shoreline areas to tsunami inundation. However, the construction of damageable properties in the lagoon, i.e., the foot bridges and bar, would increase potential tsunami and storm wave property damages. Storm waves may overtop the shoreline berm near the lagoon mouth, but may not damage the berm. Storm waves could damage the footbridges, but probably not damage the amenities inside the lagoon.

(b) In comparison the proposed action, Alternatives 1, 2 and 3 have similar effects. Alternatives 4 and 5 eliminate the lagoon reducing amount of damageable properties present in the tsunami flood hazard zone associated with the lagoon. The Denial and No-Action alternatives maintain the status quo with no development.

2.3 FILLING RELATED TO TSUNAMI HAZARDS

The proposed action and Alternatives 1, 2, 3, 4 and 5 involve construction in the tsunami inundation hazard zone. All the alternatives would use fill to raise the first habitable floor above the base flood elevation, changing the existing ground elevation from a variable -2 to +10 feet mean sea level (MSL) to an even +8 feet MSL. Table IV-1 compares the pond preservation sizes, since these coastal areas are not filled. Denial of the permit and the no action alternative results in no pond filling.

Table IV-1

Coastal Areas Not Filled By Alternative

No Action/Permit Denial	124 acres
Proposed Action	12 acres
Alternative 1	14 acres
Alternative 2	12 acres
Alternative 3	39 acres
Alternative 4	57 acres
Alternative 5	12 acres

3. ANCHIALINE PONDS

3.1 REDUCTION IN NUMBER, WATER SURFACE AREA, AND DIVERSITY

(a) A total of approximately 215 anchialine ponds are present on the WBR. About 15 of the ponds are located within the existing 16.3-acre preservation area around Ku'uali'i and Kahapapa fishponds (not the subject of the permit application). The remaining ponds, only 198 were surveyed (Oceanic Institute, 1977, 1984), have a total water surface area of about 12 acres.

(b) The proposed action reduces the number of anchialine ponds on WBR from 200 to 62 ponds resulting in a reduction of water surface area from 12 acres to 3.4 acres. This reduction represents a 69% decrease in the number of ponds on the WBR and a 72% decrease in pond water surface area. If pond water surface area is used as an expression of pond aquatic habitat, then reduction in pond water surface area is considered equivalent to a reduction in pond aquatic habitat. A comparison of the number of ponds and habitat available between alternatives is provided in Table IV-2. (Table II-1 also provides comparative information on anchialine pond loss.) Permit denial and the No-Action Alternative does not allow any pond filling at WBR. Alternative 4 allows smaller scale development while disallowing filling of the most ponds at WBR. Alternative 3 reduces the number of the ponds at the WBR by 38%.

Table IV-2

Comparison of Anchialine Pond Number and Habitat Losses

	Remaining Number of Ponds	Percent Loss	Remaining Habitat Area (Acres)	Percent Loss
Permit Denial (No Action)	200	0	12.2	0
Proposed Action	62	69	3.4	72
Alternative 1	72	64	3.9	68
Alternative 2	55	72	3.8	69
Alternative 3	122	38	6.6	46
Alternative 4	194	2	12.0	2
Alternative 5	77	60	5.4	56

(c) Under the proposed action, the Waikoloa area would no longer have the greatest number, density and diversity of anchialine ponds in West Hawai'i and the State of Hawai'i. A conservative estimate of the number of anchialine ponds in the State of Hawai'i is about 660 ponds. (Because of the problems in enumerating ponds, i.e. problems in defining ponds within a complex and in finding ponds in rugged terrain, the total number of ponds in the State may be underestimated.) Based on 660 ponds in the State, the proposed project could reduce the total State resource by 21%. A comparison of anchialine pond loss between alternatives in relation to the total state resource is provided in Table IV-3. Only Alternatives 3 and 4 avoid filling a majority of anchialine ponds at Waikoloa. An anchialine pond reduction of 18% would make the Waikoloa anchialine pond resource comparable in size to other major pond clusters in West Hawai'i.

Table IV-3

Estimate of Anchialine Pond Loss in Relation to Known Regional Resource

	(State) Percent Reduction	(West Hawaii) Percent Reduction
Permit Denial (No Action)	0	0
Proposed Action	21	23
Alternative 1	19	21
Alternative 2	22	24
Alternative 3	12	13
Alternative 4	less than 1%	less than 1%
Alternative 5	18	21

(d) The loss of anchialine ponds at WBR would contribute to the total decline in anchialine pond resources in the State of Hawaii related to natural aging or increased rates of aging, and to degradation by human activities, including the introduction of exotic fish. The potential anchialine pond loss in areas outside of the WBR, as a result of resort/urban development, occurs under Federal, State and County regulatory control. Thus, the cumulative loss of ponds related to future development is not easily predictable and can be regulated or controlled. However, the spread of exotic fish that has occurred in the West Coast of Hawaii is uncontrollable and a more significant factor in cumulative anchialine pond ecosystem loss than development.

(e) Based on the comparison in Table IV-4, permit denial (no action) and Alternatives 4 and 5 would retain the greatest diversity of pond types at WBR. The proposed action and all the alternatives include representative anchialine pond habitats in the preserved or unfilled areas, typically containing Schizothrix, 'opae'ula, Metabetaeus, Palaemon, and the snails, Assiminea and Melania. Only permit denial and Alternatives 4 and 5 include the open tidal ponds that contain more marine species, including the snail, Theodoxus, resulting in a greater diversity of organisms in the unfilled ponds.

3.2 REDUCTION IN ANCHIALINE POND ORGANISMS

(a) Epigeal Organisms. Filling the ponds eliminates the ponds as a water body or an aquatic habitat. The fill would kill and eliminate the epigeal organisms, those organisms preferring or requiring the sunlit pond habitat. These organisms include the 'opae huna, 'opae ehuna, hapa wai, aholehole, o'opu, and the algae. The loss could also mean the elimination of species ecotypes or variants; however, no ecotypes or variants, e.g., the ecotype of 'opae huna in 'Opae'ula Pond, have been found in the Waikoloa Ponds. Although the brackish water aholehole (Kuhlia sp.) is present in some ponds, the aholehole is a common element of West Hawaii anchialine ponds. The pond and aquatic habitat loss percentages in Table IV-2 represents a comparison of epigeal organism loss at Waikoloa.

(b) Hypogeal Organisms. The hypogeal organisms, the 'opae'ula and Metabetaeus lohena, would also suffer a reduction in population, but would not entirely disappear. Brock (1985) hypothesized that the reduction in hypogeal resource abundance may be offset by the ability of the organisms to survive underground in the

Table IV-4

Comparison of Pond Diversity

Alternative	Types of Ponds Preserved at WRR
Permit Denial (No Action)	Open/Closed Ponds Vegetated/Unvegetated Ponds
The Proposed Action	Closed Ponds Vegetated Ponds
Alternative 1	Closed Ponds Vegetated/Unvegetated Ponds
Alternative 2	Closed Ponds Vegetated/Unvegetated Ponds
Alternative 3	Closed Ponds Vegetated/Unvegetated Ponds
Alternative 4	Open/Closed Ponds Vegetated/Unvegetated Ponds
Alternative 5	Open/Closed Ponds Vegetated/Unvegetated Ponds

subterranean water table for extended periods of time, despite the modification of the surface and the filling of ponds. Man's ability to assess the actual impact on hypogeal organisms is restricted by the inability to adequately sample the hypogeal resource. Brock (1985) hypothesized that the ponds represent significant points of high benthic productivity relative to the subterranean water table. The shrimp appear to take advantage of the ponds as loci for food resource, such that ponds number may represent a carrying capacity of the resources found in the area. Thus, the worst loss of hypogeal resource could be represented by the percent losses in Table IV-2. However, casual observations (Brock 1985; Corps of Engineers, 1985) indicate that the losses could be less than the percent losses in Table IV-2. For example, an anchialine pond has re-established itself in a previous algae quarry and borrow areas on the WBR. The re-established pond is complete with the Schizothrix, 'opae'ula, Metabetaeus lohena, Assiminea, Melania, sedges and Bacopa. In another borrow area, 'opae'ula were observed foraging amongst the cobble and gravel size rocks, despite the flat, ripped, bulldozed terrain and flooding only during high tide. In previously bulldozed and compacted areas, excavated holes that penetrated the water table were colonized by 'opae'ula within 10-14 days indicating that the hypogeal organisms could possibly move into newly created ponds from adjacent ponds, or are present in the subterranean water table appearing in the ponds or excavated holes as opportunistic feeders or colonizers (U.S. Army Corps of Engineers, 1985). These observations suggest that the ground porosity may be the key to the survival of hypogeal species. Some motile organism avoid fill activities by migrating underground to ponds within the preservation area.

(c) The applicants' foundation report indicates that the whole WBR is highly porous (15-25% voids in the first 30 feet) suggesting that the available hypogeal habitat is abundant throughout the region. The geographical extent of the hypogeal resource at Waikoloa (Figure III-12) suggests that the resource has the capability of moving great distances underground through the highly porous lava substrate. The presence of opea'ula in an anchialine pond in the golf course 3500 feet from the shoreline and main cluster of ponds and in a man-made irrigation well, 60 feet below ground level, 4000 feet from the shoreline near Queen Ka'ahumanu Highway, demonstrates hypogeal organisms' ability to migrate over great distances or demonstrates the potential vastness of the underground resource. Brock (1985) hypothesized that hypogeal organisms can occur through much of the coastal water table based on the appearance of the organisms (principally 'opae'ula) in drilled wells, sinkholes and excavated irrigation wells elsewhere in Hawaii.

(d) While the hypogeal habits make population sizes or geographic distribution measurements extremely difficult and expensive, Brock (1985) hypothesized that the hypogeal may be able to survive the destruction of surface exposures, i.e., the ponds, by retreating to underground habitats. Maciolek (1983, in Brock 1985) noted that the hypogeal habitats of the red shrimp could explain their disjunct distributions in that their distribution may be restricted to man's inability to collect adequate samples in difficult to sample habitats. At the present time, the 'opae'ula and Metabetaeus lohena are the only hypogeal shrimp species known to occur at Waikoloa. These two shrimp species are also common in anchialine pond habitats found in the State of Hawaii.

(e) The grouting and filling of voids under the building footings (see Table II-1) reduces the availability of underground interstitial space, reducing the underground habitat for hypogeal organisms by an amount equal to the amount of void space filled with grout. The larger voids filled with rock would continue to provide some habitat space for hypogeal organisms. The reduction would probably not have any significant

impact on the underground distribution of the hypogeal resource at Waikoloa due to the limited nature of the grouting and filling activity. Smaller voids that are not filled would continue to provide interstitial habitat for the hypogeal organisms. This impact would occur with any structure whose footings extends below sea level. Only the permit denial and no action alternative would have no loss of interstitial space.

(f) With respect to the anchialine ponds in the Cape Kina'u, Maui, and Manuka, Hawai'i, Natural Area Reserves and those at Wainapanapa State Park, a pond preservation area at Waikoloa increases the amount of anchialine ponds and related organisms found in protected reserves. A preservation area at the WBR would be the second reserve on the island of Hawaii. Unless anchialine habitats are found at other State parks or the Volcano National Park on Hawaii, the Corps foresees no other reserves with anchialine ponds being created in the near future. Table IV-3 indicates that Alternatives 3 and 4 save more of the total State resource than the proposed action and the remaining alternatives.

3.3 SPREAD OF EXOTIC FISH

(a) Permit denial and no action would avoid filling any ponds within the WBR and avoid any loss of anchialine pond organisms due to filling. However, permit denial and no action do not protect or preserve the anchialine ponds at Waikoloa over the long-term. As previously discussed in Chapter II and Chapter III, biological degradation of anchialine ponds has occurred in many West Hawai'i anchialine ponds because of increased human access and activity in and around anchialine ponds, particularly the introduction of exotic fish. For example, Brock (1985) relates finding dead and dried rare eels, Gymnothorax hilonis, at Waikoloa as a result of fishing in the ponds following improved road access to the Waikoloa ponds. Recent surveys (Oceanic Institute, 1985; Brock 1985) indicate that the presence and distribution of exotic fish have increased while the presence and distribution of 'opae'ula, hapa wai, 'opae huna and Metabetaeus lohena has decreased. Bathing, toilet facilities, fishing, trash disposal have contributed to anchialine pond degradation, even though the ponds seem to withstand a certain level of human intrusion (Brock, 1985), i.e., 'opae'ula occurring amongst trash in ponds and in ponds used for bathing with soaps. In comparison, filling and excavation activities eliminate ponds as water bodies, while biological agents and other human activities allow the ponds to exist as water bodies. However, the ponds would not be a habitat for native Hawaiian anchialine organisms.

(b) In ponds containing exotic fish, Brock (1985) hypothesized that the hypogeal organisms, 'opae'ula and Metabetaeus lohena, may be hiding in the subterranean water table waiting for a chance to forage in the ponds. Under this hypothesis, removal of the fish may encourage recolonization by hypogeal organisms. To date, tests have been conducted to restore any ponds that contain exotic fish. Shrimp have been observed in crevices out of reach of fish, suggesting that restoration by removing fish is possible. Brock (1985) also hypothesized that the disappearance of the hypogeal organisms may also result in long-lasting ecological changes that alter the nature of the anchialine pond ecosystem, such that the habitat would no longer support the native organisms. By comparison, excavating holes in previously filled ponds creates a pond water body that is soon colonized by hypogeal organisms, suggesting that restoration of filled areas is also possible.

(c) In any event, the loss of native anchialine pond organisms as a result of unregulated human activities and the introduction of exotic fish has occurred with or without the proposed action or Corps regulatory action. Thus, the spread of exotic fish and degradation of anchialine ponds due to human presence and activities are

expected to continue under all alternatives, including the No-Action Alternative or Permit Denial. In this regard, a pond preservation management program under the proposed action and Alternatives 1, 2, 3 and 5, would regulate human activities and access to the unfilled ponds at WBR. However, this protection and management does not extend to other ponds outside the WBR. The proposed management plan would allow for systematic scientific research and data recovery for understanding anchialine pond ecology, surveillance, education and remedial activities supported by private funding. If implemented, the preserved, WBR anchialine ponds would be the only actively studied and managed anchialine ponds in West Hawai'i or the State of Hawaii. However, data recovery and scientific research opportunities, as well as regulation and control of human activities in and round the WBR anchialine ponds, would occur only as a result of a loss of some anchialine ponds (Table IV-2). Under Alternative 4, the Corps speculates that management plan would be revised because so few ponds are filled and since incentives for the applicants funding of the program may be reduced.

3.4 CONSEQUENCE OF FILL ON ANCHIALINE POND WATER QUALITY

(a) The Proposed Action and Alternatives 1, 2, 3 and 5 all involve the discharge of fill into anchialine ponds. Volcanic basalt material from the existing lava fields would be used to fill anchialine ponds at WBR. The fill would essentially eliminate the filled ponds as open water bodies. The basalt material is naturally occurring lava rock, the same lava rock that form the sides and bottoms of the anchialine ponds. The lava rock is not expected to contain contaminants because the material would be obtained from undeveloped or unused, natural lava fields, not located in areas downstream from known sources of contaminants.

(b) The volcanic, basalt, fill material would be free of domestic, industrial or other controllable sources of pollutants, including:

- Materials that will settle to form objectionable sludge or bottom deposits.
- Floating debris, oil, grease, scum or other floating materials.
- Substances in amounts sufficient to produce taste or odor in the water or detectable off flavor in the flesh of fish, or in amounts sufficient to produce objectionable color, turbidity or other conditions in the receiving waters.
- High temperatures; biocides; pathogenic organisms; toxic, radioactive, corrosive or other deleterious substances at levels or in combination sufficient to be toxic or harmful to human, animal, plant or aquatic life, or in amounts sufficient to interfere with beneficial uses of the water.
- Substances or conditions or combinations thereof in concentrations which produce undesirable aquatic life.
- Soil particles resulting from erosion on land involved in earthwork, such as the construction of public works; highways; subdivisions; recreational, commercial, or industrial developments; or the cultivation and management of agricultural lands.

(c) The basalt fill is not expected to release any contaminants or pollutants into the groundwater and is not expected to contain contaminants that would cause one organism to out-compete another. Thus, no contaminants from the fill are expected to migrate from the filled ponds to the unfilled ponds.

(d) No potable water source is impacted by the fill activities, because the groundwater is too saline for use as a potable water supply. Potable water sources for the area are located 5-7 miles inland at elevations of about 1000 feet and are hydrologically upstream and isolated of the WBR anchialine ponds.

(e) Based on observations of anchialine ponds adjacent to road and construction fills within the WBR and on construction and operational constraints around the pond preservation area, the discharge of fill and subsequent raising of the ground elevation are not expected to increase sedimentation in the remaining ponds. The fill is not expected to migrate into the water table to fill other ponds or clog the voids. This conclusion is based upon the lack of soil movement on golf courses at the WBR and Mauna Lani Resorts that are constantly watered. The fill is not expected to impact 'opae'ula in unfilled ponds, based upon the presence of 'opae'ula in ponds adjacent to existing road fills at the WBR.

(f) The proposed action and Alternatives 1, 2, 3, 4 and 5 involve the discharge of fill into the anchialine ponds. Under the proposed action, the applicants estimate that approximately 12,000 cubic yards of basalt material would fill 136 anchialine ponds on WBR. The Alternatives 1, 2, 3, 4 and 5 require less fill material to fill the ponds. Permit denial and the No-Action alternative do not authorize the discharge of fill material.

3.5 CONSEQUENCE OF FILL ON GROUNDWATER

(a) Two types of filling would be used under the Proposed Action and Alternatives 1, 2, 3 and 5. The first involves surface leveling and compaction where a bulldozer rolls over the terrain pushing material from high spots into low spots. The second is related to the grouting and filling of voids under the building footings. Permit denial and the No-Action alternative do not involve the discharge of fill material in either case.

(b) Surface leveling and compaction is not expected to interfere with groundwater flow, salt water intrusion or groundwater tidal fluctuation. The fill would consist of rocks pushed from high spots into the ponds or ripped lava rock. Because voids would exist in the course lava rockfill, hypogeal organisms will continue to be able to utilize the interstitial, subterranean water, similar to conditions observed in previously quarry and borrow areas and excavated holes in previous filled areas at the WBR. The fill does not form an impenetrable well that would obstruct saltwater intrusion or the seaward flow of basal water. The fill would not alter the nature of the brackish water lens which is hydrologically dependent upon rainfall at high elevations and the intrusion of seawater from the ocean.

(c) Grouting and filling voids for the building footing would reduce the voids under the proposed building site. The grout would be considerably more dense (less voids) than the fill or the surrounding substrate. Backfilling large voids with volcanic basalt utilizing rocks as large as 12" in diameter would also reduce void space, but maintains interstitial habitat for hypogeal organisms in comparison to grouting. However, the grout would not eliminate voids under the building footings. While neither the grouting or filling of voids would prevent saltwater intrusion or tidal fluctuation of the groundwater under the buildings, the reduction in voids could obstruct and divert groundwater flow.

(d) Under the Proposed Action and Alternatives 1, 2, 3 and 5 groundwater flow into Waiulua Bay could be deflected into the pond preservation area (Figure IV-1). Because of the hydraulic head and voids under the buildings, some groundwater would continue to flow under the buildings into the lagoon and Waiulua Bay, but the flow could be less than the estimated 0.5 mgd that presently enters Waiulua Bay. Under Alternative 4, ponds located directly seaward of the hotel structures may experience increases in water salinity, but the principal groundwater flow routes would remain unaffected (Figure IV-1). Preliminary salinity measurements seaward of the Sheraton Royal Waikoloa (Corps of Engineers, 1985) indicate that groundwater leakage into Ku'ualii Pond still occurs despite the grouting and filling for the hotel footing, suggesting that the building footings may not significantly obstruct groundwater flow patterns in the area. The permit denial and No-Action Alternative would not involve grouting and filling voids for building footings.

(e) Since the organisms in the open ponds are principally marine, increases in water salinity should not have any serious consequences. Since the hypogeal organisms tolerate a wide range of salinities (Brock, 1985), any change in water salinity is not expected to have any serious consequence on their survival. The possible deflection of groundwater flow toward the pond preservation area in the proposed action and Alternatives 1, 2 and 3 could increase the pond flushing rates.

3.6 LAGOON CONSTRUCTION AND OPERATION CONSEQUENCES ON ANCHIALINE PONDS

(a) Excavating the lagoon in the proposed action and Alternatives 1, 2 and 3, would destroy 17 individual ponds, most of which are the open ponds. The lagoon would create one large water body, similar to the high tide condition in the open ponds, except that the lagoon would persist as a large, deep water body in comparison to the natural condition. Alternatives 4, 5 and permit denial eliminates the lagoon.

(b) Lagoon construction would probably destroy the organisms presently found in the anchialine ponds encompassed by the lagoon. Since the marine species found in the open anchialine ponds are commonly found in Hawaiian estuaries and nearshore waters, some of the species may re-establish themselves in the lagoon. The 'opae'ula, characteristic of the closed anchialine pond environment, do not occur in most of the 17 ponds, and are not expected to appear in the lagoon. The presence of the glass shrimp, hapawai, gobies and blennies may be reduced, although recolonization is anticipated. The presence of marine fish and marine snails may increase if surfaced relief is provided for habitat diversity. Coral colonization may be hindered by variable water salinities. The addition of the sand beach at the head of the lagoon may encourage colonization by a few sand dwelling organisms.

(c) The applicants propose to flush the lagoon by pumping 5.6 million gallons a day of seawater into the lagoon. The seawater would be extracted from a shoreline well drilled to 80-100 feet depths. At a pumping rate of 4000 gallons per minute, the drawdown is expected to be one foot or less. With the hydrologic gradient toward the ocean and being located 900-1300 feet from the lagoon, pumping operation is not expected to affect groundwater flow or elevation in the pond preservation area, particularly with the withdrawal of seawater so close to the shore and the possible deflection of groundwater flow into the preservation area.

(d) The lagoon would increase seawater intrusion inland around the lagoon since the distance between the ocean and inland areas would be reduced. The change is not expected to alter water salinity in the anchialine pond preservation areas

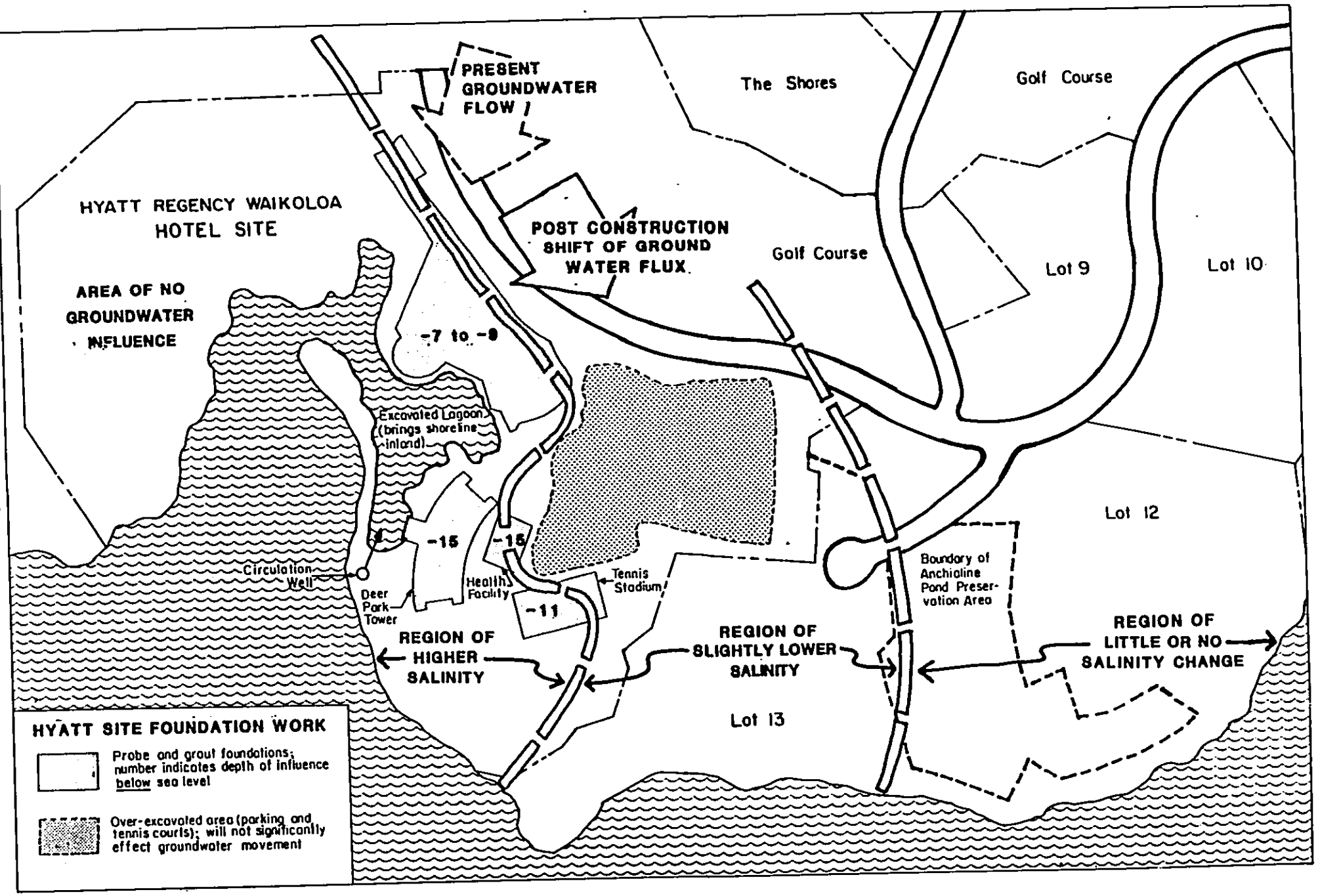


Figure IV-1 Expected Post-Construction Changes to Groundwater Salinity

created under the proposed plan or Alternatives 1, 2 and 3 because the hydraulic head and seaward flow of groundwater through the preservation area would counteract any saltwater intrusion. Secondly, the possible deflection of groundwater toward the pond preservation area would also tend to reduce salinity in the pond preservation area. Alternatives 4 and 5 eliminate the lagoon and any impacts associated with it.

3.7 CONSEQUENCES OF OTHER RESORT CONSTRUCTION AND OPERATION ACTIVITIES ON ANCHIALINE PONDS

(a) The proposed action and all the alternatives, including permit denial and no-action, have the potential to cause indirect impacts on the ponds. Development around the pond and inland of the ponds increases the threat of groundwater pollution from leaking sewer lines, fertilization, petrochemical spills, herbicides, pesticides, and other urban pollutants. If these pollutants reach the ponds in sufficient quantities, they could poison the aquatic organisms or cause long-term degradation of water quality, possibly changing the aquatic community. Increased human activity in the development could result in the introduction of exotic fish, trash and other foreign material into the ponds.

(b) Under the proposed action, the agreed-upon pond management plan would provide pond maintenance to reduce trash potential, would regulate human activities to protect ponds from human introduced species, would monitor pond quality and its ecosystem so that practical remedies could be undertaken for any man derived degradation. The pond management plan also provides for sensitive development and management of upland areas, as well as education of the resort employees, visitors and residents. The Corps and the U.S. Fish and Wildlife Service would expect that a similar management plan would be required as part of Alternatives 1, 2 and 3.

(c) Based upon observations at existing ponds surrounded by development and human activities, decreases in pond water salinity were detected together with substantial increases in nitrate, ammonium and phosphate concentrations in ponds at Waikoloa following construction and operation of the golf course (Oceanic Institute 1977; August 1984). The decrease in water salinity could be related to golf course irrigation. The irrigation contributes to groundwater recharge increasing the groundwater head and flow in the irrigated area. The increased head reduces seawater intrusion resulting in a reduced water salinity in nearshore ponds. Belt Collins and Associates (1985) estimated that groundwater recharge could increase by 0.8 mgd with an increase of golf course irrigation from 1.4 mgd to 2.8 mgd. The increased recharge could increase groundwater flow beneath the WBR from an estimated 4 mgd to 6 mgd. The increased use of sewage effluent for irrigation could increase nitrogen concentrations in the groundwater from 0.011 milligrams/liter (mgl) to 8.1 mgl, and phosphorus concentrations from 0.0008 mgl to 0.5 mgl.

(d) Despite the significant increases in nutrient levels in the groundwater and the ponds, no obvious adverse effect on the anchialine pond assemblages have been observed (Oceanic Institute, 1984). Brock (1985) in studies of Mauna Lani ponds was unable to detect any negative impact directly attributable to construction or subsequent use of the surrounding terrain. Water clarity and benthic algal abundance remained unchanged from a preconstruction survey (Maciolek and Brock, 1974), 13 years earlier. Water exchange rates may be primarily responsible the maintenance of the pond habitat (Oceanic Institute, 1984). Since water nutrient concentrations are not factors limiting phytoplankton, algal or plant growth, the low water residence time may be limiting the organisms ability to assimilate the nutrients. As noted by the Oceanic Institute, many ponds are totally dry at low tide, and pond water volumes in

"typical" ponds can increase and decrease significantly during each tidal cycle. This high rate of water exchange resulting in quick flushing and low water residence times may explain the lack of algal blooms in the anchialine ponds at Waikoloa. While changes in anchialine pond communities related to water quality are presently difficult to detect, causal observations suggest that development and land uses do not have an immediate, near-term deleterious effect in comparison to human introduction of exotic fish. Secondly, as long as flushing rates remain the same or do not change substantially, anchialine communities would probably continue to exist in the pond habitats. Any increased groundwater flow through the pond preservation area would also contribute to pond flushing, as well as convey nutrients to the ponds.

4. COASTAL WATER QUALITY AND MARINE RESOURCES

Neither the proposed action nor the alternatives involve work in the marine waters offshore or in middle or outer Waiulua Bay. The lagoon construction is confined to the intertidal, basalt flat in the inner bay, and anchialine pond filling is confined to landlocked ponds without any direct connection with the ocean.

4.1 LAGOON CONSTRUCTION CONSEQUENCES ON WATER QUALITY AND MARINE RESOURCES

(a) Under the proposed action and Alternatives 1, 2 and 3, approximately 40,000 CY of basalt material would be excavated to deepen inner Waiulua Bay and create the lagoon. A temporary berm would be constructed across the mouth of the inner bay to isolate the work area from the middle bay and confine any turbid waters to the excavation site. The use of the temporary berm to reduce, control or minimize sedimentation in middle Waiulua Bay is considered the best degree of treatment and control of turbidity and sedimentation in this type of situation. The lagoon increases the open water area from 3.5 acres to 5.5 acres.

(b) The temporary berm would be constructed using volcanic basalt material free of contaminants, similar to previous discussions on basalt fill material into anchialine ponds. The berm would be similar to two previous unauthorized fills in the same area, except that an impervious membrane would be placed on the landward face of the berm to confine the turbid waters to the excavated lagoon. The discharge of volcanic basalt material would not result in a discharge of any contaminant that would chemically, physically or biologically alter the bay water quality. While the berm would minimize water flow between inner and middle Waiulua Bay, water exchange cannot be totally prevented. Once the temporary berm is removed, the free ebb and flow of the tide would occur between the lagoon and middle Waiulua Bay.

(c) Construction and removal of the temporary berm would result in a temporary increase in water turbidity. Berm removal would allow any turbid waters in the lagoon to flow into Waiulua Bay on the outgoing tide. Based upon field observations of the removal of two unauthorized fills across the mouth of inner Waiulua Bay in 1974 and 1984, the temporary berm could be constructed and removed in one day. The turbid waters from berm construction and removal would flow into middle Waiulua Bay with the outgoing tide, but would not be visible for more than a day. On incoming tides, the turbid waters would be confined to the newly excavated lagoon. This phenomenon would occur twice each day. In relation to the existing turbid conditions in middle Waiulua Bay, the temporary turbidity related to berm construction and removal is not considered significant.

(d) The inner bay is practically devoid of coral growth and is heavily silted naturally, possibly due to precipitated calcite from the groundwater. Any basalt silt introduced into the middle bay by berm construction or removal would not alter conditions in middle bay. Turbulent water in the outer bay would tend to prevent sedimentation stress, if any, related to berm construction and removal. Juvenile and adult fish are expected to colonize the new lagoon, which would serve as a nursery area similar to the original inner bay. Corals may not establish themselves in the euryhaline environment.

4.2 LAGOON OPERATION CONSEQUENCES ON COASTAL WATER RESOURCE

(a) The excavated lagoon would be a new water body having its own water quality characteristics in comparison with the middle bay. Both the lagoon and middle bay are expected to be stratified with the leakage of groundwater along the shoreline. This stratification may be less with the deflection of the groundwater by the hotel lobby/restaurant structure. With the sill between the inner and middle bay, the lagoon bottom layer would not turnover and flush in the stratified system. The applicants propose to discharge 5.6 mgd of seawater pumped from the ground into the lagoon to insure adequate flushing. Since the well water would be seawater, the applicants have indicated that the discharge should be essentially the same as coastal waters. Belt, Collins and Associates indicated water quality in Waiulua Bay, based on limited data, presently meets or exceeds Class AA standards for Waiulua Bay established by the State of Hawaii.

(b) The discharge of sand into the lagoon waters is not expected to degrade water quality. The sand would be used to create a beach in an artificial basin adjacent to Waiulua Bay. The sand is expected to be naturally occurring sand obtained from a source removed free from sources of contaminants. The sand is expected to be 85% calcareous in origin and coarse to medium grain size. Some temporary turbidity is expected during initial sand placement and during any replenishment of the beach. The sand is not expected to contain nutrients or organic material that could degrade water quality. The sand is expected to be free of:

- Material that would settle to form objectionable sludge or bottom deposits.
- Floating debris, oil, grease, scum or other floating materials.
- Substances in amounts sufficient to produce taste or odor in the water or detectable off flavor in flesh of fish, or in amounts sufficient to produce objectionable color, turbidity or other conditions in the receiving waters.
- High temperatures; biocides; pathogenic organisms; toxic radioactive, corrosive, or other deleterious substances at levels or in combination sufficient to be toxic or harmful to human, animal, plant, or aquatic life, or in amounts sufficient to interfere with any beneficial use of the water.
- Substances or conditions or combinations thereof in concentrations which produce undesirable aquatic life.
- Soil particles resulting from erosion on land involved in earthwork, such as the construction of public works, highways, subdivisions; recreational, commercial or industrial developments; or the cultivation and management of agricultural lands.

(c) Recreational use of the lagoon waters by humans is expected to increase bacterial levels, trash, and body and suntan oil in the lagoon waters. The applicants intend to monitor lagoon water quality so that safe swimming conditions are maintained and pumping rates adjusted as necessary. Resort employees would remove any trash on a daily or more frequent basis.

(d) Development of inland areas could influence the quality of groundwater discharging naturally into coastal waters. Estimates of increased nutrient discharges into nearshore waters resulting from operation of the Waikoloa Beach Resort were discussed in the environmental impact statement prepared for the resort and submitted to the County of Hawai'i in 1976 by the Boise Cascade Home and Land Corp. Leaking sewer lines and excess landscape fertilization were identified as potential nutrient sources, and the extent to which these would increase nutrient concentrations in coastal waters was estimated. The report concluded that:

> The extent of dilution (by ocean water) will eliminate any significant effect of all these constituents with the possible exception of nitrogen. The background level of nitrogen in coastal waters is not well established -- it may be anywhere from 0.02 to 0.16 mg/l and quite likely is not constant. The addition of nitrogen from the project through the basal lens may increase the average coastal water concentration by as much as 0.03 mg/l in the nearshore surface waters. In localized areas of significant basal water discharge into calm waters, the nitrogen level will be increased by more than this (Boise Cascade Home and Land Corporation, 1976:285).

(e) The proposed resort development is another potential source of nutrients, but Oceanic Institute's scientists believed that wave action and currents would result in rapid mixing as soon as the groundwater enters the ocean so that coastal water quality would be maintained.

(f) Following lagoon construction, naturally flowing groundwater would discharge into the proposed lagoon rather than at the existing shoreline. The edge of the basal lens (which is already quite brackish in this area) would move inland to the mauka side of the lagoon. The well supplying the lagoon would draw from a zone beneath the lens so that the cone of drawdown around it would not produce significant further intrusion of saltwater. The existing wells nearest the lagoon supply brackish water to the Waikoloa Beach Resort golf course, and are approximately one mile inland from the proposed lagoon and well. No measurable increase in the saltiness of this well water is expected as a result of the operation of the lagoon well. The nearest potable water wells are located approximately seven miles away near Waikoloa Village at an elevation of 1,200 feet. These potable water wells would not be affected by the slight change in the boundary of the basal lens at the shoreline.

(g) Stormwater runoff to the ocean -- even during the region's most intense storms -- is essentially nil at present because the rainwater can percolate downward through the extremely permeable 'a'ā and pāhoehoe lava more rapidly than it falls. Any development on the ponds or inland would require the importation of soils for landscaping, and the addition of impervious surfaces such as roads, buildings, and parking areas has the potential to decrease permeability.

(h) The permeability of the topsoil likely to be used in landscaping the resort is at least 2 inches per hour. Even if it is compacted by heavy foot traffic across lawn areas, the permeability would remain 0.5 inch per hour or greater. Measurable runoff

from paved areas does not usually occur unless rainfall exceeds 0.1 inch per day. Mean annual rainfall at the WBR is only about 10 inches per year. Extrapolating from data collected at Gauge 95.1 in Puako, it is estimated that, on the average, 24-hour rainfall exceeds 0.1 inch per day only 13 times per year; it exceeds 0.5 inch per day only 3 times per year. This suggests that storm runoff changes resulting from resort development are likely to be limited.

(i) The resort development would involve covering approximately 40 percent of the ground surface within the Hyatt site with buildings, paving, or other impermeable surfaces. Roughly 50 percent of the developed area would be landscaped, while 10 percent would be covered by the proposed lagoon, waterways, or other materials that would not generate surface runoff. Based on the foregoing, average annual runoff from the coastal parcels is expected to be on the order of 130,000 gallons per acre per year. The great majority of this would be captured by the on-site drainage system and disposed of in dry wells. Some increase in the volume of stormwater entering coastal waters as the result of direct overland flow into the lagoon and Waiulua Bay is to be expected, but this would average no more than three or four million gallons per year. To put this into perspective, this annual discharge is roughly equivalent to the amount of groundwater which now enters the ocean each day along this stretch of coastline.

4.3 POTENTIAL EFFECTS ON MARINE ANIMALS

(a) *For reasons explained above, the shoreline development proposed for the* WBR is not expected to substantially alter water quality in Waiulua Bay or other nearshore waters or to have other effects that would adversely affect their long-term suitability for turtles or whales.

(b) Bulldozers and other heavy equipment used to construct the lagoon (the Proposed Action and Alternatives 1, 2 and 3) could produce low level noises that could be heard by whales and other marine animals. Construction noises would occur over a period of several months. A literature review and noise impact analysis conducted by Darby-Ebisu & Associates (October 1984) indicated that the kinds of low-level noise which would be produced have no apparent adverse effect on major marine animals and does not cause avoidance of an area (Fraker, 1981; Stewart, 1981; Friedl, 1981; Ljungblad, 1981; Johnson, 1983; and Cummings, 1981).

(c) Preliminary tests have indicated that the lagoon excavation can be accomplished solely using heavy equipment. However, portions of the proposed lagoon may be underlain by massive basalts that could be difficult or impossible to excavate without the use of explosives. Using explosives, the energy of the explosion will be purposely directed into the bottom, and techniques such as charge burial, sandbag deflection, limits on charge size, timing, spacing, and detonation sequencing would be used to reduce the amount of potentially damaging energy transmitted into the water and ponds within the preservation area. Furthermore, the natural and manmade rock berms that separate the lagoon from Waiulua Bay would greatly impede the movement of shock waves.

(d) Some energy from explosions would be transferred to adjoining waters through the underlying rock in the form of a ground wave, and additional energy may reach the bay and ocean through water-filled fissures and lava tubes. Young (February 1973) reports rapid dissipation of explosive energy in shallow water, especially when the charge is buried, as would be the case with charges used to excavate the lagoon. Data from the Canadian Department of Fisheries (Wright, February 1982) indicates that burial provides at least a ten-fold attenuation when compared to explosions in the

open water. Taken together, the available scientific literature suggest that charges of at least 100 pounds, and possibly up to 1,000 pounds, could be used with negligible danger to marine animals if care is taken to insure that no individuals are within 300 meters of the detonation point. Highly mobile organisms, such as fish, can be encouraged to depart the area by low-intensity explosions detonated immediately prior to the main charge. Important benthic animals such as lobsters, crabs, oysters and clams have been found to be resistant to shock from underwater explosions. Young (February 1973), for example, reported that lobsters showed no signs of injury when exposed to 20-pound charges at a distance of only 50 feet in open water. The anchialine pond preservation area, located about 1,400 feet away from the closest edge of the lagoon, should not be affected by ground shock waves. The applicant's blast plan coordinated with the National Marine Fisheries Service is provided in Appendix D.

5. HISTORICAL AND CULTURAL PROPERTIES

(a) Pond filling and lagoon excavation associated with the applicants' proposal and Alternatives 1, 2, or 3 would affect archaeological resources. Scientific data present on archaeological sites at the Hyatt Regency Waikoloa Hotel site were recovered to the satisfaction of the State Historic Preservation Officer. In addition, the applicants have agreed with the State Historic Preservation Officer to preserve sites within the Kanikū, and Nāwāhine Settlement complexes. The applicants have further agreed to reconstruct the Hawaiian trail and restore some sites in the Waiulua Bay Settlement. All other archaeological sites on the Hyatt site would be destroyed. None of the sites were considered eligible for inclusion in the National Register of Historic Places.

(b) The archaeological sites outside the Hyatt Hotel site were considered to be eligible for inclusion to the Register of Historic Places by the State Historic Preservation Officer in consultation with the Corps of Engineers by virtue of the scientific information which they contain. A data recovery plan was worked out amongst the State Historic Preservation Officer, the Corps, and the applicants and was forwarded to the U.S. Advisory Council on Historic Preservation for the development of a Memorandum of Agreement. Under the agreement, the archaeological sites would remain untouched to allow architectural inclusion of the sites, if possible. If there are sites which cannot be preserved by incorporation into the facility design, the data recovery plan would be implemented to recover any data from them before they are destroyed. The details of the data recovery plan are provided in Appendix H. The Proposed Action and all the alternatives involve the loss of archaeological sites on the properties outside the Hyatt Hotel site.

6. IMPACTS ON VEGETATION, BIRDS, AND WILDLIFE

6.1 VEGETATION

With the exception of No Action/Permit Denial and Alternative 4, all of the alternatives under consideration would result in substantial changes in the vegetative communities present on the project site. The construction of the proposed hotel and resort residential units would involve clearance of the existing vegetation, except for the Marsh and Coastal Strand communities present within the anchialine pond preservation area. Other alternatives involve greater or lesser pond preservation areas and, hence, preservation of differing amounts of marsh and coastal strand vegetation as shown in Table II-1. Landscaping of the development sites would involve numerous exotic, indigenous, and endemic plant species, as well as a significant increase in the total amount of plant material present and species abundance on the property.

6.2 BIRDS AND WILDLIFE

(a) The Proposed Action and all the alternatives, except no action/permit denial would result in considerable changes in the avian community. The loss of anchialine ponds and kiawe thickets, as well as the increased human presence, would discourage use of the area by the family of Black-Crowned Night Herons, which were observed in trees around the ponds near the head of Waiulua Bay. The herons would probably be displaced to and compete for other pond areas on the West Hawai'i coast.

(b) The change in vegetation and environment would lead to a gradual increase in the number of exotic and introduced birds, and to an increase in pets such as cats and dogs. The Common Mynah would probably increase in number, as would the House Sparrow and the Nutmeg Mannikin. The open grassy lawns and remaining anchialine ponds and unchanged shoreline would probably continue to attract some migratory waterbirds. The number of migratory waterbirds visiting the site is already low, and the populations are likely to decline in the future as a result of the proposed development. No major change in the feral animal population is expected. The increased human presence, particularly the food handling areas, may lead to some increase in the number of mice, rats, and mongooses.

6.3 THREATENED AND ENDANGERED SPECIES

(a) No species on the Federal list of threatened and endangered species are affected by the proposed project. *Consultation with the* U.S. Fish and Wildlife Service (Appendix F) and the National Marine Fisheries Service (NMFS) (see Appendix G) indicates that neither the proposed action nor the alternatives would jeopardize the continued existence of the endangered Hawaiian stilt, humpback whale, or Hawaiian hoary bat. Similarly, they would not adversely affect the threatened green sea turtle.

(b) In April 1985, the U.S. Fish and Wildlife Service informed the Corps of Engineers that it had classified several anchialine pond organisms as Category 2 for purposes of the Endangered Species Act. Of the organisms classified as Category 2 only Metabetaeus lohena was found at the WBR. As a Category 2 species, M. lohena is not provided protection under the Endangered Species Act, but studies to determine whether or not the species should be considered for listing would be conducted by the U.S. Fish and Wildlife Service. Since the U.S. Fish and Wildlife Service classification of M. lohena, (Maciolek, 1983, as reported in Brock, 1985) indicated that M. lohena is also found in Madagascar, suggesting that the organism has a much larger range than previously thought. The proposed action and all the alternatives would reduce the surface distribution and presence of M. lohena at the WBR, as well as reduce some of the interstitial groundwater habitat. But the proposed action does not cause the extinction or the disappearance of M. lohena in Hawaii, because M. lohena is found in areas other than the WBR. Permit denial and no-action do not affect the presence of M. lohena at the WBR. The introduction of exotic fish into any WBR ponds under the proposed action and all alternatives would cause the disappearance of M. lohena.

7. SOCIO-ECONOMIC IMPACTS

7.1 INTRODUCTION

(a) An assessment of future socio-economic responses to any proposed project is necessarily speculative. In the current instance, the degree of uncertainty is particularly great because detailed plans for development within the project area are available only for the Hyatt site, because the shape of off-site secondary growth has

not been fully established by State and County governments, and because there is uncertainty regarding the applicants' ability to implement alternative development schemes. Finally, it must be noted that the applicants are currently awaiting County and State decisions on some of the on-site development permits needed to implement their plans, and additional approvals of an employee housing program, water system expansion, and other infrastructure will also be necessary. Requirements imposed as part of any of these permit processes could lead to adjustments in their plans.

(b) Social impacts are largely a function of the overall magnitude of the development that is undertaken rather than the specific site layout. Hence, alternatives to the applicants' proposal that allowed the same amount of development would have essentially the same effects as the proposed action. If the project were to be abandoned, the pace of economic development in West Hawai'i would be greatly slowed. Population growth would be lower, as would the growth of personal income and other relevant economic parameters.

(c) The proposed development within the County of Hawaii contributes to a shift from an agricultural economic base to one based on tourism. While the State of Hawaii and County of Hawaii are striving toward economic diversification, the proposed development provides an immediate economic benefit based on tourist-related activities. Moreover, it does so on land which has little potential for other economic use. Unless non-tourist or non-visitor related industries or employment opportunities are developed coincidentally with tourism, economic conditions in the County would vary directly with events that influence tourist travel to Hawaii, such as airline strikes.

(d) The overall social impact of the WBR was discussed extensively in an environmental impact statement submitted to the County of Hawai'i in 1976 (Boise Cascade Home and Land Corp.). The project-specific effects of the proposed Hyatt Regency Waikoloa Hotel, one of the most important elements of the resort, are addressed in some detail in a recent socio-economic assessment by Community Resources, Inc. (September 1984).

(e) As noted elsewhere in this report, the Waikoloa Beach Resort is one of three major resort developments now underway along the South Kohala coastline. All three, together with other resort growth in the North Kona District, are identified as major resort destination areas in the Land Use portion of the Hawai'i County General Plan and on the General Plan's Land Use Pattern Allocation Maps. The three major South Kohala resorts, together with the Keauhou Resort in North Kona, are largely self-contained with respect to their infrastructure (water, roads, and wastewater collection, treatment and disposal). However, the off-site secondary growth which they will induce is expected to increase the demand on non-resort utility systems and public services as well. The Corps' assessment indicates that the necessary infrastructure is now available or can be expanded to meet these future demands.

(f) Community Resources' analysis of the effects of the proposed Hyatt Regency Waikoloa Hotel project concluded that the existing West Hawai'i labor force on the Island of Hawai'i is insufficient to meet all the labor force needs of the proposed hotel, especially considering the near-term expansion plans of neighboring resorts. Depending upon the rate at which the remainder of the project area is developed, the demand for workers generated by this development could also stimulate in-migration. Newly arrived workers would increase the demand for housing and heighten the need for public services and infrastructure in support housing areas. The ratio of caucasians to other ethnic groups in the region could increase as individuals

and families in-migrate from off-island and out-of-state to take advantage of the resort employment and other visitor-related business opportunities. The region's old plantation lifestyle and cultural attributes would change in response to rapid and sizeable economic and demographic growth. Cultural conflicts could increase, as could the incidence of crimes against tourists.

7.2 EMPLOYMENT AND POPULATION IMPACTS

7.2.1 Construction Period

(a) Estimates prepared by the applicant for the Hyatt project indicate that its construction would involve over 1,600 person-years. (A "person-year" is defined as one person working full time for a period of one year.) Averaged over the 28-month construction period that is expected for the Hyatt, this amounts to roughly 700 additional construction jobs. Employment levels would, of course, fluctuate significantly over time, so that relatively few workers might be on-site during the early months of the project when the site is being prepared, and as many as 1,200 to 1,500 might be present at one time for short periods during the intense activity that accompanies final fitting-out of the hotel.

(b) Construction employment on the three other sites within the project area would be substantially less than for the Hyatt. Because these sites are expected to be developed sequentially, average construction employment generated by their development would be less than would be experienced during the years the Hyatt is being built. The average during these later years is expected to be approximately 240 construction jobs, but annual averages might vary from as few as 170 to as many as 370 construction jobs.

(c) Generally, the construction labor force requirements are expected to be met by employing local workers and by bringing in additional workers for short periods of time. Hence, the effect of this construction employment on the resident population would be minimal except that it could allow individuals already in the construction labor force to remain in the region.

7.2.2 Operational Period

(a) Resort development as proposed would lead to a permanent increase in the number of jobs, residents, and visitors in the region. Community Resources, Inc. (September 1984; March 1985) estimated that the Hyatt Regency Waikoloa Hotel would generate nearly 1,900 direct visitor industry jobs supporting an additional 4,000 persons in West Hawai'i. These jobs would be both in the hotel itself and in direct visitor industry businesses which are supported by the expenditures of the hotels and hotel guests. Development on the other three sites covered by the DA permit application was forecast to add another 1,600 direct visitor industry jobs and 3,400 residents. Over the long term, then, the proposed action is expected to result in the formation of approximately 2,900 direct visitor industry jobs; these jobs would, in turn, support a resident population of about 6,900 people.

(b) The Hyatt is expected to have an average visitor census of about 1,900 persons, while the average number of visitors and residents in the two additional resort hotels and single condominium project planned for the other sites within the project area is forecast at almost 1,400 persons. During peak periods, the visitor census could be as much as 20-percent higher than the annual average.

7.3 HOUSING IMPACTS

7.3.1 Construction Period

(a) Community Resources, Inc. (September 1984) estimated that about 300 workers might enter the housing market in search of long-term leases while the Hyatt is being constructed. If these workers are accommodated in single-family homes, the number of units needed to house them would be less than 100. If they are housed instead in small apartments, the number of units required would be proportionately greater. Assuming a typical distribution between single- and multi-family units, the additional housing demand during construction of the Hyatt is unlikely to exceed 150-200 units, and it could well be substantially lower.

(b) An additional 300 off-island workers may enter the short-term rental housing market for a period of a few months at a time during the construction of the Hyatt. Depending upon the choices they make between single- and multi-family units, the total could range from as little as 120 to as high as 250 units. Peak construction employment would be reached when off-island workers with special skills not readily available on the island arrive for periods ranging from a few days to a few weeks. These workers would almost certainly stay in hotels or condominiums now in the vacation rental market; their use by construction workers would have little effect on resident housing.

(c) The other sites within the project area are substantially smaller than the Hyatt site, and development on them would have proportionately lower construction worker housing requirements. Construction of the hotel planned for Site 12 would begin just after the Hyatt Regency Waikoloa Hotel is completed. Because of its size, this hotel would have the most significant construction work force requirements of all the post-Hyatt projects. Community Resources, Inc. (March 1985) forecasts that the average construction worker housing need resulting from this hotel would be well under 100 units.

(d) If they were implemented, Alternatives 1, 2 and 5 would generate about the same need for construction worker housing as the applicants' proposal. Alternatives 3 and 4 would generate approximately one-half to two-thirds the construction worker housing requirement as the applicants' proposal. If the permit is denied, no additional housing would be needed for construction workers. Under the County of Hawaii policy, the applicants must provide worker and low/moderate housing in consultation with the County. The commitment is made prior to construction.

7.3.2 Operational Period

(a) Slightly over 300 workers could move to Kohala as a result of the Hyatt project if the applicants' proposal is implemented. Of these, roughly two-thirds would be service workers with relatively limited incomes. Development planned subsequent to the Hyatt would support an additional 200 to 220 in-migrant workers. Converting these figures to households suggests that direct visitor industry employment generated by the Hyatt might generate a demand for about 200 additional Kohala area homes. The remaining planned hotel and condominium projects would increase this by an additional 140 units. Hence, total employee housing demand associated with planned development within the project area is forecast at about 350 units.

(b) Securing affordable housing is likely to be a serious concern for the newly formed and in-migrating households from which the direct visitor industry work force required to support the applicants' proposal would be partially drawn. These households total between 125 and 185 for the Hyatt, and from 80 to 130 for the subsequent planned projects. If historical trends continue, many of these households may require housing assistance or be forced to live in sub-standard conditions.

(c) If they could be implemented, Alternatives 1, 2 and 5 would generate about the same employee housing demand as would the applicants' proposal. Alternatives 3 and 4 would generate a need for approximately one-half to two-thirds the amount of employee housing as the applicants' proposal. If the permit is denied, no additional employee housing would be needed.

7.4 OTHER ECONOMIC IMPACTS

(a) Over its 28-month construction period, the Hyatt development would generate about $85 million dollars in personal income. Nearly $46 million would accrue to residents of the Big Island, mostly (80 percent) to those living in West Hawai'i. Construction expenditures for the three remaining planned projects are forecast to generate nearly $70 million in personal income statewide, about half of it on the Big Island. Available data suggests that tax collections from personal income average about 17 percent, or $6-million per year during construction of the Hyatt. Average annual tax income during development of the remaining three sites within the permit area is forecast to be about $2-million.

(b) Long-term operational employment generated directly by the Hyatt Regency Waikoloa Hotel would produce an estimated $50-million dollars per year in personal income statewide, and the increase on the Big Island would approach $30-million. Development of the three remaining sites would increase personal income in the State and County by $33-million and $19-million, respectively.

(c) Real property tax revenues generated by the Hyatt project would approximate $1.6 million per year. Property tax revenues from the other three sites in the project area would amount to an estimated $1.7-million per year at current tax rates.

7.5 SOCIAL EFFECTS AND CONCERNS

7.5.1 Effects on Family Structure and Stability

(a) Many of the concerns about family impacts expressed in early studies of visitor facility development stem from the increasing labor force participation of wives and mothers. This has now been recognized as a national and statewide trend not confined to resort areas. Researchers have also come to realize that stresses arising when wives enter the work force must be weighed against family disruptions associated with the alternative of out-migration to places with more jobs. However, the following characteristics of the visitor industry may have particular implications, especially in rural settings:

(b) Shift Work. A common feature of visitor industry employment, shift work can be disruptive to family routines, particularly when both spouses work within the industry. The lack of shared time at home hinders normal communication and can even interfere with regular marital relations.

(c) Changing Sex Roles. Since the opening of the Mauna Kea Beach Hotel, working wives have become more the norm in Kohala, although police and mental health agency informants report the phenomenon still causes difficulties in traditional families. A more recent concern is the substantial introduction into the hotel work force of large numbers of young local males, for whom there is sometimes a conflict between the "macho" values with which they have been raised and the "service" mentality emphasized in the visitor industry.

(d) "Glamor and Gossip" Environment. Resorts expose their employees to social interaction with large numbers of people of the opposite sex -- both visitors and other employees -- thereby increasing opportunities for mild or serious flirtations. The gossip networks among large work forces can circulate tales back to spouses, increasing jealousy and mistrust.

(e) Lack of Parental Supervision. Despite the stated concern over this issue in Kohala, Community Resources, Inc. found that reported child abuse/neglect figures are not disproportionately high either in Kohala or other rural resort areas of Hawai'i. However, there is some reason for concern about growing juvenile delinquency rates in North Kohala, Kona, and Lahaina.

(f) For most of the foregoing factors, the Hyatt Regency -- partly because of its greater size, partly because more social adaptation would have occurred by the time the other three sites are developed, and partly because the work forces employed on the later projects may consist more of young single persons less affected by such concerns -- is potentially the most significant aspect of the proposed action. However, even for the Hyatt it is impossible to determine the magnitude or significance of the changes that would occur in these areas.

7.5.2 Crime Impacts

(a) Crime is a major concern of island residents, with some feeling that crime rates tend to rise in proportion to the level of visitor activity. Studies of tourism-crime data nationwide (Pizam; 1982), in comparable areas such as Florida (McPheters & Stronge; 1974), and in Hawai'i (Fujii, Mak & Nishimura; 1978 and Chesney-Lind & Lind; 1984) lead to contradictory conclusions. There was some consistency in finding a relationship between tourism and robberies (and, in Hawai'i, rape as well), but the data are not clearcut.

(b) Community Resources, Inc.'s analysis of overall crime rate data for rural resort areas suggests there may be a temporary spurt in reported crime (particularly thefts) following openings of major new resort projects, but long-term trends in Kohala and Kona do not suggest continued growth in crime rates in direct proportion to continued resort development or population growth rates. That is, the per-unit impact of the Hyatt Regency Waikoloa Hotel on local crime rates is expected to be less than the impact of previous hotel openings, and the impact of the subsequent projects less still.

(c) Additional perspectives gained through interviews with Kona and Kohala police captains include these points:

- On-site crime at existing West Hawai'i luxury hotels is minimal and usually involves theft from rooms or cars by hotel workers.
- Off-site, visitors are most frequently victimized by thefts from parked cars or of valuables left on the beach.

- Police do not feel there are substantial "spill-over" effects on residents. That is, residents are not more likely to be crime victims because they live near resorts, nor are many adult residents tempted to commit crimes if they are not already inclined toward criminality.

- The major "spill-over" effect of concern to police is the increase in crime opportunities at parks and beaches, where thefts are most frequently committed by juveniles. However, the impacts of the various proposed Waikoloa projects are likely to be dampened by (1) the tendency of guests to drive all around the island, not just to nearby areas, and (2) the absence in Kohala of a "street scene" such as contributes to delinquency in Kailua-Kona or Lahaina.

- An indirect effect of tourism on crime is through conflicts between longtime residents and newcomers who may be employed in resorts. Physical confrontations lead to assault charges against either party, but often it is the transient newcomer who commits the crime of theft against the longtime local resident.

- On the other hand, police believe Mainland-raised people are more likely to report crime, and local people are also more likely to file reports as the population grows and becomes more filled with strangers. Thus, there may be an increase "on paper" of crime in Kohala as economic development leads to more in-migration and population growth.

7.5.3 Effects on Social Structure

Impacts of resort development on local residents' values, lifestyles, and "quality of life" are indirect and difficult to measure. Nevertheless, effects will be felt over the long term, changing along with other societal trends and circumstances. To some extent, it is more possible to identify aspects of social structure which can be affected by increased resort development.

- Ethnic Relations and Class Structure. As more Caucasians move into the area, there will be some increases in existing problems of intercultural adjustment. Past experience suggests longtime residents tend to "act out" frustrations, while many newcomers are more likely to feel socially isolated and seek mental health assistance. If most upper management positions are taken by Caucasians, there could be echoes of the old plantation ethnic/class structure. And should the reported increases in Asian immigrants among the Waikiki work force begin to be replicated on the Big Island, a new intercultural dimension will emerge.

- Community Organizations. North Kohala's plantation legacy and cultural values of equality have historically discouraged longtime residents from seeking public positions of leadership (Chang; 1977, 1979). As a result, many leadership positions in community organizations are filled by relative newcomers. This trend can be expected to continue with the influx of newcomers generated by the Hyatt and the later Waikoloa projects.

- Role of Labor Unions. The growth of the visitor industry in South Kohala is being accompanied by the reemergence of labor unions as important socio-political organizations. If a single union gains control both of the Hyatt Regency Waikoloa and of most other Kohala hotels, it would become a major force in local politics and within the everyday lives of many residents.

- Individual Community Character. The current sharp distinctions between the physical and social characters of the major area population centers -- Waimea and Hawi -- will be little affected, and perhaps reinforced, by the South Kohala resort developments. However, the Hyatt and subsequent Waikoloa projects will likely stimulate more rapid growth at Waikoloa Village, which could become the community of top and middle management.

7.5.4 Mitigation Measures

The primary socio-economic impacts of the project -- generation of local employment and income -- are positive and require no mitigation. However, efforts can be made to avoid some of the undesirable social side effects that have been identified, and these are outlined below.

7.5.4.1 Housing

(a) The most effective means of mitigating any housing problem that develops involves the provision of land around Waikoloa Village for low- and moderate-income housing programs to be coordinated by the State or County housing agencies. The landowner and the County are currently negotiating an agreement towards this end for the Waikoloa Hyatt Regency, and similar agreements would be later negotiated for each of the other projects as they approach the permit approval stages.

(b) Additional steps that could be taken to facilitate private sector response to the increased demand for West Hawai'i housing that will accompany the proposed project include:

- Improved public transportation that makes visitor industry jobs along the South Kohala coastline more accessible from existing communities, thereby reducing the need for new residential construction. A variant of this would be improvement of the Saddle Road from Hilo, although it has yet to be established that many Hilo residents would be willing to commute to Kohala jobs.

- Improved dissemination of information to employees regarding housing assistance programs for which they may qualify.

- Government facilitation of housing development in areas "within reasonable commuting distance to the growth centers of North Kona and South Kohala but where land costs are lower" (Hawai'i, State of, Department of Planning and Economic Development, Hawai'i Inter-Division Committee, 1984:22).

7.5.4.2 Maximizing Employment Benefits for Longtime Residents

(a) As discussed in Section 6.3.5.3, there is some community concern that younger and/or native Hawaiian residents are growing to feel alienated from tourism jobs. Steps that could be taken to avoid this include the following:

- A determination should be made of the extent to which disaffection is actually present and its causes.

- Many of the region's youth come from rural areas where the emphasis has been on agriculture and the values attached to an agricultural existence. The agricultural sector of the economy has become stagnant in recent years. Increasing efforts to educate high school students and others entering the work force to the demands of the urban, service-type jobs which are most likely to be available could be beneficial.

- Hotel managers, many of whom come from out of state, should be educated regarding cultural factors in Hawai'i. This would make them better prepared to deal with local residents as employees and enhance the job satisfaction of their employees.

(b) The beneficial consequences of maximizing employment opportunities for current residents are not, however, ultimately restricted to any particular ethnic or age groups. There may even be need for active efforts to retrain East Hawai'i sugar workers for West Hawai'i resort employment should the plantations suddenly falter due to national economic or political conditions. From the resort operators' perspective, a work force consisting of longtime residents is less likely to feature constant turnover and subsequent high retraining costs.

(c) Given such considerations, resort developers and/or hotel operators could work in partnership with public agencies and community groups to develop resident-oriented job training programs, including components such as on-site job counseling/referral programs and extensive community awareness efforts. The Kuilima Resort on O'ahu is currently attempting to develop such a program (Kuilima Development Company, 1984). Success in such efforts would also mitigate housing needs, to the extent that employment is maximized among already-housed residents living within reasonable commuting distance.

7.5.4.3 Other Steps

(a) Implementation of the State's long-standing plan to develop Kiholo south of the WBR as a State Park could provide residents both with a new beach facility that is separate from visitor development and with the reassurance that the Kohala/Kona coastline has not been abandoned to outsiders. This would complement the very significant steps that have been taken to provide good shoreline access within the Waikoloa Beach Resort.

(b) Given the large number of units to be developed at the Hyatt site and at the other nearby affected sites, and given the absence of nearby communities which could be used for this purpose, it might be appropriate to provide on-site child care facilities at the WBR. Alternatively, if it better met the needs of workers, such facilities could be supported in communities such as Hawi or Waimea. This would make it more feasible for parents with young children to work and reduce the pressures on families induced by shift work.

(c) Finally, a standing communication mechanism between resort managers and the leaders of nearby communities and community organizations should be developed. It could help prevent conflicts and resolve those that do occur. It could also be of aid in designing the housing and/or employment mitigations previously discussed.

8. IMPACTS ON RECREATIONAL RESOURCES AND ACTIVITY

8.1 WITHIN THE WAIKOLOA BEACH RESORT

(a) The applicants' proposed action would increase the number and diversity of recreational facilities in the region and on the island. This would be accomplished through the addition of tennis courts, a bowling alley, a half-acre freshwater swimming pool and 5-acre swimming lagoon, and a health spa/sports complex proposed as part of the Hyatt Regency Waikoloa Hotel and by other (as yet undetermined) recreational facilities that would be constructed on the other three development sites within the permit area. It would also result in the construction of improved rights-of-way between the resort entrance road and the shoreline as well as public parking areas for the cars of shoreline users. These would complement the shoreline access and public beach facilities already constructed by Transcontinental Development Co. at 'Anaeho'omalu Bay.

(b) Hotel guests would be the primary users of the hotel amenities, but residents and day visitors could also use the restaurants, bowling alley, and other facilities. Various community organizations are also expected to utilize the new dining and banquet facilities that would be constructed if development proceeds as proposed.

(c) In accordance with conditions established by the County of Hawai'i, public rights-of-way would be maintained between the resort entrance road and the shoreline along the sides of each of the sites developed in the project area. Establishment of these beach rights-of-way would increase the accessibility of the shoreline of the WBR. Continued public hiking access along the shoreline would not be impeded or obstructed. The provision of public parking areas near the heads of these rights-of-way would insure that the paths are usable by the general public. The elimination of anchialine ponds and construction of buildings on parcels fronting the trail would significantly alter the character of the shoreline setting, a change which some users find undesirable. At the same time, the creation of pond preservation areas and the development of interpretive displays could enhance public awareness and understanding of these coastal ecosystems.

(d) Fishing and diving from boats offshore of the project area probably would not be adversely affected, and may increase. However, the pole and net fishing which now occur along the shoreline might decline if local fishermen feel intimidated by the presence of the proposed resort facilities and substantial numbers of visitors.

(e) In-water construction proposed by the applicants is limited to excavation of the lagoon, slight deepening of the innermost zone of the bay, two pedestrian bridges, a beach, and other resort structures associated with the Hyatt project (see Figure II-5). These changes would not adversely affect the surfing area just south of Waiulua Bay. Usage of this surfing spot might increase as a result of the improved shoreline access and increased regional population which implementation of the proposal would bring about.

(f) If development Alternatives 2 and 5 were pursued, they would have essentially the same impacts as would the applicants' proposal because they involve essentially the same number of units and the same land area. Alternatives 3 and 4 would result in substantially less development than the other alternatives (except for permit denial). The result would be fewer on-site recreational amenities, as well as a reduction in the expected usage of off-site public and private recreational facilities. Impacts on existing uses would be similar to the proposed development.

8.2 OUTSIDE THE WAIKOLOA BEACH RESORT

(a) By increasing the resident and visitor population of the region, the proposed action would inevitably increase the demand on existing public parks, recreational areas, and historic sites. Some of this would result from the increased visitor population that it would produce, but the most significant cause would be the increased resident population directly and indirectly supported by the jobs that would be generated.

(b) Based on information obtained from South Kohala hotels, car rental personnel, and other community observers, the primary reasons for the off-site trips are sight-seeing, shopping, and occasional evening dining (Community Resources, September 1984). In view of the extensive range of recreational activities that would be available within the WBR, the number of daily off-site recreational trips generated by development within the project area is expected to be relatively low, probably on the order of 500 per day.

(c) The projected 7,400-person increase in the resident population of West Hawai'i, which would be supported by project-related direct visitor industry employment, represents a large gain over the existing level. However, existing State and County parks and other recreational resources should still be sufficient to meet the region's recreational needs if planned recreational facility improvements identified in the County's Recreation Plan (Hawai'i, County of, Department of Parks and Recreation and Planning Department, 1973) are completed.

9. IMPACTS ON PUBLIC SERVICES AND FACILITIES

9.1 THE PROPOSED ACTION

9.1.1 Transportation

(a) Peak traffic on the Waikoloa Beach Resort entrance road near Queen Ka'ahumanu Highway following construction of the Hyatt Regency Waikoloa Hotel would exceed 1,000 vehicles per hour. The level of service for through traffic on the highway would remain at "A", as would the level of service for vehicles turning into the resort and vehicles exiting the resort to the south. (Service level "A" is the best possible on a scale of A through E; at this service level there is little of no restriction on speed or maneuverability.) However, because of conflicts with through traffic and northbound vehicles turning into the resort, the number of vehicles desiring to turn left out of the resort onto Queen Ka'ahumanu Highway would exceed the capacity of the intersection. Reducing the speed limit on the highway in the vicinity of the intersection would increase the capacity of the left turn movement to the point where the expected volume could be accommodated.

(b) Continuing development of the sites within the project area would increase traffic volumes beyond the capacity of the intersection. To avoid the resulting congestion, signalization and/or physical improvements to the intersection would be required. The applicants have indicated that they have plans for such improvements, including the eventual construction of a second entrance road to the resort opposite the existing road to Waikoloa Village, and would implement them as necessary.

(c) Visitors moving to and from the resort facilities proposed for the permit area would probably increase passenger traffic through Keāhole Airport by at least 50 percent over its 1983 level. Development of other resort facilities in the region is

expected to proceed as well, so that the volume of passenger traffic handled by the airport is projected to at least double by the early 1990s. Existing facilities are capable of accommodating this higher volume of passenger traffic, albeit with a noticeable increase in congestion.

(d) United Airlines has already initiated direct flights from California to Keāhole, bypassing Honolulu and the inter-island air carriers, but the 6,000-foot length of the existing runway at Keāhole is too short to permit these long-range aircraft to take off fully loaded. As a result, departing flights leave with only a partial fuel load, stopping at either Hilo or Kahului for refueling. The State Department of Transportation is preparing to update the master plan for Keāhole Airport, and facility improvements needed to accommodate direct flights to and from the mainland could be operational within about five years if studies show that they are justified.

(e) The State Department of Transportation has indicated that facilities at Kawaihae Harbor are adequate to accommodate the expected long-term water transportation needs of West Hawai'i.

9.1.2 Potable Water

(a) Total potable water use by the Hyatt Regency Waikoloa Hotel is forecast to be between 0.5 and 0.75 million gallons per day (MGD). The capacity of the wells supplying the existing water system (exclusive of required backup) is approximately 1.0 MGD, and the existing water use in the system is approximately 0.66 MGD. Cumulative water demand following construction of the Hyatt would be between 1.16 and 1.42 MGD. The need for additional source capacity would be further accentuated by development of the two additional hotels and condominium project planned for the project area. Waikoloa Resort Utilities (September 28, 1984) has committed itself to provide the necessary service.

(b) Since the capacity of the existing wells would be exceeded, a new potable water well (or wells) would need to be drilled. During the 1970s (Bowles, Ms.) studies were conducted of the aquifer which the Waikoloa wells tap and indicate that its capacity, in the vicinity of the existing well field, is on the order of 3.0 to 5.0 MGD. The U.S. Army Corps of Engineers places the capacity of the aquifer in the 3.0 to 6.0 MGD range. This is more than adequate to accommodate all of the resort development proposed by the applicants. The additional development of groundwater resources that would be needed to accommodate the proposed uses would require a permit from the State of Hawai'i, Department of Land and Natural Resources, Division of Land and Water Development. The State Department of Health must also approve sources developed to serve potable water. Expansion of the water system would also have to conform to a policy of the County of Hawai'i Department of Public Works that requires that the availability of adequate water supplies be demonstrated prior to issuance of a building permit.

9.1.3 Wastewater Treatment and Disposal

(a) Wastewater treatment and disposal at the WBR is provided by Waikoloa Resort Utilities, Inc., a regulated public utility. Belt Collins & Associates (1985) estimated that the WBR's sewage effluent flow could increase from about 0.15 mgd to 3.7 mgd, requiring an expansion of the treatment plant at some point in the future. The existing plant provides secondary treatment and can be expanded incrementally to accommodate 2.8 mgd before requiring a new facility. The applicants have indicated that 2.8 mgd is sufficient to satisfy the requirements for the proposed development. The estimated sewage flow from the proposed development would be 0.95 mgd.

(b) The applicants indicated that all the treated sewage effluent from the proposed development would be used to irrigate the Waikoloa Beach Resort Golf Course. If in the future wastewater flow should exceed golf course irrigation requirements, the excess would be injected into the ground. The State Department of Health indicated in its comments to the Draft EIS that there could be potential impacts of sewage irrigation water aerosol on inhabited areas around the golf course. The applicants indicated that treated effluent has been used to irrigate other neighbor island resort golf courses for many years without adverse effect. The State of Hawaii, Department of Health and the County of Hawaii, Department of Public Works regulate the construction and operation of wastewater treatment facilities and facility design and operation must conform to their standards.

9.1.4 Solid Waste Disposal

The proposed Hyatt Regency Waikoloa Hotel would generate an estimated 7,500 pounds per day of solid waste, and the hotel and condominium development planned for the other sites within the project area would add another 6,000 pounds per day to this. This waste, which would total about 2,500 tons per year, would be collected by a commercial refuse service paid for by the hotels and condominium association and trucked either to the existing County landfill site near Kailua or to the planned new landfill near Pu'uanahulu. The new landfill is expected to be operational within three to four years and to have sufficient capacity to accommodate the solid waste generated by currently planned resort development in South Kohala (Sugiyama, 20 September 1984).

9.1.5 Electrical Power and Telecommunications Facilities

(a) Based on a 2.5-KV peak demand per hotel room and an estimated 17,000 kilowatt hours (KWH) per year per hotel room, the Hyatt Regency Waikoloa Hotel would increase peak demand by 3,150 KV and average annual usage by 21.4-million KWH per year. An overall commitment to service the Waikoloa Beach Resort was made by HELCO in the mid-1970s when the master plan for the project was developed, and the Hawaii Electric Light Company (HELCO) has confirmed that it will be able to service the Hyatt project (Yamasaki, 20 September 1984). The existing electrical substation adjacent to Queen Ka'ahumanu Highway will need to be upgraded to accommodate the higher loads, and requirements established by the County of Hawai'i may lead to the undergrounding of the power distribution lines between the substation and the resort.

(b) The Hawaiian Telephone Company (HAWTEL) has stated that it foresees no difficulty serving the proposed Hyatt Regency Waikoloa Hotel (Hamlin, 1 October 1984). The applicants indicate that HAWTEL has also expressed satisfaction regarding its ability to serve other future development within the area covered by the Corps of Engineers permit.

9.1.6 Public Services

In addition to the improvements described above, increased demands resulting from population growth and the presence of a larger number of visitors would generate a need for expanded public services such as police and fire protection, schools, and health services. The specific nature of the required improvements cannot be determined until additional information is available regarding the location of the secondary growth that would be supported by resort development within the project area.

9.2 ALTERNATIVES

If development Alternatives 1, 2 and 5 were pursued, they would have essentially the same impacts as would the applicants' proposal because they involve essentially the same number of units and the same land area. Because of the larger preservation area which they involve, Alternatives 3 and 4 would result in substantially less development than the other alternatives (except for permit denial). Hence, the demand on utilities and public services would be correspondingly less. Denial of the permit and no action would leave the demand unchanged.

10. AIR QUALITY IMPACTS

(a) Construction activity would lead to increased automotive pollutant emissions on Queen Ka'ahumanu Highway, resort access roads, and the coastal sites of the WBR. However, the effect would be minor compared with the level of automotive emissions expected once the resort facilities are operational, and the increase would not result in a violation of State or Federal air quality standards.

(b) Site preparation and earth moving would create particulate emissions, as will building and on-site road construction. There is little or no soil on most of the affected area, a factor that will help limit construction dust. However, the soils most likely to be used in the top layer of fill and for landscaping are likely to have relatively low cohesion and to be susceptible to wind erosion. Hence, proper vigilance and proper erosion control techniques will need to be be used in the placement of topsoil on the development sites.

(c) The most significant source of air pollutants is expected to be the vehicles that would move to and from the project area once the proposed resort facilities are in operation. The impact of the Hyatt Regency Waikoloa Hotel on 1- and 8-hour carbon monoxide concentrations were calculated. Air pollutant dispersion modeling indicated that during "worst-case" atmospheric and traffic conditions (which occur very infrequently), both State and Federal 1-hour CO standards would be met, but that the level might slightly exceed the State 8-hour standard immediately adjacent to the intersection of Queen Ka'ahumanu Highway and the WBR entrance road. As noted elsewhere, the additional traffic generated by development on the remaining sites within the project area would result in total traffic volumes exceeding the capacity of the intersection; the resulting congestion would lead to markedly higher pollutant levels in the vicinity, and a deterioration in air quality is to be expected. This would be avoided by roadway improvements that would eliminate the congestion which leads to a build-up of pollutants. It should also be noted that the land surrounding the intersection is vacant, and motorists in waiting vehicles would be subject to only short-term exposure.

(d) Air pollutant emissions from helicopter traffic into and out of the proposed helipad would have no significant effect on air quality due to the low volume that is expected. The propane-powered motors that would be used in the boat fleet at the Hyatt project are inherently clean-burning, and they would not create significant levels of air pollutants.

(e) If Alternatives 1, 2 and 5 were pursued, the effect on air quality would be essentially the same as that resulting from the applicants' proposal. This is because they involve essentially the same number of units and the same land area. Alternatives 3 and 4 would result in substantially less development than the other alternatives (except for permit denial). This implies reduced traffic and vehicular emissions. Denial of the DA permit and No Action would prevent most development on the sites in question; hence, this alternative would have no effect on air quality.

II. NOISE IMPACTS

(a) Noise from on-site construction activities at the Hyatt site would be just audible outside the Shores condominium and the Sheraton Royal Waikoloa Hotel. Even these peak sound levels would not disrupt normal conversations in outside areas; they would be inaudible in closed, air-conditioned spaces. No pile driving is contemplated for the Hyatt project. Once the roadways, site preparation, and foundation work on the Hyatt are completed, construction noise levels would be 15 to 20 dB(A) lower than at their peak. This would be too low to be annoying, if heard at all, at either the Sheraton or Shores. Because they would be closer to occupied structures, construction noise levels resulting from development of the other sites within the project area would have a greater effect on adjacent development, but quantitative estimates cannot be made at this time. In any case, noise levels resulting from this additional construction would be no greater than are commonly experienced in all urban settings.

(b) Noise levels on areas adjacent to the resort entrance would be increased by vehicular traffic moving to and from the permit area. Analyses indicate that they would produce noise levels at the Sheraton Royal Waikoloa Hotel (the most seriously affected building) that are below the current 65 Ldn standard.

(c) If Alternatives 1, 2 and 5 could be successfully pursued, the effect on noise levels would be essentially the same as that resulting from the applicants' proposal. Alternatives 3 and 4 would result in much less development than the other alternatives. This would mean reduced noise impacts. Denial of the DA permit would eliminate the noise impacts of the project's construction and operation.

CHAPTER V

LIST OF PREPARERS OF FINAL EIS

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Ann M. Bouslog -- Contributed to socio-economic sections of statement. Sociologist specializing in demography, and employment and social impacts of development. Ph.D. in sociology.

Richard E. Brock -- Prepared report assessing conditions and future of anchialine pond resources. Consulting Biologist with Ph.D. in fisheries.

Phillip L. Bruner -- Provided input for terrestrial wildlife sections. Environmental consultant and ornithologist. M.S. in zoology.

Ronald A. Darby -- Provided analyses of noise impacts. Consulting acoustical engineer. M.S. in engineering acoustics.

Karen Fassler	--	Prepared graphics for the statement. Graphic artist with Bachelor of Fine Arts degree.
Erin M. Hall	--	Provided input for terrestrial flora sections. Environmental consultant with an M.A. degree in biogeography.
John M. Knox	--	Contributed to socio-economic sections of statement. Consultant specializing in survey research and social impact analyses. Ph.D. in psychology.
Robert L. Lucas	--	Contributed to sections on public services and utilities, recreation, and energy. Planning and economics consultant with M.A. in economics.
James W. Morrow	--	Provided analyses of air quality impacts. Air quality consultant with M.S. in environmental health.
Paul H. Rosendahl	--	Principal investigator for archaeological surveys. Consulting archaeologist with Ph.D. in anthropology.
Kanalei Shun	--	Prepared archaeological survey reports. Consulting archaeologist with an M.A. in anthropology.
Lee Sichter	--	Responsible for community interviews and data gathering field work for socio-economic impact assessment. Land use planner specializing in social impact assessment and conflict management. Masters degree in urban planning.
David A. Zieman	--	Provided analyses of aquatic resources and anchialine ponds. Biological oceanographer with Ph.D. in oceanography.

CHAPTER VI

PUBLIC INVOLVEMENT

1. PUBLIC NOTICES AND THE SCOPING PROCESS

(a) The initial Notice of Intent (NOI) to prepare an Environmental Impact Statement was published in the Federal Register on September 20, 1984 (49 FR 184, 36901). A separate Public Notice and News Release informing the public of the proposed action and intent to prepare an EIS was circulated on October 19, 1984. The NOI, the Public Notice, and the News Release were based on the applicants' original proposal requesting permission to excavate or fill all of the ponds on the Hyatt Regency Waikoloa Hotel site. This application did not cover the anchialine ponds on the rest of the Waikoloa Beach Resort (WBR) or discuss the possible creation of a pond preservation area.

(b) As a result of concerns expressed for the anchialine ponds, the applicants revised their permit application to include all the anchialine ponds within the WBR, except those within the existing preservation area (Ku'uali'i and Kahapapa fishponds) adjacent to 'Anaeho'omalu Bay, and those within a proposed pond preservation area. A revised Notice of Intent was published in the Federal Register on January 31, 1985 (50 FR 21, 4569). A revised Public Notice (January 29, 1985) and News Release (February 5, 1985) were reissued to the public, both to those who had received the original notice and to those persons, organizations and agencies who had commented on the original Notice of Intent and Public Notice. A list of those who received the Public Notices, as well as copies of the Notices of Intent and Public Notices, are contained in Appendix D.

(c) A total of three public interest groups, three individuals and five government agencies responded to the Public Notices. A list of the correspondence relating to the Public Notices and copies of these letters are contained in Appendix B. Expressed concerns were used to scope the Draft Environmental Impact Statement and to revise the applicants' initial permit application. A Corps representative also met informally with representatives of the Hawai'i Island Chapter of the Sierra Club and Na Ala Hele to discuss their concerns for anchialine ponds preservation, public access and use of the coastal trail system, as well as their knowledge of the area's resources. Separate scoping meetings were held with U.S. Fish and Wildlife Service, National Marine Fisheries Service and the State Department of Land and Natural Resources.

2. COORDINATION WITH GOVERNMENT AGENCIES

2.1 ENDANGERED SPECIES

2.1.1 U.S. Fish and Wildlife Service

(a) The Corps of Engineers (Corps) initiated Section 7 consultation, in accordance with the Endangered Species Act, as amended, with the U.S. Fish and Wildlife Service (USFWS) on October 26, 1984. On December 5, 1984, the USFWS informed the Corps that the proposed development might impact the endangered Hawaiian stilt and the endangered Hawaiian hoary bat. On February 22, 1985, the USFWS provided their biological opinion that the proposed development would not jeopardize the continued existence of either endangered species.

(b) On April 18, 1985, the USFWS informed the Corps that Procaris hawaiana, Metabeteaus lohena, Calliasmata lauensis, Halocardina rubra, and Ostromouvia horii were classified as Category 2 for purposes of the Endangered Species Act. Category 2 classification indicates that a species probably should be listed as threatened or endangered on the Federal List of Threatened or Endangered Species, but for which insufficient information exists to list the species. Both the Corps and the USFWS are considering the rarity of the organisms in the development of the management plan for the proposed development, and are consulting on further studies of the organisms. The Corps has initiated field work and required more anchialine pond survey work, in conjunction with the U.S. Fish and Wildlife Service efforts, to gather information on the organisms as they relate to anchialine ponds.

2.1.2 National Marine Fisheries Service

The Corps of Engineers initiated Section 7, Endangered Species Act, as amended, consultation with the National Marine Fisheries Service (NMFS) on February 20, 1985, when the applicant informed the Corps that they planned to use blasting techniques in the excavation of the lagoon. Consultation was initiated because of the potential blast impacts on endangered humpback whales and threatened sea turtles that are known to occur in waters offshore from the proposed development. On May 13, 1985, NMFS provided the Corps a biological opinion that blasting would not jeopardize the continued existence of the threatened and endangered animals provided certain conditions were included in the Department of the Army permit. The conditions provided for Corps consideration were made a part of the proposed lagoon construction plan. (See Appendix G.)

2.2 HISTORIC PRESERVATION

(a) Initial coordination with the State Historic Preservation Officer (SHPO) concerning the Hyatt Regency Waikoloa Hotel led to the conclusion that none of the remains present on the Hyatt site were eligible for inclusion to the National Register of Historic Places because the scientific information the sites contained was recovered and salvaged. The applicants also made a commitment to preserve the Nawahine, Kaniku and Waiulua Bay settlement sites. As part of the County of Hawaii, Special Management Area permit, the applicants were required to reconstruct the coastal foot trail through the Waiulua Bay settlement site. Subsequent coordination with the SHPO and the Corps resulted in the applicants design change to reconstruct and enhance both the trail and some of the archaeological sites in the Waiulua Bay settlement site. The details of the coordination are available in Appendix H.

(b) Upon broadening the permit application to include the all anchialine ponds on the Waikoloa Beach Resort properties, the applicants performed an archaeological reconnaissance re-survey that resulted in recommendations for archaeological data recovery of scientific information on the sites found during the survey. The SHPO and the Corps agreed that the sites were eligible for inclusion in the National Register of Historic Places because the sites contained scientific information that could contribute to the knowledge of Hawaiian history. A data recovery plan was developed by the SHPO and the Corps; however, the Corps required that the applicants first consider architectural designs that could preserve the archaeological sites prior to implementation of the data recovery plan. The summary of the coordination was forwarded to the Advisory Council on Historic Preservation (ACHP) for the review and development of a Memorandum of Agreement between the ACHP, SHPO, the Corps and the applicants. The details of the coordination are available in Appendix H.

3. PUBLIC HEARING

(a) A public hearing on the permit application was held on April 19, 1985 at the Sheraton Royal Waikoloa Hotel. The public hearing was initially scheduled for March 14, 1985, but was postponed because of delay in the release of the Draft Environmental Impact Statement prior to the public hearing. (See Appendix I for the Public Hearing Notice and Record.)

(b) The roll-cards indicated that 98 individuals were present at the hearing. Ten individuals represented the applicant, nine represented Federal, State and local governments; two represented the media, and 77 represented the public-at-large. Seventeen letters and one petition were received for inclusion in the record of the public hearing (see Appendix E for a Record of the Public Hearing). Of those present, 19 individuals provided testimony on the permit application, besides three applicant representatives.

(c) In summary, all testimony and letters received indicated the project at Waikoloa was generally supported. Many speakers and writers indicated support for the project citing increased employment opportunities, increased economic growth, increased public access to the shoreline, increased recreation facilities and opportunities, preservation of historic sites and traditional trails, a balance between development and preservation of anchialine ponds; and scientific and education opportunities under preservation management. However, nine groups and individuals, while indicating no opposition to the project, qualified their support indicating their desire to see more anchialine ponds preserved (about 7 more ponds encompassing 2.5 acres), desire for quality development that fit into the existing coastal environmental setting, desire to ensure local employment opportunities and job education for those employment opportunities, and desire to see better long-term planning for management and preservation of anchialine ponds in the West Coast of Hawaii. Two individuals questioned the value of anchialine ponds and one interest group questioned the validity of the State certified shoreline boundary. One individual wanted the lagoon open to public use, as well as use by resort guests. Two individuals questioned the desireability of importing exotic deer to Hawaii.

4. DRAFT ENVIRONMENTAL IMPACT STATEMENT

(a) Copies of the Draft Environmental Impact Statement (DEIS) were mailed to government agencies and the public on March 25, 1985. A list of persons, organizations and agencies receiving the DEIS is provided in Appendix J. The availability of the DEIS was published in the Federal Register on April 5, 1985, and the Corps of Engineers circulated a Public Notice of Availability of the DEIS on April 5, 1985. The date in the Federal Register initiated the official 45-day, DEIS, public review period that ended May 20, 1985. See Appendix J for the Public Notice of Availability.

(b) Comments to the DEIS were received from:

(1) Congressional Representative, Senator Sparky Matsunaga

(2) Federal Agencies:

U.S. Department of Agriculture
Soil Conservation Service, Hawaii
U.S. Department of Commerce
National Marine Fisheries Service

U.S. Department of Housing and Urban Development, Hawaii
U.S. Department of the Interior
U.S. Fish and Wildlife Service, Regional Office
U.S. Fish and Wildlife Service, Hawaii
U.S. Department of Transportation
U.S. Coast Guard, 14th District
Federal Highway Administration
U.S. Environmental Protection Agency

(3) State of Hawaii

Office of Environmental Quality Control
Department of Accounting and General Services
Department of Agriculture
Department of Defense
Department of Hawaiian Home Lands
Department of Health
Department of Land and Natural Resources
Department of Planning and Economic Development
Department of Transportation
University of Hawaii
Environmental Center
Water Resources Research Center

(4) *County of Hawaii*

Department of Parks and Recreation
Department of Public Works

(5) Special Interest Groups

First Hawaiian Bank
Island Explorations
Mauna Lani Resort
Sheraton Hotels in the Pacific
Sierra Club, Hawaii Chapter
Society of Hawaiian Archaeology

(6) Individuals

Nelson Ho
E. Alison Kay
Tim Newstrom
Jerry Rothstein
Lani Stimmerman
Richard H. Titgen, Ph.D.

(c) Detailed comments and response to comments received are provided in Appendix K.

CHAPTER VII

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CHAPTER VIII

INDEX

Appendix A

Applicants Practicable Alternative Analysis

WAIKOLOA

September 12, 1985

Colonel Michael M. Jenks
District Engineer
Honolulu District
U.S. Army Corps of Engineers
Building 230
Ft. Shafter, HI 96858-5440

A-1

Re: Waikoloa Beach Resort
Application for Corps of Engineers Permit

Dear Colonel Jenks:

Enclosed herewith is the analysis of practical alternatives report, dated September 6, 1985, prepared by the professional appraisal firm of Hastings, Martin, Conboy, Braig & Associates, Ltd. The report was prepared in conjunction with our application for the referenced Department of Army Permit, and it sets forth the appraiser's determination of the economic impact to the Applicant of the Applicant's Proposal and ten Alternatives to that proposal. The purpose of this letter is to communicate to you, first, how the Applicant selected its proposal and the ten alternatives for evaluation by Mr. Hastings, and second, why additional alternatives, both onsite and offsite Waikoloa, were evaluated by the Applicant, but were not selected for inclusion in the enclosed report.

1. Selection Of The Applicant's Proposal And The Ten Alternatives.

The large and complex Waikoloa Beach Resort project is a masterplanned property that has been under planning and development as a world-class "destination resort" for many years. The Applicant and its predecessors initially

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selected Waikoloa because of the unique and unmatched features of the property which qualify it for such usage. Over the many years of the project, the Applicant and its predecessors have exhaustively invested thousands of hours and millions of dollars in creating an infrastructure to accomodate hotels, golf courses, condominiums, single-family residences, and the commercial, sporting, and cultural facilities required for such a resort. Over those same years, the Applicant has also worked with all levels of local government and environmental groups to carefully consider and integrate their needs into the Waikoloa master plan. As a result, the application before you should be considered based upon the full scope of the Waikoloa Beach Resort project and not merely as it relates to any one increment of the project, such as the Waikoloa Hyatt Regency Hotel.

The Applicant's primary reason for being in business is to develop the Waikoloa Beach Resort property into a world-class destination resort. To abandon Waikoloa in favor of another location offsite would result in an economic disaster from which the Applicant could not survive. Thus, not only is Waikoloa the best alternative because of its unique destination resort characteristics (weather, terrain, location, etc.), Waikoloa is the only alternative which allows the Applicant to meet the minimum economic objectives necessary to develop such a resort.

Developing a world-class destination resort within economically feasible parameters requires a blend of proven experience and pioneering innovation. New neighbor island resort complexes must provide a wide range of amenities in order to compete effectively with already-established resort areas such as Waikiki and Ka'anapali. At one time, the worldwide competition in this industry was not so well established, and it was possible to start with a relatively small resort, but that is no longer the case. In today's market it is necessary to come on strong from the very beginning in order to have a financially viable project.

Through both experience and research, the Applicant concluded that the shoreline property at Waikoloa must include at least four major hotels, at least two luxury residential complexes, and at least one golf course

parcel. This is a difficult task given the relatively short shoreline at Waikoloa. Yet it is a fact that no major destination resort of significant size in Hawaii has ever been built and operated profitably without substantially all of it being located directly on the ocean frontage. Thus the usable shoreline must be carefully planned and developed to maximize its effectiveness. If it is not, the Applicant has concluded that Waikoloa cannot be developed economically; in other words, it will not be able to pay for the major infrastructure and holding costs that are necessary for such an endeavor. If the fixed infrastructure costs mauka of the shoreline properties (e.g., roadways, sewer systems, utilities, etc.) have to be borne by fewer shoreline properties, the entire concept would be economically infeasible.

In selecting its Proposal, the Applicant has considered not only its desire to develop a successful destination resort, but also its desire to meet its commitment to the people of Hawaii and the government agencies having jursidiction over this development. During the years after the Waikoloa project was conceived, the preservation of anchialine ponds in Hawaii became a concern for many in the community. A recent report by the acknowledged authority Dr. Richard Brock indicates that the anchialine ponds on the Island of Hawaii over recent years have degraded in quality due primarily to a lack of professional conservation management. Dr. Brock indicates that other anchialine pond areas in the State of Hawaii have suffered similarly over the same period of time. Dr. Brock concludes that such degradation is likely to continue without a professionally managed conservation program. Unfortunately, public funds are not available to provide such services, particularly on privately owned land.

With this in mind, the Applicant selected as its Proposal a plan to set aside 12.146 acres of prime oceanfront land as a special pond conservation area. This unique land is currently valued at $13,620,000. Additionally, to assure that this special pond conservation area will thereafter receive a high level of professional care, the Applicant's Proposal includes a Pond Management Agreement with the Corps of Engineers,

whereby the Applicant will fund the cost of a management program for the conservation area under the auspices of U.S. Fish and Wildlife Service after the Permit from the Corps of Engineers is issued. The Applicant believes that this Proposal is the best possible way to save many anchialine ponds at Waikoloa from degradation or possible extinction.

However, the Applicant cannot afford to set aside the proposed Pond Conservation Area and fund a professionally managed program if the Applicant is unrealistically limited or restrained from developing the adjacent shoreline parcels in accordance with its master plan for the Waikoloa Beach Resort. To demonstrate this proposition, the Applicant selected ten alternatives to its Proposal for evaluation by Mr. Hastings. In each successive alternative, the pond conservation area increases. The result of this is to reduce the scope of the Waikoloa Hyatt Regency Hotel and/or to reduce the scope of luxury condominiums on a shoreline parcel. The economic impact of these ten alternatives is discussed in the enclosed report. Very briefly, however, the report demonstrates the economic reality that the Waikoloa Hyatt Regency program as now planned will have to be abandoned if the Applicant is required to significantly increase the Pond Preservation Area on Parcels 12 and 13.

2. Alternatives That Were Not Selected For Inclusion In The Report.

As noted earlier, a world-class destination resort must provide a full range of amenities to its visitors. A world-class resort development must also have a major hotel as its anchor tenant. Thus the Applicant determined that the Hyatt Regency Waikoloa Hotel must have a minimum of 1,250 rooms as well as the necessary supporting restaurants and recreational facilities. As no existing site at Waikoloa had the requisite 60 acres, a new parcel was created. On this new parcel, about 80 percent of the hotel rooms are located on the top of the Kaniku lava flow along the northern side of Waiulua Bay where there are no ponds. But it is physically impossible to place more rooms there. As you know, the County height limit is already achieved; in fact, the County permit allows the Applicant one more story than it would have been able to

build under the current zoning laws. Hence it is necessary to put some of the needed 1,250 hotel rooms on the low-lying areas that contain ponds.

Similarly, the Applicant had no alternative but to site the lobby, conference room, and back of the house facilities in the low-lying areas where ponds are present if reasonable continuity were to be maintained between the two halves of the project -- the northern part on top of the Kaniku lava flow and the southern part on the low-lying area containing ponds.

Given these factors, the only elements of the project which could conceivably be relocated were the parking, the tennis courts, and the luau area. The ten alternatives in the Hasting Report include relocation and elimination of some of these vital amenities. The Applicant also considered other alternatives relating to these amenities which were not included in the report for the reasons discussed next.

a. Parking.

The County requires the Applicant to have a certain minimum number of parking spaces. A substantial portion of the County parking requirement is already being met offsite, and further transfer of parking off the site is not operationally feasible. The Applicant's experience is that people do not like to be guests at hotels where they must walk a mile to their car or wait for a shuttle bus.

The Applicant also considered building a parking structure rather than the surface parking that is proposed. The visual impact of a parking structure on the resort is disastrous because the shape of the site means that parking must be on the entrance side. The Waikoloa resort is designed to afford relaxed, open, Hawaiian living. Visitors abhor large parking structures that remind them of the cities from which they have recently fled.

Underground parking was also considered, but it is even more impractical, particularly when it is recognized that it would have to be built beneath the

water table and somehow be protected against possible flooding by tsunami.

b. Tennis.

Tennis is among the activities that sell a resort. The incorporation of both regular and stadium courts in the design of the project is in recognition of the fact that tennis sells rooms. But it only sells them if they are readily accessible to guests, and so they could not be located offsite.

The Applicant also considered building a parking structure and locating the tennis court complex or other facilities on the roof of that structure. But this roof-top design is impractical because Waikoloa has winds that are too severe at elevation for such recreational activities. Typical gusts on top of a parking structure would be 2-1/2 to 3-1/2 times greater than at ground level.

The Applicant also considered the elimination of the tennis courts at the Hyatt Regency altogether or almost completely in an effort to add additional pond preservation area. The Hyatt Regency group presented historical operating facts which indicate that a world-class luxury hotel cannot operate successfully without a tennis court complex equal in size and quality to that which is now set forth in the Applicant's Proposal. Eliminating the tennis courts was therefore considered so economically infeasible that the idea was not selected for review by Mr. Hastings.

c. Relocation of Amenities Within the Hyatt Site.

Even though the Hyatt site as proposed is large in size, there is no extra room on the site to move the luau, tennis courts and parking area to another onsite location without an offsetting loss of another key element of the plan. Thus, while some relocation variations are considered in the ten alternatives addressed by Mr. Hastings, major relocations were not included as alternatives because they involved even more significant losses of income to the Applicant.

d. Relocation of Amenities Mauka of the Hyatt Site.

The Applicant also considered relocating the tennis courts, parking area, luau, or other facilities at the Hyatt Regency to mauka areas removed from the present Hyatt site. While such relocations would free up areas for possible additional pond preservation, the relocations are unworkable and would severely damage the Hyatt Regency program. It is an economic reality that a world-class hotel such as the proposed Hyatt Regency must have these operating facilities onsite to assure minimum operating revenues.

In addition, such relocations would drastically impact the golf course which is adjacent to the Hyatt site. The golf course was designed to afford visitors views of the ocean that are essential to a successful resort golfing program. Accordingly, the idea of relocating certain amenities to this valuable parcel was deemed so economically undesirable that it was not selected as an alternative for further study.

In summary, The Applicant's Proposal and the ten additional Alternatives to said Proposal were selected for inclusion in the enclosed report to demonstrate the economic impact to the Applicant of various plans for preserving a maximum number of anchialine ponds at Waikoloa within a professionally managed Pond Preservation Area under the auspices of the U.S. Fish and Wildlife Service. As a result of this study, several conclusions have been reached by the Applicant:

1. The Applicant cannot reduce its planned scope of development for the beach frontage properties without incurring such a negative economic impact as to make the entire project infeasible.

2. It is likely that the anchialine ponds at Waikoloa will not survive if a professionally managed pond preservation program is not implemented.

3. A professionally managed pond preservation program at Waikoloa funded by the Applicant is

not economically feasible if the Applicant is prevented from developing Waikoloa Beach Resort as now set forth in the Applicant's Proposal.

4. The Applicant cannot attract investors and lenders for the development of Waikoloa if the beach frontage properties cannot be developed because of a determination to reduce the project in order to preserve more anchialine ponds. If the Applicant is unable to obtain the necessary Department of Army permits to allow the project to continue as proposed, the very anchialine ponds that are the focus of attention will very likely ultimately disappear through degradation and extinction because of a continued absence of professional management and preservation care.

We appreciate your consideration of these comments and the enclosed report. If you have any additional questions, please do not hesitate to call.

Very truly yours,

TRANSCONTINENTAL DEVELOPMENT CO.

By Transcontinental Corporation
Its Managing General Partner

By _____
Clifton Jenkins
Its Authorized Agent

CJ:crld

enclosure

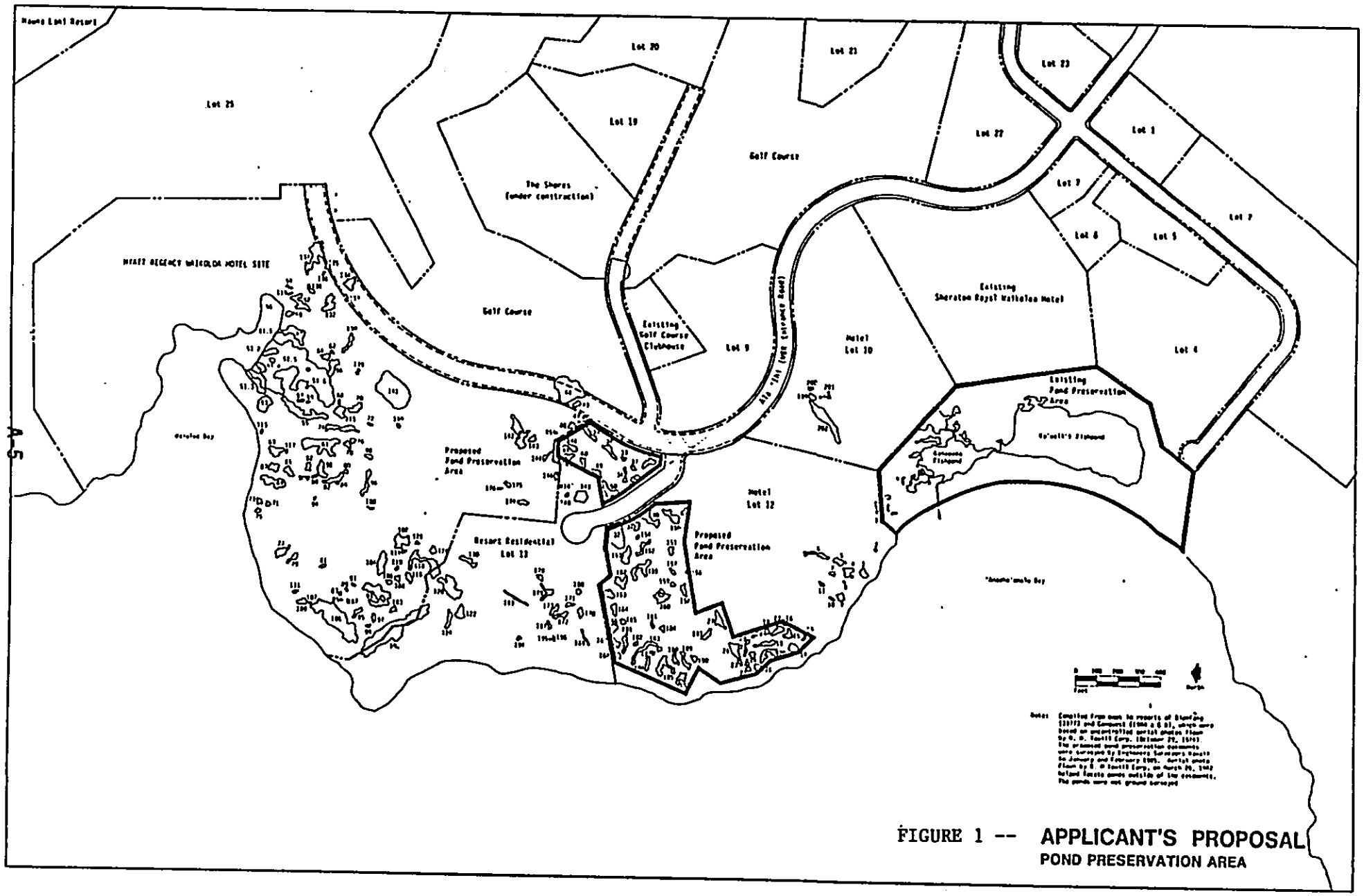

FIGURE 1 -- **APPLICANT'S PROPOSAL**
POND PRESERVATION AREA

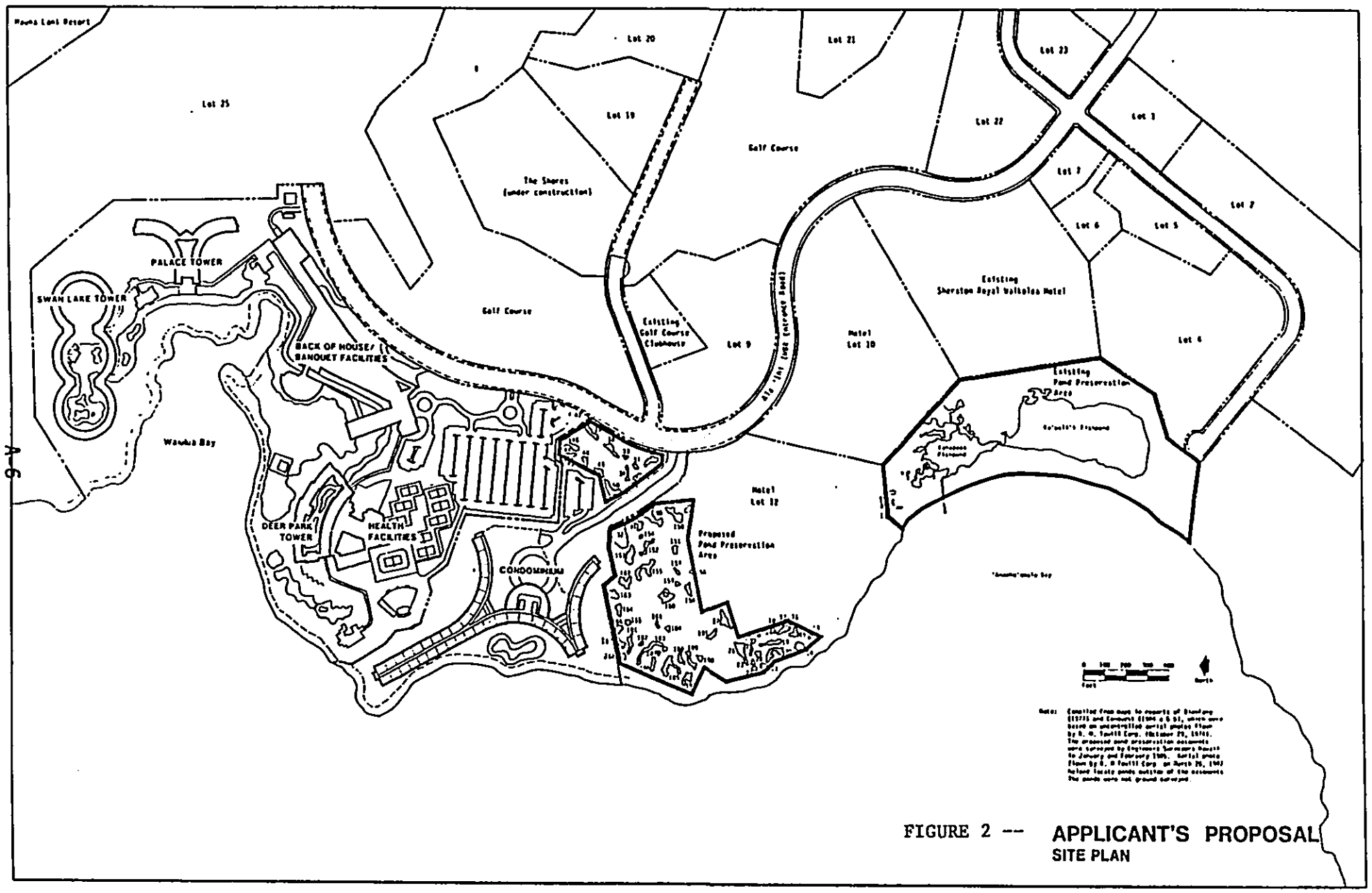

FIGURE 2 -- **APPLICANT'S PROPOSAL**
SITE PLAN

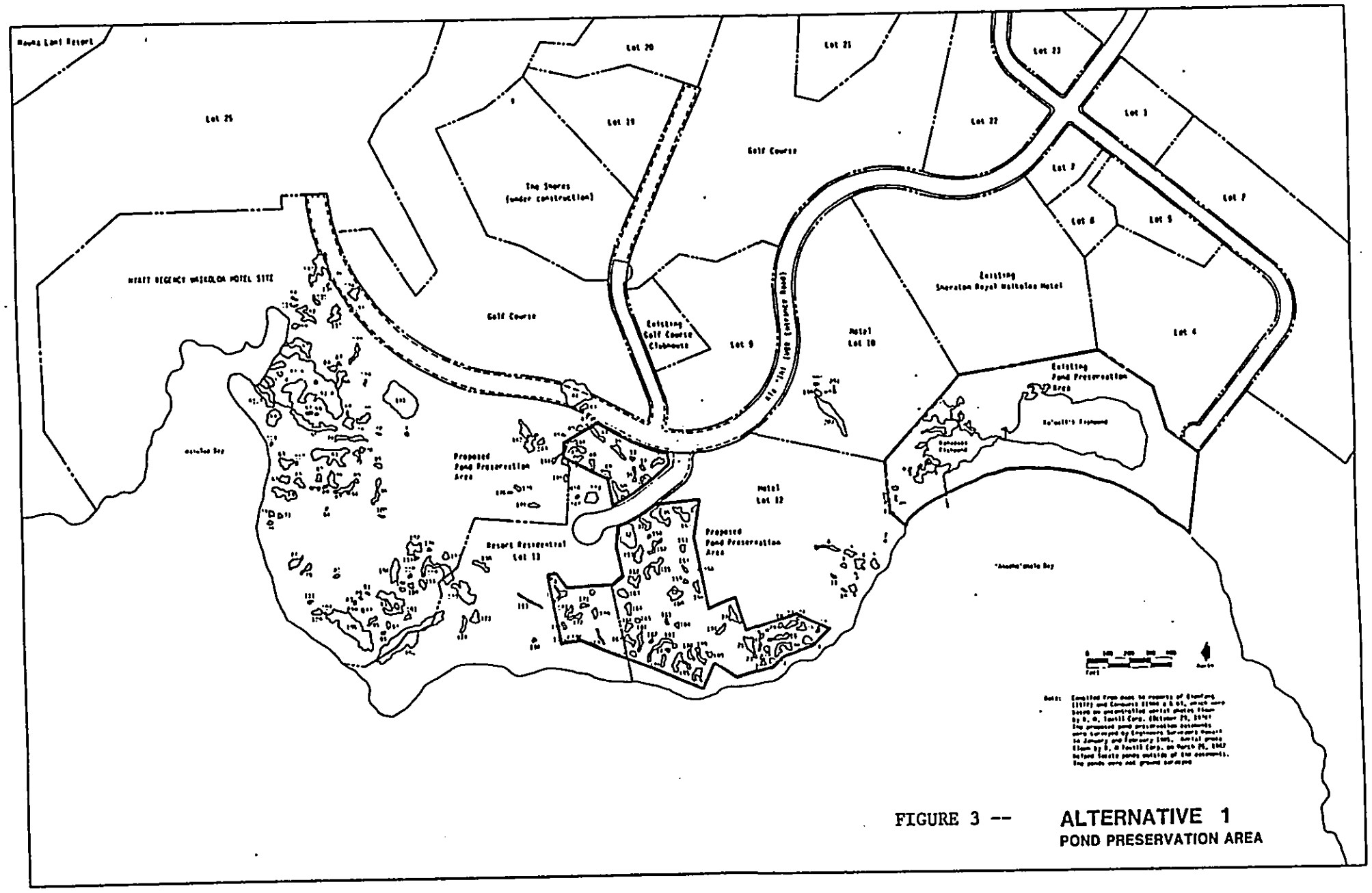

FIGURE 3 -- **ALTERNATIVE 1**
POND PRESERVATION AREA

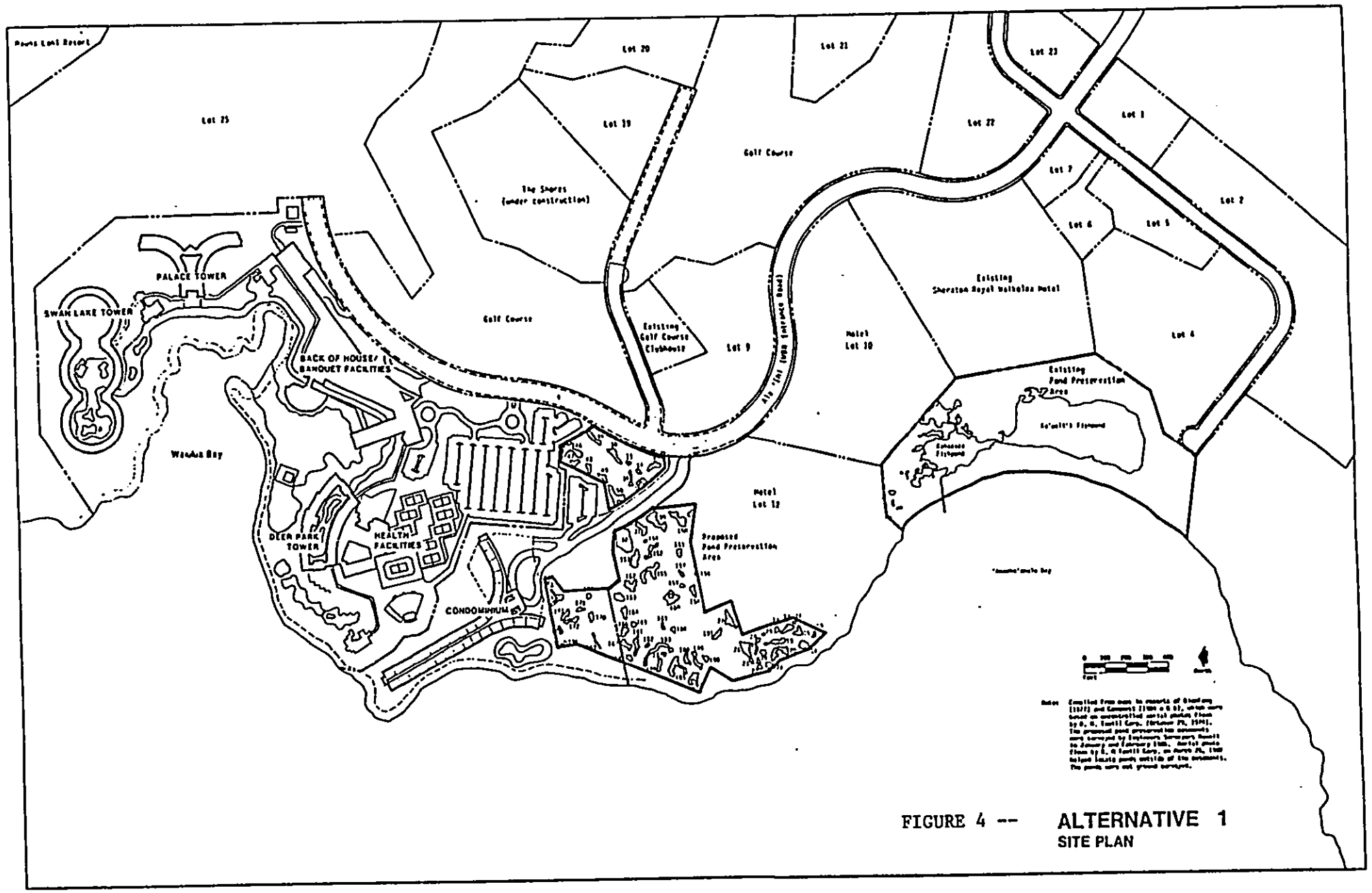

FIGURE 4 -- ALTERNATIVE 1
SITE PLAN

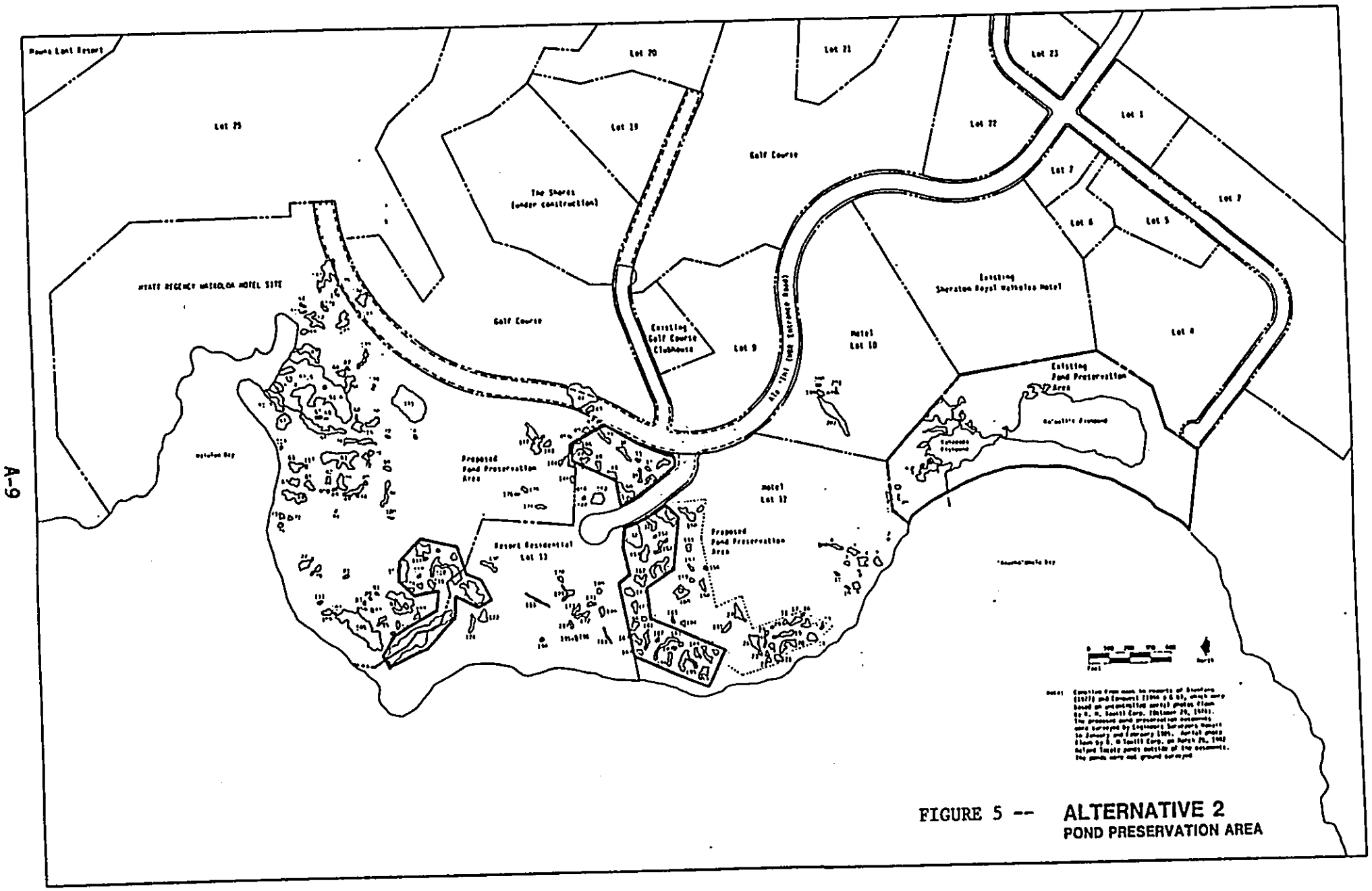

FIGURE 5 -- **ALTERNATIVE 2**
POND PRESERVATION AREA

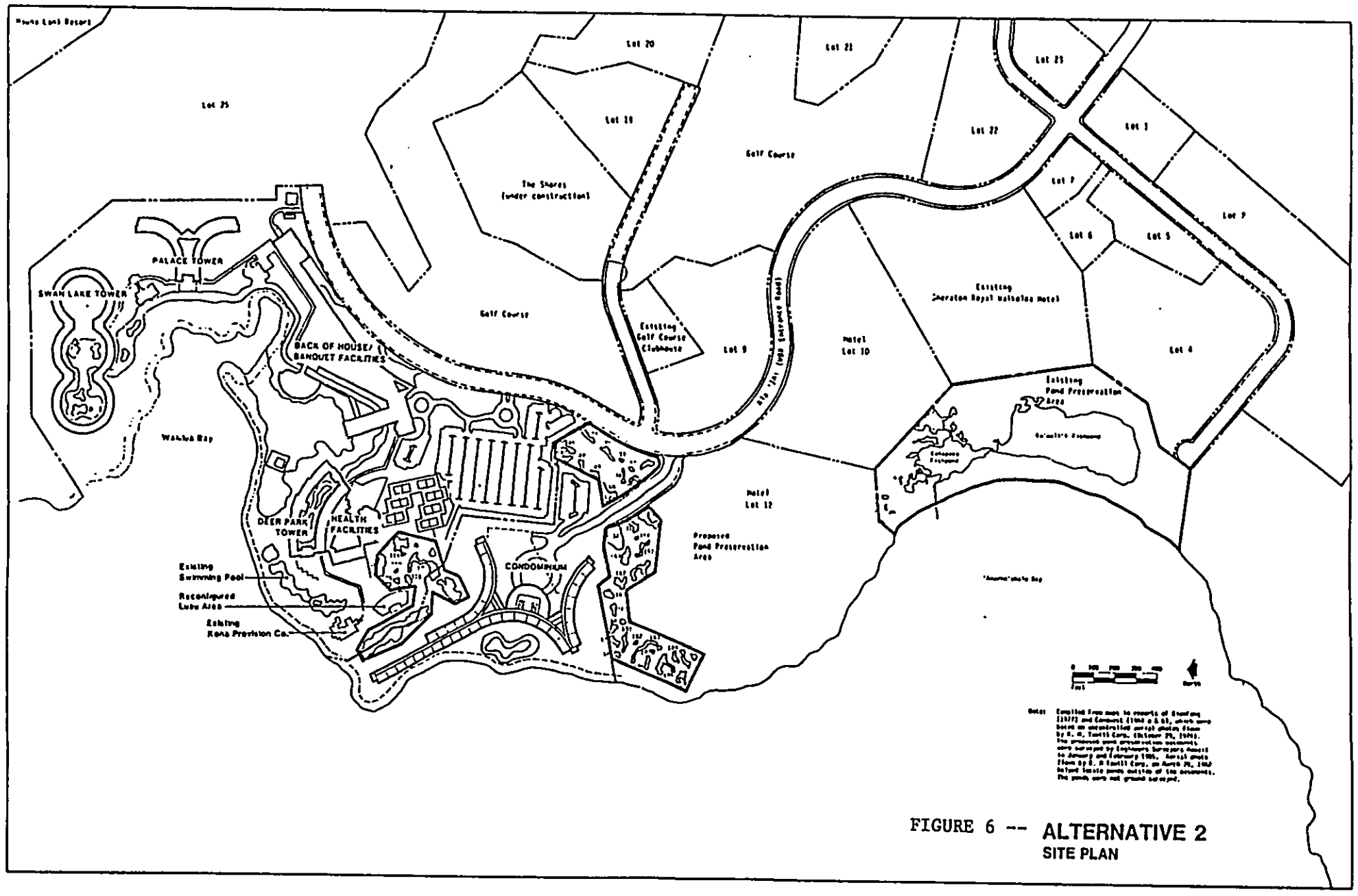

FIGURE 6 -- ALTERNATIVE 2
SITE PLAN

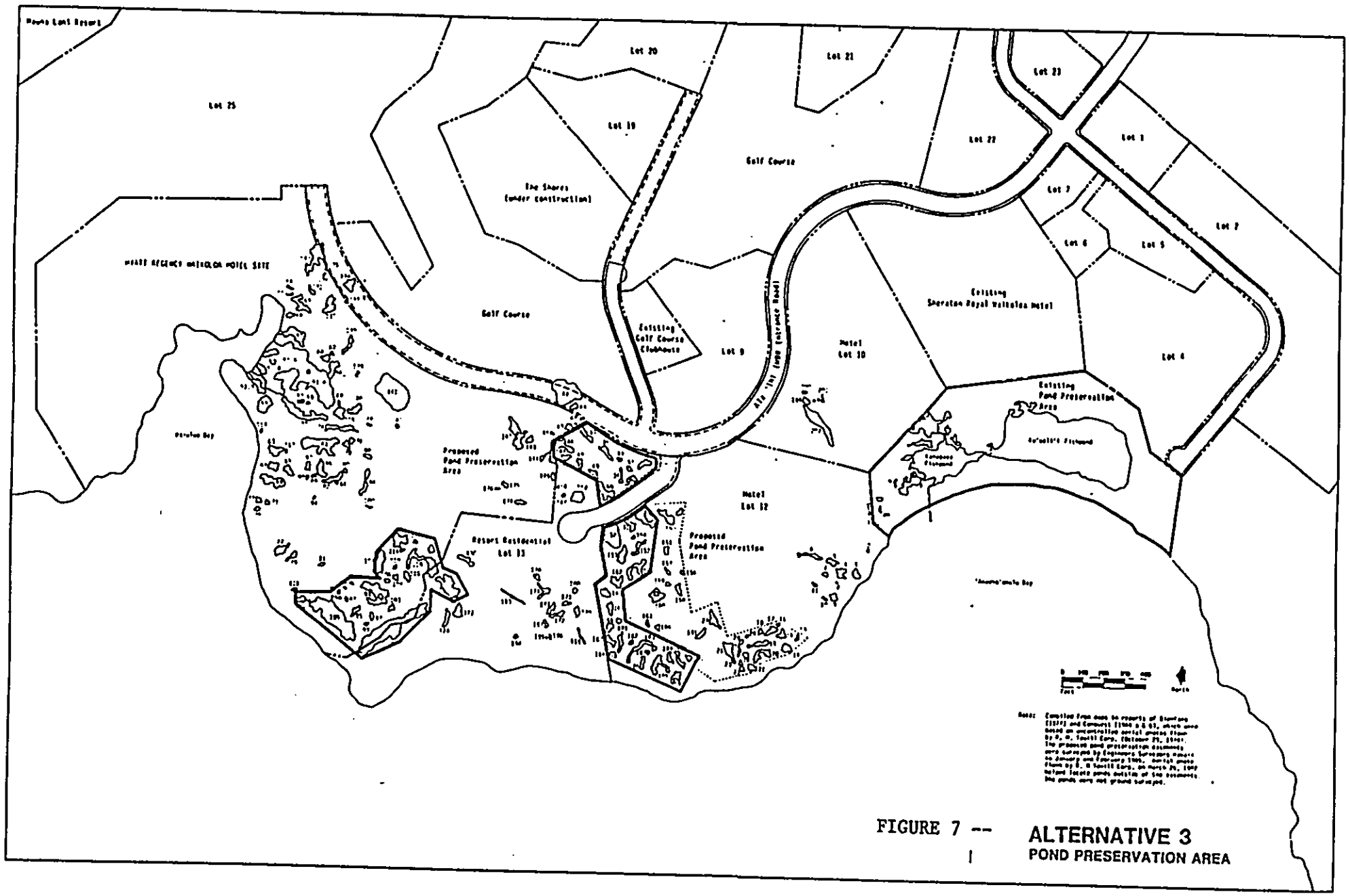

FIGURE 7 -- ALTERNATIVE 3
POND PRESERVATION AREA

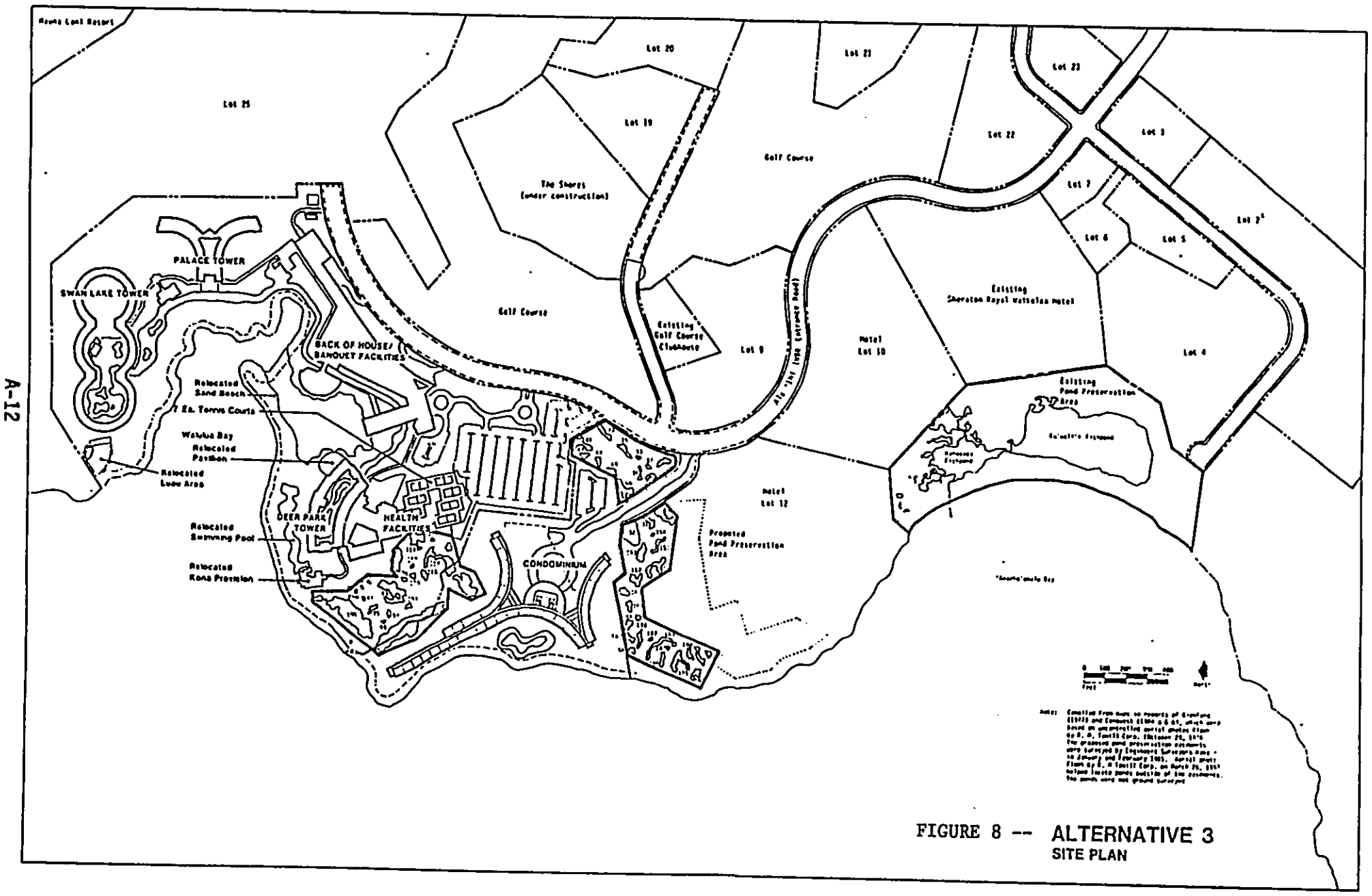

FIGURE 8 -- ALTERNATIVE 3
SITE PLAN

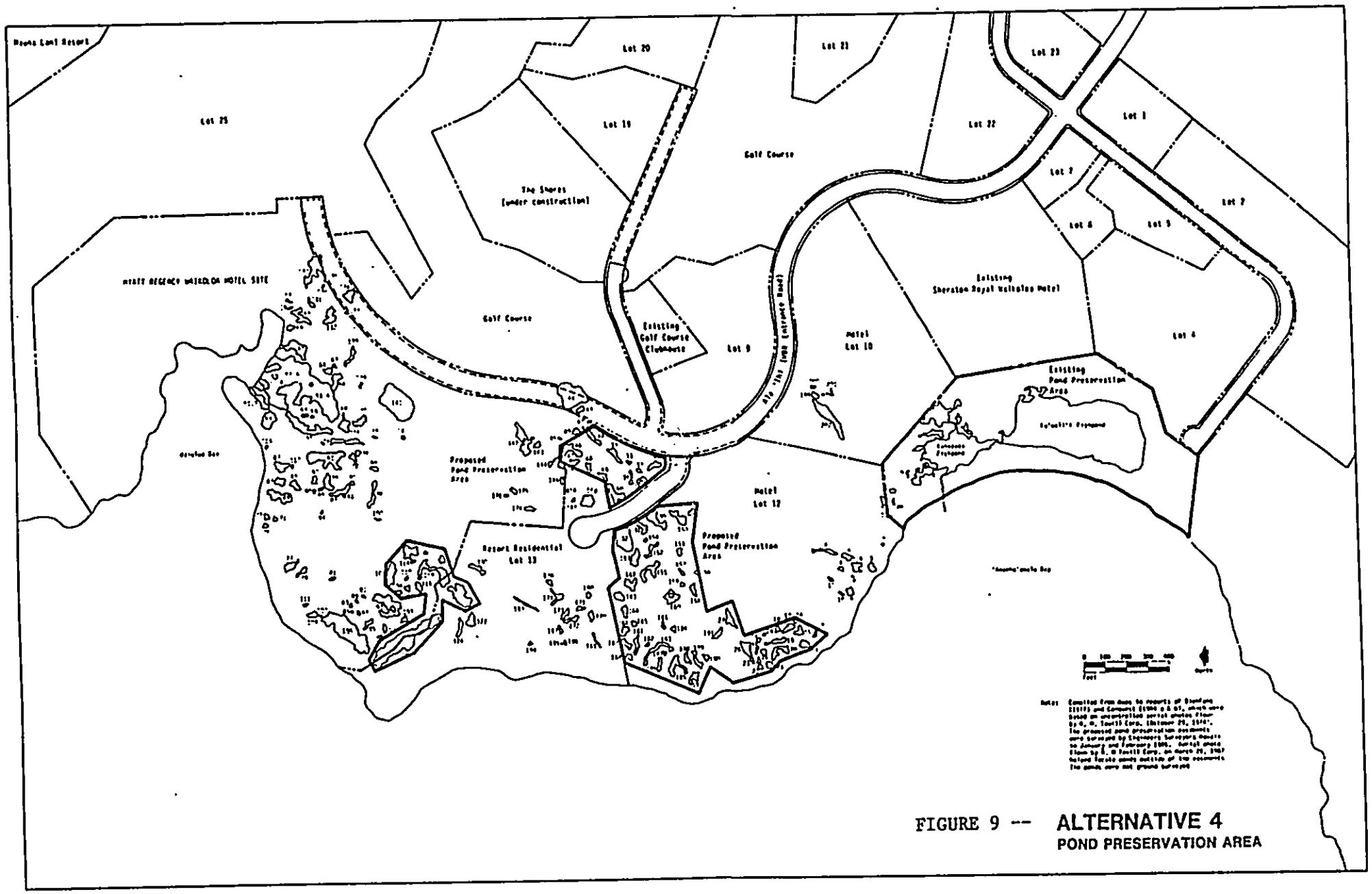

FIGURE 9 -- **ALTERNATIVE 4**
POND PRESERVATION AREA

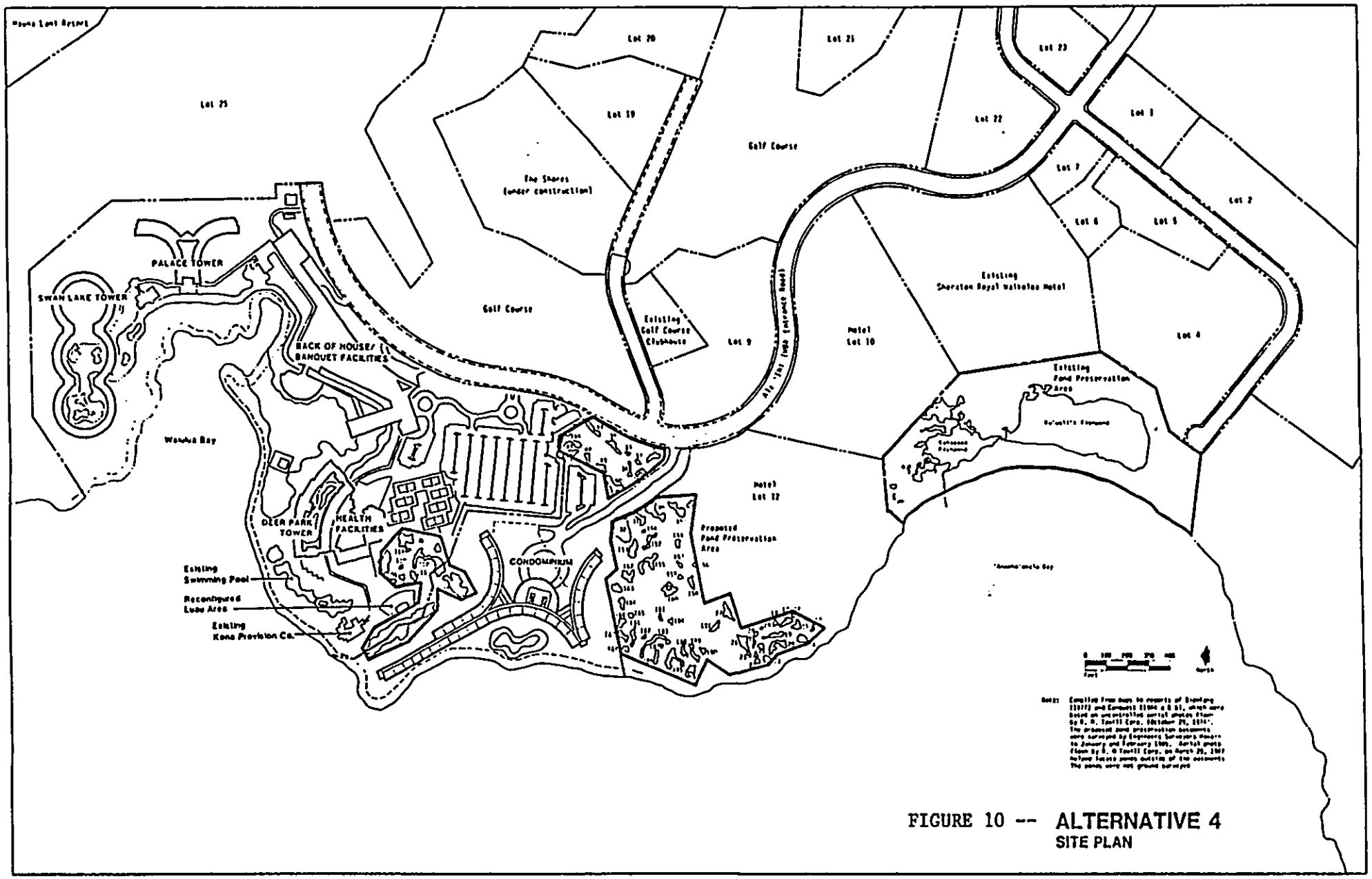

FIGURE 10 -- ALTERNATIVE 4
SITE PLAN

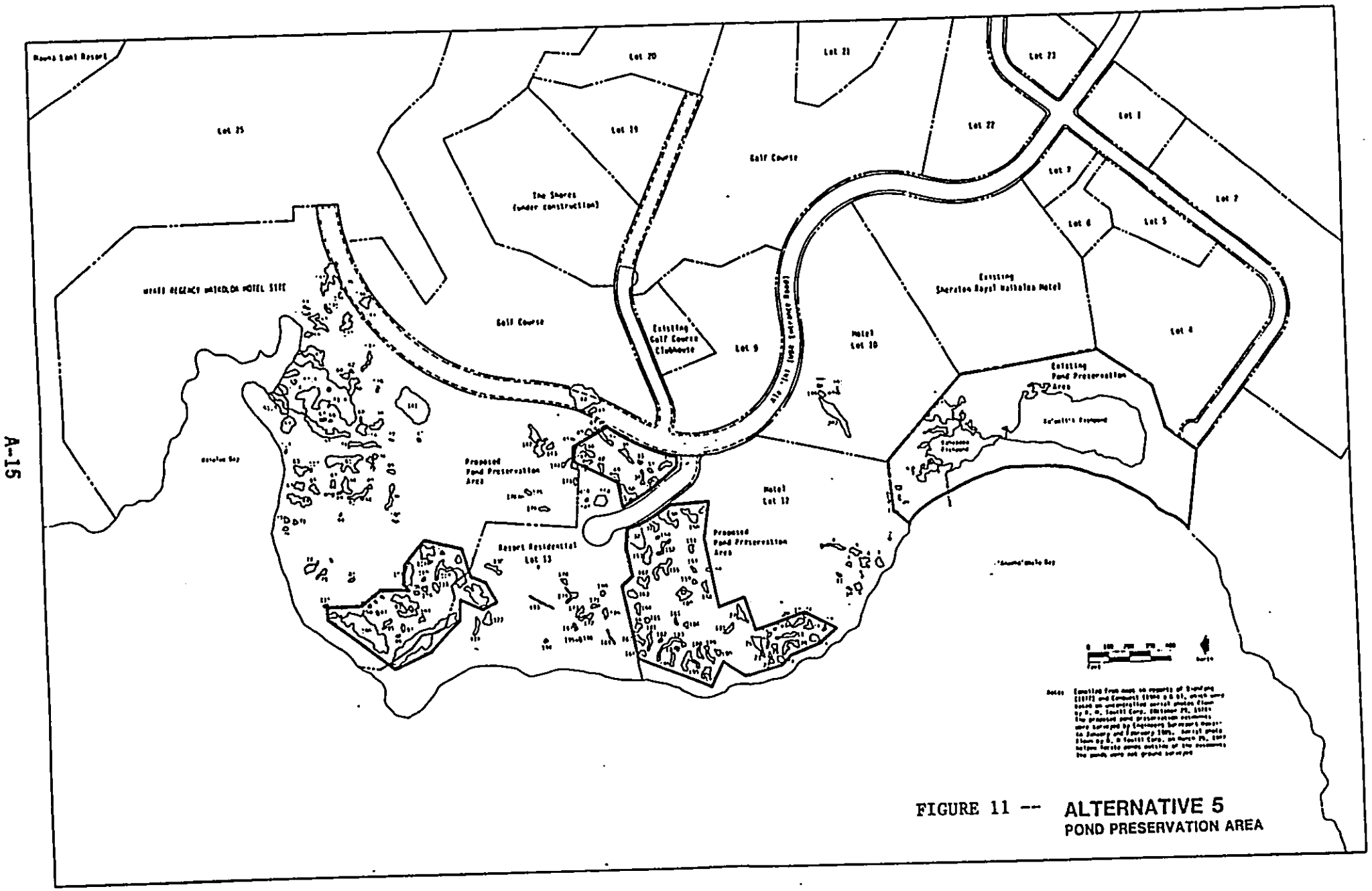

FIGURE 11 -- ALTERNATIVE 5
POND PRESERVATION AREA

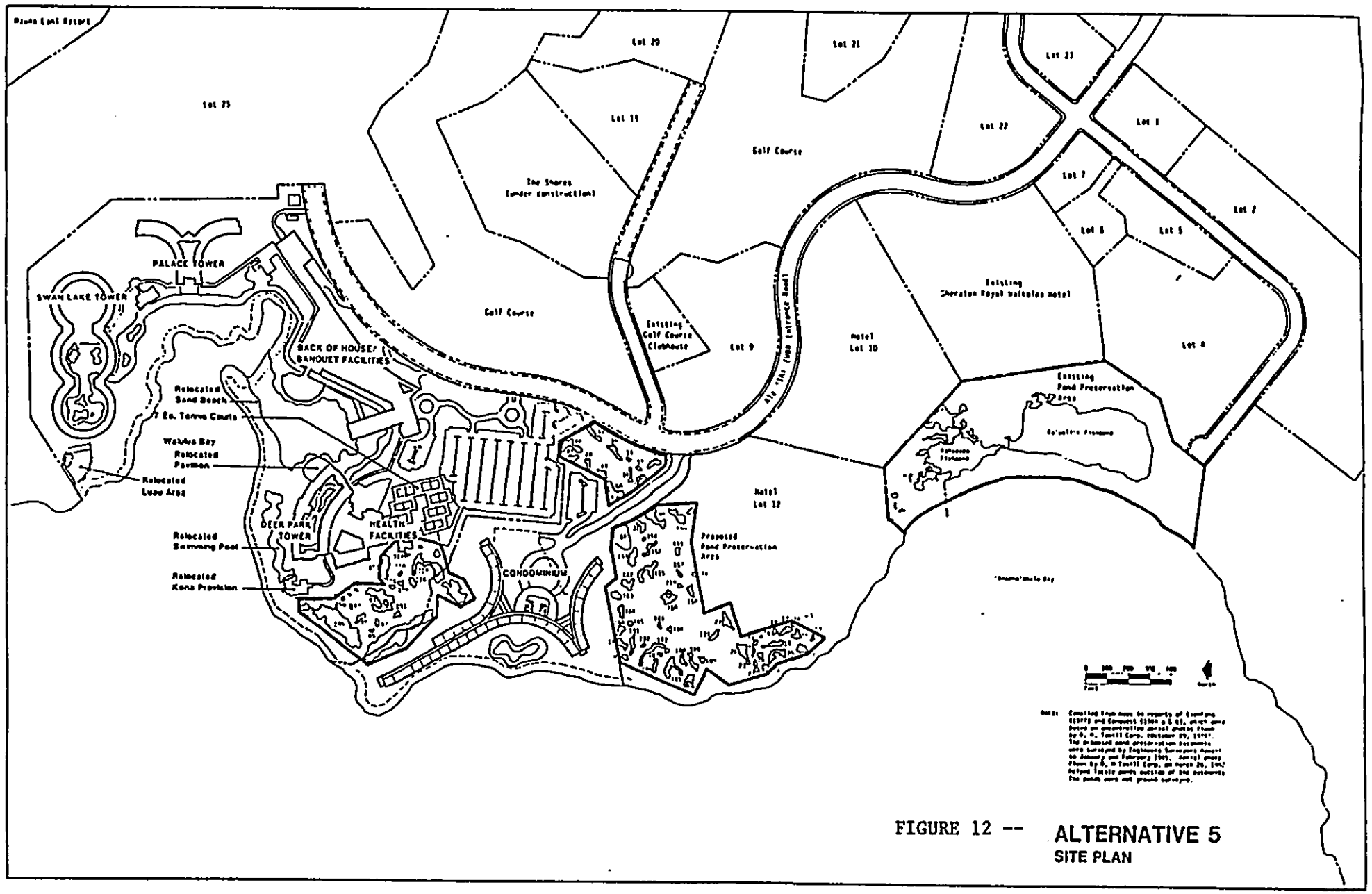

FIGURE 12 -- ALTERNATIVE 5
SITE PLAN

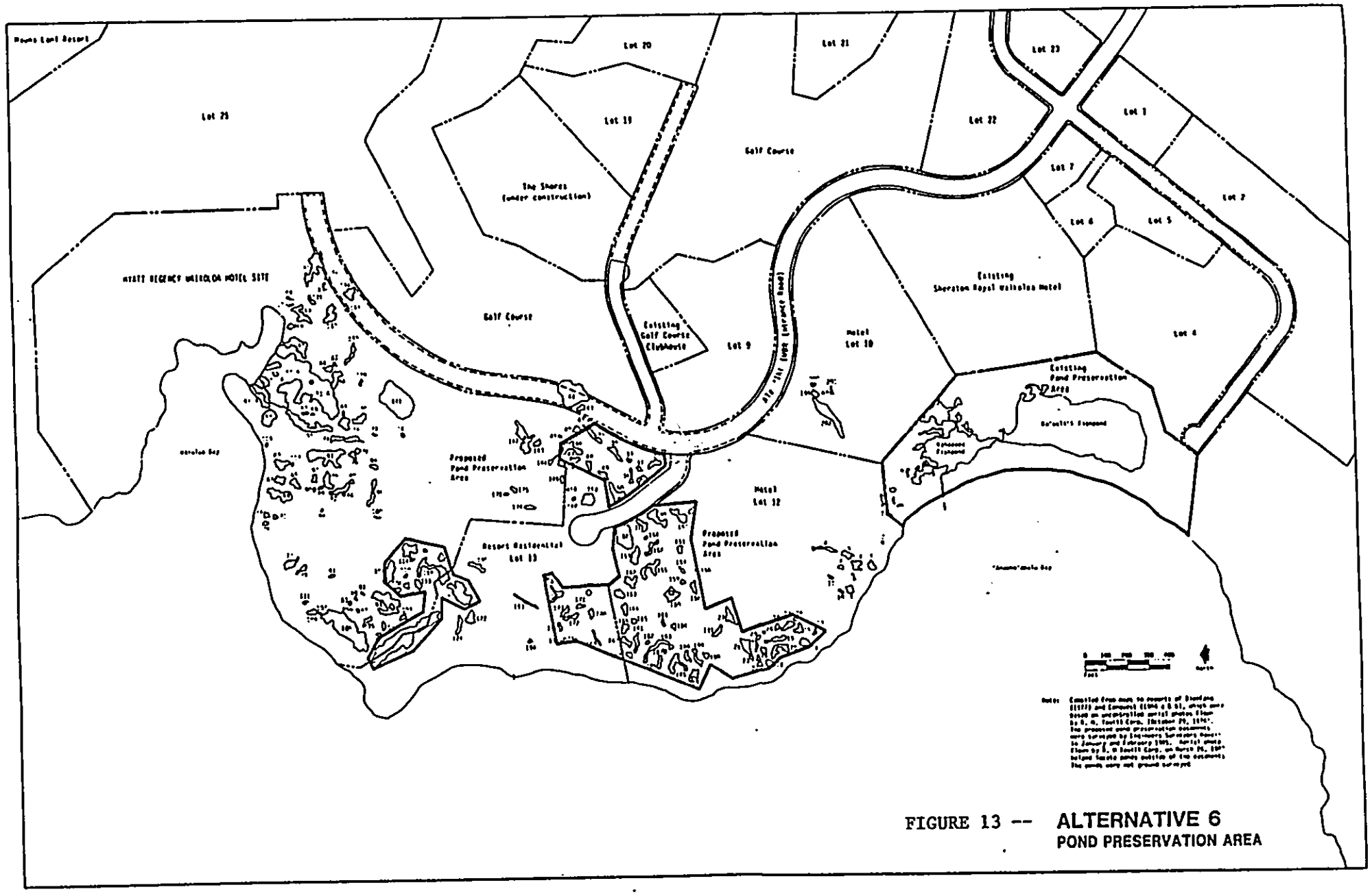

FIGURE 13 -- **ALTERNATIVE 6**
POND PRESERVATION AREA

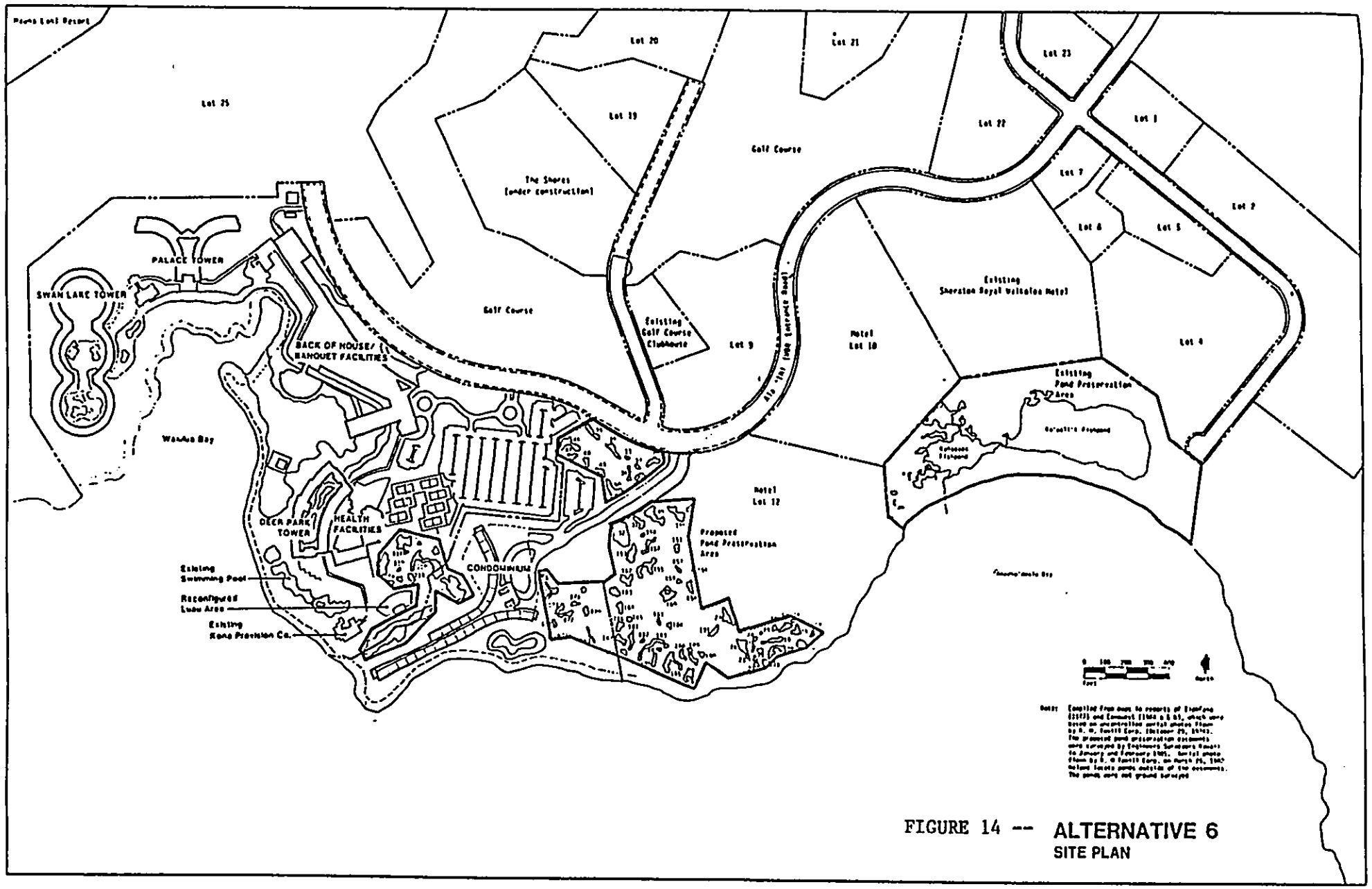

FIGURE 14 -- ALTERNATIVE 6
SITE PLAN

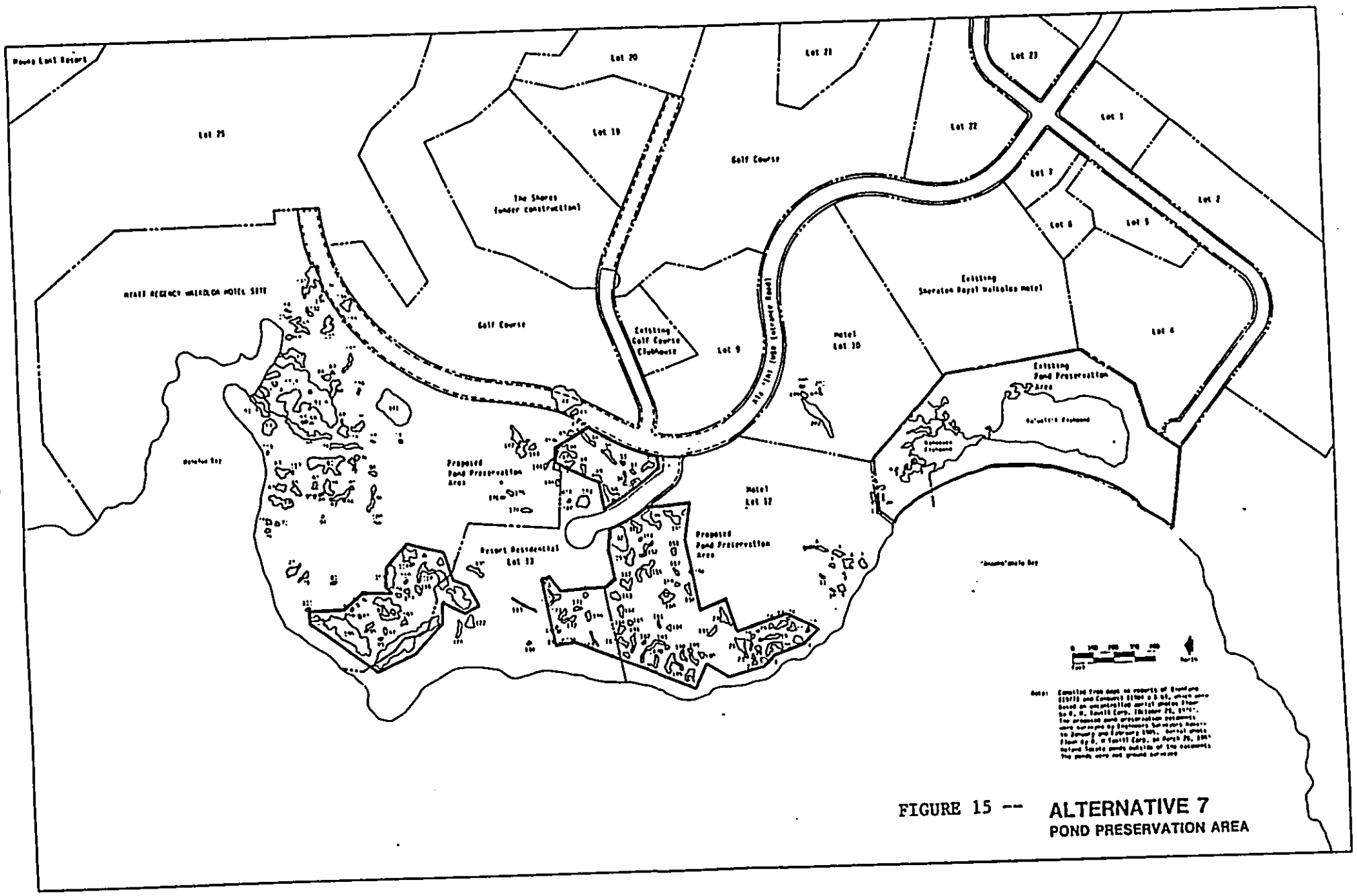

FIGURE 15 -- ALTERNATIVE 7
POND PRESERVATION AREA

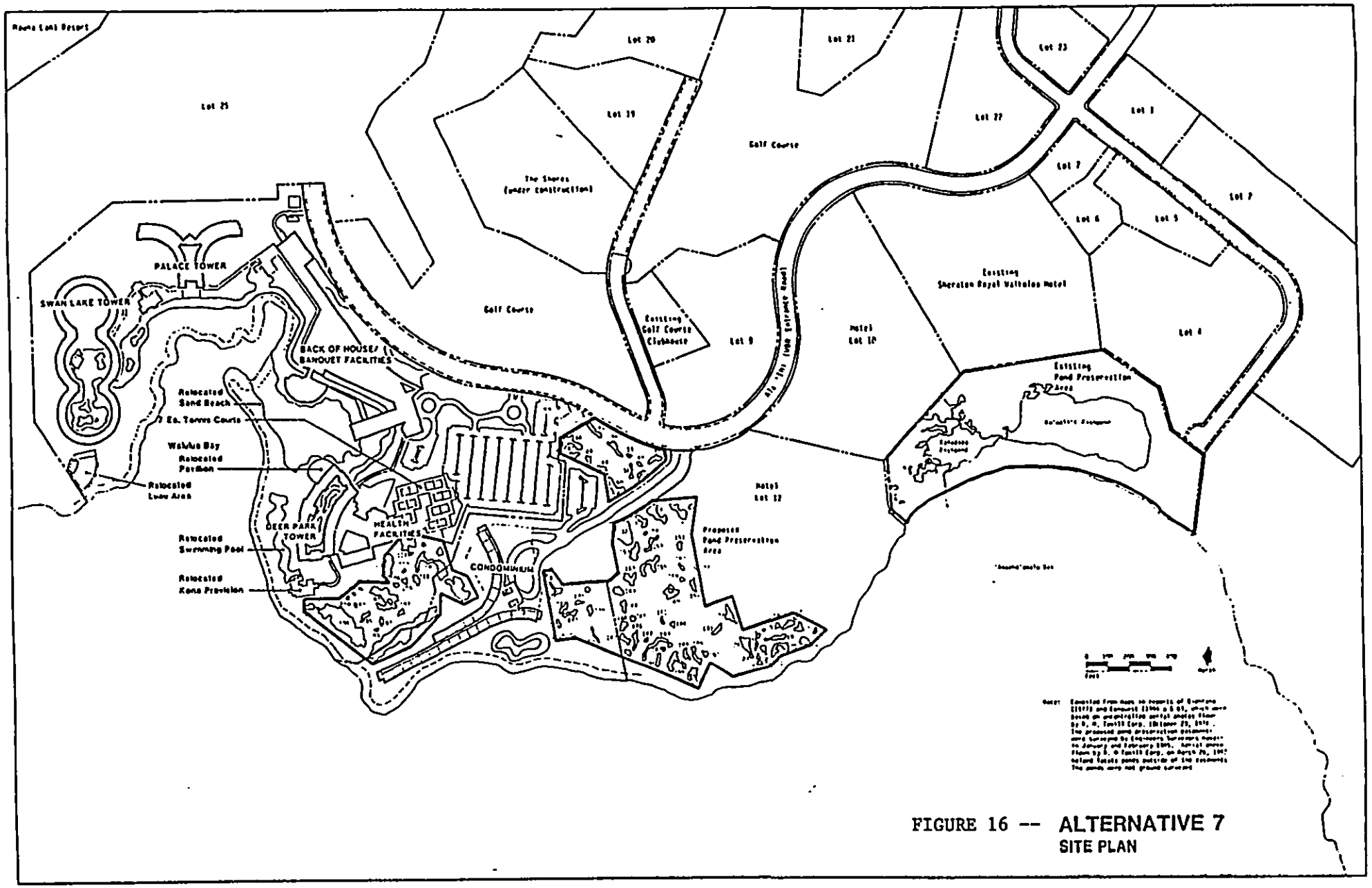

FIGURE 16 -- ALTERNATIVE 7
SITE PLAN

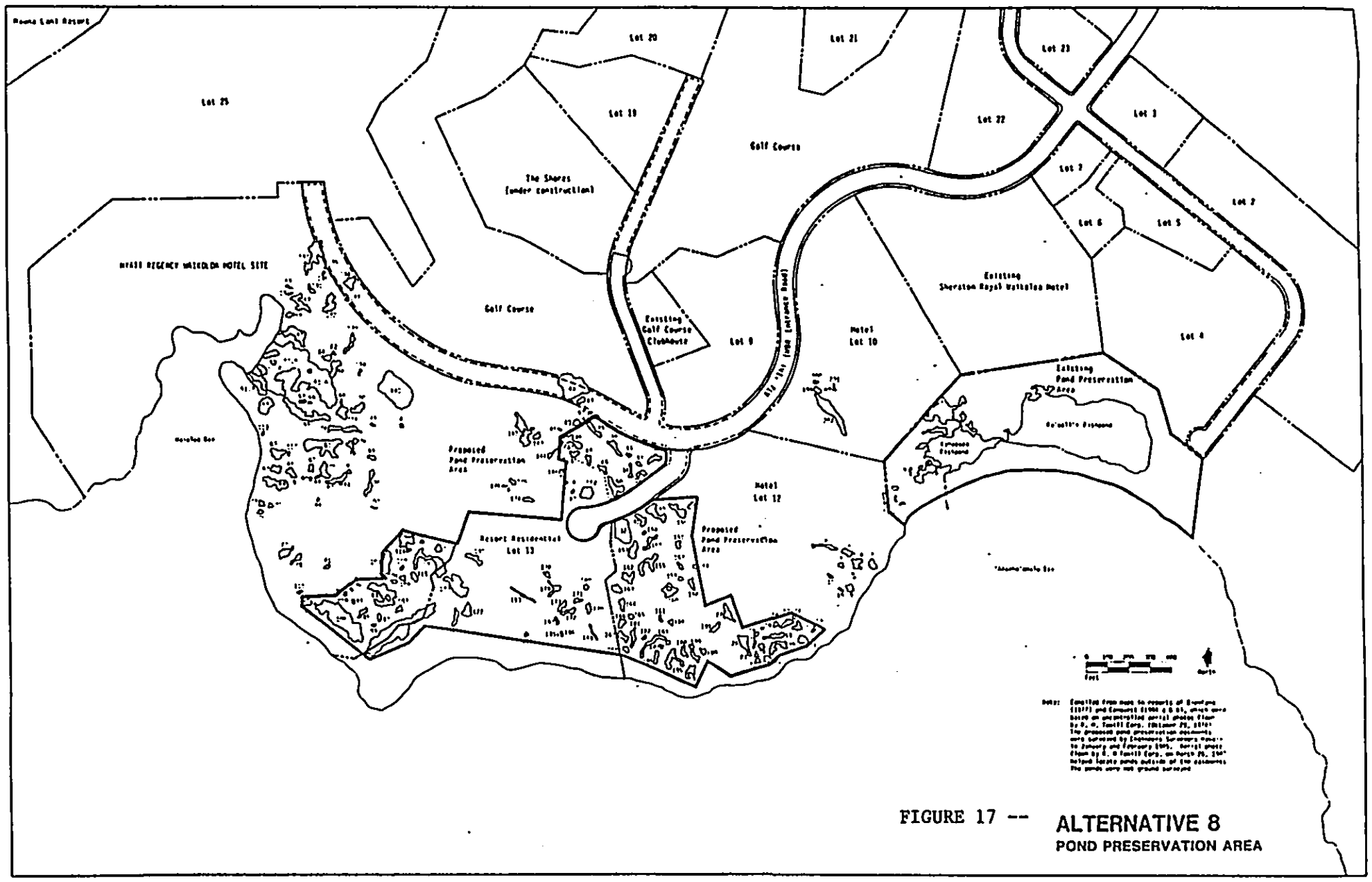

FIGURE 17 -- **ALTERNATIVE 8**
POND PRESERVATION AREA

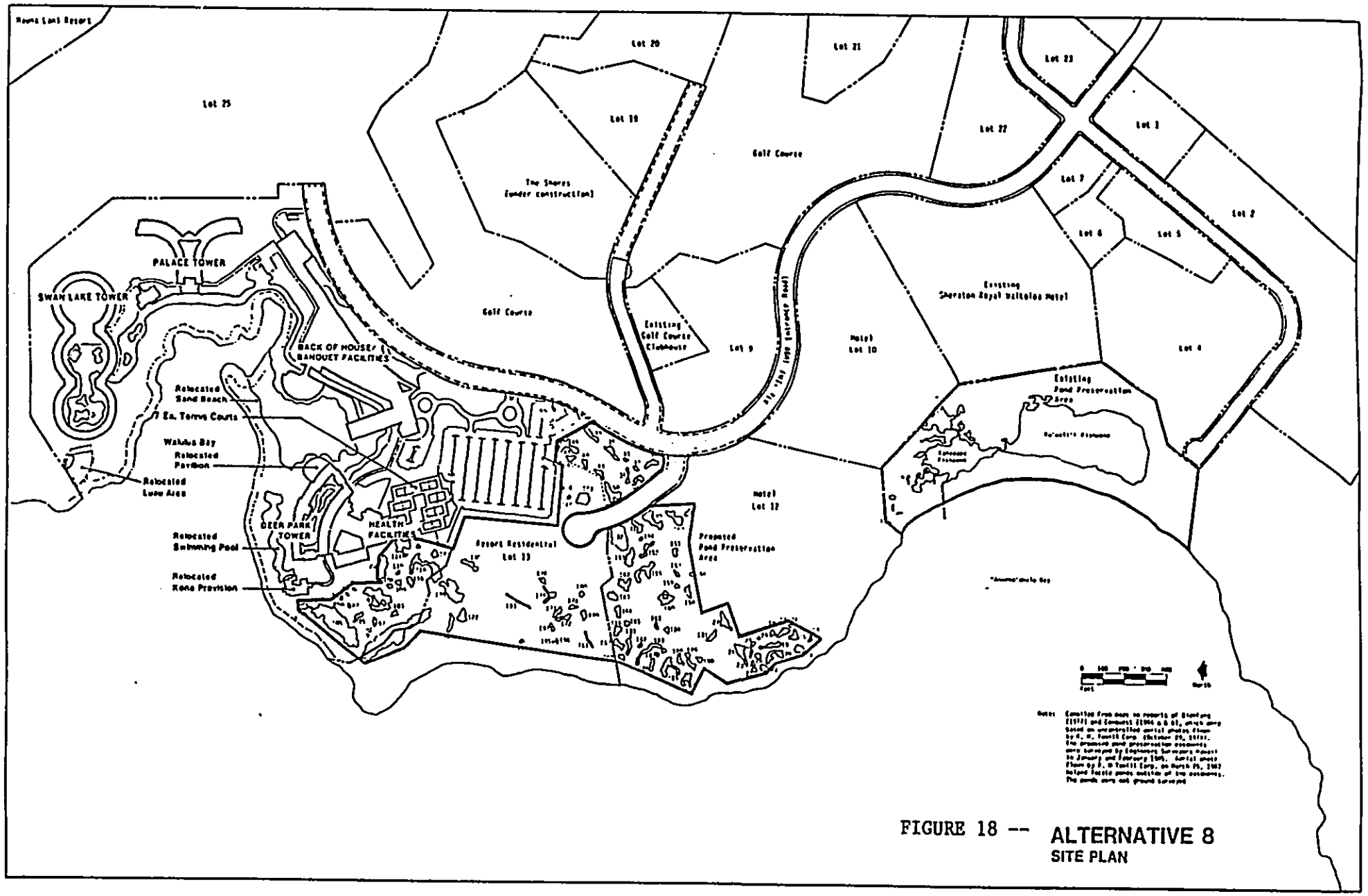

FIGURE 18 -- **ALTERNATIVE 8**
SITE PLAN

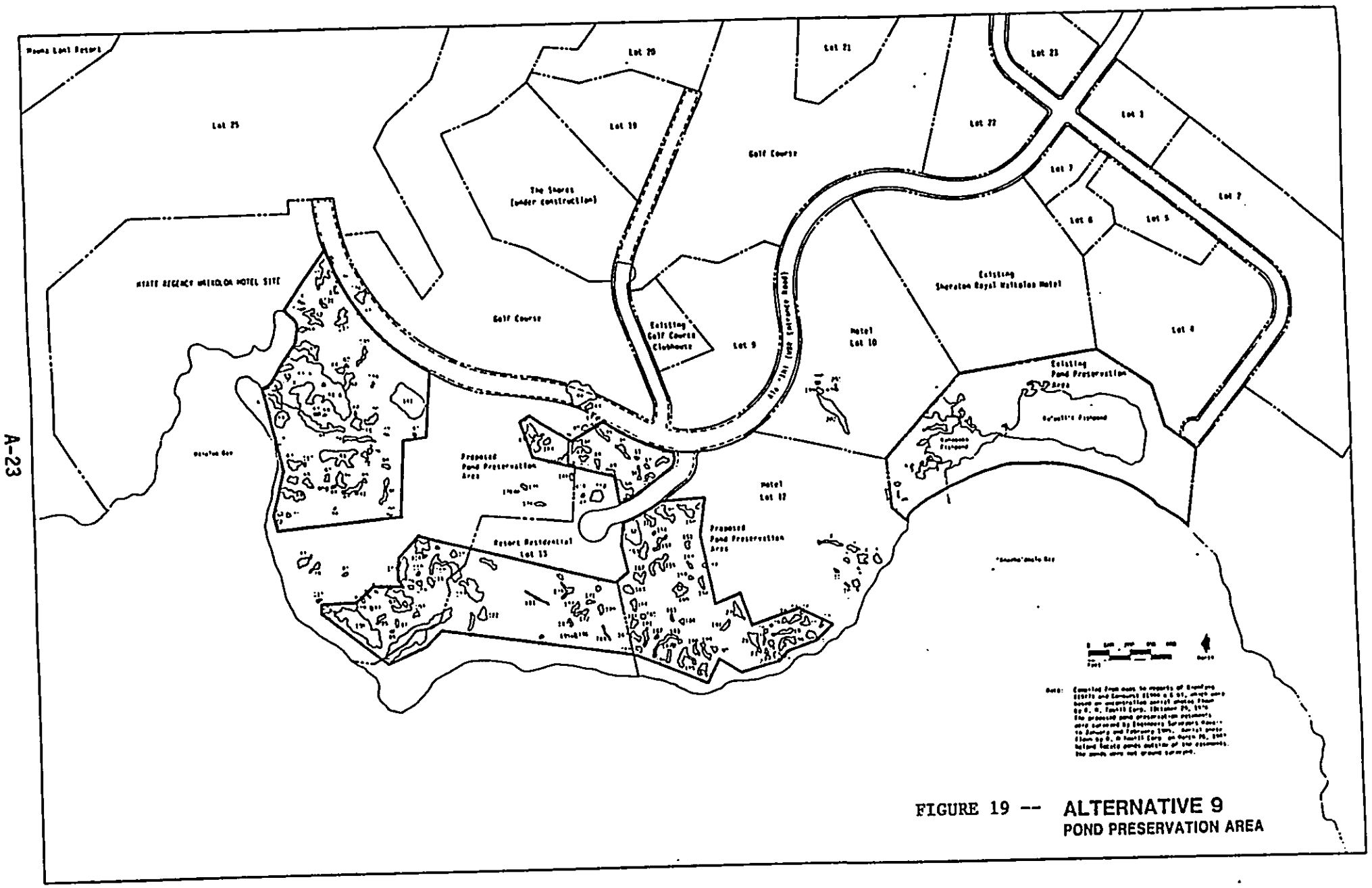

FIGURE 19 -- ALTERNATIVE 9
POND PRESERVATION AREA

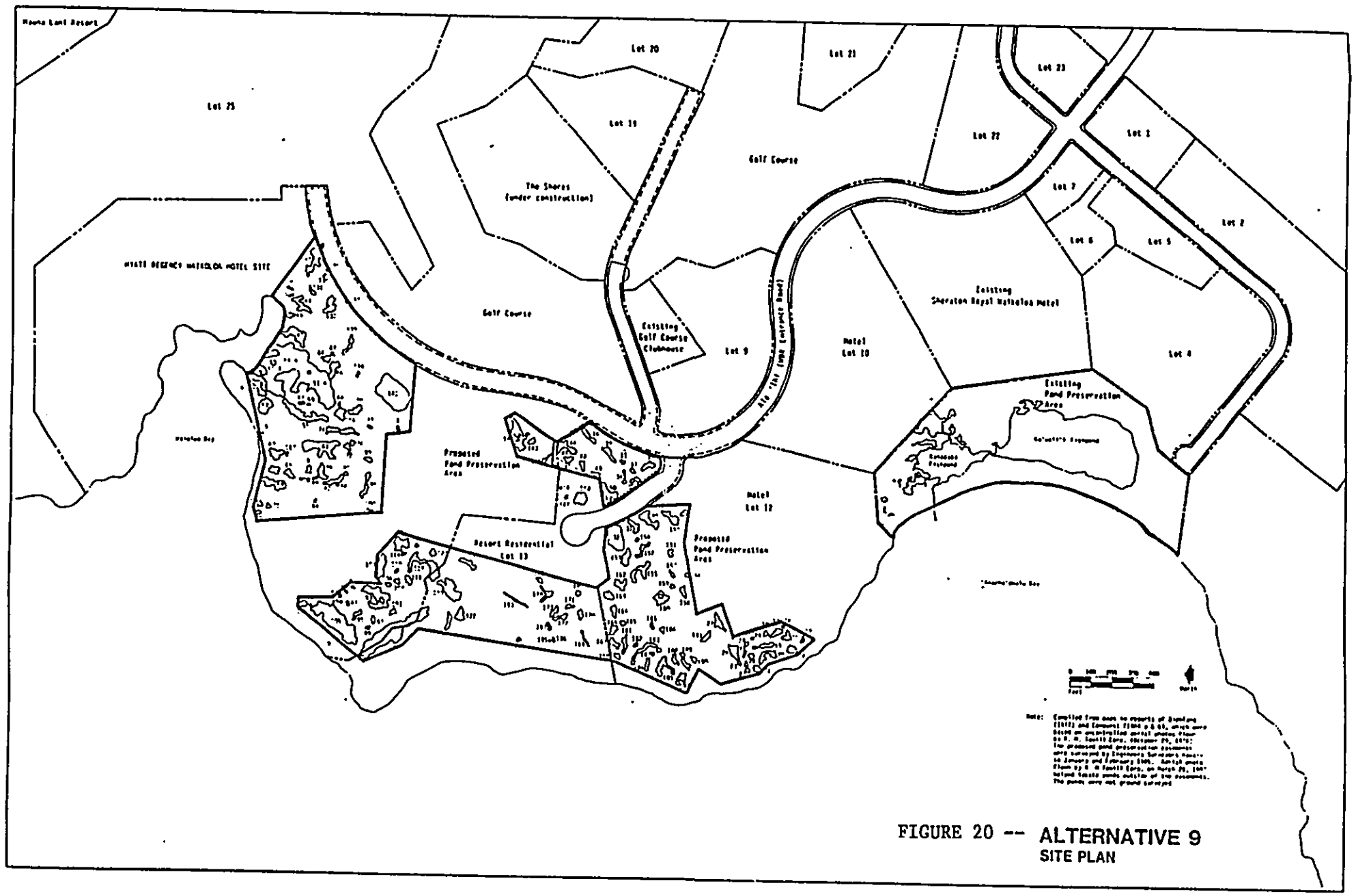

FIGURE 20 -- ALTERNATIVE 9
SITE PLAN

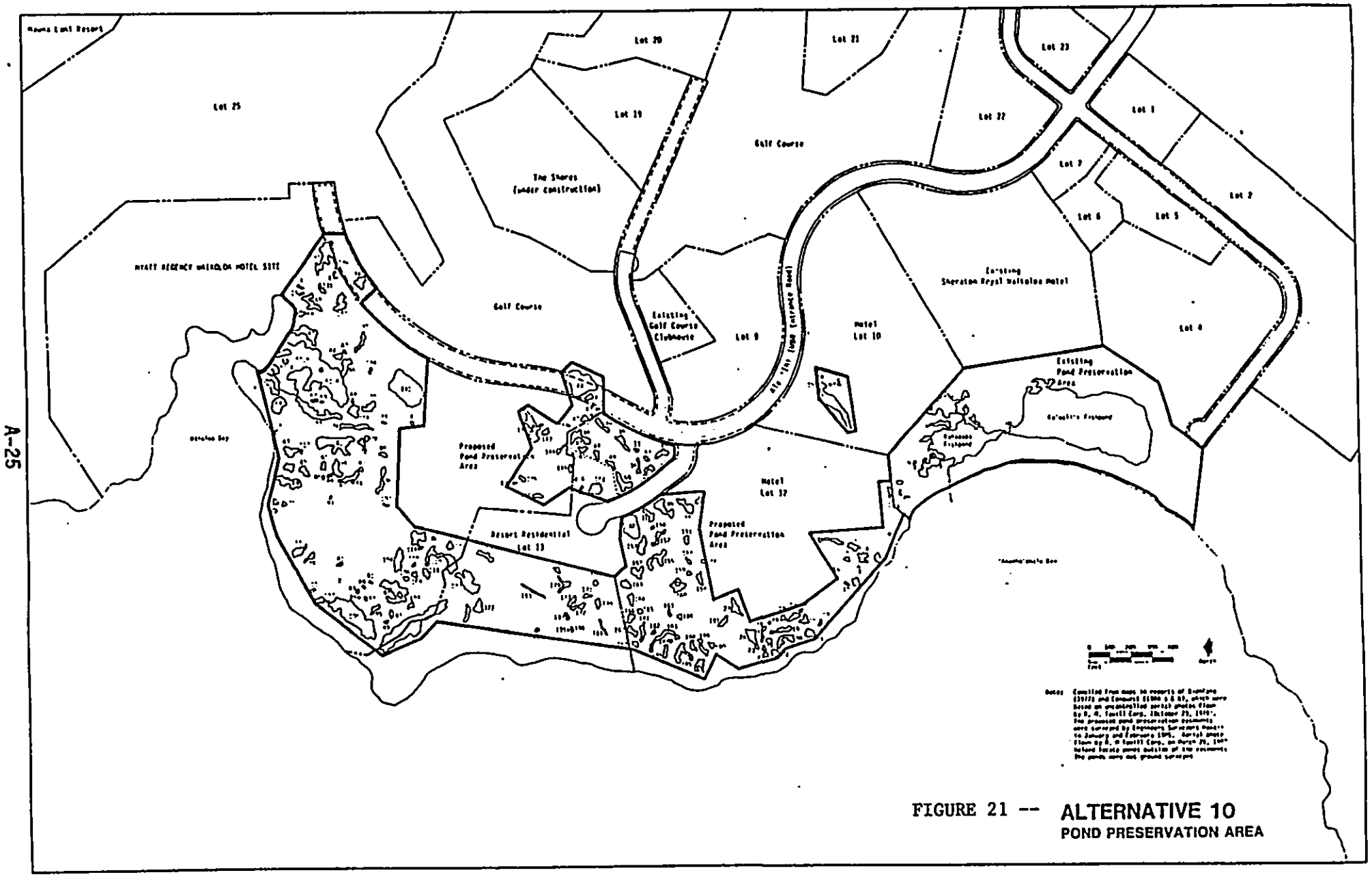

FIGURE 21 -- **ALTERNATIVE 10**
POND PRESERVATION AREA

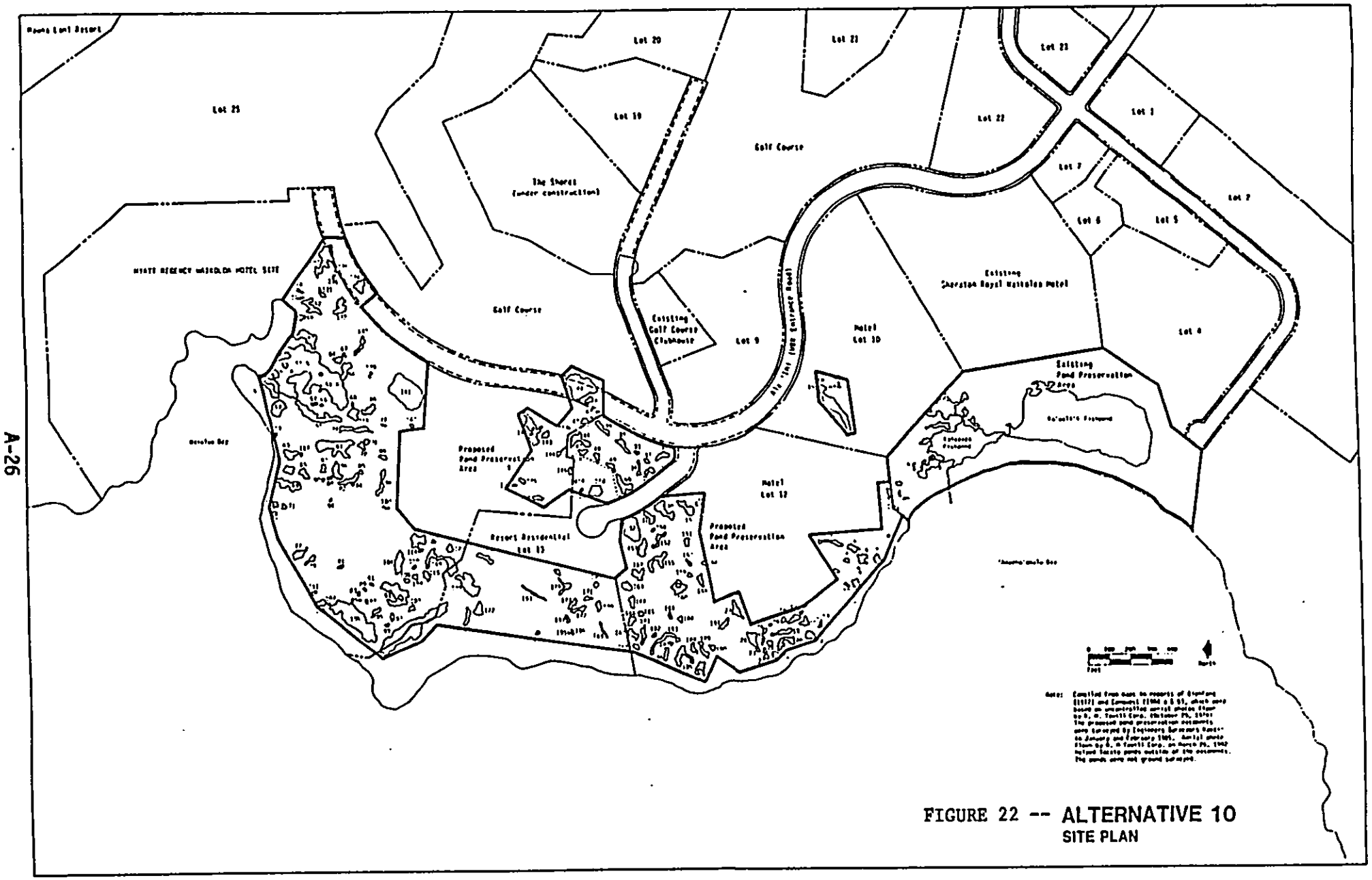

FIGURE 22 -- ALTERNATIVE 10
SITE PLAN

Appendix B

Tentative Anchialine Pond Preservation Management Plan

September 22, 1985

APPENDIX B
TENTATIVE
ANCHIALINE POND MANAGEMENT PLAN

A. DEFINITIONS

1. Adjacent Sites. The term "Adjacent Sites" means those parcels which share a common border with the Anchialine Pond Preservation Area.

2. Applicant. The term "applicant" means Transcontinental Development Co. and Atpac Land Co. and their authorized representatives, and their successors and assigns.

3. Management Zones. Management Zones shall consist of the following three areas:

   a. Anchialine Pond Preservation Area. "Anchialine Pond Preservation Area" shall mean that area containing anchialine ponds to remain unfilled and preserved and managed for the continuation of anchialine pond organisms.

   b. Preservation Area Buffer Zone. "Preservation Area Buffer Zone" shall mean that area immediately adjacent to the Anchialine Pond Preservation Area in which development activities are limited.

   c. Upgradient Control Zone. "Upgradient Control Zone" shall mean areas upgradient or inland of the Anchialine Pond Preservation Area in which additional ground injection of wastewater and stormwater runoff are prohibited.

4. Policing. "Policing" shall mean the collection and carrying away of trash and other refuse.

B. BOUNDARIES

1. Depiction of Boundaries

   a. The boundaries of the Management Zones as described in Section A herein above shall be those depicted on the map and metes and bounds attached hereto.

      (Note: drawings and metes and bounds are to be completed and attached after a permit is issued.)

   b. Prior to initiating the activities authorized by this permit, the Anchialine Pond Preservation Area boundary will be marked off or delineated on the ground by the applicant.

   c. The applicant shall notify the Corps of Engineers so that the boundary delineation can be verified by the Corps of Engineers. Once verified, permanent markers shall be

installed by the applicant marking the limits of the Anchialine Pond Preservation Area.

2. Method of Conveyance of Management Rights

(a) Limited rights to manage the Anchialine Pond Preservation Area are to be granted by the applicant to the U.S. Fish and Wildlife Service in the form of a conservation easement that is to continue for the life of this Department of the Army permit.

(b) The conservation easement referred to in Section B.2.(a) above is to be created simultaneously with the granting of this Department of the Army permit.

C. CONSTRUCTION AROUND THE ANCHIALINE POND PRESERVATION AREA

1. Notification of the Start of Construction

a. The applicant shall notify the Corps of Engineers at least two months prior to the start of any major construction or earth moving on parcels adjacent to the Anchialine Pond Preservation Area.

2. Initial Construction and Fill Placement Restrictions In Areas Adjacent to the Anchialine Pond Preservation Area

a. The toe of any fill placed around the Anchialine Pond Preservation Area shall not penetrate the Anchialine Pond Preservation Area boundary, and in no event shall the toe of any fill be closer than five (5) feet to the edge of a preserved pond. This restriction applies unless a written variation is authorized by the Corps of Engineers in consultation with the US Fish and Wildlife Service.

b. The slope of any fill within the Preservation Area Buffer Zone shall have an angle of repose sufficient to prevent the fill material from slumping into the ponds, except that no slope shall be steeper than one (1) to one (1).

c. The slope of any fill within the Preservation Area Buffer Zone shall be revetted or stabilized where necessary to prevent fill material from eroding or leaching into the ponds.

d. The slope of any fill within the Preservation Area Buffer Zone shall not be vegetated.

D. CONSTRUCTION WITHIN THE PRESERVATION AREA BUFFER ZONE

1. A Preservation Area Buffer Zone shall be maintained adjacent to

the Anchialine Pond Preservation Area. The width of the Preservation Area Buffer Zone shall be twenty-five (25) feet, except that it shall be thirty (30) feet where a structure abutting the Anchialine Pond Preservation Area has a height greater than forty (40) feet. The width shall be measured from the perpendicular plane of the preservation area boundary.

2. The applicant shall notify the Corps of Engineers when the Preservation Area Buffer Zone boundary is marked off or delineated on the ground so that the Corps of Engineers can verify the boundary.

3. Construction in the Preservation Area Buffer Zone

   a. Major above grade structures, such as hotel, condominium units, restaurants or snack bars, shops, restroom facilities, and outdoor showers are not allowed within the Preservation Area Buffer Zone.

   b. Walkways and roadways, bench areas, adequate trash receptacles, drinking fountains, utility lines and other necessary infrastructure, landscaping, display areas, and other similar facilities and improvements are allowed within the Preservation Area Buffer Zone.

   c. Landscaping within the Preservation Area Buffer Zone shall utilize a preponderance of native vegetation.

E. OTHER CONSTRUCTION AND DESIGN RESTRICTIONS

1. Site grading shall be such that stormwater drainage from walkways, roadways, buildings, and other covered areas shall not flow into the Anchialine Pond Preservation Area or the Preservation Area Buffer Zone but shall be conveyed outside the Anchialine Pond Preservation Area.

2. The wastewater collection, treatment, and disposal system shall be designed to prevent overflow during power outages or other emergencies from entering into the pond preservation area or into the Upgradient Control Zone.

3. Street lights, spotlights, walkway lights, and other types of lighting shall be designed, operated, and maintained so that they do not shine directly on the Anchialine Pond Preservation Area.

4. All structures in Adjacent Sites, whether above or below grade, used for the storage of chemicals and petroleum products shall be designed to prevent spillage or leakage from entering into the Management Zones.

F. ANCHIALINE POND PRESERVATION AREA USE RESTRICTIONS

1. Activities Prohibited Within the Anchialine Pond Preservation Area include:

   a. Disposal of trash, stormwater, wastewater, or other unauthorized material of any kind.

   b. Introduction of organisms of any kind into the ponds without the expressed written consent of the Corps of Engineers in consultation with the U.S. Fish & Wildlife Service.

   c. Unauthorized feeding of pond organisms.

   d. Unauthorized removal of pond organisms, to include fishing, gathering, collecting, or netting without the written consent of the Corps of Engineers in consultation with the U.S. Fish & Wildlife Service.

   e. Unauthorized use of pond organisms.

   f. Any physical or hydrologic modification in the Anchialine Pond Preservation Area without written consent of the Corps of Engineers in consultation with the U.S. Fish and Wildlife Service.

2. Controlled scientific collecting shall be limited to those experiments determined to be necessary for understanding the pond ecosystem and organism life requirements as determined and authorized by the Corps of Engineers in consultation with the U.S. Fish & Wildlife Service.

G. ANCHIALINE POND PRESERVATION AREA MANAGEMENT

1. Objectives.

The objectives of the pond management program include, but are not limited to:

   a. Maintenance of a viable anchialine pond ecosystem.

   b. Expansion of scientific understanding of the anchialine pond ecosystems and the effects of urban development on them.

   c. Education of residents and visitors of the unique nature and value of the anchialine pond resource in Hawaii.

2. Pond Manager

a. The U.S. Fish & Wildlife Service shall manage the Anchialine Pond Preservation Area in perpetuity. When acting in this role, the U.S. Fish & Wildlife Service shall be referred to as the "Pond Manager".

b. The U.S. Fish and Wildlife Service can contract services to accomplish its responsibilities.

c. In the event that the U.S. Fish and Wildlife Service is unable to fulfill its management responsibilities, an individual, organization or government agency with a record of experience in wildlife conservation, management, environmental awareness, education and public relations will be designated as the managing agent by the Corps of Engineers in consultation with the U.S. Fish and Wildlife Service.

3. Responsibilities of the Pond Manager

The Pond Manager shall carry out or cause to be carried out the following duties:

a. Implement the programs required under the pond preservation plan, including the Anchialine Pond Preservation Area use restrictions described in Section F. herein above.

b. Initiate programs to communicate the pond management objectives and use restrictions to adjacent landowners, their employees, and other users of adjacent lands.

c. Develop, schedule, and conduct resident and visitor education seminars, tours, and other programs to achieve the management objectives.

d. Monitor groundkeeping activities by the applicable hotel or condominium grounds keepers in the Preservation Area Buffer Zone to insure that their activities do not adversely affect the pond preservation area and to enforce the use restrictions.

e. Conduct a surveillance program to monitor the presence or absence of exotic fish in the ponds, and inform the Corps of Engineers if exotic fish species are found so that corrective measures can be formulated and executed.

f. Monitor and regulate human activities in the Anchialine Pond Preservation Area to prevent human disruption of the anchialine pond habitat and the unauthorized introduction of live organisms.

g. Conduct or assist in carrying out the monitoring program described in Section L. of this plan.

h. Conduct, assist, facilitate, schedule, or coordinate scientific or education activities in the pond preservation area.

i. Provide semi-annual update and annual status reports concerning activities undertaken and actions occurring in the pond preservation area and provide results of the monitoring program to the Corps of Engineers.

j. Notify the Corps of Engineers of any unforeseen, deleterious events or occurrences in the Anchialine Pond Preservation Area.

k. Carry out the monitoring program.

l. After all contemplated construction and development on Adjacent Sites has been completed, the Pond Manager will:

(a) assume maintenance and replacement responsibility for signs posted initially by the applicant in accordance with the provisions of Section G.4.(a) herein below.

(b) Undertake and administer the policing of the Anchialine Pond Preservation Area. Provide all equipment and consummable supplies required for such activities.

4. Responsibilities of the Applicant

(a) Through the completion of construction and development of Adjacent Sites, the applicant shall post and maintain signs around the ponds informing viewers of the intent of the Anchialine Pond Preservation Area, use restrictions, and the availability of educational tours and seminars presented by the Pond Manager. The design of the signs shall be consistent with signage used elsewhere within the Waikoloa Beach Resort. Their informational content will be determined in consultation with the U.S. Army Corps of Engineers and the Pond Manager.

(b) The applicant shall cooperate with the Pond Manager's efforts to assure that resort employees are made aware of the value and sensitive nature of the pond resource.

(c) The applicant shall be responsible for providing funding support for the Anchialine Pond Preservation Program to the extent stipulated in Section J herein below.

(d) The applicant shall provide all notifications required from the applicant by this agreement, including advance notification of intended construction activity.

5. Delegation of Authority

a. The Corps of Engineers may delegate any authority given it by the terms of this agreement to the Pond Manager.

H. MONITORING REQUIREMENTS

1. The Pond Manager shall monitor water quality and faunal assemblages within the Pond Preservation Area on a periodic

basis to assess the ecological viability and conditions of the pond ecosystem.

2. Construction Monitoring Requirements

   a. Prior to beginning substantial new construction on a parcel adjacent to the Anchialine Pond Preservation Area, the applicant shall notify the Pond Manager of the nature of the proposed construction activity. This information will be used by the Pond Manager to determine the need for, and the appropriate duration of, any additional monitoring needed to establish baseline conditions and to detect and characterize daily and seasonal variations.

   b. During the course of construction on Adjacent Sites, the preserved ponds shall be monitored by the Pond Manager at a frequency necessary to detect any adverse impacts on such ponds.

   c. The preserved ponds shall be monitored at least once each calendar quarter for a period of two years following completion of a construction project on an Adjacent Site. The monitoring frequency shall then be reduced to a frequency necessary to detect any long-term trends in pond water quality and faunal assemblages.

3. Parameters To Be Monitored By The Pond Manager

   a. Physical parameters to be monitored shall include, but are not limited to: salinity, temperature, water clarity, and dissolved oxygen profiles.

   b. Chemical parameters to be monitored shall include, but are not limited to: nitrates, nitrites, phosphates, ammonia, petrochemicals, and chlorinated hydrocarbons.

   c. Measurements shall be taken during all tidal cycles to detect any correlation between physical and chemical parameters and tidal influence.

   d. Plant and animal populations shall be inventoried to develop detailed species lists and to calculate population, biomass, density, distribution and frequency of occurence.

      (1) Inventories shall be conducted during all tidal cycles to detect any correlation between anchialine pond organism occurrence, population, biomass, density, distribution, behavior and the tides and physical and chemical parameters, and other parameters necessary to detect short-term and long-term changes.

   e. Chlorophyl levels will be measured to monitor phytoplankton growth in the ponds.

6. Data Analysis

a. The data gathered in the monitoring program shall be used to further the scientific understanding of anchialine pond ecology.

I. REMEDIAL AND CORRECTIVE MEASURES.

1. When notified of the occurrence of such an unforseen deleterious event, the Corps of Engineers shall determine the need for remedial and corrective action and shall direct the Pond Manager to undertake such action using monies provided for in Section J. herein below.

2. The Pond Manager shall be responsible for implementing any corrective action or measures as directed by the Corps of Engineers when any unforeseen, deleterious event or occurrence impacts the ecological viability of the pond preservation area.

3. Notwithstanding any permit conditions dealing with liability or responsibility of the applicant, the applicant shall be liable for funding any corrective work directed by the Corps when an unauthorized action by the applicant or its employees or agents, within the scope of employment, which is intended to harm the ecological viability of the Anchialine Pond Preservation Area occurs.

J. FINANCIAL OBLIGATIONS

1. Funding. The purpose of this section is to provide sufficient money to administer the business contemplated under this Anchialine Pond Management Plan.

a. The applicant shall contribute an initial funding of _____ and pay an annual cost, in accordance with the attached schedule subject to adjustments based on the Consumer Price Index, to provide sufficient money to administer the business contemplated under this Anchialine Pond Management Plan.

b. The funds contributed by the applicant under paragraph J.1.a above shall be administered by _____ and shall be used to conduct the affairs of the Anchialine Pond Management Plan as set forth herein. The funds would be managed under the doctrine of cy pres.

2. Office Facilities.

a. Because of the necessity for the Pond Manager to be on-site for extended periods during monitoring, the applicant will provide, without rental compensation by the Corps of Engineers or the U.S. Fish and Wildlife Service space within the Waikoloa Beach Resort suitable for use by the Pond Manager on a non-exclusive basis, such space to be suitable for use as an office and equipment storage

area. The Pond Manager shall also be granted ready access to available toilet facilities maintained by the applicant or its designee.

YEAR	TOTAL ANNUAL COSTS	YEAR	TOTAL ANNUAL COSTS
0	$16,464		
1	$20,946	26	$12,616
2	$20,946	27	$12,616
3	$20,946	28	$12,616
4	$20,946	29	$12,616
5	$19,425	30	$14,216
6	$18,904	31	$12,616
7	$18,404	32	$12,616
8	$18,404	33	$12,616
9	$18,404	34	$12,616
10	$18,404	35	$12,616
11	$18,404	36	$12,616
12	$18,404	37	$12,616
13	$14,732	38	$12,616
14	$14,732	39	$12,616
15	$16,332	40	$12,616
16	$13,116	41	$12,616
17	$13,116	42	$12,616
18	$13,116	43	$12,616
19	$13,116	44	$12,616
20	$13,116	45	$14,216
21	$13,116	46	$12,616
22	$12,616	47	$12,616
23	$12,616	48	$12,616
24	$12,616	49	$12,616
25	$12,616	50	$12,616

COST WILL BE ADJUSTED ANNUALLY BASED ON CONSUMER PRICE INDEX.

Appendix C

Assessment of the Conditions and Future of Anchialine Pond Resources of the Hawaiian Islands

AN ASSESSMENT OF THE CONDITIONS AND FUTURE OF THE ANCHIALINE POND RESOURCES OF THE HAWAIIAN ISLANDS

Prepared For:

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Prepared By:

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August 2, 1985

C-1

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PREFACE

This report was written in response to a rising concern over the anchialine pond resources of the Hawaiian Islands and their status. It summarizes the state of our knowledge with respect to the distribution of anchialine ponds and discusses the biological attributes of these systems.

Most of the known Hawaiian anchialine resources occur along the West Hawaii (Kona) shoreline and have in recent years been a focus of attention with respect to coastal development. Anchialine ponds are land-locked brackish water pools that display tidal fluctuations and that harbor a distinctive assemblage of organisms, some of which are found nowhere else. Anchialine pond organisms fall into two classes, i.e., epigeal and hypogeal species. The epigeal fauna is comprised of species that require the well-illuminated (sunlit) part of the anchialine system. Most of these species are found in other Hawaiian habitats albeit individuals from anchialine systems frequently show ecotype (morphological) variations. The hypogeal organisms occur not only in the illuminated part of the system but also in the interconnected watertable below. These species are primarily decapod crustaceans, some of which are known only from the anchialine biotope.

This report describes the anchialine habitat and its biota; it presents some hypotheses as to how the anchialine system might function and how some of the components may interact. The report concludes with some suggestions for the possible management of the resource.

INTRODUCTION

With the discovery of a number of new caridean shrimp species in the early 1960's, Holthuis (1963, 1973) drew attention to an ecologically distinct habitat in which these shrimp are found. These crustaceans reside in land-locked brackish water pools. These pools have been termed "anchialine" by Holthuis (1973) and may be characterized by a lack of surface connections to the sea, yet having measurable salinities and a damped tidal fluctuation.

Naturally occurring anchialine ponds are restricted to highly porous substrates such as recent lavas or limestone adjacent to the sea. These unique habitats are widely distributed having been reported from the Sinai Peninsula in the Red Sea (Por and Tsurnamal 1973, Holthuis 1973), Entedebir near the Southern Red Sea (Por 1968), Aldabra in the West Indian Ocean (Borradaile 1917, Fricke and Fricke 1979), Solomon Islands (Smith and Williams 1981), Okinawa (Suzuki 1980), Philippines (Wear and Holthuis 1977), Funafuti Atoll (Holthuis 1973) in the Western Pacific, and in the Hawaiian Islands (Holthuis 1973, Maciolek and Brock 1974, Wong 1975, and Maciolek 1983). This unique habitat has also been reported on Ascension Island (Chace and Manning 1972) and on the Azores Islands in the Atlantic, and on Bermuda in the Caribbean (D. Williams, pers. comm.). Localities with the most numerous anchialine sites are in Fiji, the Ryukyus, and Hawaii.

Anchialine systems often support an unusual biota, with many species not found elsewhere. In the Hawaiian Islands anchialine ponds or the most characteristic species of that biocoenosis (the shrimp "opaeula" or Halocaridina rubra) have been reported from Oahu, Maui, and Hawaii. On Oahu H. rubra have been observed in a small anchialine depression located on Popoia (Flat) Island in Kaiiua Bay (existence and opaeula presence last substantiated in 1973), and in a quarry borrow pit at Laie approximately 1.5 km inland from the shoreline (last substantiated in 1972). Also on Oahu, opaeula and anchialine waters were observed in a limestone cave uncovered by bulldozer operators during the construction of the new harbor at Barbers Point. The salinity of the water of the cave was 4 parts per thousand (ppt) at the time of discovery (December 1975). This cave has totally disappeared as it was located in what is now the central part of the new harbor. Opaeula have been recently reported from a borrow pit at Campbell Industrial Park and in a sinkhole in the area of the proposed Ewa marina (M. Lee, pers. comm.). All of these discoveries in this locality are in the Ewa coastal plain; if other water exposures, that lack introduced exotic fishes, are located in this area Halocaridina rubra will probably be present. Thus one of the most characteristic anchialine pond organisms, opaeula, is known from three widely separated areas on Oahu.

One of the most biologically interesting groups of anchialine ponds occurs on Maui at Cape Kinau. Holthuis (1973) maps 23 ponds on Cape Kinau but notes that there are "dozens". Because of the unique assemblage of organisms found in this system, it has been made a natural area reserve. Besides these 23 mapped anchialine ponds there may be more in the lava fields adjacent to the Cape (M. Lee, pers. comm.).

In terms of the statewide resource, Hawaii Island has the largest number of anchialine ponds. The majority of these ponds occurs along the coast from Kawaihae to Kailua-Kona on the west side of the island. About 420 ponds have been surveyed in this area and there are an estimated additional 45 unsampled ponds (10 in Makalawena, 20 in Mahaiula and 15 scattered about on private property). From Kailua-Kona to Ka Lae (South Point) there are about 90 more anchialine ponds. Along the eastern coast from South Point to Keaau Ranch there are an estimated 75 additional ponds. Many of the ponds from Kailua-Kona to Keaau Ranch were identified from aerial photographs. This method is inaccurate in that ponds may be missed if they are small or occur under a canopy of trees. Or an over-estimate of ponds may be made if shapes on the photos are misidentified as ponds. In total, 630 ponds have been identified for Hawaii Island and about 165 of these (see Table 1) occur in the area examined by use of aerial photographs. Of these ponds, the existence of 35 (or 5 percent of the aerial-photo-identified ponds) are questionable (i.e., what was identified as ponds may be something else); however, the probability of missing ponds because of the tree canopy is high; thus, the estimated total is probably low. A conservative estimate places the total number of anchialine ponds on Hawaii Island at about 600-650 ponds.

THE BIOTA OF HAWAIIAN ANCHIALINE PONDS

Representative Species

The Hawaiian anchialine pond ecosystem is dominated by a characteristic assemblage of organisms including crustaceans (shrimps, amphipods), fishes, mollusks, a hyroid, sponges, polychaetes, tunicates, aquatic insects, algae and aquatic macrophytes. Most striking are a number of red-pigmented caridean shrimp species. These shrimps, as well as many other co-occurring faunal components, utilize the anchialine pond habitat and the rock interstices leading to the underlying brackish water table. Depending on pond depth, many of the shrimp species display a tidally linked migration, emerging from the rock interstices with the incoming tide to feed in the pond, and later returning via the interstices to the subterranean labyrinth with the falling tide.

Table 1. Summary of the Estimated Number of Anchialine Ponds Occurring Along the Shores of the Southern Half of Hawaii Island.

Topographic Quadrangle	U.S. Army Corps Aerial Photo Nos.[1]	Number of Ponds	Remarks
Kealakekua	220 - 227	11	2 questionable; near Nenue Point
Honaunau	210 - 219	12	6 questionable
Kaulwoa Point	202 - 209	6	4 questionable
Milolii	194 - 202	20	5 questionable
Manuka Bay	189 - 193	7	2 questionable
Pohue Bay	183 - 189	8	1 questionable
Puu Hou	179 - 182	14	
Ka Loe	167 - 179	10	
Naalehu	161 - 167	2	1 questionable
Punaluu	159 - 160	2	
Pahala	150 - 159	8	4 questionable
Naiiikakani Point	146 - 150	0	
Kau Desert	141 - 145	6	4 questionable
Makaopuhi Crater	135 - 140	1	1 questionable
Kalapana	123 - 134	10	
Pahoa South	120 - 123	2	At Kalepa Point
Kapoho	109 - 120	42	29 in a cluster at Waiopae; 4 questionable
Pahoa North	105 - 109	1	1 questionable near Opihi Rock
Keaau Ranch	105 - ?	1	Large pond at Haena
TOTALS		163	35 questionable

[1] Sequentially numbered aerial photographs, made available by the U.S. Army Corps of Engineers, were used in making estimates of pond numbers.

Five of the ten species of hypogeal shrimp in this group world wide are found in Hawaiian anchialine system; these species are Halocaridina rubra, Metabetaeus lohena, Procaris hawaiana, Antecaridina lauensis and Calliasmata pholidota. The first three species are known only from Hawaii, while Antecaridina lauensis has been collected in Hawaii, Fiji, Mozambique, and in the Red Sea (Dahlak Archipelago). Calliasmata pholidota is known from Hawaii, the Ellice Islands and the Sinai peninsula (Red Sea).

These hypogeal shrimps are usually found in waters with salinities between 2 and 30 ppt and temperatures between 22 and 30°C. In deeper water exposures or when wind stress and mixing are low, vertical stratification will frequently occur; shrimp moves through these gradients with impunity implying euryhalinity.

Opaeula (Halocaridina rubra)

More life history information is available for Halocaridina rubra (or opaeula) than for any of the other species. Opaeula feed on detritus, benthic diatoms, phytoplankton, filamentous algae, vascular, plant tissue (Wong 1975), and, when available, animal tissue. Halocaridina rubra feed by plucking the substratum with bristled cheloe; mid-water and surface film feeding is accomplished by using the chelae and bristles as plankton filters. Opaeula have been maintained in small sealed containers for years. Presumably, under these conditions they are capable of utilizing bacterial films.

The embryogenesis and larval development of H. rubra has been documented (Couret and Wong 1978). Opaeula have a low fecundity with the female carrying 10 to 16 eggs for at least 38 days. Evidently darkness is necessary to induce oviposition; females remain in dark seclusion until after eclosion and the offspring emerge into the open water as juveniles (Maciolek 1983). This author notes that ovigerous females (those carrying eggs on the abdomen) have not been seen in nature among the thousands of individuals observed or hundreds collected. However, 12 to 42 percent of the females may have eggs visible within the carapace, which suggests that reproduction is not rare. Laboratory observations indicate that opaeula may have lifespans of up to several years. I have maintained a stable non-reproducing population of H. rubra since 1981 and others (Maciolek 1983) have done likewise.

Halocaridina rubra is the most abundant of the Hawaiian hypogeal shrimps. It frequently occurs in concentrations exceeding hundreds of individuals per square meter in a given pond on a rising tide; at other nearby anchialine pools it may be scarce. The apparent abundance of opaeula in a given pond or pond system can be very misleading for nothing is known of the population size of these hypogeal shrimp in subterranean interstitial waters.

Other Hawaiian Hypogeal Shrimp

Much less information is available for the remaining four Hawaiian hypogeal caridean shrimp species. Antecaridina lauensis and Metabetaeus lohena have been found in salinities ranging from 2 to 36 ppt, and as with Halocaridina rubra, in water with temperatures between 22 and 30°C. Calliasmata pholidota and Procaris hawaiana reside in waters with similar temperatures, but with salinities never below 10 ppt (Maciolek 1983). Metabetaeus lohena is an active predator on other shrimp (principally H. rubra) and other pond invertebrates (Holthuis 1973). Calliasmata pholidota feeds on crustaceans and polychaetes (Maciolek's observation in Holthuis 1973), while Procaris hawaiana has been observed feeding on moribund shrimp (Maciolek 1983). Provenzano

(1978) notes that Procaris hawaiana feeds by encounter (it has no chelae); this is an unspecialized method.

Metabetaeus lohena is the most abundant of these four hypogeal species; at a maximum it may occur in densities of approximately one M. lohena per 100 H. rubra. Neither P. hawaiana nor Calliasmata pholidota occur in any abundance; both show no response to nearby movement, suggesting that their reduced vision is used to detect illumination in a broad range (Maciolek 1983). Antecaridina lauensis and P. hawaiana have only been found in dimly illuminated anchialine pools.

Nothing is known of the reproductive habits of P. hawaiana, A. lauensis or C. pholidota. The absence of ovigerous (berried) females of these species from surface exposures suggests that their reproductive activities are restricted to hypogeal conditions (Maciolek 1983).

A possible new species of hypogeal shrimp was recently collected (May 1985) from Lua O Palahemo, Ka Lae, Hawaii by D. Williams. This caridean shrimp has red pigment and is large--approximately 4.5 cm in overall length. Five individuals of this species were seen in three separate scuba dives into an unusually deep anchialine pool, and three individuals were collected. An unidentified shrimp species similar in size was seen on several occasions on Cape Kinau, Maui; efforts to collect it were unsuccessful (J. Maciolek, pers. comm.).

Epigeal Shrimp in Hawaiian Anchialine Ponds

Four other shrimp species are encountered in the Hawaiian anchialine habitat. These species are all epigeal and include Palaemon debilis (a common species known from other habitats and localities), Macrobrachium grandimanus (a species in Hawaii and the Ryukyu Islands whose usual adult habitat is in high island freshwater streams), Macrobrachium lar (a recent introduction to Hawaii that is usually found in streams) and Palaemonella burnsi (known only from 3 pools on Cape Kinau, Maui, and Kaloko Pond, Hawaii). Life history information for these species will not be presented here because other than P. burnsi (for which no information exists), all are species common to non-anchialine habitats.

Other Anchialine Pond Biota

Algae are an important component of the anchialine biotope. Wong (1975) lists 144 species of macroalgae, microalgae and diatoms in the Cape Kinau, Maui, pools (Table 2); however, only 7 species or species complexes of algae and aquatic plants are dominant. These are Scytonema cincinnatum, Lyngbya spp. forming crusts, Hildenbrandtia prototypus, Ahnfeltia concinna, Lithophyllum sp., Valonia aegagrophila, Cladophora spp., and the aquatic phanerogam, Ruppia maritima. Anchialine ponds along the Kona, Hawaii coast have much of the same flora as those on Cape Kinau; the Kona ponds are dominated by Schizothrix calcicola, Lyngbya spp. (again forming crusts), Rhizoclonium sp. and Ruppia maritima.

Probably the most unique aspect of the anchialine pond flora are the carbonate producing cyanophyte communities (Lyngbya crusts and Schizothrix calcicola). The precipitation of calcium carbonate by cyanophytes has been discussed by Dalrymple (1965) and Friedman et al. (1973). The method of carbonate production is unknown and controversial; Golubic (1973) presents the biotic versus abiotic origin of the material.

Table 2. Checklist of Aquatic Flora From Cape Kinau, Maui, Anchialine Ponds.

Phylum Bacillariophyta

Achnanthes spp.
Actinocyclis ehrenbergii
Actinocyclis ehrenbergii var. ralfsii
Amphiprora sp.
Amphora lineolata
Amphora sp.
Asterionella notata
Auricula insecta
Auricula intermedia
Auricula sp.
Bacillaria sp.
Biddulphia titiana
Biddulphia sp.
Campylodiscus sp.
Chaetoceros sp.
Climacosphenia sp.
Cocconeis dirupta
Cocconeis heteroidea
Cocconeis placentula
Cocconeis pseudomarginata
Cocconeis sp.
Coscinodiscus jonesianus
Coscinodiscus sp.
Cyclotella sp.
Cymbella sp.
Diplonels sp.
Epithemia sp.
Eunotia sp.
Fragilaria sp.
Gephyria sp.
Grammatophora angulosa
Grammatophora undulata
Grammatophora sp.
Hantzschia sp.
Hyalodiscus laevis
Licmophora sp.
Mastogloia sp.
Melosira granulata
Melosira italica
Melosira jurgensii
Melrosira moniliformis
Melosira nummuloides
Navicula clavata
Navicula distans
Navicula spp.
Nitzschia acicularis
Nitzschia acicularis var. closteriodes
Nitzschia closterium
Nitzschia constricta
Nitzschia spp.
Phaeodactylum sp.
Pinnularia brownii
Pinnularia sp.
Pleurosigma sp.
Podosira hormoides
Podosira stelliger
Rhabdonesma sp.
Rhopalodia gibberula
Rhopalodia sp.
Stauroneis sp.
Stictodiscus sp.?
Striatella interrupta
Surirella sp.
Synedra formosa
Synedra toxineides
Synedra sp.
Trachyneis aspera var. aspera
Triceratium formosum f. quinquelobata
Triceratium pentacrinus f. quadrata
Triceratium shadboltianum
Triceratium shadboltianum var. elongatum
Triceratium zonatulatum
Tropidoneis sp.

Phylum Chlorophyta

Caulerpa racemosa
Caulerpa serrulata
Chaetophora sp.
Chlorella sp.
Cladophora dotyana
Cladophora hemispherica
Cladophora socialis var. hawaiiana
Cladophora sp.
Cladophoropsis adhaerans
Dictyosphaeria versluysii
Enteromorpha intestinalis
Enteromorpha linza
Enteromorpha sp.
Microdictyon japonicum var. laxum
Microspora sp.?
Stigeoclonium sp.
Struvea anastomosans
Ulothrix sp.
Valonia aegagropila
Valonia ventricosa

Phylum Chrysophyta

Chromulina sp.
Isochrysis sp.

Phylum Cyanophyta

Calothrix crustacea
Chroococcus turgidis
Chroococcus sp.
Dermocarpa sp.
Gomphosphaeria sp.
Lyngbya aeruginea-coerulea
Lyngbya aestuarii
Lyngbya kuetzingiana
Lyngbya martensiana
Lyngbya mesotricha
Lyngbya spp.
Microcoleus chthonoplastes
Microcoleus sp.
Microcystis sp.
Oscillatoria agardhii
Oscillatoria angustissima
Oscillatoria articulata?
Oscillatoria coraklana
Oscillatoria curviceps
Oscillatoria fremyii
Oscillatoria limosa
Oscillatoria margaritifera
Oscillatoria nigrovidridis
Oscillatoria obscura
Oscillatoria perornata
Oscillatoria planktonica
Oscillatoria proteus
Oscillatoria pseudogeminata
Oscillatoria pseudogeminata var. unigranulata
Oscillatoria root
Oscillatoria schultzii
Oscillatoria subbrevis
Oscillatoria subtilissima
Oscillatoria tenuis
Oscillatoria willei
Oscillatoria spp.
Pleurocapsa sp.
Schizothrix sp.
Scytonema cincinnatum
Spirulina subsalsa
Spirulina sp.

Phylum Pyrrophyta

Exuviella sp.
Gymnodinium sp.
Prorocentrum sp.

Phylum Rhodophyta

Ahnfeltia concinna
Amphiroa sp.
Hildenbrandtia prototypus?
Lithophyllum lichenoides?
Porolithon sp.

Sources: Wong (1975)

Dalrymple (1965) states that calcium carbonate deposition occurs by direct precipitation from supersaturated seawater in the lower layers of the cyanophyte mat. This precipitation is probably induced by anaerobic bacteria. These mechanisms are probably correct as no other potential source of calcium carbonate production is known or could explain the presence of this sedimentary material in anchialine ponds situated in lava fields. Wong (1975) notes that the cyanophytes responsible for the calcium carbonate production are more dominant in the more isolated pools on Cape Kinau.

The remaining fauna of Hawaiian anchialine systems is primarily marine in origin. Several unidentified sponge species are known particularly from the Cape Kinau ponds; one identified species is Tethya diploderma (Holthuis 1973). A hydroid, Ostromouvia horii collected from one anchialine pool on the Kona coast (Maciolek and Brock 1974) was until recently considered to be quite rare and unusual. This species has been recently found in some abundance deep in the recesses of marine caves around Oahu (R. Titgen, pers. comm.). Polychaetes have been recorded from ponds with low salinities (2 to 6 ppt--Namalycastis abiuma) as well as in higher salinity ponds (10 ppt or greater--Eurythoe complanata and Salmacina dysteri). A number of molluscs occur in the anchialine pond habitat; these include Melania sp., Theodoxus cariosa, T. vespertina, Melampus parvulus, Nerita polita, Assiminea nitida and the bivalve Isognomon californicum. One snail, Neritilia hawaiiensis is only known from the anchialine ponds at Makalawena, Kona, Hawaii. Isopods, e.g., Ligia sp. are common around many ponds as well as an unidentified cymothoid isopod species. Barnard (1977) reported a total of 11 amphipod species (including 8 new species) from Hawaiian anchialine ponds. Besides the above mentioned epigeal and hypogeal shrimp, there are a number of other decapod species found in the anchialine biotope; these include the crab Metopograpsus thukuhar and the alpheid, Alpheus crassimanus. Insects around and in anchialine ponds include unidentified beetles, mosquitos and midges (Maciolek and Brock 1974) as well as Collembola, Hemiptera, Veliidae, Odonata, Acarina and Trichocorixa reticulata. Life history information is lacking for the few species above that are found exclusively in the anchialine pond habitat.

Fishes are a part of the fauna of the Hawaiian anchialine habitat; usually their occurrence in a pond signals the lack of hypogeal shrimp. Fishes in anchialine systems fall into two broad categories--native or exotic species. Maciolek and Brock (1974) noted an inverse relationship between the presence of fish and hypogeal shrimp. Brock (1977) found 15 native marine fish species in Kona coast anchialine ponds. These speces are listed in Table 3 along with one additional species seen in Cape Kinau ponds. One species that usually inhabits ponds with better (more open) surface connections to the sea is the rare moray eel, Gymnothorax hilonis. Gymnothorax hilonis was described from the single type specimen collected in the Hilo market in 1903 (Jordan and Evermann 1905, Gosline and Brock 1960). It was not collected again until the 1972 Maciolek and Brock (1974) study. At that time G. hilonis was present in ponds at Waiulua Bay (Anaehoomalu, Kona, Hawaii) and Kopoho in water with salinities between 3 and 19 ppt (Maciolek and Brock 1974, Brock 1977). Little is known about this dark colored eel except that it obviously tolerates the anchialine habitat and it has been seen crossing the lava between ponds spaced up to about 20 meters apart (Brock, pers. obs.).

Exotic fishes that have invaded or been introduced into the anchialine habitat include tilapia (probably Oreochromis mossambicus), topminnows (Family Poeciliidae--probably Gambusia affinis and Poecilia mexicana) and koi (Cyprinus carpio).

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Table 3. List of Native Marine Fish Species as Noted by Brock (1977) for Kona Coast Anchialine Ponds.

Family and Species
Family Muraenidae
Gymnothorax flavimarginatus (puhi)[1]
Family Congridae
Conger sp. (puhi uha)
Family Holocentridae
Adioryx lacteoguttatus (ala'ihi)
Family Mugilidae
Mugil cephalus (ama'ama)
Neomyxus chaptalii (uouoa)
Family Kuhliidae
Kuhlia sandvicensis (aholehole)
Family Pomacentridae
Abudefduf sordidus (kupipi)
A. abdominalis (mamo)
Family Acanthuridae
Acanthurus achilles (paku'ikui)
A. triostegus (manini)
Family Eleotridae
Eleotris sandwicensis (o'opu akupa)
Asterropteryx semipunctatus (eleotrid)
Family Gobiidae
Kelloggella oligolepis (goby)
Awaous stamineus (o'opu nakea)
A. genivittatus (o'opu)
Bathygobius fuscus (goby)

[1] One additional species (*Gymnothorax flavimarginatus*) is present only in ponds on Cape Kinau.

The most common native fishes found in the anchialine biotope include the aholehole (*Kuhlia sandvicensis*), mullet (*Mugil cephalus*), manini (*Acanthurus triostegus*), kupipi (*Abudefduf sordidus*), o'opu akupa (*Eleotris sandwicensis*) and o'opu nakea (*Awaous stamineus*). Of the exotic species, tilapia and topminnows are the most abundant.

Other than the exotic species, o'opu akupa, o'opu nakea, and perhaps the mullet, all of the fishes in the anchialine habitat are normally found in the marine environment as adults. Brock (1977) hypothesizes that these marine fishes arrived as juveniles swept into the anchialine pond habitat during periods of extreme storm surf. The low salinities and low diversity of available food resources in the ponds suggests that the fishes present may be generalists in their food habits.

One additional unknown eel species, light brown or pink in color, has been seen on two occasions (1972 and 1985) in an anchialine pool at Ka Lae, Hawaii. The 1972 sighting involved one individual at a depth of greater than 10 meters; in 1985 two individuals were seen at greater than 10 and 30 meters (D. Williams, pers. comm.). This eel is probably an ophichthid; it apparently does not respond to light suggesting blindness. If so, it is probably an undescribed species presently restricted to a known habitat of one anchialine pool.

Summary

Summarizing the information on the biota of anchialine ponds, this biotope is usually crustacean dominated, particularly by the hypogeal anchialine pond shrimps, *Halocaridina rubra* and *Metabetaeus lohena*. Other frequently encountered shrimps include *Palaemon debilis* and *Macrobrachium grandimanus* as well as the crab, *Metopograpsus thukuhar*, all of which are found in other habitats. Amphipods are common and most of the species are known only from the anchialine biotope. Mollusc species that are frequently seen include *Theodoxus cariosa*, *Melania* sp. and *Assiminea nitida*. Anchialine pond flora is usually dominated by carbonate-producing cyanophyte mats (*Lyngbya* spp. and *Schizothrix calcicola*), *Cladophora* sp., *Ahnfeltia concinna*, *Rhizoclonium* sp., and *Ruppia maritima*. If fish are present the hypogeal shrimp are usually absent and the abundance of epigeal shrimp and amphipods may be reduced.

Biota that may be considered rare and known only from the anchialine habitat includes the hypogeal shrimp *Calliasmata pholidota*, *Procaris hawaiana*, *Antecaridina lauensis*, the epigeal shrimp *Palaemnella burnsi*, the mollusc *Neritilia hawaiiensis*, and the moray eel *Gymnothorax hilonis*.

HYPOTHESES ON FUNCTIONAL ASPECTS

Quantitative information on Hawaiian anchialine systems is essentially lacking (e.g., as for energy flow, population size, and turnover of various species), thus much of what is presented below represents a synthesis of available information and an "educated guess" as to some functional aspects of the anchialine pond ecosystem.

Anchialine ponds are indirectly connected to the sea. This is substantiated by the damped oscillation in pond water level correlated with the tides and to the presence of mixohaline water. Hypogeal shrimp utilize resources (food and space) present in ponds and in the watertable below. The movement of shrimp is tidally linked for some species (Fricke and Fricke 1979); shrimp emerge into the pond via interstices on the rising and high tide apparently to feed, and retreat to the subterranean labyrinth on the ebb tide.

Ponds with sufficient illumination must represent significant points of high benthic productivity relative to the watertable below. Sunlight and dissolved nutrients provide the necesary ingredients for this productivity. Many of the shrimp species appear to take advantage of these loci of food resources (ponds). With pond obliteration (as through burial), the total productivity within a given secton of the watertable would also be significantly reduced; this suggests that the carrying capacity of the habitat with respect to these hypogeal species would be significantly lower with such obliteration. Hypogeal species would probably not entirely disappear; however, other epigeal species (crustaceans, fishes, molluscs, and flora) dependent on the illuminated high productivity part of the anchialine system would not survive.

The porosity (or degree of connection with the watertable) not only affects the migration of shrimp to and from these loci of food resources (ponds) but (a) may affect and determine the composition of species in a given pond and (b) may play a role in the life expectancy of that pond. With respect to species composition, a pond located close to the shoreline displaying strong subterranean connections to the sea may be expected to have a greater colonization by marine species than a similar, more isolated inland pond.

The porosity of the pond substratum has a direct effect on the residence time of the water. In general, most anchialine ponds have very clear water. Water residence times appear to be of short duration, thus retarding phytoplankton blooms. The porosity and residence time of a pond must influence the degree to which allochthonous sedimentary material (from in situ calcium carbonate production by Lyngbya spp. and Schizothrix calcicola) accumulates. Ponds with greater porosity and/or flushing will probably have less sediment; field observations on closely associated anchialine ponds will frequently show one to have a considerable deposit of sedimentary carbonate material while others nearby are devoid of sediments. Sediment accumulation appears to be related to the degree of flushing*.

The variability in the rate of sediment accumulation is directly related to the life expectancy of a pond. Allochthonous carbonate production can lead to the infilling of an anchialine pond and its eventual transformation into a marsh covered with sedges and grasses. In general, anchialine ponds are ephemeral, enduring for a relatively short period of time. In the lava flow of 1859 along the Kona, Hawaii coast, examples of anchialine ponds in various stages of senescence may be found. Field observations suggest that under appropriate conditions this succession may occur in about 100 years (a minimum).

* This contention is supported by the observation made by Wong (1975). She noted that Cape Kinau, Maui anchialine pools with cyanophyte (blue-green algae) communities and lower salinities tended to have proportionately more sediments than higher salinity cyanophyte ponds. Lower salinity pools are probably those further inland and thus further removed from tidal influence--a major driving force in the exchange of water.

Many of the field observations of the behavior pattern of hypogeal shrimp indicate that they spend a considerable period of time in the water table beneath the surface exposures. The hypogeal habitats of these organisms and a number of casual observations suggest that they can occur through much of the coastal watertable. Maciolek (1983) notes the appearance of Halocaridina rubra in a cased well drilled on Oahu; this also occurred on the floodplain at Kealia, Maui during well drilling. With these hypogeal habits, the determination of population sizes and the geographic extent of a given population becomes almost impossible. These attributes may, however, serve to stave off extinction; with the destruction of surface exposures, epigeal species can be expected to disappear, while those with hypogeal habits may not.

Maciolek (1983) notes that the hypogeal habits of these red shrimp can explain their disjunct known distributions. He hypothesizes that many of those species are capable of existing in submerged marine rock as well as in emergent rock (anchialine pools) of the tropical Indo-Pacific. Many species tolerate seawater, thus could have wide (but as yet undetermined) distributions in the tropical seas. Some of the most compelling evidence to support this contention is presented by Maciolek (1983) and includes (1) the collection of Metabetaeus lohena, previously known only from the Hawaiian Islands, from the reef flat and outer reef face at Tulear, Madagascar and (2) the collections and sightings of Ligur uveae (a hypogeal shrimp known from Molucca Islands, Loyalty Islands, Aldabra Islands, Fiji Islands, Ellice Islands, and the Phillipines) by SCUBA divers deep in marine caves in Hawaii and the Marshall Islands. Maciolek concludes that this broadened habitat hypothesis allows for the occurrence of shrimps in the groundwater of many islands where they have not yet been found, as well as in deep caves on shallow reefs and seamounts. Thus, rarity for some species may be related to our ability to collect specimens in a largely unsampled (and difficult to sample) habitat.

ENVIRONMENTAL DEGRADATION

A number of possible causes of anchialine pond degradation have been suggested. These include (1) development that either results in pond obliteration or excessive nutrient loading, (2) recreation in or near ponds (resulting in their use for fishing, bathing, or refuse receptacles), and (3) the utilization of ponds for the cultivation of fishes. Recent studies (Maciolek and Brock 1974, OI Consultants, Inc. 1985, Brock 1985) have implicated several of these as the source of deterioration of specific ponds and systems.

One obvious impact associated with construction activities is the obliteration of anchialine exposures in a given area by infilling and burial. As stated above, some components (e.g., hypogeal shrimp) would probably survive in the water table below, albeit at lower population densities. Epigeal forms (algae, molluscs, crustaceans, insects, and fishes) dependent upon the well-illuminated pond and its primary productivity would locally disappear following pond burial.

Many Kona coast anchialine ponds show a clumped distribution, frequently being located in the vicinity of small bays. These same locations are often considered to be desirable for development, and as such pose problems for both the resource and economic growth. In some instances, anchialine ponds have been left intact and development has taken place around the ponds. With surrounding development, one impact is the potential for increased dissolved nutrients in the groundwater (as from golf courses, etc.). In the Lahuipuaa District of South Kohala (Mauna Lani Resort), development in the form of a golf course has taken place around a number of

anchialine ponds, and in some cases up to within a few meters of the ponds. Brock (1985) in his study of these ponds was unable to detect any negative impact directly attributable to this construction or subsequent use of the surrounding terrain. Water clarity and benthic algal abundance (a rough measure of the plant response to elevated nutrient loading) remained unchanged from a preconstruction survey (Maciolek and Brock, 1974) 13 years earlier. Thus, available evidence suggests that elevated nutrient levels pose little threat to ponds with reasonable flushing rates.

High benthic algal standing crops or low water transparency (suggesting high phytoplankton activity) is apparent in some Kona coast ponds. Some of these are found near human habitation. For example, the pond at Weliweli was very turbid (green water) at the time of the 1972 survey (Maciolek and Brock, 1974); in 1985 in a helicopter overflight this pond appeared to be full of macroalgae. In 1972, toilet facilities were about 6 meters inland of this pond, providing a potential nutrient source for the plant growth within the pond.

While field observations suggest that in most instances environmental degradation of anchialine resources directly due to development of the surrounding terrain is minimal, other human activities associated with development such as increased access to, and increased recreational uses in and around these coastal resources may result in a large impact on the anchialine biotope.

Greater access to the coastal resources has occurred in the last ten years in Kona; the coastal highway linking Kawaihae with Kailua-Kona (Queen Kaahumanu Highway -- completed in 1975) has been the primary access route. Presently, people may either drive or hike to much of the coast that was formerly quite inaccessible. Utilization of these areas is primarily for recreation: fishing, swimming, or camping. Fishing may occur in some of the larger anchialine pools; Brock (pers. obs.) found a number of recently hooked and moribund specimens of the rare moray eel, Gymnothorax hilonis at Waiulua Bay, Anaehoomalu in 1972. He attributes the catching of these eels to fishermen seeking moi (Polydactylus sexfilus) present in one of the more marine ponds; access was gained by a road that had been recently bulldozed to the site. Thus, fishing may directly impact some of the native fish species found in anchialine systems. OI Consultants, Inc. (1985) ascribe the disappearance of aholehole (Kuhlia sandvicensis) in ponds at Kapalaoa, North Kona, to fishing.

Anchialine ponds are also used as bath pools by campers. Having low salinity waters, they provide a refreshing stop for hikers or campers. Evidently anchialine ponds have been subjected to this use for a long time. Pools were sometimes modified with stone walling, etc. by ancient Hawaiians for bathing. There are no known negative impacts directly attributable to this activity. However, the recent introduction of soaps and shampoos could be of potential concern. OI Consultants, Inc. (1985) noted the presence of shampoo containers and soap wrappers around one anchialine pond adjacent to a popular swimming beach, but did not attribute any degradation in the biota to this activity.

A more obvious example of environmental degradation of the anchialine resources occurs when the ponds are used as refuse pits. The practice is not new; nearly-filled rubbish pits (former ponds) containing datable refuse about 100 years old have been found on the Kona Coast. Some refuse (e.g., bottles, cans, etc.) appears not to have any real short-term negative impact on the fauna. However, the dumping of used oil, grease, and oil filters in a pond adjacent to Honokohau Harbor resulted in the disappearance of opaeula from that pond (Brock, pers. obs.).

Perhaps one of the greatest impacts to the biota of anchialine ponds comes through the introduction (accidental or intentional) of exotic fishes to these systems. Intentional introduction of an exotic fish may be for its later harvest as fish bait or food; accidental introductions can occur when one pond in a system is intentionally stocked and the introduced species colonizes other ponds in the complex under its own impetus. Exotic species involved include members of the family Poeciliidae (probably Gambusia affinis and Poecilia mexicana) and the tilapia, Oreochromis massambicus. The most obvious impact resulting from the colonization of anchialine pond systems by these and other fish species is their predation on resident crustaceans, particularly the shrimps. Maciolek (1984) reviewed the impact of exotic fishes in Hawaiian and other insular ecosystems. He states that adverse effects of these introductions center on changes in natural ecosystems induced by exotics, particularly on native species; these effects may be direct (as through competition and predation) or indirect, e.g., introduction and transmission of disease or parasites. Furthermore, this author notes that while some adverse effects are self evident, they are often difficult to quantify; as a result, few studies have been made.

In one of the first ecological studies of Hawaiian anchialine pond ecosystems, Maciolek and Brock (1974) describe the inverse relationship between the fish and the crustaceans. In their Kona coast study, 73 ponds were populated with fishes. Five ponds had both native and exotic fishes; 28 ponds had exotic fishes only and 40 had native fishes only. Being small and red, opaeula (Halocaridina rubra) is an "ideal" food for many fish, both native and exotic. Maciolek and Brock (1974) found 26 ponds with fishes and H. rubra; of those 26 ponds, 20 ponds had native fishes and opaeula, five ponds had exotic fishes co-occurring with H. rubra, and one pond had both native and exotic fishes with H. rubra. Thus, only 18 percent of the 33 ponds harboring exotic fishes had opaeula present, whereas 50 percent of the ponds having only native fishes contained H. rubra. In all cases of co-occurence, the abundance of opaeula was low.

The recent studies by Brock (1985) and OI Consultants, Inc. (1985) resurveyed many of the West Hawaii anchialine ponds sampled by Maciolek and Brock (1974). In the resurvey efforts, many individual ponds could not be matched; because of this, the data calculated and presented in Table 4 is in the form of the percent of ponds in the study area containing a certain aquatic species. The extensive survey by OI Consultants, Inc. (1985) in the Anaehoomalu area accounts for the majority of the additional sampled ponds. Of the four native species analyzed in Table 4, only the occurrence of the cyanophyte Schizothrix calcicola increased during the 13 years between these surveys; this increase is due to the fact that the Anaehoomalu area is particularly rich in ponds with Schizothrix. Other species (e.g., Theodoxus cariosa, Halocaridina rubra, and Metabetaeus lohena) all show substantial decreases in their occurrence despite the fact that the OI Consultants, Inc. (1985) survey inventoried 62 percent more ponds than did Maciolek and Brock (1974) in the same areas. The decrease in the abundance of native species has been accompanied by an increase in the occurrence of exotic fishes.

Exotic fishes appear to be spreading through closely associated complexes of anchialine ponds in restricted geographic localities. Poecilids are present through much of the system of ponds at Makalawena-Awakee -- a habitat formerly populated by epi- and hypogeal shrimp (Maciolek and Brock, 1974) that are now largely absent.

The question might be raised as to the outlook for the anchialine pond resource following invasion by exotic fishes. In general, such ponds have some common attributes: all usually have populations of poecilids or tilapia (or both); the basins of these ponds are dominated by mud (not the white calcareous sediment characteristic

Table 4. Summary of the Change in Four Native and Two Exotic Aquatic Species Found in Kona Coast Anchialine Ponds Located Between Lahuipuaa and Kailua-Kona: 1972 to 1985.

Species	Percent of the Ponds Examined	
	1972 (n = 192)	1985 (n = 311)
Schizothrix calcicola	31	41
Theodoxus carlosa	22	6
Halocaridina rubra	67	39
Metabetaeus lohena	40	4
Oreochromis mossambicus	5	14
Poeciliidae spp.	10	32

Source: Information from 1972 is from Maciolek and Brock (1974); 1985 data is from OI Consultants, Inc. (1985)

of some anchialine ponds) and if native aquatic species are present, they are usually species not subject to predation by fish (e.g., Melania sp., rarely Theodoxus cariosa, native fishes, and rarely Palaemon debilis and Macrobrachium grandimanus). Some of these ponds have the physical characteristics of normal anchialine ponds (similar basin morphologies, salinities, temperatures, locations, etc.) yet lack the usual cyanophytes (Schizothrix calcicola) and hypogeal shrimp (Halocaridina rubra and Metabetaeus lohena).

It is hypothesized that exotic (and/or native) fishes introduced into an anchialine pond or system can initiate a change in ecological succession. These introductions appear to be related to greater coastal access. The first and most obvious change that may occur is to reduce and soon eliminate the hypogeal shrimp from the local exposed parts of the ecosystem. Following this, a slow succession of macroalgae establish themselves and grow epiphytically on the carbonate-producing Schizothrix calcicola. With the herbivorous Halocaridina rubra present, these species never come to dominate the benthos. Without them, an overgrowth situation develops leading to the local demise of Schizothrix. These hypothesized changes could take years to occur and thus would not be readily apparent to the casual observer. With this change in pond flora comes a major change in the appearance of the pond system from one that has "anchialine" attributes (i.e., a cyanophyte carbonate producing mat, associated flora, and an aquatic fauna frequently dominated by hypogeal shrimp), to a system dominated by mud substratum and exotic fishes. Field observations support some of these hypothesized changes; only a long-term study could confirm them.

MANAGEMENT STRATEGIES

The anchialine pond resource is considered to be a relatively unique ecosystem by numerous authors (Holthius 1973; Maciolek & Brock, 1974; Maciolek, 1983) because of its distinctive physical features and unique biota. Recent information suggests that many of the anchialine ponds on the Kona, Hawaii coast are in a state of biological change primarily due to the presence of exotic fishes. If the unique attributes of the anchialine pond resources of West Hawaii are to be preserved, some level of management must be established with the aim of preserving part of that resource. The basic premise of preservation is recommended because of the accelerating loss and/or degradation of anchialine ponds along much of the Kona coast. This section suggests some simple steps that could be a part of such a management plan.

The proposed management scheme has five facets; these are (1) resource preservation, (2) pond restoration, (3) regulation of human use, (4) development of new anchialine systems, and (5) research.

Resource preservation should be relegated to those anchialine pond systems that are representative of the natural biotope and/or have unique attributes. Determination of the status of anchialine pond resources has been recently initiated for part of the Hawaii Island coastline (OI Consultants, Inc., 1985), but a relatively complete islandwide inventory should probably be made prior to determination of preservation areas beyond that presently proposed. Localities with high anchialine pond abundance and with ponds containing representative anchialine biota should be major criteria for site selection; the presence of rare species such as Gymnothorax hilonis (formerly known from Waiulua Bay and Kapoho ponds — now may only be in Kapoho ponds), Palaemonella burnsi (known from three ponds on Cape Kinau, Maui and Kaloko Pond on the Kona coast), Procaris hawaiensis and Calliasmata pholidota (in the Hawaiian Islands known from Cape Kinau and one Big Island pond) should also be a criterion for site selection.

Pond restoration and the possible development of new anchialine systems are closely related to the topic of research in that they both require an experimental approach. Restoration is primarily concerned with the elimination of exotic fishes. Ponds with these exotics may, over the short term, retain their aesthetic appeal, but they may not support the full complement of native species and as such should be adjudged to have reduced natural value. The decrease in natural value is here assumed and equated with a decrease in native species. This lower natural value is probably reversible in that the removal of the exotic fishes should result in the return of the native species to those ponds. However, the reversibility of the process is not assured in all cases. If all anchialine ponds in a given system have predatory exotics present over a sufficiently long period of time, the native species that are able to survive in interstitial waters for a period of time may also be driven to extinction.

The elimination of exotic fishes requires some experimentation. If an appropriate methodology can be developed, then selected contaminated systems could be restored. The suggested method of fish eradication utilizes a combination of electroshocking and ichthyocides (i.e., rotenone). Brock (1985) discusses this proposed technique and other possible methods for the elimination of exotic fishes. He concludes that the electroshocking/ichthyocide method has the fewest drawbacks. However, he also notes that because of the salinity, standard electroshocking equipment will probably not provide the necessary current to be effective in anchialine ponds; preliminary tests show this to be the case (M. Lee, personal communication). Another experimental eradication technique for small ponds might be to completely cover a pond with black plastic, thus occluding all light. Presumably, under complete darkness for some period of time (e.g. one to two months), tilapia and poecilids would succumb due to their inability to find and capture food.

The development of new anchialine systems is quite simple and has been done, but requires further documentation. The rationale is simple. If anchialine ponds are a locus of relatively high productivity for hypogeal species (thus allowing greater population densities of these species), then the creation of new anchialine exposures in porous lava should result in colonization and eventually the development of a new anchialine system. This could serve, in some cases, as mitigation for pond loss.

In 1972 Mr. D. Haserot bulldozed a small exposure (about 2 meters by 3 meters, and about 30 centimeters deep) in the pahoehoe lava at Kaloko, Kona about 100 meters from the closest anchialine pond. In about two weeks this new pond was colonized by amphipods and Halocaridina rubra. Colonization was not followed beyond two weeks, so subsequent recruitment is unknown. Recently, a small pond was dug at the north end of the Mauna Lani Resort (Lahuipuaa, South Kohala); opaeula appeared there after 10 days (R. Harris, pers. comm.).

This information suggests that new ponds can be built; it is expected that the colonization rate to a new water exposure is related to the distance between the newly opened habitat and the source (existing ponds) as well as the porosity of the substratum. All other things being equal, colonization rates to new ponds will be greater in a clinkery 'a'a flow than in an old pahoehoe flow. Research should document the colonization rates and determine if the full complement of anchialine species will enter the newly created habitat.

Research in anchialine pond systems has been minimal. This is partially due to the difficulty and uncertainty involved surrounding efforts to obtain answers to pertinent ecological questions as well as to the relative lack of research funds.

Anchialine pond research could profitably take many directions; perhaps some of the most pressing questions relate to the distribution, population sizes, movement, and life histories of anchialine organisms. Answering questions of ecological concern with respect to the hypogeal species is very difficult because of man's inability to adequately sample their subterranean habitat. Some ecological information may be gained through studies utilizing hydrology and geology; techniques are needed to visually mark individuals of hypogeal species so that movement patterns may be discerned.

Research on epigeal forms would be easier to obtain. Some of these species show interesting morphological or ecotype variation (particularly Palaemon debilis and Theodoxus cariosa) and thus may be of interest to evolutionary biologists and geneticists; from the standpoint of aquaculture, the hypogeal opaeula may have commercial value as a live fish food. Many other aspects of anchialine systems remain to be explored and the list of potentially fruitful research topics is likely to grow as the dynamics of the system become better known.

Regulating the human use of anchialine resources is difficult, especially since many of these pond systems are on private property or are located in relatively isolated areas. Perhaps these regulatory efforts could encompass a program of education informing the public as to the natural value of the anchialine resource. This information dissimination could possibly help in protecting anchialine ponds outside of any special conservancy area; within such areas regulation could take the form of restricted entry.

It should be noted that any management and research on the anchialine resource requires a certain level of funding; until such funds are available, the likelihood of maintaining the anchialine pond resource in an unmodified state remains unknown.

The accelerating loss and change occurring in the Hawaiian anchialine biotope over the last ten years suggests that if the resource is considered to be of interest to and unique by society, then steps should be undertaken to preserve it. Judging from the rapidity at which this degradation and change is occurring, implementation of preservation should be undertaken soon; in perhaps another ten years the anchialine pond resource, with its natural biota, may be a part of history.

Preservation of resources as a management scheme is based on the premise that the biota have population sizes restricted by the limited available habitat (i.e., anchialine ponds). Some of the anchialine organisms, notably the hypogeal shrimp, may have populations considerably larger than is apparent from observation of anchialine ponds alone. If Maciolek's (1983) hypothesis that the primary habitat of hypogeal shrimp is deep in the recesses of marine caves (a near impossible habitat to sample), then they may be much more abundant than formerly believed. If so, the native and endemic epigeal species of Hawaiian anchialine ponds may be the most vulnerable to the changes that are now occurring to the resource. However, until the widespread occurrence of the now rare hypogeal forms can be confirmed, it should be assumed that they are rare and their habitat restricted. Thus, anchialine ponds should be managed with that in mind.

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Appendix D

List of Public Notice Recipients and Copies of Notices of Intent and Public Notices

APPENDIX D

LIST OF PUBLIC NOTICE RECIPIENTS AND COPIES OF PUBLIC NOTICES

MEMBERS OF CONGRESS

Representative Daniel K. Akaka
Representative Cecil Heftel
Senator Daniel K. Inouye
Senator Spark M. Matsunaga

FEDERAL AGENCIES

Advisory Council on Historic Preservation
Defense Mapping Agency, Hydrographic/Topography Center
Department of Agriculture, Soil Conservation Service
Department of Commerce, National Ocean Survey
Department of Housing and Urban Development, Hawai'i
Department of the Interior
-- Denver Service Center
-- Fish and Wildlife Service, Honolulu
-- National Park Service
- Interagency Archaeological Services Division
- Pacific Area Office
- Western Regional Office, Division of Environmental Quality
-- U.S. Geological Survey, Water Resources Division
Department of Transportation, U.S. Coast Guard, Hawaii, Marine Safety Office
Environmental Protection Agency, Region IX
Federal Aviation Administration, Hawai'i
Federal Emergency Management Agency
National Marine Fisheries Service
-- Southwest Region
-- Western Pacific Program Office
U.S. Air Force, Hickam Air Force Base
U.S. Navy
-- Commander, Naval Base, Pearl Harbor
-- Commander, U.S. Naval Forces, Marianas
-- Commander, Pacific Division, Naval Facilities Engineering Command
-- Pacific Division, Naval Facilities Engineering Command, Water Quality Lab
U.S. Postal Service
-- Ewa Beach Post Office
-- Hilo Main Post Office
-- Postmaster, Kahului
-- Kailua-Kona Post Office

STATE AGENCIES

Department of Health, Environmental Health Division
Department of Land and Natural Resources
-- Land Management Division
-- Parks Division
-- State Historic Preservation Officer

STATE AGENCIES (continued)

Department of Planning and Economic Development, Coastal Zone Management Office
Department of Transportation
-- Director
-- Chief, Harbors Division
Office of Environmental Quality Control

UNIVERSITY OF HAWAI'I

Department of Ocean Engineering
Department of Oceanography
Environmental Center
Hawai'i Cooperative Fisheries Research Unit
Sea Grant, Advisory Service

HAWAI'I COUNTY AGENCIES

Department of Public Works
Mayor, County of Hawai'i
Planning Department

OTHER GOVERNMENT AGENCIES

Government of American Samoa
-- Department of Marine Resources
-- Department of Parks and Recreation
-- Director of Port Administration
Government of Guam
-- Bureau of Planning
-- Territorial Planning Commission
Trust Territory of the Pacific Islands, Office of Planning and Statistics

OTHER LEGISLATORS

Senator Alberto J.C. Lamorena III, 17th Guam Legislature
Senator Thomas V.C. Tanaka, 17th Guam Legislature
Representative Charles Toguchi, Hawai'i Legislature

PUBLIC INTEREST GROUPS

Bishop Museum
Conservation Council for Hawai'i
Environmental Defense Fund
Greenpeace Hawai'i
Hawai'i Audubon Society
Hawai'i Public Health Association
Hawai'i's Thousand Friends
Historic Hawai'i Foundation
Kona Conservation Group
Legal Aid Society of Hawai'i
Life of the Land
One-Thousand Friends of Kauai
Outdoor Circle
Sierra Club

BUSINESSES

A.C. Hoyle Company
American Divers
American Marine & Machinery Company, Inc.
Amfac Property Development Corporation
Amortec, Inc.
Belt, Collins & Associates
Builders Concrete, Inc.
Chevron Shipping Company
Coast Marine Construction, Inc.
Coastal Marine, Inc.
Davies Hamakua Sugar Company
Dillingham Tug & Barge Corporation
Fred L. Waldron, Ltd.
Golden Gate Dock Company
Great Lakes Dredge & Dock Company
Great Lakes Environmental Marine, Ltd.
Hawaiian Cruises, Ltd.
Hawaiian Dredging & Construction Company, Ltd.
Hawaiian Independent Refinery, Inc.
Hawaiian Trust Company
Hawaiian Tuna Packers
Hawaiiana Investment Company, Inc.
Healy Tibbitts Construction Company
Lee Cook Associates
Leigh Flexible Structure, Inc.
Marinas International
Marine Design International, Inc.
Matson Navigation Company
Morrison-Knudsen Company
Pacific Basin Environmental Consultants
Pacific Diving Industries
R.M. Towill Corporation
Rotocast, Plastic Products of Texas, Inc.
SETS, Inc.
Shell Oil Co.
Star-Kist Samoa, Inc.
Techstaff, Inc.
Texota, Inc.
Tideland Signal Corporation
Transcontinental Development Co.
Tuna Boat Owners Co-op, Inc.
Union Oil Company of California
UOP, Johnson Division, Surface Water Department
Walter Lum Associates
Waterfront Marinas, Ltd.
Western Pacific Dredging Company
Woodward-Envicon, Inc.

OTHER ORGANIZATIONS

Bernice P. Bishop Estate
Building Industry Association of Hawaii
Engineering News Record
Hawaii Yacht Club
Hawaiian Sugar Planters' Association
Micronesian Legal Services Corporation
Micronesian Support Committee
National Association of Dredging Contractors
PASH Coordinator

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Ms. Debbie Abreu
Mr. Arthur Akinaka
Mr. Donald S. Bowman III
Mr. Ed Crook
Mr. Rick Gaffney
Ms. Dorothy Hirowatari
Mr. Walter Kahiwa
Mr. Pete L'Orange
Mrs. Donna Mah
Mr. Mike Miura
Mr. R.D. Plunkett
Mr. Edward Pskowski
Mr. Bill Reich
Mr. Jerry Rothstein
Mr. James Schlais
Mr. Yukio Shiigi
Mr. Conrad T. Shiroma

ADDED AFTER 19 OCTOBER 1984

Mr. Ron Bachmar
Mr. J. Sanchez
Sierra Club, Hawai'i Island
Dr. Richard Titgen
Mr. John Michael White
Mr. Richard Worshauer

...y Science Board; Closed Meeting

...accordance with section 10(a)(2) of ... Federal Advisory Committee Act ... L. 92-463), announcement is made ... following Committee Meeting:

...e of the Committee: Army Science Board (ASB).

...Dates of Meeting: Thursday & Friday, 11 & 12 October 1984.

...Times of Meeting: 0830-1700 hours, both days (closed).

...Place: 11 October 1984: Ft. Detrick, MD & Ft. Meade, MD. 12 October 1984: Langley, VA & the Pentagon.

...Agenda: The Army Science Board Ad Hoc Subgroup on Chemical/Biological Warfare Intelligence will meet for classified briefings and discussions, and tour the facilities. This meeting will be closed to the public in accordance with section 552b(c) of Title 5, U.S.C., specifically subparagraph (1) thereof, and Title 5, U.S.C. Appendix 1, subsection 10(d). The classified and unclassified matters to be discussed are so inextricably intertwined so as to preclude opening any portion of the meeting. The Army Science Board Administrative Officer, Sally Warner, may be contacted for further information at (202) 695-3039 or 695-7046.

Sally A. Warner,

Administrative Officer, Army Science Board.

[FR Doc. 84-25000 Filed 9-19-84; 8:45 am]

BILLING CODE 3710-08-M

Defense Contract Audit Agency

Membership of the Defense Contract Audit Agency (DCAA) Performance Review Board

AGENCY: Defense Contract Audit Agency, Department of Defense.

ACTION: Notice of membership of the Defense Contract Audit Agency Performance Review Board.

SUMMARY: This notice announces the appointments of the members of the Performance Review Board (PRB) of the Defense Contract Audit Agency. The publication of PRB members is required by 5 U.S.C. 4314(c)(4).

The Performance Review Board provides fair and impartial review of Senior Executive Service performance appraisals and makes recommendations regarding performance and performance awards to the Director, Defense Contract Audit Agency.

EFFECTIVE: September 20, 1984.

FOR FURTHER INFORMATION CONTACT: Mr. Roger D. Kriesch, Personnel Management Specialist, Office of the Director of Personnel, Defense Contract Audit Agency, Department of Defense, Cameron Station, Alexandria, VA [illegible]-5798 or 274-5799.

SUPPLEMENTARY INFORMATION: In accordance with 5 U.S.C. 4314(c)(4), the following are names and titles of career executives who have been reappointed to serve as members of the Performance Review Board. They will serve one-year terms effective upon publication of this notice.

Mr. Robert Cheverdley, Asst. Director, Accounting and Financial Systems Division, Office of the Comptroller, Defense Logistics Agency.

Mr. John J. Quilty, General Counsel, Defense Logistics Agency.

Mr. Raymond J. Schaefer, Director, Audit Policy, Office of the Assistant Secretary (Comptroller), Office of the Secretary of Defense.

Edward G. Migliore, *Acting Assistant Director, Resources.*

[FR Doc. 84-25001 Filed 9-19-84; 8:45 am]

BILLING CODE 3820-01-M

Corps of Engineers, Department of the Army

Intent To Prepare a Draft Environmental Impact Statement (DEIS) for a Department of the Army (DA) Permit for a Proposed Resort Hotel Affecting the Waters of the United States, in Wahikus Bay, Waikoloa, South Kohala, Island of Hawaii, State of Hawaii

AGENCY: Army Corps of Engineers, Honolulu District, Pacific Ocean Division, Fort Shafter, Hawaii, DOD.

ACTION: Notice of intent to prepare a Draft Environmental Impact Statement (DEIS).

SUMMARY:

1. Description of the Proposed Action

The applicant, Transcontinental Development Co., proposes a 1,250-room resort hotel and associated amenities on approximately 60 acres of land adjacent to Wahikus Bay. The hotel is intended to draw additional visitors to the South Kohala District of the island of Hawaii. It would accomplish this by providing a complex with sufficient size, unique features, recreational amenities, and marketability to be economically competitive in the world tourism market.

The project will involve the excavation of a 6-acre salt water recreational lagoon and will require the filling of anchialine ponds on the site. These activities require a DA permit under Section 10 of the River and Harbor Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (U.S.C. 1344).

2. Description of Reasonable Alternatives

Because the project is in its preliminary planning stages, details on reasonable alternatives have not been finalized. The applicant is in the process of determining various alternatives, which may include:

a. No action alternative.

b. An alternate site for the resort hotel.

c. Alternate layout of structures or a reduction in scope of the development to minimize impacts on the anchialine ponds and Wahikus Bay.

d. Alternate uses of the aquatic sites.

3. Description of the Scoping Process for the DEIS

a. The public and affected Federal, State and local agencies, and other interested private organizations and parties are invited to provide comments identifying specific concerns which should be addressed in the DEIS. Upon preparation of the DEIS, a public notice shall be issued summarizing the facts of the case and announcing the availability of the DEIS. If a public hearing is requested, it will be held after completion of the DEIS. A public notice announcing the time, date, location and nature of the hearing would be issued at least 30 days prior to the hearing date.

b. The DEIS to be prepared should also satisfy the State of Hawaii's requirement for an Environmental Impact Statement pursuant to Chapter 343, Hawaii Revised Statutes, and the State Environmental Quality Commission's *Environmental Impact Statement Regulations.*

c. The significant issues to be analyzed in the DEIS will include:

(1) Impacts of the project on the coastal zone.

(2) Impacts of project location in the tsunami hazard zone.

(3) Project impacts on flora and fauna and rare or endangered species.

(4) Impacts on surface water runoff and drainage on coastal water quality.

(5) Coastal water quality and oceanographic impacts.

(6) Air quality and noise impacts.

(7) Direct and cumulative impacts on anchialine ponds at the project site and along the coastline.

(8) Aesthetic considerations.

(9) Socio-economic impacts, including impacts on public facilities such as transportation and utilities.

(10) Impacts on historic, archaeological and paleontological resources.

(11) Impacts on land-use.

(12) Recreational impacts.

4. It is estimated that the DEIS will be made available to the public in late 1984 or early 1985.

ADDRESS: Questions about the proposed action and DEIS can be answered by:

Mr. Stanley T. Arakaki, Chief, Operations Branch, U.S. Army Corps of Engineers, Room 205, Building 230, Fort Shafter, Hawaii 96858-5440, Telephone (808) 438-9258.

Dated: September 11, 1984.

Michael M. Jenks,

Colonel, Corps of Engineers District Engineer.

[FR Doc. 84-25002 Filed 9-19-84; 8:45 am]

BILLING CODE 3710-08-M

Intent To Prepare a Draft Environmental Impact Statement (DEIS) for a Proposed Hydropower Project on Pine Creek Lake, McCurtain and Pushmataha Counties, Oklahoma

AGENCY: Army Corps of Engineers, DOD, Tulsa District.

ACTION: Notice of Intent to Prepare a Draft Environmental Impact Statement.

SUMMARY: 1. Proposed Action: The proposed action is to install hydropower facilities at the Pine Creek Lake project. This includes raising the crest of the uncontrolled spillway to maximize the existing flood control capability. In addition, a reregulation dam downstream is being considered to facilitate withdrawal of hydropower releases to meet existing water supply requirements. Pine Creek lake was completed for fall flood control regulation in June 1969.

2. Reasonable Alternatives: The alternatives that will be evaluated include one no action alternative and three action alternatives. The no action alternative (without condition) would continue the operation of the project as currently authorized with the top of the summer conservation pool at elevation 434.0 feet National Geodetic Vertical Datum (NGVD) and the top of the flood control pool at 480.0 feet NGVD. Ultimate development includes a conservation pool elevation of 443.5 feet NGVD. The three action alternatives consist of (1) raising the top of the power pool to elevation 448.0 feet NGVD and installing a 10 megawatt (MW) hydropower unit, (2) raising the top of the power pool to elevation 454.0 feet NGVD and installing a 20 MW hydropower unit, and (3) raising the top of the power pool to elevation 460.0 feet NGVD and installing a 30 MW hydropower unit. Currently, alternative 2 is being favored because it appears to be the National Economic Development Plan. The alternatives with power pool elevation 448.0 feet NGVD and a 10 MW hydropower unit would cause fewer environmental impacts. None of the alternatives would require land acquisition. The top of the flood control pool and the new spillway crest would be 468.0, 482.8, 484.8 feet NGVD respectively.

3. Scoping Process: a. Public involvement. A comprehensive public involvement program was developed as a means of disseminating information and soliciting public views. A variety of techniques including one formal public meeting, meetings with local interest groups, and meetings with local news media were employed to involve Federal, State, and local agencies, citizen committees, organizations, and the public in the planning studies.

b. Significant Issues Requiring In-Depths Analysis. None.

c. Assignments. The US Fish and Wildlife Service will provide formal consultation as outlined in the Fish and Wildlife Coordination Act and section 7 of the Endangered Species Act. The US Soil Conservation Service will report on prime and unique farmlands, Pub. L. 97-98.

d. Environmental Review and Consultation Requirements. The draft environmental impact statement will be circulated for review and all comments will be incorporated into the final environmental impact statement.

4. A scoping meeting will not be held.

5. Estimated date when the DEIS will be available to the public: January 1985.

ADDRESS: Questions about the proposed action and DEIS can be answered by: Mr. Buell O. Atkins, Chief, Environmental Resources Branch, US Army Corps of Engineers, Tulsa District, P.O. Box 61, Tulsa, OK 74121-0061, (918) 581-7[illegible]—FTS 7[illegible]7837.

Dated: September 12, 1984.

M.J. Awad,

Lieutenant Colonel, C.E. Deputy District Engineer.

[FR Doc. 84-25003 Filed 9-19-84; 8:45 am]

BILLING CODE 3710-08-M

DEPARTMENT OF EDUCATION

Talent Search and Educational Opportunity Centers Programs—Application Preparation Workshops

AGENCY: Department of Education.

ACTION: Notice of Dates and Locations for Application Preparation Workshops.

SUMMARY: The Assistant Secretary for Postsecondary Education will conduct Application Preparation Workshops to assist prospective applicants to develop applications for grants under the Talent Search and Educational Opportunity Centers Programs.

DATES: Workshops are scheduled to be held on October 3, 4, 17, and 18.

ADDRESSES: The locations for the workshops are as follows:

October 3 and 4

Washington, D.C.
Hyatt Regency Capitol Hill, New Jersey Avenue, NW.
Host Person: Mr. Walter Lewis, Chief, Education Outreach Branch (202) 245-2185

October 17

Atlanta, Georgia
Atlanta University, Robert [illegible] Woodruff Library Exhibition Hall, Upper Level 111 Chestnut Street, S.W. (Corner of Chestnut and Beckwith Streets)
Host Person:
Mr. Marvin King, Morris Brown College, (404) [illegible]-7831 ext. 250 or 252

October 17

Dallas, Texas
Bishop College, Rectial Hall, Price-Babcock Classroom Building, 3837 Simpson Stuart Road, Dallas, Texas
Host Person: Dr. Bertis Robinson, Director, Upward Bound Project, (214) 372-8786 or 8798

October 18

Chicago, Illinois
Roosevelt University, Room 230, 430 S. Michigan Avenue
Host Person: Dr. Clifton Washington, Director, Learning Resource Center, (312) 341-3677

October 18

San Francisco, California
University of San Francisco, Parina Lounge, University Center, Main Entrance, Golden Gate Avenue and Kirkridge
Host Person: Ms. Janice Cook, Director, Upward Bound Project, (415) 666-6478.

The host person listed for each workshop location will assist you if you need directions to the workshop site.

FOR FURTHER INFORMATION CONTACT: Mr. Walter Lewis, Chief, Education Outreach Branch, Division of Student Services, Room 3060, ROB-3, U.S. Department of Education, 400 Maryland Avenue, SW., Washington, D.C. 20202. Telephone: (202) 245-2185.

SUPPLEMENTARY INFORMATION: Each application workshop will last approximately a half day. The presentation will include a review of the requirements for filing applications for the Talent Search and Educational Opportunity Centers Programs and a review of the program regulations. In addition, there will be a discussion of the suggested application development guide. The Washington, D.C. workshop will begin at 1:30 p.m. on October 3. Each of the other workshops will begin with registration at 8:30 a.m. and presentations are scheduled from approximately 9:00 to 1:00 p.m. Time will be provided in the afternoon for informal discussions and questions and answers.

There is no registration fee for the workshops.

US Army Corps of Engineers
Honolulu District

Public Notice

Public Notice No PODCO-O 1812-SD Date 19 October 1984

Reply to District Engineer (PODCO-O) Respond by 18 November 1984
U.S. Army Corps of Engineers
Building 230
Ft Shafter, HI 96858

NOTICE OF INTENT TO PREPARE A
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
FOR A DEPARTMENT OF THE ARMY (DA) PERMIT APPLICATION

1. APPLICANT: Transcontinental Development Company, 1001 Bishop Street, Suite 2610, Pauahi Tower, Honolulu, Hawaii 96813.

APPLICANT'S AGENT: Belt, Collins and Associates, 606 Coral Street, Honolulu, Hawaii 96813.

2. APPLICABLE STATUTORY AUTHORITIES: Section 404 of the Clean Water Act (33 USC 1344) and Section 10 of the River and Harbor Act of 1899 (33 USC 403).

3. LOCATION OF THE PROPOSED ACTIVITY: Waiulua Bay, Waikoloa, South Kohala, Island of Hawaii, State of Hawaii.

4. DESCRIPTION OF THE PROPOSED ACTIVITY: The applicant, Transcontinental Development Company, proposes a 1,260-room resort hotel and associated amenities on approximately 60 acres of land adjacent to Waiulua Bay. The hotel is intended to draw additional visitors to the South Kohala District of the island of Hawaii. It would accomplish this by providing a complex with sufficient size, unique features, recreational amenities, and marketability to be economically competitive in the world tourism market. The site plan and preliminary layout of the proposed project are shown in the attached drawings (5 sheets) dated September 1984.

The project includes the excavation of a 4-acre salt water recreational lagoon, the construction of structural amenities abutting and elevated over the lagoon, the filling of anchialine (tidal) ponds on the site and the maintenance clearing of seaweed, rubble and other debris from the shoreline. These activities require a DA permit under Section 10 of the River and Harbor Act of 1899 (33 USC 403) and Section 404 of the Clean Water Act (USC 1344). A freshwater canal is proposed as part of the hotel's on-site guest transportation system. The proposed canal is entirely man-made and is situated at an elevation of approximately 25 feet above sea level. It has been determined to be outside of DA permit requirements.

5. DESCRIPTION OF REASONABLE ALTERNATIVES: Because the project is in its preliminary planning stages, details on reasonable lagoon and anchialine pond alternatives are still being developed. The alternatives that will be addressed include:

a. An alternative siting of the lagoon and resort along the coastline of the Waikoloa Beach Resort.

b. A reduction in scope of the development including alternate layouts of the lagoon and structures to minimize or eliminate impacts on the anchialine ponds and Waiulua Bay.

c. Alternate uses of the aquatic sites such as aquaculture, research and education.

d. No action alternative.

6. NEED FOR FEDERAL EIS: Based on a preliminary assessment of impacts of the applicant's proposed project, it has been determined that the proposal could significantly affect the quality of the human environment if implemented. Therefore, a Federal Environmental Impact Statement (EIS) will be prepared under the provisions of the National Environmental Policy Act of 1969.

7. SCOPING PROCESS FOR DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS):

a. On 20 September 1984, a separate Notice of Intent to prepare a DEIS for the proposed project was published in the Federal Register, Volume 49, No. 184.

b. All affected Federal, State, and local agencies and other interested organizations or persons are invited to provide comments identifying specific concerns which should be addressed in the DEIS.

c. The significant issues that have been identified so far for analyses in the DEIS will include:

(1) Impacts of the lagoon construction, anchialine pond filling and maintenance activities on coastal zone resources.

(2) Susceptibility of project location in the tsunami hazard zone.

(3) Project impacts of lagoon construction, anchialine pond filling and maintenance activities on flora and fauna and rare or endangered species.

(4) Alterations of coastal water quality and oceanographic conditions caused by lagoon construction and pond filling.

(5) Effects of lagoon construction and pond filling on ambient air quality and noise.

(6) Impacts of pond filling and lagoon construction and maintenance on historic, archaeological and paleontological resources.

(7) Recreational impacts and aesthetic considerations related to lagoon construction and pond filling.

Public Notice No. PODCO-O 1812-SD

(8) Secondary and cumulative effects of DA permit actions on land use, public infrastructure (traffic and utilities), drainage and cultural values.

d. Upon preparation of the DEIS, a public notice shall be issued announcing the availability of the DEIS. It is estimated that the DEIS will be made available to the public in late 1984.

e. Requests for a scoping meeting should be forwarded to this District no later than 30 days from the date of this notice.

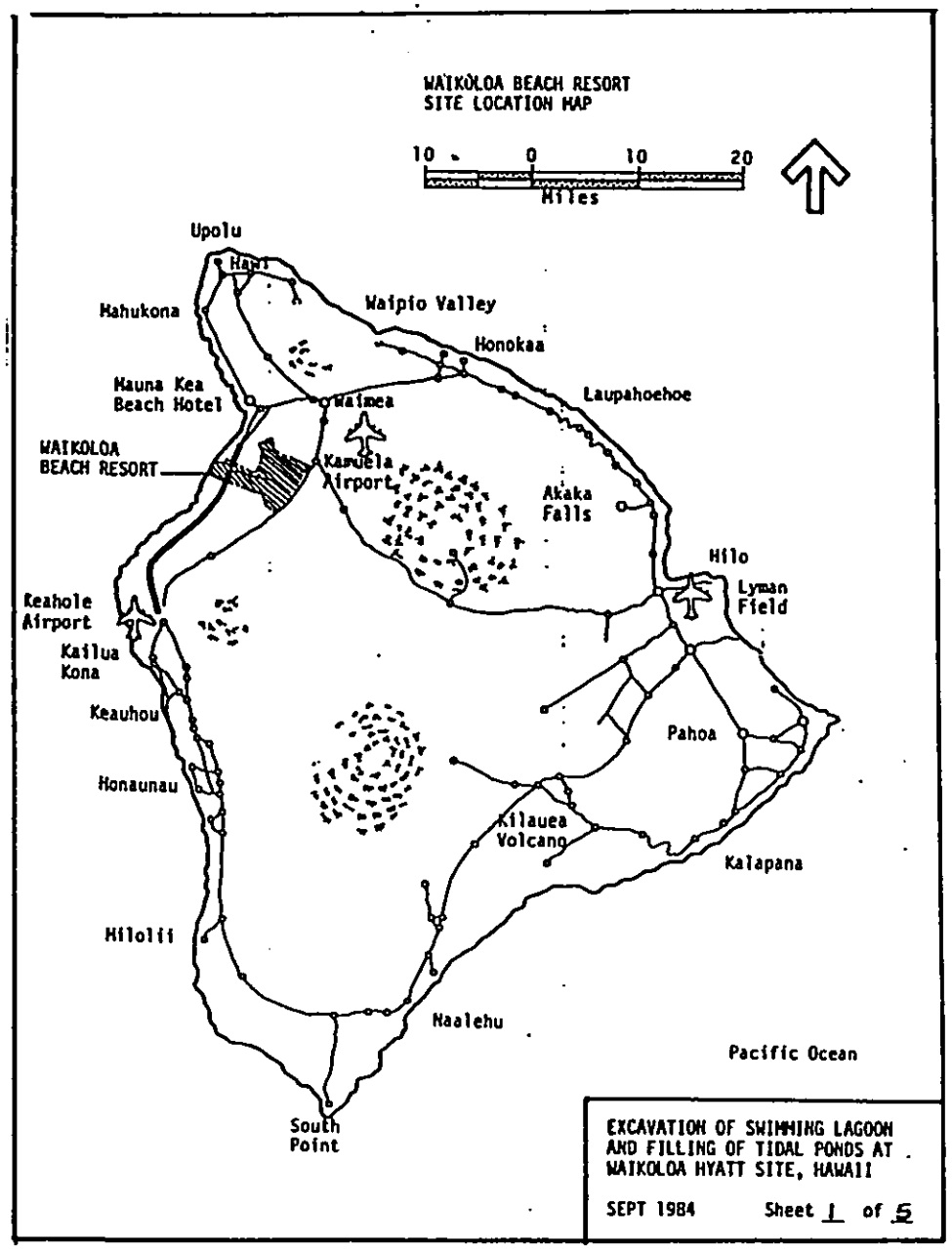
8. EVALUATION FACTORS: The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest, including the application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use, navigation, recreation, water supply, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

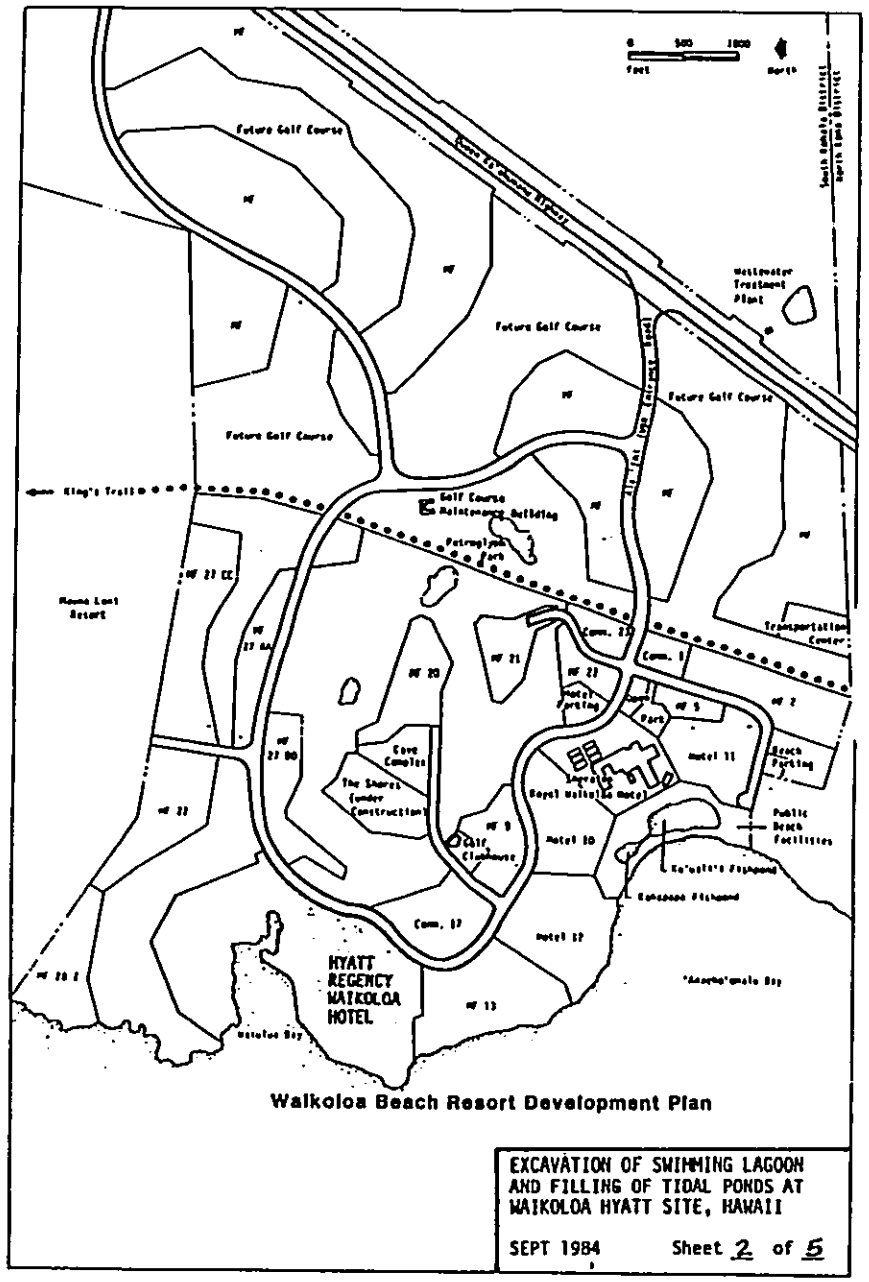
9. COMMENTS AND INQUIRIES: Interested parties may submit in writing any concerns and comments that they may have on the proposed project and DEIS. Comments should be forwarded so as to reach this District no later than 30 days from the date of this notice so that they can be considered in preparation of the DEIS. Further information may be obtained from the Operations Branch, Honolulu District, Room 205, Building 230, Fort Shafter, telephone 438-9258. Written inquiries and comments should be mailed to this District at the address indicated in the letterhead and should make reference to this public notice number.

It is Corps of Engineers policy that any objections will be forwarded to the applicant for resolution or rebuttal before a final decision is made on the application. If the objecting party so requests, all personal information will be deleted from the forwarded letter or the objections will be paraphrased in summary form.

10. REQUEST FOR PUBLIC HEARING. Any person may request, in writing, that a public hearing be held to consider this application. These requests shall state, with particularity, the reasons for holding a public hearing. If requested and warranted, the hearing will be held after completion of the DEIS. A public notice announcing the time, date, location and nature of the hearing would be issued at least 30 days prior to the hearing date.

1 Incl
Drawings (5 sheets)

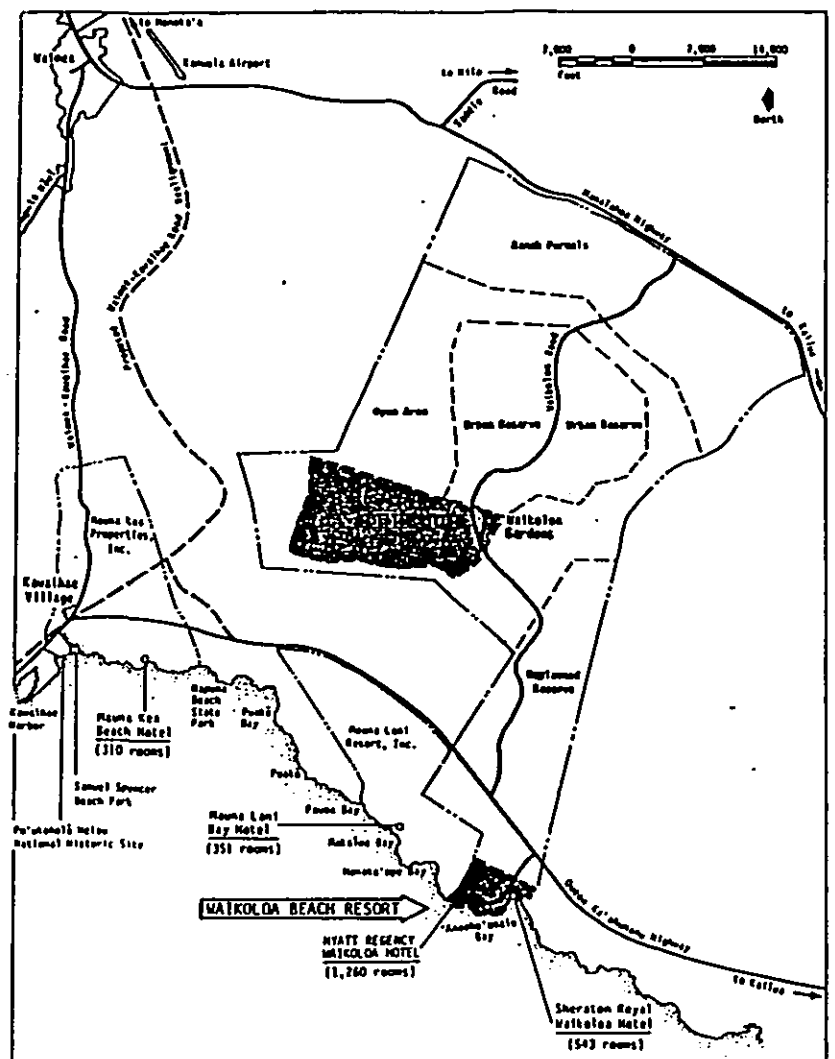




Waikoloa Beach Resort Development Plan

EXCAVATION OF SWIMMING LAGOON AND FILLING OF TIDAL PONDS AT WAIKOLOA HYATT SITE, HAWAII

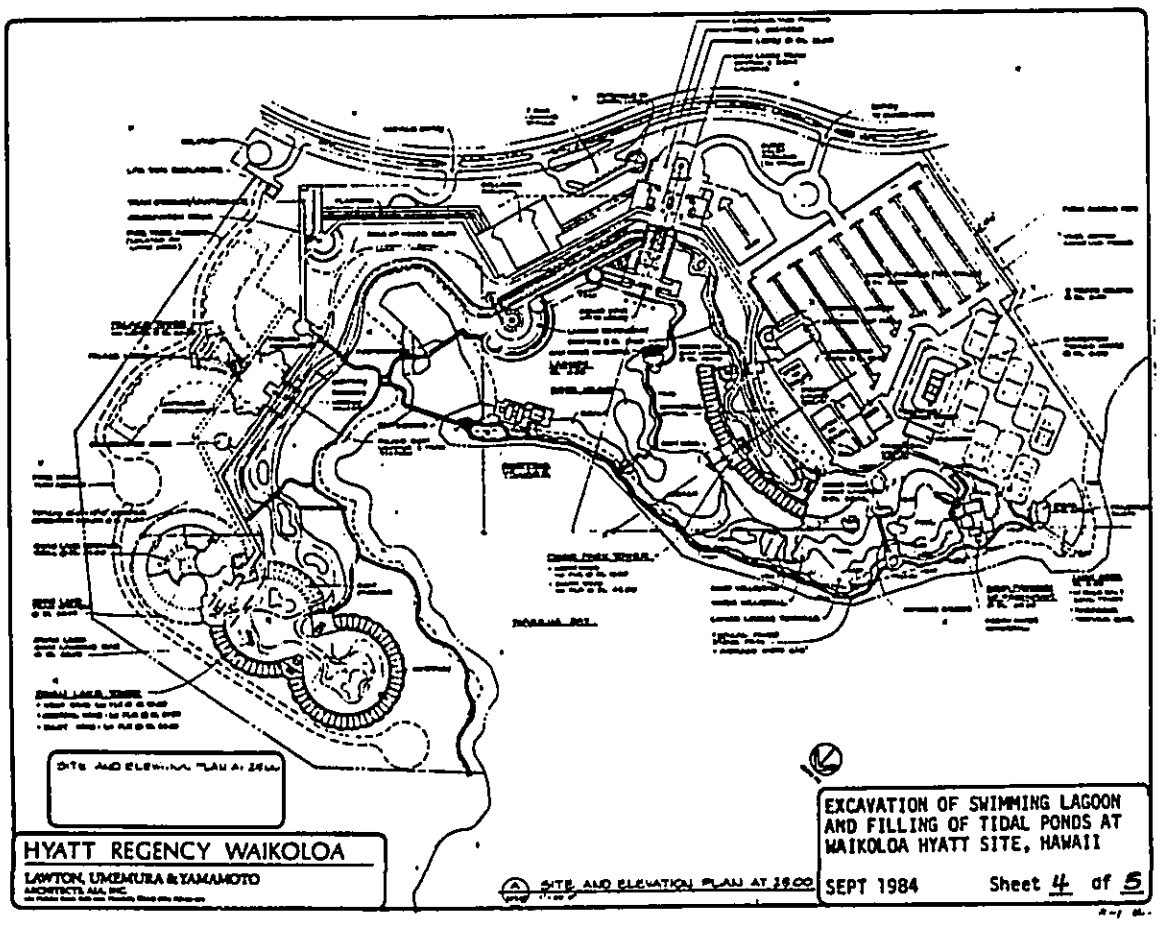
SEPT 1984 Sheet 2 of 5

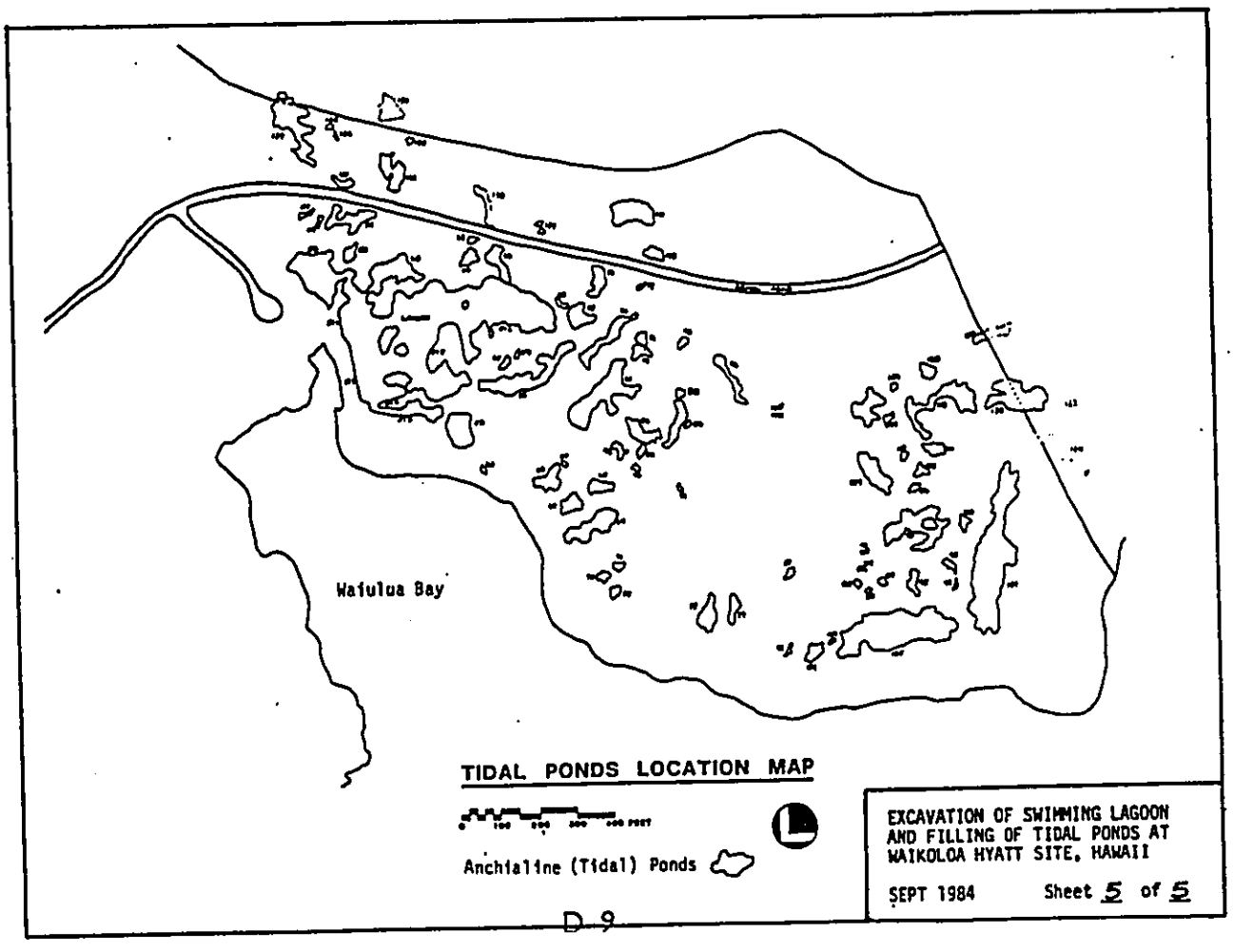


Waikoloa Lands and the South Kohala Region

EXCAVATION OF SWIMMING LAGOON AND FILLING OF TIDAL PONDS AT WAIKOLOA HYATT SITE, HAWAII

SEPT 1984 Sheet 3 of 5


HYATT REGENCY WAIKOLOA
LAWTON, UMEMURA & YAMAMOTO
ARCHITECTS, AIA, INC.
SITE AND ELEVATION PLAN AT 29.00
EXCAVATION OF SWIMMING LAGOON AND FILLING OF TIDAL PONDS AT WAIKOLOA HYATT SITE, HAWAII
SEPT 1984
Sheet 4 of 5


Waiulua Bay
TIDAL PONDS LOCATION MAP
Anchialine (Tidal) Ponds
EXCAVATION OF SWIMMING LAGOON AND FILLING OF TIDAL PONDS AT WAIKOLOA HYATT SITE, HAWAII
SEPT 1984
Sheet 5 of 5

D-9

the letter to the Commissioner of [illegible] which followed that notice [illegible]ve been 592,248 pounds, instead of 529,248 pounds.

Walter C. Lanahan,

Chairman, Committee for the Implementation of Textile Agreements.

[FR Doc. 85-2317 Filed 1-30-85; 8:45 am]

BILLING CODE 3510-DR-M

DEPARTMENT OF DEFENSE

Department of the Air Force

Intent To Prepare a Draft Environmental Impact Statement (EIS); Moody Air Force Base, GA

The United States Air Force proposes to develop an air to surface weapons range in the immediate geographical area of Moody Air Force Base, Georgia. The close proximity of the proposed range to Moody AFB would increase both flight safety and training effectiveness while decreasing the overall cost of training. Land for the range would be transferred to the Air Force from the U.S. Forest Service.

Approximately 350-400 acres of regrown [illegible]s would be cleared to allow for construction of a range complex consisting of two towers, a small administrative building, and bomb and strafe targets.

The environmental analysis will include such topics as impact to the flora and fauna, noise levels and additional topics raised during the scoping meeting.

Our environmental analysis will be completed following the scoping meeting. Exact time and place of the scoping meeting will be announced in the local news media and by direct contact to organizations that have expressed an interest in attending. Participation in the environmental analysis process by interested private organizations and individuals is invited.

It is estimated that the draft EIS will be available for public review in June 1985.

Questions concerning the proposal, scoping meeting or the draft EIS may be directed to Mr. Alton Chavis, HQ TAC/DEEV, Langley AFB, VA 23665-5001, telephone (804) 764-4430.

[illegible]a C. Keith,

Air Force Federal Register Liaison Officer.

[FR Doc. 85-2470 Filed 1-30-85; 8:45 am]

BILLING CODE 3910-01-M

Corps of Engineers; Department of the Army

Intent To Prepare Draft Environmental Statement; Zimmer Generating Plant, Ohio

AGENCY: U.S. Army Corps of Engineers, DOD.

ACTION: Notice of Intent to Prepare a Draft Environmental Impact Statement (DEIS) for a proposed conversion of the Zimmer Generating Plant from nuclear to coal fired operation. The plant is located along the Ohio River (River Mile 443) near Moscow in Clermont County, Ohio.

SUMMARY: The Cincinnati Gas & Electric Company (operator), Columbus & Southern Ohio Electric Company and Dayton Power & Light Company, as the owners are proposing to convert the W.H. Zimmer Generating Plant from a 800 megawatt nuclear to a 1300 megawatt coal fired operation. A portion of the existing structure will be used and new construction will require the addition of coal, oil and scrubber reagent unloading dock facilities as well as storage facilities for full and empty barges. A discharge structure to the Ohio River may also be required.

The Cincinnati Gas & Electric Company (operator) has applied for a Department of the Army Permit under section 10 of the Rivers and Harbors Act of 1899 and section 404 of the Clean Water Act. The American Electric Power Service Corporation has been named by the owners as project manager for managing the plant conversion and licensing efforts.

Notice is hereby given of the assumption of "lead agency" responsibility for Federal action for the proposed facility by the Louisville District, Corps of Engineers. The DEIS will cover a variety of issues including air quality, economics, land use and transportation, in addition to the actual construction and operation of the facility. Any individual or group having comments regarding the contents of the DEIS may submit them to the Corps of Engineers at the address at the end of this notice.

A scoping meeting for the DEIS will be held in early 1985, the date and place to be announced later. The purpose of the meeting will be to identify the significant issues to be analyzed in depth in the DEIS. Participation by the public and all interested Government agencies is invited.

DATE: The Louisville District estimates that the DEIS will be released for public review on or before 1 May 1986.

ADDRESS: Questions regarding the proposed action, the Environmental Impact Statement or the scoping meeting should be directed to Dwayne G. Lee, Colonel, Corps of Engineers, 600 Federal Place, P.O. Box 59, Louisville, Kentucky 40201. Phone: (502) 582-5601.

By Authority of the Secretary of the Army.

Dwayne G. Lee,

Colonel, CE, District Engineer.

[FR Doc. 85-2512 Filed 1-30-85; 8:45 am]

BILLING CODE 3710-KK-M

Intent To Prepare Draft Environmental Statement; South Kohala, HA

AGENCY: U.S. Army Corps of Engineers, Honolulu District, Pacific Ocean Division, Fort Shafter, Hawaii.

ACTION: Notice of Intent to prepare a DEIS. Draft Environmental Impact Statement for a Department of the Army (DA) permit for a proposed resort hotel affecting the waters of the United States in Waikoloa, South Kohala, Island of Hawaii, State of Hawaii.

SUMMARY:

1. This Notice of Intent supersedes Notice of Intent published in the Federal Register, dated 20 September 1984 (49 FR 36901). In recognition of the cumulative loss of anchialine pond resources within the applicants' Waikoloa Beach Properties, and to avoid piecemeal assessment and commitment of anchialine pond resources on the applicants' property, the DA permit application was revised to include all anchialine ponds on the Waikoloa Beach Resort Properties, and to create an 8-acre pond preservation area.

2. *Description of the Proposed Action.* The applicants, Transcontinental Development Co. and Atpac Land Co. requested authorization to excavate and fill anchialine ponds on their Waikoloa Beach Resort properties in conjunction with their resort/hotel/urban development plans. An 8-acre anchialine pond area will be preserved, managed and maintained by the applicants. Their 1,250-room resort hotel involves the excavation of a 4-acre saltwater lagoon. These activities require a DA permit under Section 10 of the River and Harbor Act of 1899, as amended, and section 404 of the Clean Water Act, as amended.

3. *Description of Reasonable Alternatives.* The reasonable alternatives to be addressed in the DEIS will be developed to minimize and reduce the loss of anchialine ponds on the Waikoloa Beach Resort properties and will include:

a. The no action alternative (denial of the DA permit).

b. Authorizing the proposed action as requested by the applicants.

c. Authorizing the proposed action with modifications to reduce or minimize loss of anchialine ponds and other significant environmental resources.

4. *Description of the Scoping Process for the DEIS.* The public, individuals and special interest groups, Federal, State and local agencies and other interested parties who responded to the earlier public notice will be included in the DEIS process. Any other interested parties are invited to provide comments identifying specific concerns that they wish to see addressed in the DEIS.

5. *Significant Issues to be Addressed in the DEIS.* The significant issues to be addressed in the DEIS will include those impacts directly related to the Corps area of jurisdiction and areas of indirect and cumulative impacts. These issues will include, but not be limited to:

a. Impacts on the anchialine ponds and coastal water quality.

b. Impacts on historical, archaeological and cultural resources.

c. Impacts on threatened and endangered species, and other flora and fauna.

d. Impacts on the tsunami hazard zone.

e. Impacts on groundwater hydraulics and quality.

f. Impacts on the coastal zone and oceanography.

g. Impacts on lands use and recreational resources.

h. Impacts on air quality and noise levels.

i. Impacts on aesthetics.

j. Impacts on socioeconomic factors in the region.

It is estimated that the DEIS will be made available to the public in February 1985.

ADDRESS: Questions regarding the proposed action and DEIS can be answered by: Mr. Michael T. Lee, Biologist, U.S. Army Corps of Engineers, Construction-Operations Division, Operations Branch, Room 205, Building 230, Fort Shafter, Hawaii 96858-5440.

Dated: January 21, 1985.

Michael M. Jenk,

Colonel, Corps of Engineers, District Engineer.

[FR Doc. 85-2460 Filed 1-30-85; 8:45 am]

BILLING CODE 3710-HM-M

DEPARTMENT OF EDUCATION

State Vocational Education Programs; Intent To Compromise Claim

AGENCY: Department of Education.

ACTION: Notice of Intent to Compromise Claim.

SUMMARY: Notice is given that under section 452(f) of the General Education Provisions Act, 20 U.S.C. 1234a(f), the Secretary intends to compromise a claim against the Minnesota State Advisory Council for Vocational Education now pending before the Education Appeal Board, Docket No. 21-(86)-81.

DATE: Interested persons may submit written comments or objections on or before March 18, 1985.

FOR FURTHER INFORMATION CONTACT: Ms. Lynette Charbonneau, Office of the General Counsel, Department of Education, 400 Maryland Avenue, SW. (Room 4021, FOB-6), Washington, D.C. 20202.

SUPPLEMENTARY INFORMATION: The Vocational Education Act of 1963 (the Act) (20 U.S.C. 2301 *et seq.*), in effect at the time of the events at issue, authorized grants to States for vocational education programs. Section 105 of the Act (20 U.S.C. 2305) required any State which desired to participate in programs under the Act to establish a State advisory council. The regulations governing State advisory councils were found in 45 CFR Part 104 (presently found in 34 CFR Part 400).

The regulations containing the rules for the conduct of proceedings before the Education Appeal Board, established by the Secretary pursuant to section 451 of the General Education Provisions Act (20 U.S.C. 1234), were published in the Federal Register on May 18, 1981 (46 FR 27305). The Education Appeal Board regulation currently in effect are found in 34 CFR Part 78.

The claim in dispute arose out of an audit of the Minnesota State Advisory Council for Vocational Education (SACVE) conducted by the former Department of Health, Education and Welfare Audit Agency. The audit disclosed that charges for clerical services were in excess of comparable charges in the area. In addition, the auditors found a lack of compliance with Federal regulations and State travel policies, resulting in unallowable entertainment costs and undocumented travel costs. Accordingly, the auditors requested refunds from the SAVCE in three areas: (1) Improper bidding procedures pursuant to Federal regulations in the negotiations of staff service agreements ($21,178); (2) undocumented travel costs ($5,436); and (3) unallowable entertainment costs ($1,181). In a final letter of determination dated September 6, 1981, the Assistant Secretary for Vocational and Adult Education notified the SACVE that it must refund $27,807 as a result of the auditors' findings. The SACVE filed a timely appeal to this final determination and the case was docketed before the Education Appeal Board.

Prior to a Prehearing Conference, it was shown that almost a third of the requested refund was barred by the applicable statute of limitations, section 452(g) of the General Education Provisions Act (20 U.S.C. 1234e(g)). In summary, section 452(g) limits a State's liability to obligations made within five years of the date the State receives notice of the Department of Education's request for a refund. Application of section 452(g) reduced the claim to $18,150.52.

The Secretary proposes to compromise the remaining claim of $18,150.52 for $4,400 in satisfaction of all monetary findings in the audit. Based on the cost of further litigation, the Secretary has determined that it would not be practical or in the public interest to continue this proceeding. Moreover, the Assistant Secretary for Vocational and Adult Education has been adequately assured that the practices which resulted in the claim have been corrected and will not recur. This proposed compromise will not adversely affect any other audit proceeding pending before the Education Appeal Board.

The public is invited to comment on the Secretary's intent to compromise this claim. Additional information may be obtained by writing to Ms. Lynette Charbonneau at the address given at the beginning of this notice.

(20 U.S.C. 1234, 1234a(f))

Dated: January 28, 1985.

Gary L. Jones,

Acting Secretary of Education.

[FR Doc. 85-2479 Filed 1-30-85; 8:45 am]

BILLING CODE 4000-01-M

DEPARTMENT OF ENERGY

National Petroleum Council, Oil Supply/Demand Task Group; Meeting

Notice is hereby given that the Oil Supply/Demand Task Group will meet in February 1985. The National Petroleum Council was established to provide advice, information, and recommendations to the Secretary of Energy on matters relating to oil and natural gas or the oil and natural gas industries. The Oil Supply/Demand

US Army Corps of Engineers
Honolulu District

Public Notice

Public Notice No: PODCO-O 1812-SD
Date: 29 Jan 85
Reply to: District Engineer (PODCO-O), US Army Corps of Engineers, Building 230, Ft Shafter, HI 96858
Respond by: N.A.

REVISED NOTICE OF INTENT TO PREPARE A
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
FOR A DEPARTMENT OF THE ARMY (DA) PERMIT APPLICATION

1. APPLICANT: Transcontinental Development Co. and Atpac Land Co., Suite 2610, Pauahi Tower, Honolulu, Hawaii 96813.

APPLICANT'S AGENT: Belt, Collins and Associates, 606 Coral Street, Honolulu, Hawaii 96813.

2. APPLICABLE STATUTORY AUTHORITIES: Section 404 of the Clean Water Act (33 USC 1344) and Section 10 of the River and Harbor Act of 1899 (33 USC 403).

3. LOCATION OF THE PROPOSED ACTIVITY: Waikoloa, South Kohala, Island of Hawaii, Sate of Hawaii.

4. SUMMARY: This Notice of Intent supersedes Notice of Intent published in the Federal Register, dated 20 September 1984 (49 FR 184:36901). In recognition of the cumulative loss of anchialine pond resources within the applicants' Waikoloa Beach Properties, and to avoid piecemeal assessment and commitment of anchialine pond resources on the applicants' property, the DA permit application was revised to include all anchialine ponds on the Waikoloa Beach Resort Properties, and to create an 8-acre pond preservation area.

5. DESCRIPTION OF THE PROPOSED ACTION: The applicants, Transcontinental Development Co. and Atpac Land Co. requested authorization to excavate and fill anchialine ponds on their Waikoloa Beach Resort properties in conjunction with their ongoing development of the resort. An 8-acre anchialine pond area will be preserved, managed and maintained by the applicants. Their construction of the 1,250-room resort hotel involves the excavation of a 4-acre saltwater lagoon. These activities require a DA permit under Section 10 of the River and Harbor Act of 1899, as amended, and Section 404 of the Clean Water Act, as amended.

6. DESCRIPTION OF REASONABLE ALTERNATIVES: The reasonable alternatives to be addressed in the DEIS will be developed to minimize and reduce the loss of anchialine ponds on the Waikoloa Beach Resort properties and will include:

a. The no action alternative (denial of the DA permit).

b. Authorizing the proposed action as requested by the applicants.

c. Authorizing the proposed action with modifications to reduce or minimize loss of anchialine ponds and other significant environmental resources.

7. DESCRIPTION OF THE SCOPING PROCESS FOR THE DEIS: The public, individuals and special interest groups, Federal, State and local agencies and other interested parties who responded to the earlier public notice will be included in the DEIS process. Any other interested parties are invited to provide comments identifying specific concerns that they wish to see addressed in the DEIS.

8. SIGNIFICANT ISSUES TO BE ADDRESSED IN THE DEIS: The significant issues to be addressed in the DEIS will include those impacts directly related to the Corps area of jurisdiction and areas of indirect and cumulative impacts. These issues will include, but not be limited to:

a. Impacts on the anchialine ponds and coastal water quality.

b. Impacts on historical, archaeological and cultural resources.

c. Impacts on threatened and endangered species, and other flora and fauna.

d. Impacts on the tsunami hazard zone.

e. Impacts on groundwater hydraulics and quality.

f. Impacts on the coastal zone and oceanography.

g. Impacts on land use and recreational resources.

h. Impacts on air quality and noise levels.

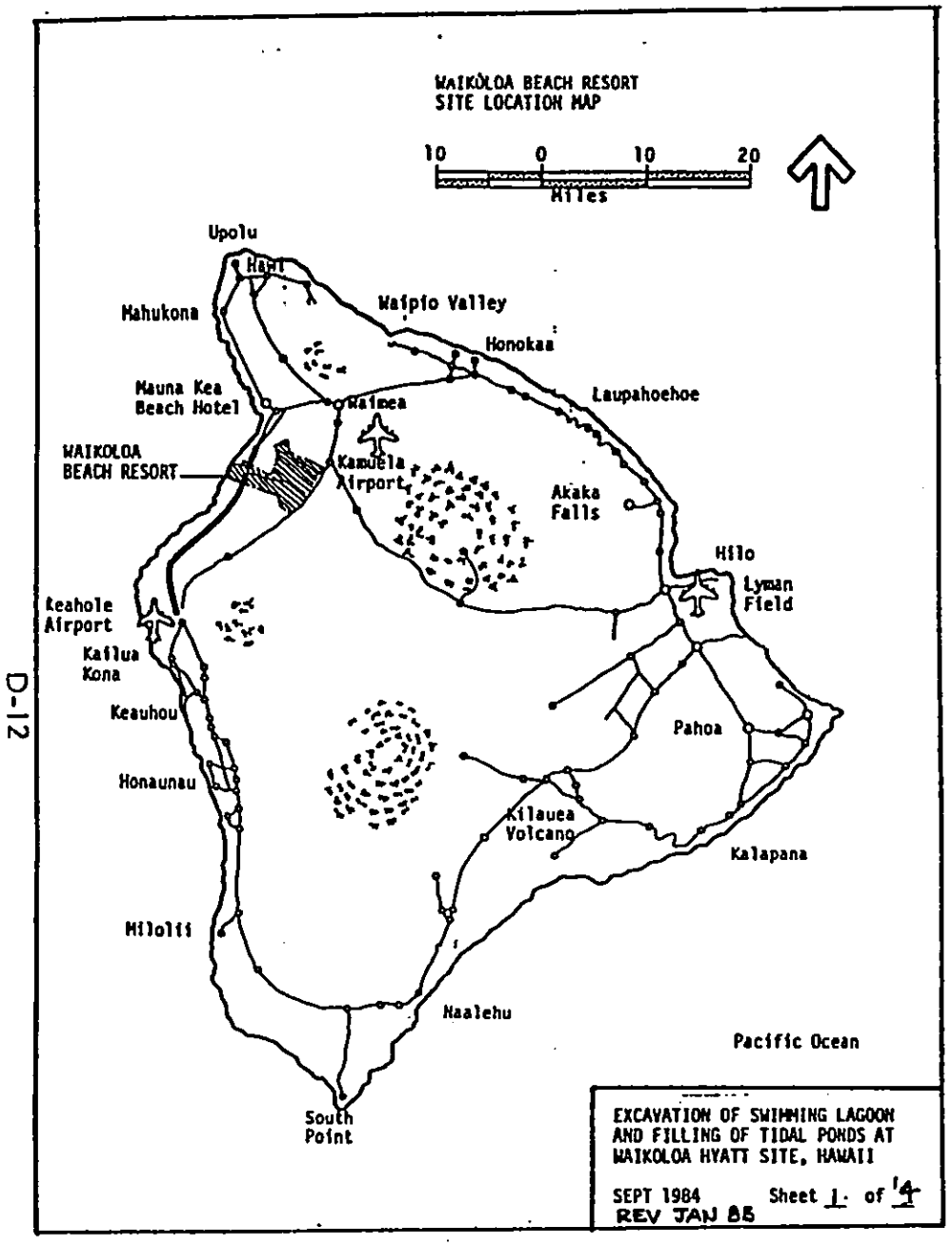
i. Impacts on aesthetics.

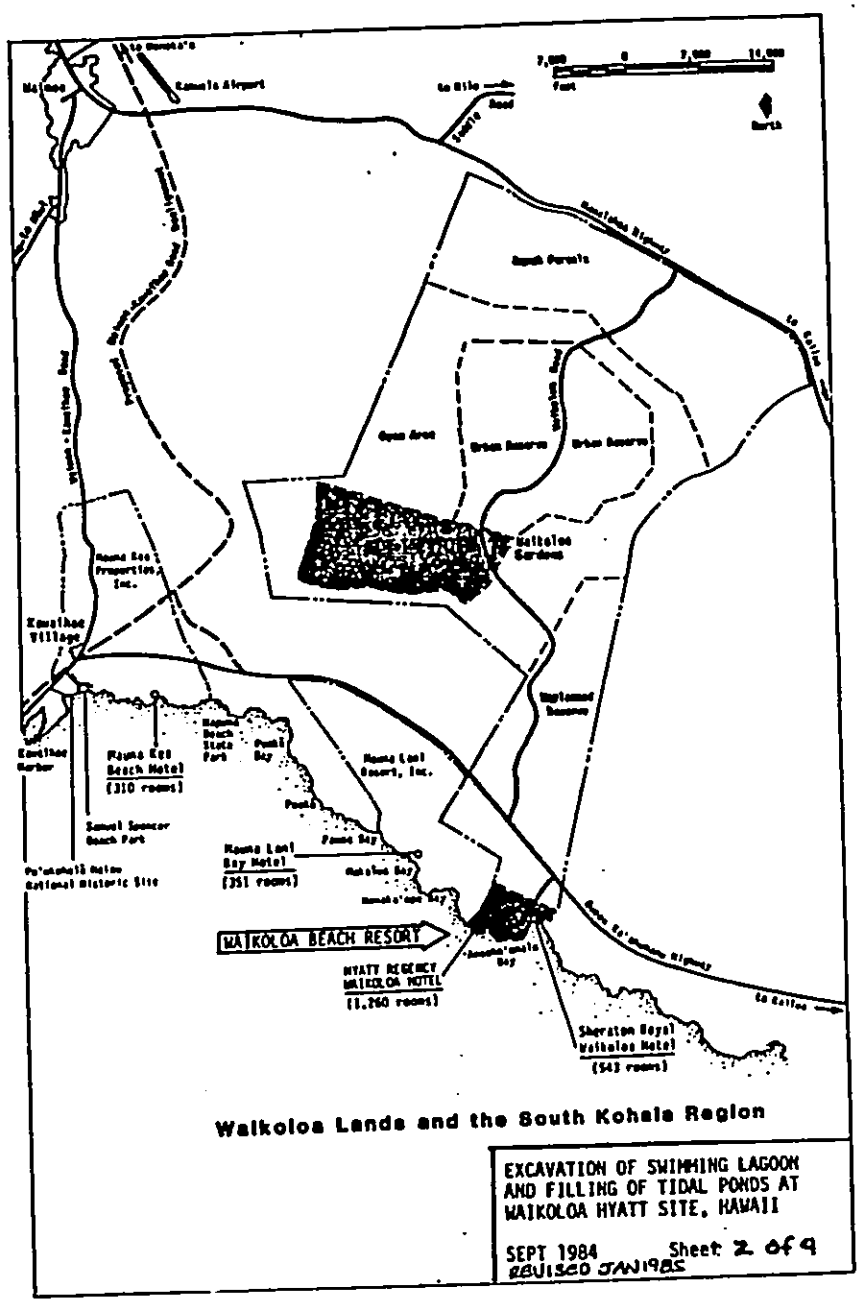
j. Impacts on socioeconomic factors in the region.

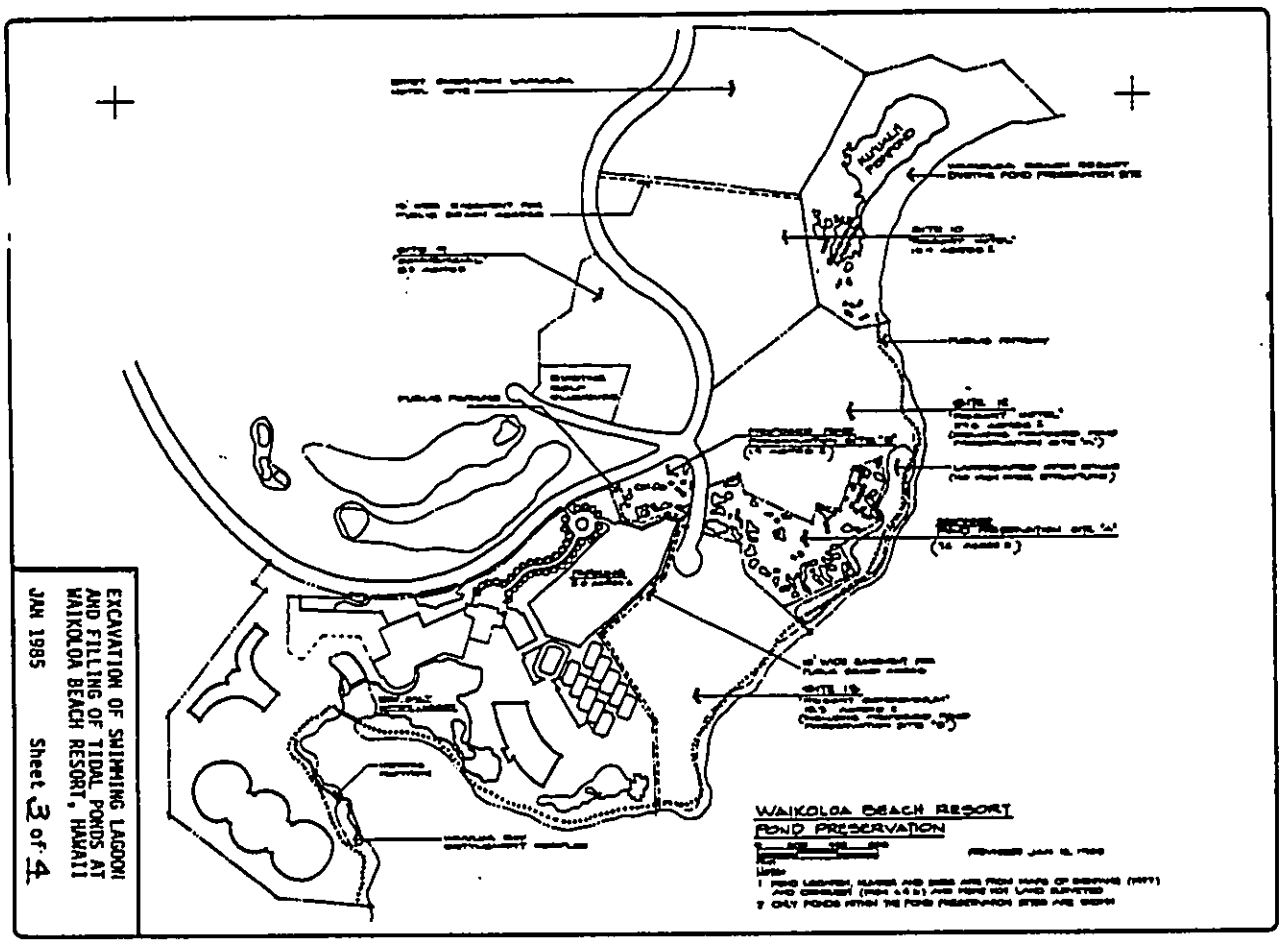
It is estimated that the DEIS will be made available to the public in February 1985.

9. ADDRESS: Questions regarding the proposed action and DEIS can be answered by:

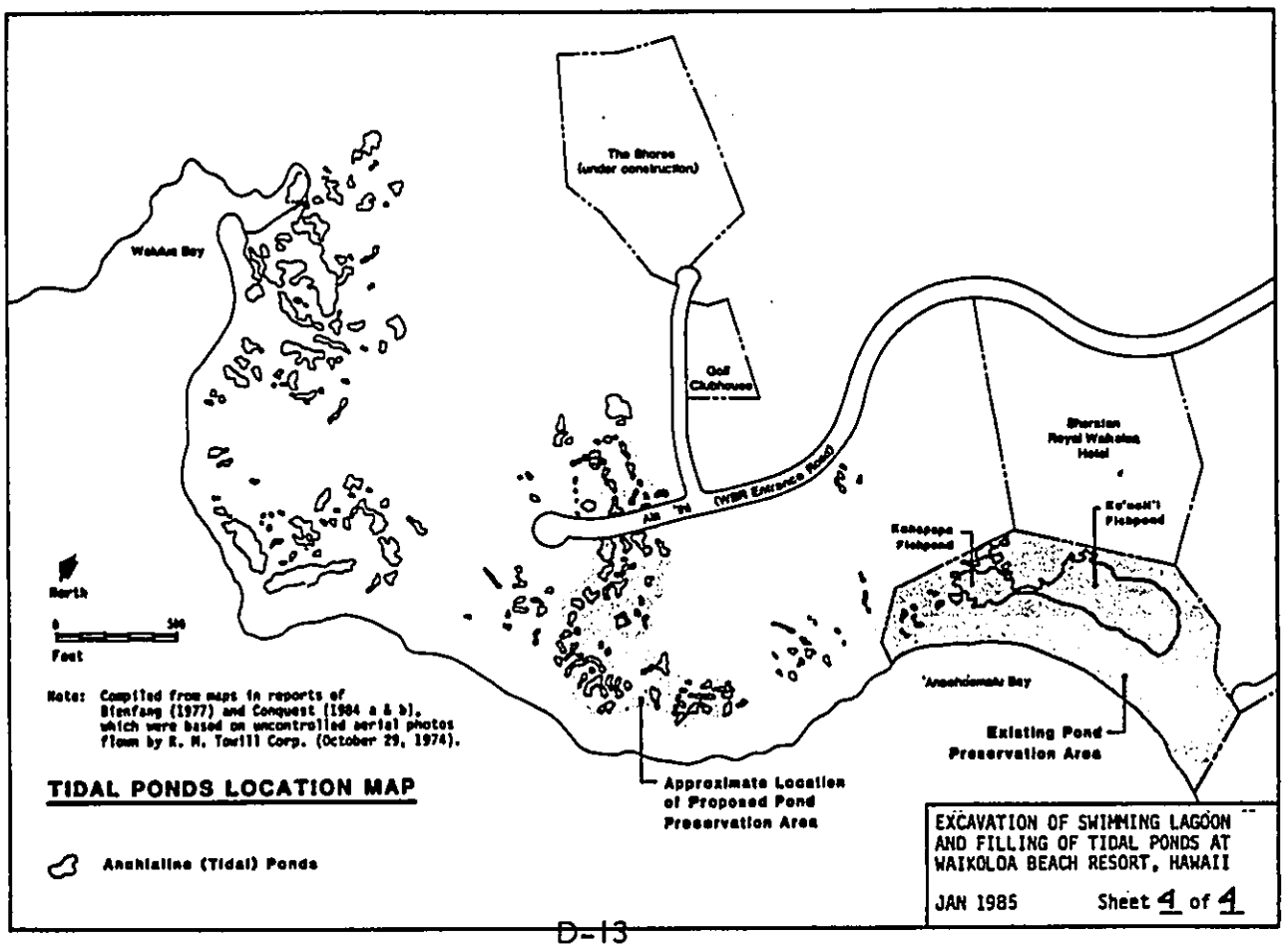
Mr. Michael T. Lee
Biologist
U.S. Army Corps of Engineers
Construction-Operations Division
Operations Branch
Room 205, Building 230
Fort Shafter, Hawaii 96858-5440


WAIKOLOA BEACH RESORT
SITE LOCATION MAP
10 0 10 20
Miles
Upolu
Hawi
Mahukona
Waipio Valley
Honokaa
Mauna Kea
Beach Hotel
Waimea
Laupahoehoe
WAIKOLOA
BEACH RESORT
Kamuela
Airport
Akaka
Falls
Hilo
Lyman
Field
Keahole
Airport
Kailua
Kona
Keauhou
Honaunau
Pahoa
Kilauea
Volcano
Kalapana
Hilolii
Naalehu
Pacific Ocean
South
Point
EXCAVATION OF SWIMMING LAGOON
AND FILLING OF TIDAL PONDS AT
WAIKOLOA HYATT SITE, HAWAII
SEPT 1984 Sheet 1 of 14
REV JAN 85


Kamuela Airport
Open Area
Urban Reserve
Urban Reserve
Waikoloa Gardens
Kawaihae Village
Kawaihae Harbor
Mauna Kea Beach Hotel
(310 rooms)
Samuel Spencer Beach Park
Mauna Lani Bay Hotel
(351 rooms)
Mauna Lani Resort, Inc.
Puako Bay
Waikoloa Beach Resort
Hyatt Regency Waikoloa Hotel
(1,260 rooms)
Sheraton Royal Waikoloa Hotel
(543 rooms)
Waikoloa Lands and the South Kohala Region
EXCAVATION OF SWIMMING LAGOON
AND FILLING OF TIDAL PONDS AT
WAIKOLOA HYATT SITE, HAWAII
SEPT 1984 Sheet 2 of 9
REVISED JAN 1985



EXCAVATION OF SWIMMING LAGOON
AND FILLING OF TIDAL PONDS AT
WAIKOLOA BEACH RESORT, HAWAII
JAN 1985 Sheet 3 of 4



EXCAVATION OF SWIMMING LAGOON
AND FILLING OF TIDAL PONDS AT
WAIKOLOA BEACH RESORT, HAWAII
JAN 1985 Sheet 4 of 4

Appendix E

Correspondence Related to Public Notices

APPENDIX E

CORRESPONDENCE RELATING TO PUBLIC NOTICES

AGENCY OR INDIVIDUAL		DATE OF LETTER
Government Agencies		
U.S. Coast Guard		19 November 1984
U.S. Environmental Protection Agency	and	6 November 1984 23 November 1984
National Park Service, Interagency Archaeological Services		15 November 1984
State of Hawaii, Department of Health		
University of Hawaii, Environmental Center		5 December 1984
Public Interest Groups		
Na Ala Hele	and	8 November 1984 18 December 1984
Response from Corps to Na Ala Hele		4 January 1985
Sierra Club, Hawaii Chapter		15 November 1984
Hawaii's Thousand Friends		25 February 1984
Individuals		
Donna Mah to Mr. Flanders, COE		25 September 1984
Donna Mah to COE re. pond surveys		8 November 1984
Stanley Arakaki, COE to Donna Mah		26 November 1984
Donna Mah to COE re. Public Notice		3 November 1984
COE request that BCA answer Donna Mah		8 November 1984
BCA to Donna Mah		30 November 1984
Donna Mah to BCA		21 January 1985
BCA to Donna Mah		20 March 1985
Wade Shaffer		21 February 1985
John Michael White		13 November 1984

U.S. Department of Transportation
United States Coast Guard

Commander (dpl)
Fourteenth Coast Guard District

Prince Kalanianaole
Federal Building
300 Ala Moana Blvd.
Honolulu, Hawaii 96850
Phone. (808)546-2861

16518
Serial No. 5/018
19 November 1984

From: Commander, Fourteenth Coast Guard District
To: District Engineer, U.S. Army Corps of Engineers, Honolulu

Subj: PROPOSED DEVELOPMENT AT WAIULUA BAY, WAIKOLOA, SOUTH KOHALA, ISLAND OF HAWAII, STATE OF HAWAII

Ref: (a) Your public Notice No. PODCO-O 1812 SD dtd 19 OCT 1984

1. Reference (a) has been reviewed by my staff. It is possible that the proposed footbridges in the Wailua bay/lagoon area may require a Coast Guard Bridge Permit. It is requested that the Coast Guard be included in the review of the Draft EIS to insure that these concerns are addressed.

J. F. MILBRAND
By direction

E-2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

NOV 0 6 1984

Stanley T. Arakaki, Chief
Operations Branch
U.S. Army Corps of Engineers
Room 205, Building 230
Fort Shafter, Hawaii 96858-5440

Dear Mr. Arakaki:

The Environmental Protection Agency (EPA) has reviewed the Notice of Intent for the project titled PROPOSED RESORT HOTEL AFFECTING THE WATERS OF THE UNITED STATES, IN WAIULUA BAY, WAIKOLOA, SOUTH KOHALA, ISLAND OF HAWAII, STATE OF HAWAII.

Our review is based on the Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500-1508). We have the enclosed comments to offer at this time.

We appreciate the opportunity to comment on the proposed project. Please send four copies of the Draft Environmental Impact Statement (DEIS) to this office at the same time it is officially filed with our Washington, D.C. office. We also request notification of any public hearings to be held on this project. If you have any questions, please contact Patrick J. Cotter, Federal Activities Branch, at (415) 974-0948 or FTS - 454-0948.

Sincerely yours,

Loretta Kahn Barsamian

Loretta Kahn Barsamian, Chief
Federal Activities Branch

Enclosure (3 pages)

General Comments

1. The DEIS should rigorously explore and objectively evaluate all reasonable alternatives and, for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated (40 CFR 1502.14).

2. The DEIS should clearly explain the relationship between the project's cost benefit analysis and any analyses of unquantified environmental impacts, values, and amenities. (40 CFR 1502.23).

Water Quality Comments

For each alternative, the DEIS should:

1. Demonstrate the proposed project's consistency with Executive Order 11988 titled "Floodplain Management," dated May 24, 1977. The evaluation must assess the effects of proposed modifications upon floodplain development both upstream and downstream.

2. Completely describe current drainage patterns in the project locale and include hydrologic maps of the area. The discussion must assess how altering drainage patterns and characteristics will affect drainage hydrology, surface runoff, erosion potential, soils, vegetation, and therefore water quality.

3. Evaluate the potential for increased toxicity in either the lagoons, the anchialine pools or the ocean due to discharges or runoff from the surrounding areas.

4. Evaluate likely changes in the salinity of ground water or surface water resulting from this project. The DEIS must document compliance with Sections 4, 5, 6 and 7 of the State of Hawaii, Department of Health, Water Quality Standards. These regulations are State-adopted, EPA-approved standards. Special attention should be paid to preservation of anchialine pools which "are usually small, shallow pools of low salinity (1,000 to 10,000) with distinctive biota."

5. A water quality monitoring plan should be presented to ensure that the newly-created lagoons comply with State Water Quality Standards. The location of existing habitats and the proposed lagoons should be included in maps of the project site.

6. Identify any project impacts on riparian habitats or conditions, such as changes in substrate, direction of stream flow or sediment levels, resulting from construction activities.

7. Discuss the present capacity of the existing sewage conveyance and treatment system and the potential sewage flow increases as a result of the project. Assess the impact of increased flows on the existing system, especially on the system's ability to meet National Pollutant Discharge Elimination System (NPDES) or state-issued permit conditions.

8. Identify appropriate mitigation measures to protect water quality both during and after project construction.

404(b) Permit Comments

Since a 404 permit is required, EPA will review the project for compliance with Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR 230), promulgated pursuant to Section 404(b)(1) of the Clean Water Act. Our evaluation will focus on the maintenance of water quality and the protection of wetlands, fisheries and wildlife resources. If applicable, the results of further study should indicate the amount of dredging required, potential disposal sites, types of fill material to be utilized, and quantities to be discharged into waters and wetlands that fall under Section 404 jurisdiction.

Ground Water Comments

For each alternative, the DEIS should:

1. Describe current ground water conditions in the project locale and assess all likely changes in ground water resulting from this project, such as alterations of the water table depth or chemical composition changes.

2. Consider the impacts of lagoon excavation on ground water related to the basal aquifer and the potential for tidally influenced salt water intrusion.

3. Discuss the availability of public drinking water supplies for the hotel complex development project.

Air Quality Comments

The DEIS should provide the following information for each alternative:

1. Discuss the existing mass/public transit available in the project area. Also, analyze potential mass/public transit options and identify means to encourage their use.

2. Discuss air quality impacts caused by construction activities and include appropriate control measures.

Pesticides Comments

1. The DEIS should state whether or not any pesticides (e.g., herbicides, insecticides, rodenticides, fungicides, etc.) will be used for vegetation clearance or control, maintenance operations, or the control of mosquito or other vector populations. If so, the types of pesticides, application rates, and application procedures should be addressed.

2. Any pesticides used must be registered with the Environmental Protection Agency and the State. Label directions, instructions and all applicable State regulations should be followed.

3. Since the regulatory status of chemicals is constantly changing, EPA recommends that a periodic review of the chemical's current regulatory status be done prior to application. Should pesticides be used, EPA recommends that a specific section of the DEIS be devoted to the subject.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

November 23, 1984

Colonel Michael M. Jenks
District Engineer
Honolulu District
U.S. Army Corps of Engineers
Building 230
Ft. Shafter, Hawaii 96858

Re: Public Notice No. PODCO-P 1812-SD 19 October 198.
Transcontinental Development Company

Dear Sir:

The Environmental Protection Agency had previously submitted comments dated November 6, 1984 in response to the Notice of Intent for the above project. I would like to take this opportunity to reiterate some of our concerns with respect to compliance with the 404(b)(1) guidelines.

The 404(b)(1) guidelines require a thorough examination of practicable alternatives, with special emphasis on those which would have less adverse impact on the aquatic ecosystem. The regulations further require that the discharge of dredged or fill material not be permitted if such practicable alternatives exist, or if the discharge will cause or contribute to significant degradation of the waters of the United States (40 CFR 230.10(a) & (c)). Significant degradation includes significant adverse effects on aquatic ecosystem diversity, productivity, and stability. The uniqueness of the anchialine ponds and the resources associated with them must be fully evaluated, especially in light of the non-water dependent nature of the project.

We request that the above comments be considered in the development of reasonable alternatives in the Draft Environmental Impact Statement, which we understand will include examination of alternate siting of the lagoon and resort, reduction in scope of the development including alternate lay-outs of the lagoon and structures, and alternate uses of the aquatic site.

Please feel free to direct questions on this matter to Lily Wong at (415) 974-7443 or FTS 454-7443.

Sincerely yours,

Loretta Kahn Barsamian

Loretta Kahn Barsamian, Chief
Federal Activities Branch

cc: USFWS - Honolulu
NMFS - Honolulu

E-5

United States Department of the Interior
NATIONAL PARK SERVICE
WESTERN REGION
450 GOLDEN GATE AVENUE, BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

IN REPLY REFER TO:

H24 (WR-RRA)

November 15, 1984

U.S. Army Corps of Engineers
Honolulu District
Operations Branch
Building 230, Room 205
Fort Shafter, HI 96858

Dear Sirs/Mesdames:

The Interagency Archeological Services Branch of the Western Region, National Park Service, would like to examine the draft and final environmental impact statements for the projects described in public notices PODCO-O 1812-SD and 1570-SD. When they become available, please send them to:

Garland J. Gordon, Chief
Interagency Archeological Serivces
450 Golden Gate Ave. Box 36063
San Francisco, CA 94102

Sincerely,

Helene K. Dunbar

Helene Dunbar, Acting Chief
Interagency Archeological Services

9-16

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

LESLIE S. MATSUBARA
DIRECTOR OF HEALTH

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

IN REPLY, PLEASE REFER TO
EPHSD

March 20, 1985

Col. Michael M. Jenks
Honolulu District Engineer
Corps of Engineers
U.S. Department of the Army
Building 230
Fort Shafter, Hawaii 96858

Subject: Public Notice No. PODCO-0 1812-SD
APPlicant: Transcontinental Development Company
Activity: Excavation of Swimming Lagoon and Filling of Tidal Ponds
Location: Waiulua Bay, Waikoloa, S. Kohala, Hawaii

Dear Col. Jenks:

This letter states the Department of Health's current position on the subject permit application.

E-7

Coastal Water Quality

The proposed project is for a 1,250-room resort hotel and requires the excavation of a four-acre salt water lagoon and the filling of anchialine ponds.

The Department's focus on this matter will be on what effect, if any, the filling of the anchialine ponds will have on the off-shore waters. These off-shore waters are Classified as AA waters under Chapter 11-54 of the Department's Administrative Rules. The Department presently is not in a position to further comment on this matter since it has not conducted any studies nor has it reviewed any of the applicant's materials on this matter.

Drinking Water

A project of this magnitude will require substantial commitment of water resources to support the activity. An extensive discussion of water needs and availability should be included in the draft environmental impact statement in order that full environmental impact be disclosed. A discussion of possible water sources and commitments by organizations to support the project with water will also be necessary.

In the event that new water sources will be developed to support the subject activity, please be advised that all such sources developed to serve potable water to a public water system as defined by Chapter 20, Title 11, Administrative Rules, must be approved by the Director of Health prior to their use to serve potable water. Such approval is based upon the satisfactory submittal of a preliminary engineering report satisfactorily addressing all concerns as set down by Section 11-20-29 of Chapter 20. This report must be prepared by a registered professional engineer and bear his or her seal upon submittal.

Sincerely,

SHINJI SONEDA, Chief
Environmental Protection &
Health Services Division

cc: DHSA, Hawaii

University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

December 5, 1984

RP:0048

District Engineer (PODCO-O)
U.S. Army Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858

Dear Sir:

Preparation Notice
Environmental Impact Statement
Waikoloa Beach Resort
(Excavation of Swimming Lagoon and Filling of Tidal Ponds)
Waiulua Bay, Waikoloa, South Kohala, Hawaii

The Environmental Center has conducted a brief in-house review of the above cited document with the assistance of Jacquelin Miller and Juliane Mansur. We note from previous environmental assessments concerning various projects in the Waikoloa area that many of the same significant issues will need to be addressed in the forthcoming Draft EIS. In addition to the eight issues listed in the preparation notice, we would suggest that special emphasis be accorded to the following specific concerns which have been repeatedly called to our attention in response to previous developments in this area.

Rare and endangered species

The anchialine ponds support a rare and unique ecosystem. Besides the concern for these ponds and their marine species cited in 1977 memoranda and other correspondence between the U.S. Fish and Wildlife Service, National Marine Fisheries and the Army Corps of Engineers, more recent observations by a Big Island resident have identified the Hawaiian stilt, an endangered bird, as a part of the pond ecosystem.

Tsunami hazard zone

Alterations of the shoreline may affect the runup of tsunamis and storm waves. We suggest that an engineer specializing in coastal hazard assessment be consulted to assess the potential effects of the proposed modifications of the shoreline.

Historic, archaeological and paleontological resources

In 1976 the Bishop Museum surveyed the entire Waikoloa Beach resort area and identified 301 historic sites. Results of this survey should be useful to the applicant as background material prior to their initiating their own archaeological surveys of the specific areas to be developed.

Cumulative Impacts

An issue needing careful attention is that dealing with the cumulative environmental impacts of the multiple resort developments along this coastline. The address of cumulative impacts must apply not only to the destruction of the anchialine ponds but also to the various infrastructure needs of this development and their relationship to the resources of the general Waikoloa area. For example, the availability of potable water, waste water treatment and disposal systems, and other public services, should be addressed from both the individual project and the cumulative view.

We appreciate your consideration of the concerns we have expressed and look forward to reviewing the Draft EIS.

Yours truly,

Doak C. Cox
Director

cc: OEQC
Joseph Halbig
James Morrow
John Ford
Jacquelin Miller
Juliane Mansur

NA ALA HELE
P.O. BOX 1572
KEALAKEKUA, HI 96750

November 8, 1984

District Engineer (POCO-O)
U. S. Army Corps of Engineers
Building 230
Fort Shafter HI 96858

Dear Sirs:

Re: Application by Transcontinental Development Co. to develop a 1,260 room resort at Waikoloa, South Kohala, Island of Hawaii - Public Notice No. POCO-O 1812-SO

The Na Ala Hele non-profit organization, currently comprised of 57 members statewide, is hereby requesting that public hearings be held to consider this application. Reasons for our request include the advisability of receiving public input in the task of evaluating "the impact of the proposed activity on the public interest", and our great concern for what we view as a precious natural treasure of our state, the anchialine pools of West Hawaii.

We are aware that the state's largest concentration of anchialine pools is located where the resort is proposed. To our knowledge such pools are found only on the West Hawaii and southwest Maui coastlines. We would greatly appreciate a copy of the 5 reports done by CI Consultants Inc. which examine and inventory the pools.

We also request that public shoreline access and how it would be provided for be a part of the draft and final EIS.

Per a telephone request to John Emerson on 10/17/84 we would appreciate meeting with an Army Corps of Engineers representative when you return to South Kohala to study the Waikoloa area. I can be reached at 329-7336 (work) or 329-9172 (home).

Mahalo for this opportunity to participate in the planning process!

Sincerely,

Deborah Chang Abreu

Deborah Chang Abreu, President
Na Ala Hele

NA ALA HELE
P.O. BOX 1572
KEALAKEKUA, HI 96750

December 18, 1984

Col. Michael M. Jenks, District Engineer (POOCO-O)
U. S. Corps of Engineers
Building 230
Fort Shafter HI 96858

Dear Sirs:

Re: Application by Transcontinental Development Co. to develop a 1,260 room resort at Waikoloa, South Kohala, Island of Hawaii

This is to advise you that as part of the Big Island's community and as residents of the State of Hawaii, we are not in favor of the Hyatt Regency resort's proposed filling in of about 84 anchialine pools at Waiulua Bay in South Kohala.

We urge a compromise that will require the retention of more ponds in this area of the highest concentration of anchialine pools in the state.

We are aware that the assumption is being made that the filling in of ponds by the resort would be insignificant, because the endemic flora and fauna are found elsewhere in other West Hawaii ponds.

We caution:

1. Many anchialine pools along the West Hawaii coast have been seriously altered by public and private use and abuse (e.g. bathing in ponds with soap and shampoo, run-off from golf courses, introduction of guppies, talapia, koi and other exotic species, seepage from campers' make-shift "toilets"). Such ponds are not reliable havens for endemic flora and fauna. It cannot be assumed that endemic life is still found in many of West Hawaii's remaining anchialine pools.

2. The anchialine pools are easily changed by surrounding activities. A long-range plan is needed to ensure the perpetuation of the endemic life that could become eligible for endangered species status as their only habitats are destroyed. Hawaii has numerous examples of unique wildlife pushed to extinction or near extinction with the loss of their specialized habitats.

3. By allowing the destruction of pools by landowners at Waiulua and Anaeho'omalu, pressures to retain remaining pools will be greater for those landowners who have such pools on their properties. It will become crucial that whatever ponds are left be kept in their natural state. How do other

E-10

landowners feel about the possible pressures resulting from approval of Transcontinental's request to fill in the anchialine pools?

We request a meeting between Chris Hemmeter, representatives of Na Ala Hele and other Big Island organizations (upon invitation) and regulatory agency representatives who wish to be present. The purpose of such a meeting would be to discuss issues in a personalized, rational manner that will facilitate understanding of differing viewpoints and promote problem resolution.

We are also awaiting a written response to our 11-8-84 request for a public hearing on this application.

Mahalo for your time,

Deborah Chang Abreu

Deborah Chang Abreu
President, Na Ala Hele

cc: Transcontinental Development Co.
Belt Collins & Assoc.

January 4, 1985

Operations Branch

Ms Deborah Chang Abreu
President, Na Ala Hele
P. O. Box 1572
Kealakekua, Hawaii 96750

Dear Ms Abreu:

This letter responds to your letters of December 6 and 18, 1984 concerning the Transcontinental Development Company plans to develop a 1,260 room resort at Waikoloa. We have included your organization on our public notice and environmental impact statement mailing list and will address your concerns for anchialine pond protection and resource management in the draft environmental impact statement. We have been working with the applicant to determine the availability of reasonable and feasible alternatives to the proposed action. As the applicant has expressed an interest in meeting with you, we have planned to be present at any meetings between you and the applicant. We are also planning to hold a public hearing on the subject sometime in March 1985. We will notify you when a firm date is set.

Sincerely,

Everette A. Flanders
Chief, Construction-Operations
Division

Lee
kn/3

Emmerson

Pereira

Flanders

Ops Br File

E-11

Sierra Club
moku loa group
Hawai'i Chapter
P.O. Box 1137, Hilo, HI 96720

11-15-84

District Engineer
U.S. Army Corps of Engineers
Building 230
Ft. Shafter, Hi 96858

Ref: Public Notice # POD00-0
1812-SD

Dear Sir

The Sierra Club - Moku Loa Group requests a public hearing to consider Transcontinental Develop Co.'s proposal to develop 60 acres of land adjacent to Waiulua Bay.

The Moku Loa Group is concerned about the following:

A. Destruction of the shore line environment for local & migratory waterfowl & tide pool inhabitants.
B. Shore Line access for hikers, fishermen, opihi pickers, etc.
C. Old Hawaiian Trail Access

Sincerely,
Jack Hruska
Acting Conservation Chai

cc: State Rep. Virginia Isbell

E-12

HAWAII'S THOUSAND FRIENDS

Blaisdell on the Mall, Suite 402 • 1154 Fort Street • Honolulu, Hawaii 96813 • (808) 538-1296

February 25, 1985

District Engineer (PODCO-O)
U.S. Army Corps of Engineers
Building 230
Ft. Shaffer, HI 96858

Thank you for your notice of availability of the Draft Environmental Impact Statement (DEIS) regarding the "reasonable alternatives" which will address the anchialine ponds on the Waikoloa Beach Properties.

Please send us all the information regarding the DEIS, and a copy of the draft as well.

Thank You,

Martha Diaz-Colón
Administrative Assistant

MBS:mdc

E-13

Rec 28 Sep 84

September 25, 1984

Dear Executive Planners,

Thank you very much for all the information that was provided to me earlier. It answered alot of questions that no one else were willing to provide.

On Site # 12, will the "Shores" condominium be built there? Since just got word that the Hyatt will be constructing a large hotel in the same area.

I'm sure that they're just starting to fill all the necessary papers needed, therefore I would like to be kept informed on the situation, especially where archealine ponds are concerned.

I am not anti progress, so please don't misunderstand me. I realize that the development of our coastline is inevitable. I want to be sure that some of the natural beauty is preserved for our future generations. If not, much of our culture will be lost otherwise.

Once again, thank you for your time and help!

Buck Mahaffey,
Alumnae U. H. Mah

E-14

November 8, 1984

Dear Army Corps of Engineers,
I understand that 5 reports or studies were done recently by Paul Bienseng, Lytha Engdahl and David Duman for the Anchialine Ponds at Kailua Bay, Kailolea. They were compiled by OI Consultants, Inc. and then submitted to your office.
I would like to know if I could receive a copy of them as soon as possible.
Mahalo.

Sincerely,
Nanola J. H. Mick
P.O. Box 1432
Kaneohe, HI
96743

E-15

-5440

November 26, 1984

Operations Branch

Ms. Donne Mah
P.O. Box 1432
Kamuela, Hawaii 96743

Dear Ms. Mah:

In reference to your letter of November 8, 1984, the reports by Paul Beinfang and others, are being made available to the public library in Waimea. We expect to have them available at the library by November 27, 1984. Your name has also been added to the mailing list for Waikoloa Hyatt Resort Draft Environmental Impact Statement when it is available.

Sincerely,

Stanley Arakaki
Chief, Operations Branch

1559C

H. Lee
cf/3-9258

Arakaki
PODCO-O

Ops Br File

November 5, 1984

Dear US Army Corps of Engineers,

In regards to public notice No. PODCO-O 1812-SD, it would be nice if Transcontinental Development Co could preserve an area of the anchialine ponds in its natural state.

The way that I interpret the plan, it seems like they're either going to fill the ponds or dredge them. This wasn't my idea of keeping part of its natural beauty. There are larger ponds that should be left intact, because of its uniqueness

Perhaps the development co.. could preserve a designated area and make a cultural park like Mauna Lani's Kalahuipua'a Fish Ponds. This way part of Waiulua Bay's history can be preserved as well.

Waiulua Bay is so uniquely beautiful. It is a very serene place. People don't come to Hawaii to see gondolas or monorails. They come here to relax and enjoy the serenity and scenery of our island.

Much mahalo,
Donna T. H. Mah

E-17

1404C
Arakaki
/3-9258

Paresa
POBCO

Ops Br File

November 5, 1968 -5669

Operations Branch

Mr. Perry White
Belt, Collins & Associates
601 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

This is in reference to Transcontinental Development Company's application for a Department of the Army permit to construct a lagoon and fill anchialine (tidal) ponds at Waiulua Bay, Waikaloa, South Kohala, File No. POBCO-O 1812-SO.

The enclosed letter from Donna T. H. Mah, dated November 3, 1968, is forwarded for your direct response. Please respond within 15 days of the date of this letter and provide this office a copy of your response.

Sincerely,

W. J. Paresa
Acting Chief, Construction-
Operations Division

Enclosure

Copies Furnished:

(w/o encl)
Donna T. H. Mah
P. O. Box 1432
Kamuela, Hawaii 96743

(w/encl)
Transcontinental Company
1001 Bishop Street, Suite 2410
Honolulu, Hawaii 96813

-18

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

November 30, 1984
84-1803

Ms. Donna T. H. Mah
P.O. Box 1432
Kamuela, Hawai'i 96743

Subject: Your Letter Dated 3 November 1984 Concerning
Public Notice No. PODCO-O 1812-8D
Department of the Army Permit To Construct a Lagoon and
Fill Anchialine Ponds for the Hyatt Regency Waikoloa Hotel

Dear Ms. Mah:

Transcontinental Development Co., the applicant for the above-referenced Department of the Army permit, has hired Belt, Collins & Associates to assemble environmental information for the proposed project. Because of this, your letter dated 3 November 1984 commenting on Public Notice PODCO-O 1812-8D was forwarded to us for a response.

Your letter makes three basic points:

- It would be nice if Transcontinental Development Co. (the master developer of the Waikoloa Beach Resort) could preserve some of the anchialine ponds in their natural state.
- The development should include a cultural park the way Mauna Lani has done with its fishponds.
- Wailulua Bay is a unique, serene place whose atmosphere would not be enhanced by the presence of "gondolas or monorails".

You have accurately noted some of the more important attributes of the site, and your concern for the changes that would be wrought by the proposed project are understandable. However, for reasons outlined below, it is the applicant's belief that plans for the Waikoloa Beach Resort adequately protect the natural and cultural values of the area.

(1) Preservation of Anchialine Ponds

As shown on Attachment 1, there are nearly 200 small anchialine (brackish) ponds within the Waikoloa Beach Resort. In addition to these naturally occurring ponds, the WBR also contains two large fishponds, Kahapapa and Ku'uali'i, that were constructed by the aboriginal Hawaiians directly behind 'Anaeho'omalu Beach. The two fishponds and a number of anchialine ponds immediately adjacent to them are being preserved and interpreted in a manner similar to the fishponds within the Mauna Lani Resort.

Honolulu 606 Coral Street, Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELTH 7430474
Singapore 360 Orchard Road, #12-06, International Building, Singapore 0923 Telephone 235-6870, Telex RS 50464 BCISIN

Implementation of current plans for the proposed Hyatt Regency Waikoloa Hotel will require the filling and/or incorporation within the proposed swimming lagoon of about 80 anchialine (brackish) ponds around the southern side of Wailulua Bay. This is about 40 percent of all the ponds at the WBR.

According to an April 1974 study by Maciolek and Brock for the University of Hawai'i Sea Grant Program entitled Aquatic Survey of the Kona Coast Ponds, there are nearly 300 anchialine ponds located elsewhere (i.e., outside the WBR) along the West Hawai'i coast. Individually, the species which inhabit these ponds are not rare or endangered. Scientists from the Oceanic Institute have studied the ponds on the Hyatt site and concluded:

> The loss of the ponds within the Hyatt area, however, does not appear to constitute the loss of a unique resource, since the remaining ponds within the Waikoloa Beach Resort are similar in quality.

The U.S. Fish and Wildlife Service believes the West Hawai'i ponds represent a unique resource worthy of preservation. As a result, they have been asked to be a "co-operating agency" in the preparation of the environmental impact statement that the Corps of Engineers is now preparing for the project. Means of mitigating adverse impact on the ponds, whether by adjusting the development plans or by insuring the long-term preservation of anchialine ponds elsewhere within the WBR or West Hawai'i are currently being evaluated. Results of this evaluation will be considered in deciding whether or not the requested Department of the Army permit should be issued.

(2) Creation of a Cultural Park

An intensive archaeological and historical survey of the site proposed for the Hyatt Regency Waikoloa Hotel has been completed. Results of the survey indicate the area was used only occasionally by aboriginal Hawaiians, probably by small groups making seasonal trips to the shoreline for the purpose of aquatic resource exploitation. No physical remains worthy of preservation in place were identified. Because of this, the applicant does not currently plan to set aside any part of the hotel site as a cultural park or preserve.

Other portions of the Waikoloa Beach Resort do contain significant historical remains, and Transcontinental Development Co. has moved to protect these. Ku'uali'i and Kahapapa Fishponds, as well as the areas immediately around them, have been incorporated

in a historical preserve. Other historical sites that are being preserved within the Waikoloa Beach Resort include the King's Trail, an extensive petroglyph field mauka of the King's Trail, and a large burial cave near the center of the resort. Numerous less substantial remains present on development sites have been salvaged. The archaeological investigations that have been conducted as part of the overall Waikoloa project, as well as the intensive survey carried out on the Hyatt site, have significantly increased anthropologists' understanding of the aboriginal Hawaiian culture. The effort made to preserve the historical and cultural values of the Waikoloa Beach Resort is comparable to that made at the adjoining Mauna Lani Resort.

(3) Natural Beauty of the Site and Environs

Your observation that Hawai'i's natural beauty is a major reason for its attractiveness to visitors is correct. Waiulua Bay is a spectacularly beautiful and serene setting; it is these characteristics which led to its selection as the site for the proposed hotel. While the Hyatt Regency Waikoloa Hotel is large, the design concept calls for guests to leave their automobiles and buses at the perimeter of the site. Besides walkways, internal movement is to be by small trams and boats, both of which are quiet. The waters of Waiulua Bay and the proposed lagoon serve as a natural centerpiece for the hotel structures and impart a sense of openness and tranquility. At the same time, the extensive on-site recreational, entertainment, and dining facilities that are planned will provide visitors with a range of options unequaled elsewhere on the island, thereby increasing the hotel's competitiveness in the international travel market.

Thank you for your interest in the project. A draft environmental impact statement is currently being prepared and is scheduled for publication about the end of this year. It will discuss the points raised in your letter, as well as other environmental concerns related to the project.

Sincerely,

Perry J. White

cc: Mike Brennan
Armando Villalpando
Will Banburn
Cliff Jenkins
Bob Diffley
Bob Umemura
John Emmerson, COE

January 21, 1985

Mr. Perry A. White
Belt, Collins & Assoc.
606 Cooke Street
Honolulu, HI 96813

Dear Mr. White:

Thank you very much for your quick response to my letter of concern.

In response to your letter, I have several comments and questions to present to your company.

(1) Preservation of Anchialine Ponds

When mentioning 7% of ponds at KBK, are you refering to the amount of total area or total number of ponds. There is a big difference between area and number of ponds. Can you give me an approximation of how many ponds will either be filled or dredged in the Hyatt site and not the total KBK area.

True, there are nearly 300 anchialine ponds elsewhere, however the study done by Pacific & Orient (1974) states that, "The Anachiomalu Ponds are of exceptional natural value based on physical structure, diversity, representative of aquatic communities and rare and unusual endemic species. Preservation as a unique resource is recommended strongly." Not all 300 ponds have these qualities.

I am aware of the studies done by the scientists from the Oceanic Institute which were funded by the developers and other studies done by public agencies and their conclusions differ. Why?

You've mention that there are 300 or more anchialine ponds found on our coastline, however you've failed to mention that these type of ponds are found in South-East Maui only, as well as East Hawaii. That's not a very large representation of anchialine ponds for the entire state.

(2) Creation of a Cultural Park

Can you tell me how I can obtain a copy of this survey or study that concluded that, "No physical remains worthy of preservation in the place were identified." As also I know, a significant archaeological landmark was sited in Waikoloa and documented in a study done by Barrera. I am aware of its disappearance.

The extensive fields of petroglyphs mauka of the King's Trail is not as extensive as I remember it as. It seems to have been greatly reduced from its original size.

(3) Serenity of these Ponds

I guess that I have failed to get my idea across, about the serenity and natural beauty of the ponds. May I emphasize the point that the anchialine ponds give the effect of serenity because of all

E-21

E-22

the natural beauty that surrounds the ponds. The natural beauty that I talk about are the ones that you either want to fill or dredge. What is your definition of natural beauty?

The anchialine ponds are an oasis in the middle of a sea of lava that can be found in very few places. Its unique beauty cannot be replaced once it is gone.

We cannot always sacrafice non-monetary resources which are valuable in their own way. We can learn alot from them. Hotels can be found almost anywhere, but not anchialine ponds. Compromises must be accomplished, because there is so much at stake on both sides.

Please send me a copy of the draft environmental impact statement when completed.

Thanks for your time.

Sincerely,
Ahmed J. H. Mahi

cc: U.S. Corps of Engineers

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

March 20, 1985
85-470

Ms. Donna T.H. Mah
P.O. Box 1432
Kamuela, Hawaii 96743

Hyatt Regency Waikoloa Hotel Project

Dear Ms. Mah:

I am sorry this response to your letter dated January 21, 1985 is not as prompt as was my reply to your first inquiry. We have been extremely busy working to resolve some of the concerns that have been expressed regarding the initial scope of the proposed Hyatt Regency Waikoloa Hotel project. Since the outcome of this work affected several of the items contained in your letter, I thought it best to delay my answer until things were more settled. For ease of reference, the responses are organized under the same headings as you used in your letter.

(1) Preservation of Anchialine Ponds

E-23

Comment: When mentioning the percentage of ponds at the WBR are you referring to the amount of total area or the total number of ponds? There is a big difference between area and number of ponds. Can you give me an approximation of how many ponds will either be filled or dredged in the Hyatt site and not the total WBR area?

Response: The applicants are proposing to fill all 92 of the anchialine ponds on the Hyatt site. At the time the original permit application was submitted to the Corps of Engineers in September, 1984, it did not specify an intent to preserve any of the anchialine ponds that are present. As a result of concerns expressed since then, the applicants have modified their proposal. It now covers the entire Waikoloa Beach Resort rather than the Hyatt site alone, and it includes a proposal to establish a 12-acre pond preservation area. To accomplish this, it has been necessary to modify the boundaries of the Hyatt site and make other changes to the overall resort master plan.

The proposed preservation area contains 62 ponds having a total surface area of about 3.4 acres. By way of comparison, the total surface area of the 136 ponds at the Waikoloa Beach Resort that lie outside both the newly proposed preservation area and the existing pond/open space reserve at 'Anaeho'omalu Bay have a total surface area of approximately 8.4 acres. There are about 15 additional ponds within the existing preservation area inland of 'Anaeho'omalu Bay, but the surface area of the two fishponds ponds is so great that we have excluded them from the calculations.

Honolulu 680 Coral Street, Honolulu Hawaii 96813, Telephone (808) 521-5361 Telex BELTHI 7430474
Singapore 1401 Orchard Road, #12-06 International Building Singapore 0923 Telephone 235-6870 Telex RS 50464 BCTSIN

Comment: True, there are nearly 300 anchialine ponds elsewhere, however, the study done by Maciolek and Brock (1974) states that, "the 'Anaeho'omalu ponds are of exceptional natural value based on physical structure, diversity, representative of aquatic communities and new and unusual endemic species. Preservation as a unique resource is recommended strongly." Not all 300 ponds have these qualities.

Response: The high natural value of the ponds within Waikoloa Beach Resort is recognized by the landowners, and they have agreed to set aside a 12-acre pond preservation area to insure the continued existence of representative anchialine pond ecosystems. It is worth noting that the Maciolek and Brock survey mentioned in your letter was available when the County made its 1977 decision to zone the area for resort use. The fact that the County did so, while attaching conditions intended to help insure the preservation of some ponds, suggests that it was aware of the necessity for tradeoffs between the desire for preservation and the need for economic growth.

Comment: I am aware of the studies done by the scientists from the Oceanic Institute [OI Consultants], which were funded by the developers and other studies done by public agencies and their conclusions differ. Why?

Response: For the most part the studies conducted by OI Consultants, Inc., produced factual information similar to that contained in reports by Maciolek and Brock and by other scientists working for public agencies. The principle differences lie in the judgements made on the basis of those results. OI Consultants concluded that the ponds at the Waikoloa Beach Resort were not unique, but that they were confined to a relatively limited geographic region on West Hawai'i and Maui. Consequently, they recommended "...that efforts be made to preserve the most outstanding examples of the ponds or to incorporate these ponds into plans for any future development". The current proposal for the establishment of a 12-acre pond preservation area is consistent with that recommendation.

Comment: You mention that there are 300 or more anchialine ponds found on our coastline. However, you failed to mention that these types of ponds are found in Southwest Maui only, as well as in West Hawai'i. That's not a very large representative of anchialine ponds for the entire state.

Response: As noted above, the landowners recognize the natural value of the ponds and have agreed to preserve 12 acres of land containing 63 ponds. This would be added to the 16-acre open space reserve already established around the fishponds and anchialine ponds at 'Anaeho'omalu Bay.

(2) Creation of a Cultural Park

Comment: Can you tell me how I can obtain a copy of this survey or study that concluded that, "No physical remains worthy of preservation in the place were identified. An Ahu O Lono, a significant archaeological landmark was sited in Waikoloa and documented in a study done by Barrera. I am aware of its disappearance.

The extensive fields of petroglyphs mauka of the King's Trail is not as extensive as I remembered it as. It seems to have been greatly reduced from its original size.

Response: Copies of the report are available at the Hawai'i County Planning Department and at the State Department of Land and Natural Resources, Historic Sites Section. The Keahuolono mentioned in Barrera's report is located on the North Kona/South Kohala boundary, far from the project area, as are the petroglyph fields. They would not be affected by the proposed action.

(3) Serenity of These Ponds

Comment: I guess that I have failed to get my idea across, about the serenity and natural beauty of the ponds. May I emphasize the point that the anchialine ponds give the effect of serenity because of all the natural beauty that surrounds them. The natural beauty that I talk about are the ones that you either want to fill or dredge. What is your definition of natural beauty?

The anchialine ponds are an oasis in the middle of a sea of lava that can be found very few places. Its unique beauty cannot be replaced once it is gone.

We cannot always sacrifice non-monetary resources which are valuable in their own way. We can learn a lot from them. Hotels can be found almost anywhere, but not anchialine ponds. Compromise must be accomplished, because there is so much at stake on both sides.

Response: Perhaps it is I, not you, who failed to communicate clearly. The anchialine ponds present along the shoreline of the Waikoloa Beach Resort are considered important resources. The pond preservation area that is now proposed, as well as the existing pond preservation around the 'Anaeho'omalu fishponds, are intended to insure that the original character of the place is maintained within substantial portions of the Waikoloa Beach Resort. It would be foolish to argue that the land outside the preservation area will not be changed by the proposed shoreline developments; it most certainly will. The real task before us is, to paraphrase your words, to see that a reasonable compromise is achieved. I am hopeful that the extensive public review to which the project is subject will lead to a resolution to the conflict in values that reflects the prevailing values of the island's residents.

Thank you again for your comments. Mr. Michael Lee of the U.S. Army Corps of Engineers has assured me that you will be sent a copy of the Draft Environmental Impact Statement that the Corps is preparing as soon as it is available. In the meantime, if you have any questions, please call me at 521-5361.

Sincerely,

Perry J. White

cc: Michael Lee
Bob Umemura
Michael Brennan
Will Sanburn
Cliff Jenkins
Bob Diffley

February 21, 1985

Corp. of Engineers Operations Br.
Rm. 204, Bldg. 230
Fort Shafter, HI. 96858-5440

Dear Mr. Lee:

I have comments from many people to pass on to you concerning permits to alter the shoreline in the Anaehoomalu-Waiulua Bay area at the proposed resort site in South Kohala, Hawaii.

As respected scientists earlier reported in the 1974 Maciolek-Brock report, Aquatic Surveys of Kona Ponds, Hawaii Island, this is a unique area to say the least. Forms of life are found nowhere in the world, but in this area and endangered birds still use this area. Anchialine pond's role in near shore food chain production may be more important than scientists realize and should be investigated further before draining, covering, or altering these areas.

Now, having some biological background and having talked with many tourists, scientists and residents about these anchialine areas, some comments are in order to be passed on to developers, such as Mr. Hemmeter-Transcontinental and the Hyatt.

You have a natural setting that can and should be used as a tasteful framework and incorporated into the development. Many visitors comment on the existing coastal strip as so beautiful and like the Hawaii they expected. In the long run that will continue to bring in more and more tourists as other resorts in competitive areas are over developed and commercialized.

With prudent planning these new Kohala resorts can make their artifical environments back further on bare lava and not alter these unique bay and pond areas. Also, it would show excellent taste by the developer to improve relations with wary residents, environmental activists and the Hawaiian descendants that have seen too much inconsiderate development occur in the state.

Nobody wants to see a no growth, no business climate develop and see the concomitant problems. By preserving these special endemic forms of life and utilizing the uniqueness of these natural gifts, jobs and economic bases can be provided yet future generations can work, visit and see the real Hawaii as well. Don't destroy the habitat, utilize it! Do not issue permits that would allow any other concept.

Sincerely,

Wade Shaffer
P.O. Box 1147
Kamuela, HI. 96743

xc: Dr. James Margolis
pc: M. Yuen

E-25

HAWAII LAND MANAGEMENT
A REAL ESTATE CORPORATION

November 13, 1984

Col. Michael M. Jenks
Honolulu District Engineer
U. S. ARMY CORP. OF ENGINEERS
Pacific Ocean Division
ATTN: PODDD
Ft. Schafter, HI 96858-5440

RE: Environmental Impact Statement, Transcontinental Development Company (Hyatt Regency Hotel), Waluiua Bay, Waikoloa, Hawaii

Dear Col. Jenks:

I've just read an article in Pacific Business News advising the U.S. Army Corp. of Engineers is seeking public comment with respect to the above, and a draft statement is expected to be available later this year.

I have visited the proposed site on a number of occasions during the past 20 years, as well as other shoreline areas situated between Anaehoomalu Bay and the former Francis E. E. Brown property. Further, I've reviewed the preliminary plan for the proposed Hyatt Regency Hotel complex. My initial comment on the proposal is that it appears to be well thought out and has taken a very sensitive and thoughtful approach with respect to the site. I hope that your review process will be as expeditious as possible.

In the meantime, I would appreciate receiving a copy of the draft statement mentioned in the article as soon as it is available. I will be happy to comment further at that time. In the meantime, should you have any questions, please feel free to contact me. Thank you for your courtesy.

Sincerely,

John Michael White
President

JMW:dor

Post Office Box 10 • Honolulu, Hawaii 96810 225 Queen Street (808) 524-6000 Telex 743-0482

Appendix F

U.S. Fish and Wildlife Service Section 7 Coordination

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P.O. BOX 50167
HONOLULU, HAWAII 96850

IN REPLY REFER TO:
ES
Room 6307

APR 18 1988

Mr. Wade Shaffer
P.O. Box 1147
Kamuela, HI 96743

Dear Mr. Shaffer:

Thank you for your letter expressing concern for the anchialine pool fauna. After receiving your letter, members of our staff reviewed the available published literature and concluded that at least five of the anchialine pool animals may qualify for listing as endangered or threatened species. These five include three caridean shrimps (Procaris hawaiana, Palaemonella burnsi, and Metabetaeus lohena), a hydroid (Ostromouvia horii), and a snail (Neritilia sp. nov.7). A fourth caridean shrimp, Halocaridina rubra, has been referred to the National Marine Fisheries Service as it may be sold commercially and thus falls under their jurisdiction. Other anchialine pond animals may be rare locally, but our office must consider the species throughout its entire range when proposing it for listing.

Our staff also concluded that there does not appear to be sufficient information available, at least not in the published scientific literature, to prepare the documentation required for listing a species as endangered or threatened. We need a firm biological basis for listing a plant or animal as endangered or threatened; unfortunately, the existing information is insufficent at this time.

We sent a memorandum to our Washington D.C. office requesting that the five animals mentioned above be placed on our annual invertebrate Notice of Review update as Category 2 species. Category 2 species are those which probably should be listed as endangered or threatened, but for which sufficient information is not presently available to biologically support a proposed rule. This is one of the various steps in listing a species as endangered or threatened. It also requests that persons with pertinent knowledge on the species share it with the Service.

We appreciate your interest and share your concern for our native flora and fauna.

Sincerely,

Allan Marmelstein
Pacific Islands Administrator

cc: RD, FWS, Portland, OR (AHR)
Director, FWS, Washington, D.C.
NMFS - WPPO
EPA, San Francisco
✓CE, Honolulu District
County of Hawaii, Planning Department

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

-5440

April 9, 1985

Operations Branch

Mr. Allan Harmelstein
Pacific Islands Administrator
US Fish and Wildlife Service
300 Ala Moana Boulevard
P. O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Harmelstein:

This letter confirms a telephone conversation between Mr. Michael Lee, Operations Branch, Corps of Engineers, and Mr. William Kramer, US Fish and Wildlife Service (USFWS), March 1985, regarding Section 7 consultation on the Waikoloa Beach Resort development, POOCO-O 1812-SD.

Ops Br File

In this conversation, Mr. Kramer had indicated that USFWS opinion was forwarded to the Portland Office for coordination. Mr. Lee asked if expanding the permit area from the Hyatt Hotel site to include all of the Waikoloa Beach Resort Properties altered the USFWS opinion. Mr. Kramer indicated that the change in project area did not affect his findings and recommendations, and that he did not feel another round of coordination was necessary.

If there are any questions regarding this conversation or changes of opinion, please contact Mr. Michael Lee, phone 438-9258, so that any required action can be completed.

Sincerely,

Everette A. Flanders
Chief, Construction-Operations
Division

F-2

United States
Department of the Interior

Fish and Wildlife Service
Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To: AFA-SE Your Reference:

1-2-85-F-012

February 22, 1985

Mr. Everette A. Flanders
Chief, Construction-Operations Division
U. S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Flanders:

This responds to your November 30, 1984 request for consultation under Section 7 of the Endangered Species Act of 1973, 16 U.S.C. 1531, et seq. (ESA). At issue are the possible effects of your granting a permit allowing the construction of the Waikoloa Hyatt Resort Development in South Kohala on the island of Hawaii on the following endangered species:

Hawaiian stilt (Himantopus himantopus knudseni)
Hawaiian hoary bat (Lasiurus cinereus semotus)

This letter represents the Biological Opinion of the U.S. Fish and Wildlife Service (FWS) as directed by Section 7 of the ESA, "Interagency Cooperation Regulations" (50 CFR 402, 43 FR 870) on your proposed action. A map of the site under consideration for that action is enclosed.

On December 26, 1984 we completed our review of the information provided by you along with other related information in our files. We also contacted some of those familiar with the biology, management, and recovery of the species involved. Copies of pertinent materials and documentation are contained in an administrative record maintained in this Service's office in Honolulu, Hawaii. Our reference number for this consultation is 1-2-85-F-012.

BIOLOGICAL OPINION

It is our Biological Opinion that the action of granting a permit allowing for the construction and operation of the Waikoloa Hyatt Resort Development, as described in your November 30, 1984 letter to us and as described in the November 1984 Preliminary Draft Environmental Impact Statement (PDEIS) on the project, is not likely to jeopardize the continued existence of the Hawaiian stilt or the Hawaiian hoary bat.

Background information on the project and biological information pertinent to this determination follow.

Please note this letter and Biological Opinion address only those impacts of the project on the two referenced endangered species. It does not speak to impacts on other non-listed species or other non-living resources except where those impacts may ultimately affect the endangered species via food chain modification, etc.

PROJECT DESCRIPTION AND BACKGROUND INFORMATION

As currently planned, the resort will be constructed on approximately 500 acres along the ocean shore in the South Kohala District of the island of Hawaii. When completed, the complex will feature over 1,200 hotel rooms, a man-made lagoon, a monorail transportation system, a swimming pool, a system of canals for aesthetic guest transportation via gondolas, and other structures. The developer wishes to begin construction as soon as possible.

This shoreline area is the site of a series of anchialine ponds (ponds having no surface connection to the sea but having measurable salinity and being affected by the tides). The current development plans require filling 82 of these anchialine ponds.

Although no endangered or threatened species were observed during an avifaunal and feral mammal survey conducted as part of the developer's environmental analysis of the area, Hawaiian stilts have been sighted feeding in anchialine ponds near the proposed construction site. In September of this year, one specimen of Hawaiian hoary bat was recovered from the grounds of the Sheraton Royal Waikoloa, a nearby resort.

SPECIES ACCOUNTS

Hawaiian Stilt:

The Hawaiian stilt was listed as an endangered species on October 13, 1970 (35 FR 16047). Major reasons for the decline of the species include predation by cats, rats, dogs, and mongooses, the general loss of wetland habitat as a result of housing and other development, and changing agricultural practices.

F-3

Currently, the birds can be found on all the five main islands in the State. Stilts use a variety of habitats associated with water areas. Frequently, nests are located away from feeding areas, resulting in daily movement between those areas. Nests are generally adjacent to or on islands within areas of fresh, brackish, or salt water. These include irrigation reservoirs and settling basins, natural or man-made ponds, taro patches, marshes, and similar areas. Stilts feed in shallow water, and loafing areas are generally exposed mud flats, pickleweed mats, and other open lands where visibility is good.

Hawaiian Hoary Bat:

The Hawaiian hoary bat occurs primarily on the island of Hawaii, but a resident population has been reported on Kauai. The bat appears only irregularly on the islands of Maui, Oahu, and Molokai; it has not been reported on Lanai. The bats have been seen at elevations from sea level to 13,000 feet, but occur most commonly only up to 4,000 feet.

It has been considered to be a solitary roosting and non-hibernating species, but new, yet unpublished, data may challenge these beliefs. Roosting does not require any specific type of tree or structure, and the bats may hang on a variety of natural and man-made structures. They are nocturnal and insectivorous. Adults range in length from about 3 to 4 inches and have a wingspan of 10 to 14 inches. Adult body weight ranges between 14 and 22 grams.

Although several females have been found to contain fetuses in the months of May and June, little is known of their reproductive seasons or cycles. It is suspected that, like their mainland relatives, adult females produce two young in June. The age at which young bats are capable of flight, maturity, longevity, and many other life history parameters are unknown.

The species was listed as endangered in 1970. Although the population has not been systematically surveyed, estimates of numbers in "the low thousands" have been suggested. The total population of the species is believed to have decreased during the last several decades due to secondary poisoning by pesticides, general habitat destruction, or other factors.

ANALYSIS OF IMPACTS

It is known that Hawaiian stilts use the anchialine ponds in South Kohala for feeding. Nesting around the ponds, however, has not been reported. It can be expected that the filling of the ponds for the construction of the Hyatt project will decrease some of the feeding areas for stilts. However, in consideration of the very low number of birds associated with those ponds and the availability of alternative stilt feeding sites on the island, the loss of the anchialine complex at the site would not be expected to either directly or indirectly "take" stilt. It would be expected that those individuals displaced will move to other anchialine ponds or other wetlands for feeding activities. The impact on the stilt population on the island of Hawaii would be minimal.

Likewise, impacts on the Hawaiian hoary bat would not be expected to seriously harm the bat population on the island of Hawaii. It does not seem likely that the construction and operation of the resort complex would change the environment to the bats' detriment unless insecticides are used heavily. If such pesticides are used, bats may be affected due to a decrease in their food supply and, possibly, secondary poisoning. Such negative impacts would not be likely to jeopardize the continued existence of the species as a whole.

CUMULATIVE EFFECTS

Cumulative effects are those impacts of future State, and private actions which are reasonably certain to occur prior to completion of the subject action. Such an action is "reasonably certain" to occur if the action requires the approval of a local resource or land use control agency, and such agencies have essentially approved the action. Cumulative effects are not expected in the case of your proposed granting of a permit for the filling of anchialine ponds on the island of Hawaii, since we know of no such other State, or private action that should be considered in the evaluation of impacts on the Hawaiian stilt or the Hawaiian hoary bat.

BIOLOGICAL OPINION

It is our Biological Opinion that the action of granting a permit allowing for the construction and operation of the Waikoloa Hyatt Resort development is not likely to jeopardize the continued existence of either the Hawaiian stilt or the Hawaiian hoary bat.

INCIDENTAL TAKE

Section 9 of the ESA prohibits any taking (harm, harassment, mortality, etc.) of listed species without specific exemption. Under the terms of Section 7(b)(4)iii and 7(o)(2), taking that is incidental to and not intended as a part of the agency action (in this case, the construction and operation of the Waikoloa Resort) is not considered taking within the bounds of the Act provided that such taking is in compliance with the terms and conditions of this Biological Opinion.

Since surveys have demonstrated that the presence of either of the two listed species within the area to be affected is rare, no take should occur as a result of the actual construction. However, the chance does exist that the stilt or bat may enter the area to be altered prior to or during construction. To minimize the chances of taking either of these species, we specify that the following reasonable and prudent measures be included in your permit to the developer:

1. The developer shall incorporate as part of the overall construction plan and construction contract the stipulation that if any individual of any of the listed species discussed in this opinion is killed as a result of the subject project, the constructing agency shall require that the causative action of such taking cease immediately, and that the Corps of Engineers shall then re-initiate formal consultation and/or seek authorization under Section 10(a)(1)(B) prior to proceeding with the action.

2. All listed species which are injured or killed as a result of the subject action shall be retrieved and shall be turned over to the State Department of Land and Natural Resources immediately.

3. The developer shall immediately prepare a written report which shall include the date, location, and circumstances surrounding the taking and the disposition of the individual(s) taken. Written and telephone reports shall be directed to William R. Kramer at:

U.S. Fish and Wildlife Service
P. O. Box 50167
Honolulu, Hawaii 96850

Phone: (808) 546-7530

This concludes formal consultation on this action. Should any significant changes be made in the proposed action, should any new information become available indicating the occurrence of the listed species in the project area, or should new species be listed which are not addressed in this letter which may be affected by the action, you must re-initiate consultation with this office.

Sincerely yours,

William F. Shake

William F. Shake
Assistant Regional Director
Federal Assistance

Enclosure

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P.O. BOX 50167
HONOLULU, HAWAII 96850

IN REPLY REFER TO:
1-2-85-F-012
DEC 5 1984

Mr. Everette A. Flanders
Chief, Construction-Operations Division
U. S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Flanders:

This acknowledges receipt of your letter of November 30, 1984 which initiated formal consultation pursuant to Section 7 of the Endangered Species Act. We will review the information you have provided concerning your action of granting a permit allowing the construction and operation of the Waikoloa Hyatt Resort Development on the island of Hawaii and will respond to you within 90 days with a biological opinion discussing possible impacts of that project on the endangered Hawaiian stilt (Himantopus himantopus knudseni), the endangered Hawaiian hoary bat (Lasiurus cinereus semotus), and other listed or proposed species which may be affected by your action. Our reference number for this consultation is 1-2-85-F-012.

We will contact you or members of your staff if additional information is required for our review.

Sincerely yours,

for Ernest Kosaka
Allan Harmelstein
Pacific Islands Administrator

cc: Regional Director, FWS, Portland, OR (APA-SE)

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

F-6

-5440

November 30, 1984

Operations Branch

Mr. Allan Marmelstein
Pacific Islands Administrator
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard
P.O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Marmelstein:

In reference to your letter of November 9, 1984 concerning the Waikoloa Hyatt Resort Development, PODCO-O 1812, we request that formal consultation be initiated under Section 7, Endangered Species Act, as amended.

Your letter of November 9, 1984 indicated that the endangered Hawaiian stilt and Hawaiian bat could be present at the Waikoloa project site, and that the project could affect the species. This was based on the applicant's biological survey that indicated that the endangered Hawaiian stilt might be expected to forage in the ponds, and the discovery of a dead specimen of the endangered Hawaiian bat on the grounds of the Mauna Lani Resort Hotel.

Mr. Ron Bachman, Hilo Office, Division of Forestry and Wildlife, State of Hawaii, Department of Land and Natural Resources, indicates that Anaehoomalu Pond was a good Hawaiian stilt habitat. Since the development of the Sheraton Waikolua Hotel, cleaning the pond and the increased presence of people, the Hawaiian stilt are seldom found at the Anaehoomalu Pond. The stilt are seldom found in the anchialine ponds, but wandering tattlers and other shorebirds may be found there. He also indicated that the Hawaiian bat can be found throughout the island of Hawaii, especially in the Hawakua Coast area, amongst the dense vegetation and under the eaves of abandoned houses. This information leads us to believe that if any effect is anticipated on the endangered Hawaiian stilt or bat, the effect would not jeopardize the continued existence of the species.

F-7

We hope that your evaluation can be provided to us by December 17, 1984 and that you find that the project will not jeopardize the continued existence of the endangered Hawaiian stilt or bat.

Sincerely,

Everette A. Flanders
Chief, Construction-Operations Division

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P O BOX 50167
HONOLULU, HAWAII 96850

IN REPLY REFER TO:
1-2-85-SP-021

NOV 9 1984

Mr. W. J. Paresa
Acting Chief, Construction-Operations Division
U. S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Paresa:

This replies to your October 25, 1984 letter concerning a Department of the Army Permit Application submitted by Transcontinental Development Corporation. The applicant requests authorization to both fill anchialine ponds and excavate a lagoon at Waikoloa, Anaehoomalu, Hawaii as part of the construction of the Waikoloa Hyatt Resort. Transcontinental's survey of the area indicates that there were no endangered or threatened avifaunal or feral mammal species present at the time of the survey. Based on those findings, you requested our concurrence that the action will not affect any listed species.

Although the survey did not identify any listed species at the site during the two-day period of the field work, the report does state, ". . .the endemic and endangered Hawaiian Stilt (Himantopus mexicanus) might be expected to forage on occasion in this area as it does in similar habitat elsewhere in Hawaii and along the Kona coast. . ."

The survey was conducted for listed avifauna and feral mammals. Another listed species, the endangered Hawaiian hoary bat (Lasiurus cinereus semotus), however, was identified after the completion of the survey; the October 10, 1984 letter from the contracted surveyor amended the report.

No mention is made of the possible presence of the threatened green sea turtle (Chelonia mydas) in waters adjacent to the proposed construction site. Although the impacts to this species fall outside the jurisdiction of this Service, you may wish to contact the National Marine Fisheries Service in that regard.

In consideration of the above, we do not concur with your determination that there is an absence of any listed species in the area and that, therefore, the project will have no effect on such species. Section 7(a)(3) of the Endangered Species Act states:

> ". . .a Federal agency shall consult with the Secretary on any prospective agency action at the request of, and in cooperation with, the prospective permit or license applicant if the applicant has reason to believe that an endangered species or a threatened species may be present in the area affected by his project and that implementation of such action will likely affect such species."

If you determine that your actions may affect any of the aforementioned listed species (or other listed species which may yet be identified at the project site), you are required to initiate formal consultation with this Service. You may wish to contact William Kramer of my staff (546-7530) if you have any questions or comments pertinent to this procedure.

Thank you for this opportunity to comment on these endangered and threatened species aspects of the Waikoloa project.

Sincerely yours,

Allan Marmelstein
Pacific Islands Administrator

cc: Regional Director, FWS, Portland, OR (AFA-SE)

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

F-8

October 25, 1984 -5440

Operations Branch

Pacific Islands Administrator
US Fish and Wildlife Service
ATTN: Endangered Species
P. O. Box 50167
Honolulu, Hawaii 96850

Dear Sir:

We are presently evaluating a Department of the Army Permit Application from Transcontinental Development Corp., requesting authorization to fill anchialine ponds and to excavate a lagoon at Waikoloa, Anaehoomalu, for construction of the Waikoloa Hyatt Resort (see attached Public Notice 1812-SD, October 19, 1984). At our request, Transcontinental has provided a survey of avifaunal and feral mammal that indicates the absence of any listed endangered or threatened species. Based on this survey report, we feel that the project will have no effect on any listed endangered or threatened species. We request your concurrence with our findings by November 16, 1984.

Sincerely,

W. J. Pareja
Acting Chief, Construction-Operations Division

Enclosure

Appendix G

National Marine Fisheries Service Section 7 Coordination

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
Western Pacific Program Office
P. O. Box 3830
Honolulu, Hawaii 96812

May 13, 1985 F/SWR1:ETH

Mr. Everette A. Flanders
Chief, Construction-Operations Division
U.S. Army Corps of Engineers
Fort Shafter, Hawaii 96858

Dear Mr. Flanders:

This is in response to your letter of February 20, 1985 regarding blasting for lagoon excavation at the proposed Waikoloa Hyatt Resort Development (PODCO-O 1812-SD). On the basis of the information provided in that letter we were unable to respond to your determination of "no affect" for threatened or endangered species in the project area. Subsequent to the referenced letter, Belt, Collins and Associates and Darby and Associates, Inc., have provided recommendations for charge size, analyses of potential impacts to marine life, and mitigation recommendations to virtually eliminate any impacts to listed marine species in the project area. We also understand that the applicants for the Corps of Engineers permit have also agreed to these conditions which specifically state:

(a) There must always be natural or man-made rock berms separating the blast area and the bay or open ocean.

(b) All ponds in the blast area are to be filled before commencing blasting.

(c) (i.) no blasting can be done if endangered species or major marine animals are within view from the shoreline; (ii.) blasting be preferably done at low tide; (iii.) a helicopter be used during the first three days of blasting for surveillance of marine life before blasting to assure the bay and an area in the ocean to the 5 fathom contour is clear of endangered species and major marine life, and after blasting to inspect for damaged major marine life.

Condition (ii.) may be deleted since the potential reduction in impulse transmission from the blasting will be negligible from tidal changes.

In addition to the above recommendations National Marine Fisheries Service personnel should be permitted to monitor the blasting operations from suitable platforms to assist in surveying for green turtles or marine mammals in the project vicinity. If these conditions are acceptable to the Corps as permit conditions, it is likely that the activity described in the application is not likely to affect green turtles (Chelonia mydas)or humpback whales (Megaptera novaeangliae) that may be found within the project area, and that formal consultation under Section 7 of the Endangered Species Act of 1973, as amended, will not be required for this project.

This concludes the informal consultation process for this activity. Should the scope of the project or proposed construction activities change sufficiently to affect either species or a new species is listed, or critical habitat designated that may be affected by the proposed action, then consultation must be initiated at that time. Your cooperation in this matter is appreciated.

Sincerely yours,

Doyle E. Gates
Administrator

cc: Perry White, Belt, Collins, and Associates

BELT, COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

May 2, 1985
85-781

Mr. John Naughton
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawai'i 96822

Subject: Proposed Use of Explosives for Lagoon Excavation
Hyatt Regency Waikoloa Hotel Project
South Kohala District, Island of Hawai'i

Dear John:

I would like to thank you and Gene Nitta again for meeting with me on Friday, April 19, 1985, to discuss the proposed use of explosives in excavating the lagoon for the Hyatt Regency Waikoloa Hotel. I believe the exchange of ideas was very productive.

Attached is a letter report from Ron Darby regarding potential damage to major marine life as a result of the proposed blasting. Ron is the acoustical consultant for the project and prepared the material on which the discussion of noise impacts contained in the Draft EIS was based.

At the time the Draft EIS was prepared, no specific excavation plans were available, and the discussion of potential blasting effects which it contains is simply illustrative. Since then, the contractor (Pacific Construction Company) has developed more specific excavation plans. These differ from those on which the DEIS was based in three fundamental ways:

- Blasting is now considered the preferred excavation technique rather than a "possible alternative" as stated in the Draft EIS;
- Instead of the 1,000-pound charges used for illustrative purposes in the DEIS, the contractor has committed to charge sizes of 400 pounds or less; and
- The existing anchialine ponds and inlet from Waiulua Bay would be filled prior to placement and detonation of the charges; hence, the potential for a direct hydraulic link between the site of the explosions and nearshore waters is even less than would otherwise be the case.

Mr. Darby's April 24, 1985 letter report addresses the effect that the lesser charge sizes would have on major marine animals in adjacent nearshore waters. On the basis of his latest work, he concludes (see the discussion on pages 4 and 5 and Figure 4 in his report) that:

Honolulu 680 Ala Moana Street Honolulu, Hawaii 96813, Telephone (808) 521-5361, Telex BELLHI 7430474
Singapore 360 Orchard Road, #12-01, International Building Singapore 0923 Telephone 235 6870, Telex RS 50464 BCHSIN

> Neglecting the presence of anomalies in the ground, there is essentially no danger zone...from the effective charge sizes that are envisioned....

He further concludes that:

> There should be insignificant damage done to marine life in the ponds located in the preservation area (1,200 feet from the closest blast area).

Overall, Mr. Darby's report is quite positive with respect to the absence of significant risk to major marine animals as a result of the proposed blasting. However, he recognizes that lava tubes and other geologic anomalies may be present which could focus the explosive energy. Therefore, he recommends that:

(1) No blasting be done if endangered species or major marine animals are within view from the shoreline;

(2) During the first three days of blasting, nearshore waters adjacent to the excavation site be surveyed from the air before blasting and explosives detonated only after it is confirmed that Waiulua Bay and an adjacent area in the ocean extending to the 5 fathom contour is clear of endangered species and major marine life; and

(3) The same area be surveyed from the air immediately after the blasting during the first three days of work to inspect for visible damage to major marine life, e.g., floating fish, distressed behavior on the part of any visible animals, etc.

Representatives of Transcontinental Development Co. and Atpac Land Co., the applicants for the Corps of Engineers permit, have indicated their willingness to agree to such conditions. Further, they have agreed that in the event that unexpected damage becomes evident, blasting will be suspended until measures satisfactory to the National Marine Fisheries Service have been taken to eliminate the danger.

I believe the safeguards described above form a reasonable basis for an agreement between the applicants and the National Marine Fisheries Service that would allow the project to proceed while still protecting the marine resources for which you are responsible.

I would like to resolve this question at the earliest possible time so that any requirements that are established can be taken into account in the contractor's construction planning. A speedy decision would also allow a final agreement to be reported in the Final EIS, which I understand is scheduled for publication in mid-June.

Once you have had an opportunity to consider the new information that is provided in Mr. Darby's report, I would like to get together to discuss the measures discussed above, as well as any other issues you may wish to raise. In the meantime, if you have any questions, please call me at 521-5361.

Sincerely,

Perry J. White

Enclosure

cc: Bob Diffley
Will Seaburn
Cliff Jenkins
Bob Umemura
Mike Brennan
Mike Lee (COE)
Armand Cote (Pacific Constr.)
Ron Darby

G-3

DARBY & ASSOCIATES, INC.
Acoustical Consultants
1051 Keolu Drive, Suite 201 • Kailua, Hawaii 96734
(808) 261-3727

April 24, 1985

Belt, Collins & Associates, Ltd.
606 Coral Street
Honolulu, HI 96813

Attention: Mr. Perry White

Subject: Additional Evaluation of Proposed Lagoon Excavation Using Explosives with Respect to Potential Damage to Major Marine Life - Waikaloa, Hawaii

Dear Perry:

It is understood that excavation of the lagoon is to involve explosive charges of 200 to 400 pounds detonated with time delays of 10 to 12 milliseconds.

1. The basic problem is to estimate how much energy from the explosives will get into the water where major marine species could be located at the time and then relate that energy to potential damage. Figure 1 summarizes the bases for these evaluations:

(a.) Figure 1A depicts the case where the explosion is detonated at depth d_d in the deep sea at distance D from a marine mammal at depth d_t. Wright (reference 1) has established "safe distances" D such as where no injury of any kind occurs to the mammal. See Table I. Note in Table I that the blast effect could be doubled and there would be "low incidence of trivial blast injuries. No eardrum ruptures." The safe distance must be increased as the depth of the detonation or the depth of the mammal is increased.

(b.) Figure 1B depicts that in shallow water, Wright suggests that the safe distances should be doubled "to ensure a conservative safety margin".

(c.) Figure 1C depicts the conclusion (reference 1) that if the charge was buried in the sea floor, the peak pressure of the shock wave would be one-tenth of the peak pressure than if the charge was detonated directly in the water column. It can be shown that a charge detonated directly in the water at the same distance would be only 0.0022 times the weight of the buried charge in the sea bottom to cause the same peak pressure. Burial depths of 60 to 182 feet were considered in reference 1. Note that with such relatively deep burials the energy is transmitted to the water primarily via compressional and shear waves in the bottom material. Also, it is believed that the greatest part of the energy is transmitted to the water in the area where the compressional waves are perpendicular to the sea bottom and are not at low angles of incidence where at such grazing conditions much energy is reflected back into the sea bottom.

(d.) Figure 1D depicts the situation at the project site where a great percentage of the energy in the explosive charge is consumed in breaking and moving rock. The non-productive residual energy radiates from the detonation in compressional and shear waves into the earth. Note that the compressional waves are now in a very low grazing angle relationship to the sea bottom and have a low probability of efficiently transfering energy into the water. In Figure 1D, the presence of surface waves in the earth is shown emanating from the detonation, but are believed not to effectively

transmit energy to the water due to their relatively rapid dissipation.

2. Figures 2 and 3 show the proposed lagoon configuration and section line oriented to include the major width of the lagoon and the shortest distance to deep water in the ocean. Note that the makai end of the lagoon shoals up slowly, while the mauka portion will require deeper excavation to a maximum of six feet.

3. Figure 4 shows typical bathymetric conditions at the project site both with true vertical scale and exaggerated vertical scale. The section at the top of Figure 4 with the true vertical scale illustrates the fact that the primary compressional waves from the shallow detonations will propagate at very low grazing angles to the ocean bottom. Thus it is believed that less energy will be transmitted to the ocean water when compared to the conditions depicted in Figure 1C. However, there is the possibility of anomalous structures in the ground such as lava tubes or layered media that could transmit or focus energy more efficiently to the water.

The lower section in Figure 4 with the exaggerated vertical scale shows the "safe level" relationship based on Wright's methodology for detonations of one pound charges directly in the water column at depths of 3 feet to 6 feet. These curves represent the condition shown in Figure 1B with shallow water. If a marine mammal is located above the curve, then he is in a safe region; if below, he could suffer some degree of damage. The safe level curves shown in Figure 4 are located for detonations closest to the shoreline and it can be seen that there is not a danger zone in the ocean.

The curves are based on the considerations depicted in Figure 1C wherein: (a.) the peak pressure levels from a 400 pound inland detonation are estimated at the interface between the ocean bottom and the sea; (b.) the condition of a deep ocean with the same peak pressure levels distribution is assumed resulting from an underwater detonation in the same location as the inland detonation, but with a charge weight of 0.22% of the actual charge weight; (c.) the safe level curves are calculated using Wright's methodology for the deep water condition; and (d.) the safe distances are doubled to account for the actual shallow water situation.

4. Figure 5 is based on Urick (reference 2) and shows the shape of the direct shock wave from the detonations of 400 pound charges in deep water in a sequence with 10 milliseconds delay between the detonations. The purpose of the figure is to illustrate that even with 400 pound charges detonated directly in the water column, the pressure pulse from one detonation decays to an insignificant level at ranges from 200 to 2,000 feet before the shock wave from the next detonation arrives. Thus, the effect of delayed detonations on land (or even in the water) do not overlap and cause buildup of pressure level.

5. From the above, the following conclusions are made: (a.) the existing state-of-the-art guideline (reference 1) for predicting damage to marine mammals from underwater explosions is quite conservative for the simplest deep water case (see Table 1)

and is even more conservative for the shallow water case; (b.) there are no known quantitative guidelines providing relationships for land-based explosions to the effects of underwater explosions on marine mammals even for simple models involving homogeneous soil; (c.) the data on explosives buried in the sea bottom indicating an order of magnitude reduction in peak pressure level at the ocean bottom interface compared to pressure levels from an equal distant sea water path imply that the effective charge size in water is only 0.22% of the buried charge size; (d.) the land and sea bottom at the project site are not homogeneous with anomalies including layered lava flows, fissures, and lava tubes; (e.) neglecting the presence of anomalies in the ground, there is essentially no danger zone to marine mammals from the effective charge sizes that are envisioned because the sea bottom drops off fairly gradually from the project site; (f.) the use of millisecond delayed blasts compared to instantaneous blasts will keep peak pressures relatively low in the water; and (g.) there should be insignificant damage done to marine life in ponds located in the preservation area (1200 feet from the closest blast area).

6. The following recommendations are made:

(a.) There must always be natural or man-made rock berms separating the blast area and the bay or open ocean.

(b.) All ponds in the blast area are to be filled before commencing blasting.

(c.) While the above analysis assuming homogeneous soil conditions shows that millisecond-delayed 400 pound charges can be detonated as required for excavation without creating non-safe conditions for marine mammals, there is the possibility of lava tubes and other anomalies causing concentration or focusing of explosive energy. Therefore, it is recommended that: (i.) no blasting be done if endangered species or major marine animals are within view from the shoreline; (ii.) blasting be preferably done at low tide; (iii.) a helicopter be used during the first three days of blasting for surveillance of marine life before blasting to assure the bay and an area in the ocean to the 5 fathom contour is clear of endangered species and major marine life, and after blasting to inspect for damaged major marine life; and (iv.) if it is desired to reduce the risk of discovering that the explosive energy is greater than the above analysis predicts, and the possible cessation of operations; consideration should be given to experimental testing using relatively small charges in conjunction with underwater pressure level measurements prior to excavation.

Sincerely,

Ronald A. Darby, P.E.

RAD:aba
Enclosures

REFERENCES

1. "A Discussion Paper on the Effects of Explosives on Fish and Marine Mammals in the Waters of the Northwest Territories," D.G. Wright, Canadian Technical Report of Fisheries and Aquatic Sciences No. 1052, February, 1982.

2. "Principals of Underwater Sound for Engineers", R. Urick, McGraw Hill, 1967.

Table 1

Effects of Different Impulses on Mammals Diving Beneath the Water Surface (from Wright, reference 1)

IMPULSE		EFFECTS
bar.msec	(psi.msec)	
2.76	(40)	No mortality. High incidence of moderately severe blast injuries, including eardrum rupture. Animals should recover on their own.
1.38	(20)	High incidence of slight blast injuries, including eardrum rupture. Animals should recover on their own.
0.69	(10)	Low incidence of trivial blast injuries. No eardrum ruptures.
0.34	(5)	Safe level. No injuries

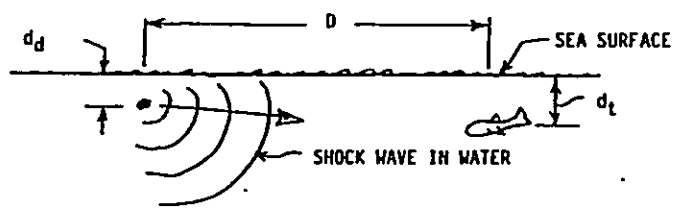


Figure 1A

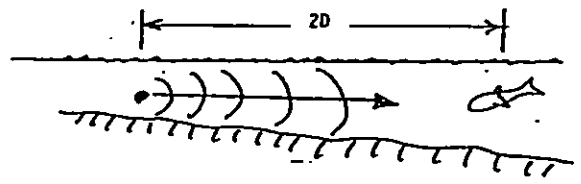


Figure 1B

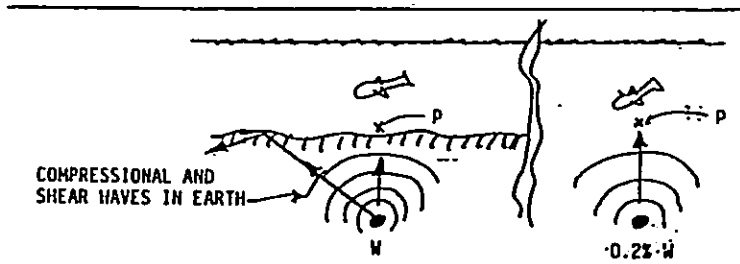


Figure 1C

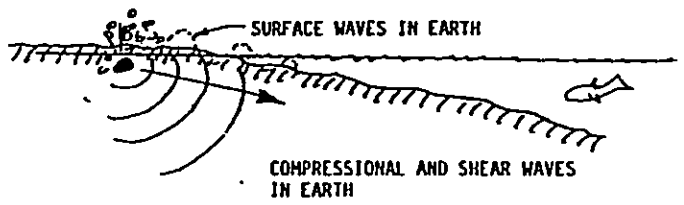


Figure 1D

FIGURE 1 -- VARIOUS CONDITIONS CONSIDERED IN BLASTING NEAR SEA WITH MARINE LIFE.

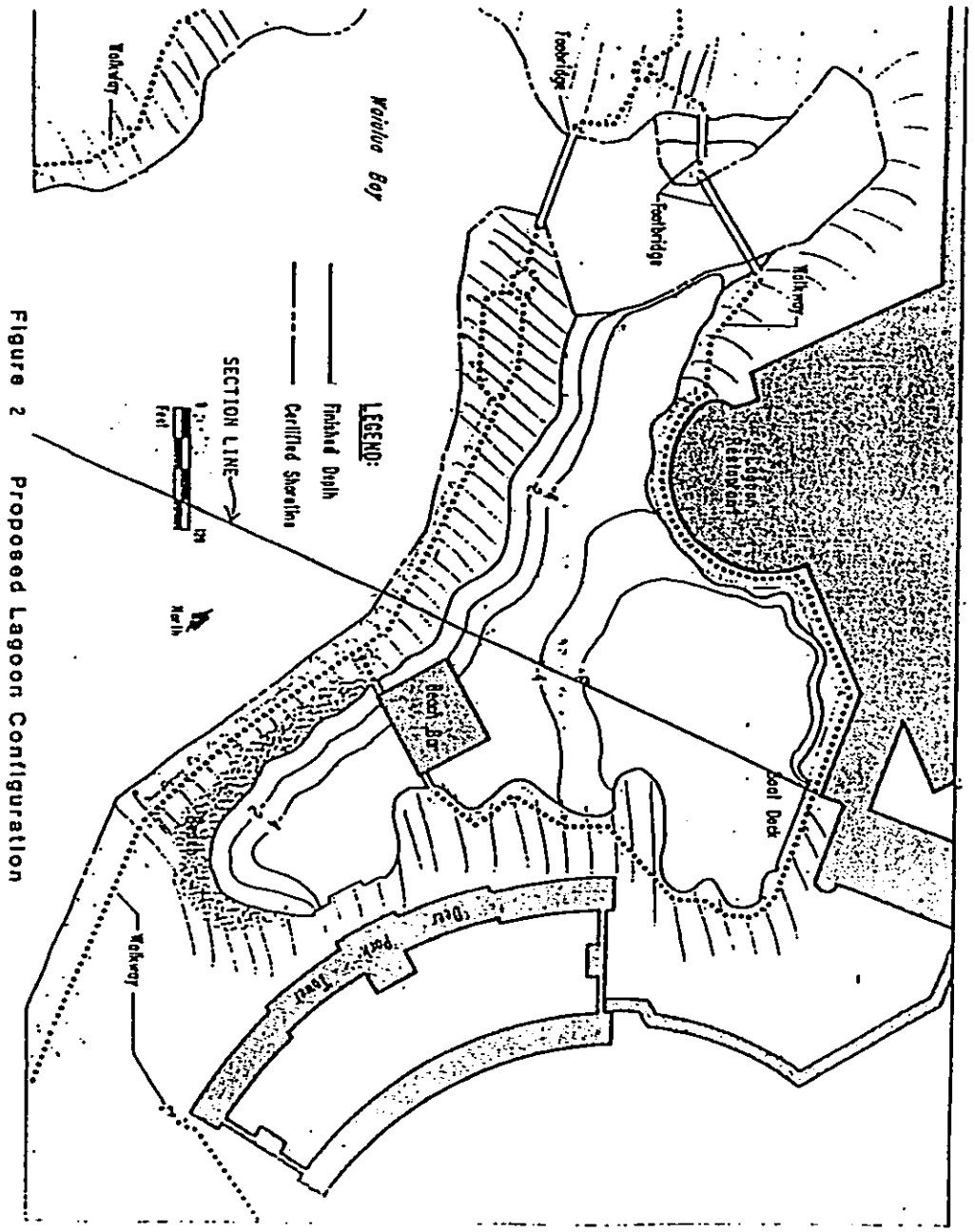


Figure 2 Proposed Lagoon Configuration

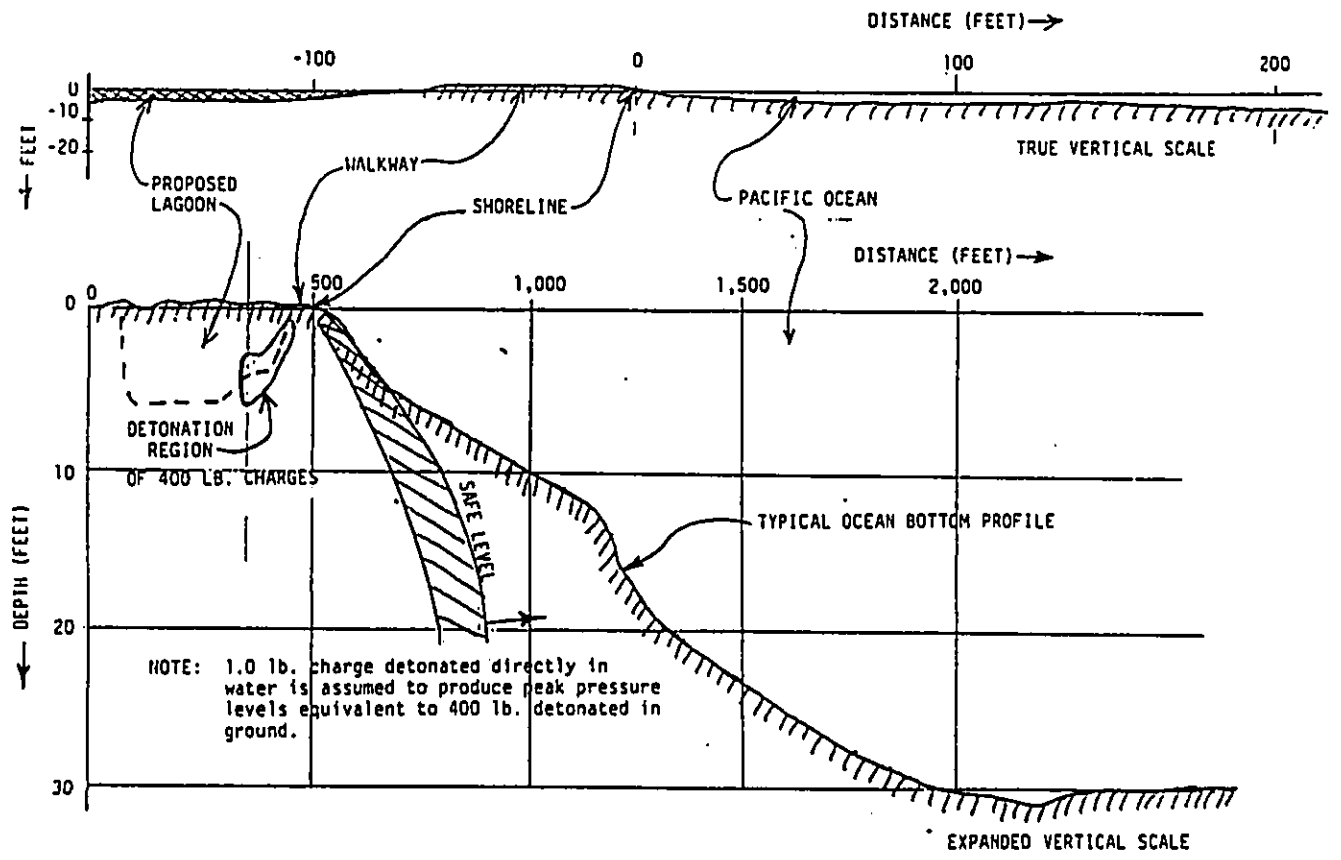


FIGURE 4 -- SAFE LEVEL CURVES FOR 1.0 lbs. EXPLOSIVE CHARGE DIRECTLY IN WATER COLUMN SUPERPOSED ON TYPICAL BATHYMETRIC CONDITIONS AT WAIKALOA, HAWAII.

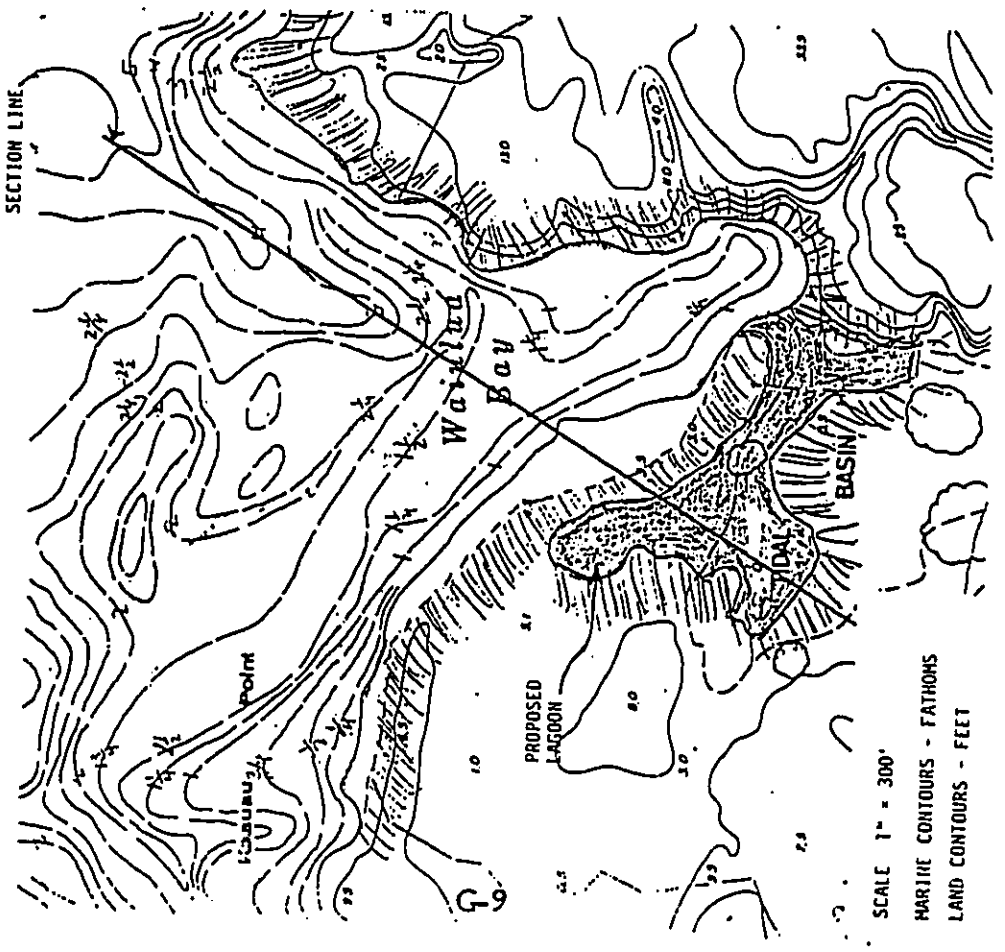


FIGURE 3 -- BATHYMETRIC MAP OF BAY AND OCEAN-WAIKALOA

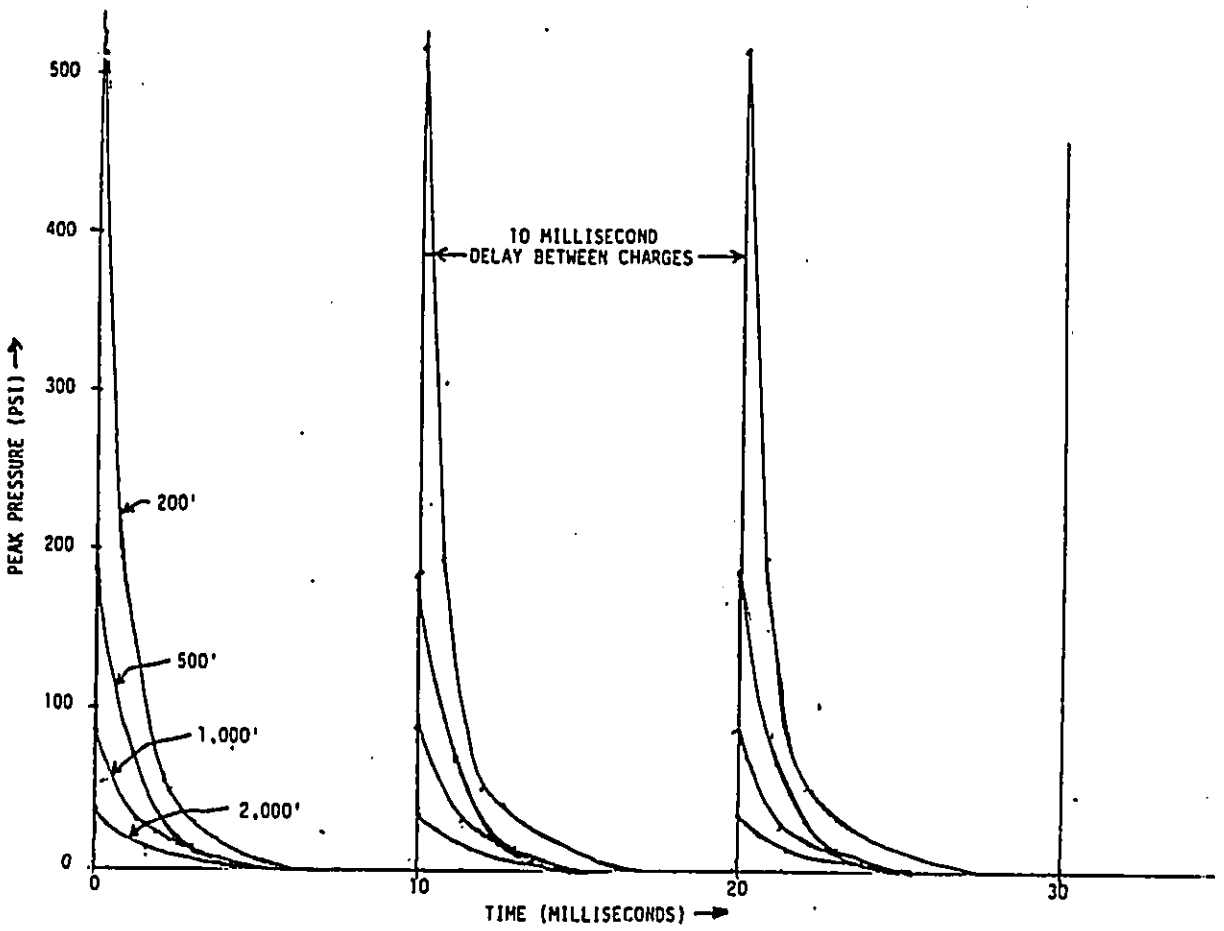


FIGURE 5 -- PEAK PRESSURE VS. TIME FROM DIRECT SHOCK WAVE AT DIFFERENT RANGES FROM 400 lbs. EXPLOSIVE CHARGE DIRECTLY IN WATER

-5440

February 20, 1985

Operations Branch

Mr. Doyle Gates, Administrator
National Marine Fisheries Service
Southwest Region
Western Pacific Program Office
P.O. Box 3830
Honolulu, Hawaii 96813

Dear Mr. Gates:

In regards to the Department of the Army permit application, PODCO-O 1812-SD, for the Waikoloa Hyatt Resort Development, we have been informed that blasting may be required during the excavation of the lagoon. A figure of the proposed project with the lagoon is provided for orientation. This constitutes project change that was not originally addressed in your letter of December 18, 1984 concerning the impacts of the project on the threatened green sea turtle and endangered humpback whale.

The proposed excavation area is a tidal basalt bench that floods during high tide. The lagoon will not be open to the middle portion of Waiulua Bay. A basalt ledge, part of the original bench, will be left in place to separating the lagoon from the mid-portion of Waiulua Bay. A temporary berm will be used to isolate the construction site from the bay to confine turbid waters to the construction site. Blasting, if required, will essentially be confined to dry land or within the confined lagoon area. An assessment of blasting impacts is attached for more information.

We do not feel that the use of blasting to excavate the lagoon will affect the threatened or endangered species and are not considering initiation of formal consultation under Section 7 of the Endangered Species Act, as amended. We respectfully request your review and comments on this matter and hope to receive you comments by March 19, 1985.

Sincerely,

Everette A. Flanders
Chief, Construction-Operations
Division

Enclosure

1812-SD

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PODCO

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ASSESSMENT OF BLASTING EFFECTS ON MARINE ORGANISMS

For the proposed lagoon, the energy of the explosion will be purposely directed into the rock bottom and techniques such as charge burial, sandbag deflection, charge spacing and detonation sequencing would reduce the amount of potentially damaging shock wave energy transmitted into the water. The natural and manmade rock berms would impede the movement of shock waves through the water from the lagoon into the bay. Some energy would be transferred to adjoining waters through the underlying rock in the form of a ground wave, and additional energy may reach the bay and ocean through water-filled fissures and lava tubes. The Guidelines for Evaluating the Environmental Effects of Underwater Explosion Tests, Naval Ordnance Laboratory, 1973, indicate that rapid dissipation of explosive energy occurs in shallow water, especially when the charge is buried. A schedule of safe charge weights/ burial depths from the Canadian Department of Fisheries indicates that burial of the charge provides a ten-fold attenuation of blast shock waves in comparison to open water explosions. Charges up to 1,000 pounds could be used without danger if care is taken to insure that no individuals (marine organisms) are within 1,000 feet of the detonation.

-5440

December 7, 1984

Operations Branch

Mr. Doyle Gates, Administrator
Western Pacific Program Office
National Marine Fisheries Service
Attn: Endangered Species Coordinator
P.O. Box 3830
Honolulu, Hawaii 96812

Dear Mr. Gates:

We are presently evaluating a Department of the Army permit PODCO-O 1812-SD to fill anchialine ponds and to excavate a swimming lagoon at Waikoloa Hyatt Resort Development. The U.S. Fish and Wildlife Service indicated in a letter dated November 9, 1984, that the threatened green sea turtle probably occurs in the marine waters offshore from the project site.

We do not intend to initiate formal consultation under Section 7 of the Endangered Species Act, as amended, because no direct impact on the threatened green sea turtle is anticipated. Mr. Andy Yuen, U.S. Fish and Wildlife Service, indicated that no survey of turtle foraging areas was performed by the Service in relation to the Waikoloa Hyatt Resort Development. No work in marine waters is proposed, and no blasting related to the excavation of the swimming lagoon. All filling and excavation work is expected to be performed with bulldozer equipment.

While the increase in human presence might affect the threatened green sea turtle, we do not anticipate that the effect will jeopardize the continued existence of the species. An increase in human presence along the shoreline is expected regardless of any action taken on the Department of the Army permit, because County land use plans for the area have zone areas along the coast for urban, resort and park development.

Your response to this letter should reach us by January 7, 1985.

Sincerely,

Everette A. Flanders
Chief, Construction-Operations
Division

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ba/3-9258

D. Kern

Barrera

Flanders

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G-12

NATIONAL MARINE FISHERIES SERVICE
Southwest Region
Western Pacific Program Office
P. O. Box 3830
Honolulu, Hawaii 96812

M

December 18, 1984 F/SWR1:ETN

Mr. Everette A. Flanders
Chief, Construction-Operations Division
U.S. Army Corps of Engineers
Fort Shafter, HI 96858

Dear Mr. Flanders:

This is in response to your letter of December 7, 1984 regarding the potential impact of the Waikoloa Hyatt Resort Development (PODCO-O 1812-SD) on the threatened green turtle (Chelonia mydas). Based on the available information concerning the proposed project we agree with your conclusion that the activity is not likely to affect green turtles. Although endangered humpback whales (Megaptera novaeangliae) are found off the Kona Coast of the island of Hawaii during the winter, the proposed activity under present conditions is not likely to affect this species either. Accordingly, formal consultation for this project under Section 7 of the Endangered Species Act of 1973, as amended, will not be required. Should the scope of the project or proposed construction activities change sufficiently to affect either species then consultation must be initiated at that time.

The Corps is also reminded that determinations of "jeopardy" or "no jeopardy" are made by the National Marine Fisheries Service for threatened or endangered species under its jurisdiction pursuant to Section 7 of the Endangered Species Act. Your cooperation in these matters is appreciated.

Sincerely yours,

Doyle E. Gates
Doyle E. Gates
Administrator

Appendix H

Historic Coordination

-5440

October 25, 1984

Operations Branch

Mr. Susumu Ono
State Historic Preservation Officer
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

Enclosed is an intensive archaeological report for the Waikoloa Hyatt Resort, Department of the Army permit application PODCO-O 1812-SD. The report was prepared by the applicant's contract archaeologist and was submitted to the Corps for use in Section 106 coordination with you, and for use in preparation of a Federal Environmental Impact Statement (EIS) for the permit action.

The Waikoloa Hyatt Resort project is described in the attached Public Notice, PODCO-O 1812-SD, dated October 19, 1984. The EIS is expected to discuss the impacts of filling anchialine ponds and excavating the lagoon on historic resources, and include your concerns on historical and cultural resources.

The report suggests that none of the archaeological sites found in the project area are eligible for inclusion in the National Register of Historic Places and recommends that no further study be undertaken. We request your review of the enclosed information and your concurrence on the results of the report. We suggest that you contact Mr. Michael T. Lee (Phone: 438-9258) by November 16, 1984 to discuss questions you may have regarding the project or the report prior to providing us written comments. We expect your comments will be used in developing the impacts discussion in the EIS and in the formulation of project alternatives.

Sincerely,

..J. Paresa
..ting Chief, Construction-Operations
..ivision

Enclosures

1812-SDa

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

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

January 15, 1985

W. J. Paresa, Acting Chief
Construction-Operations Division
Department of the Army
U. S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858-5440

Dear Acting Chief Paresa:

Subject: Review of Intensive Archaeological Survey
Waikoloa Hyatt Hotel Site
Waikoloa Beach Resort
Anaehoomalu, South Kohala, Hawaii
TMK: 6-9-07:14, 16, and 26

H-2

Thank you for your letter of October 25, 1984, requesting our review and comments on the submitted archaeological report entitled, "Intensive Archaeological Survey: Waikoloa Hyatt Hotel Site" by Paul H. Rosendahl, Ph.D., Inc. (1984).

Our telephone conversations and recent meeting (December 4, 1984) with Mr. Michael T. Lee, of your staff, have been very helpful in our review of the subject project which will impact several archaeological resources, including an Hawaiian foot-trail along the coastline.

Our review of the subject document has resulted in the following comments and recommendations:

We concur with the consulting archaeologist's statement in that the intensive survey and testing of archaeological remains in the project area have contributed to understanding both the local and broader regional archaeological concerns relating to indigenous Hawaiian settlement and exploitation patterns along the leeward coast of the Island of Hawaii and that no further archaeological work within the project area has been recommended (1984:57); however, these archaeological features are representative of the physical evidence of coastal patterns of the early Hawaiians and these physical features have been decreasing in numbers through time. In this light, we do recommend that the developer attempt to minimize impacts to these pre-Contact (A. D. 1778) features as much as possible by retaining them in place wherever possible for public appreciation, in particular, features clustered in an area designated as the Waiulua Bay Settlement. We concur that the identified features are not eligible for inclusion in the National Register.

111-30

The existence of the foot-trail through the Waiulua Bay Settlement is supportive of the artifactual and chronological relationship between this site and Kalahuipua'a, an extensive Hawaiian settlement investigated by Kirch (1979) and listed in the Statewide Archaeological Inventory. Thus, we do recommend that this portion of the coastal trail not be impacted by the development.

We further recommend that in the event any previously unidentified sites or remains such as artifacts, shell, bone, or charcoal deposits, human burials, rock or coral alignments, pavings, or walls are encountered, please direct the applicant to stop work and contact our office at 548-7460 immediately. At that time, we may make further recommendations toward the mitigation of the resources.

Sincerely yours,

SUSUMU ONO
Chairperson and State Historic
Preservation Officer

H-3

-5440

February 20, 1985

Operations Branch

Mr. Susumu Ono
State Historic Preservation Officer
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

This letter is in regards to Department of the Army permit application, POCCO-O 1812-SD, Waikoloa Hyatt Resort Development.

Enclosed for your review and comments is a copy of Dr. Paul Rosendahl's archaeological reconnaissance report concerning the remainder of the anchialine pond properties on the Waikoloa Beach Resort properties. His findings substantiate your staff's opinion that more archaeological sites and burials could be found on the property. Dr. Rosendahl indicates that the sites should be excavated and the scientific information salvaged. The results of his report do not add any significantly new knowledge to the original archaeological survey by the Bishop Museum in 1971.

Based on previous discussion with your staff, your letter of January 18, 1985, determining that the Hyatt development site was not eligible for inclusion to the National Register of Historic Places, and information to date, we feel that the remainder of the properties are not eligible for inclusion to the National Register of Historic Places. However, we also feel that preservation and other mitigative actions may be necessary.

We request that your staff review the report and that meetings be arranged between the Corps and the applicant to discuss eligibility determination and the necessity of preservation actions.

Sincerely,

Everette A. Flanders
Chief, Construction-Operations
Division

Enclosure

1812-SD.

List of Attachments

1. Rosendahl, January 18, 1985, Archaeological Field Inspection Waikoloa Ponds - Waikoloa Beach Resort, Anaehoomalu, South Kohala, Island of Hawaii.

2. Data Recovery Plan, July 1985

3. Figure II-4, Applicant's Proposal, Final Environmental Impact Statement.

4. State Historic Preservation Officer Letter Dated April 19, 1985

5. State Historic Preservation Officer Letter Dated July 10, 1985 with Corps Letter Dated May 28, 1985.

6. State Historic Preservation Officer Letter Dated July 31, 1985 with Corps Letter Dated July 23, 1985.

7. Society for Hawaiian Archaeology Letter Dated May 16, 1985.

PAUL H. ROSENDAHL, Ph.D., Inc.
Consulting Archaeologist

152-011385

January 18, 1985

Mr. Perry J. White
Belt, Collins & Associates
606 Coral Street
Honolulu, Hawaii 96813

RECEIVED
JAN 22 1985
BELT, COLLINS & ASSOCIATES

Subject: Archaeological Field Inspection
Waikoloa Ponds - Waikoloa Beach Resort
Anaehoomalu, South Kohala
Island of Hawaii

Dear Mr. White:

On January 2-4, 1985, Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted an archaeological field inspection of Development Parcels 9, 10, 12, 13, 16, and 17 at the Waikoloa Beach Resort. The basic purpose of this field inspection was to determine the nature and scale of any additional archaeological work that may be required in order to obtain various development permits from the County of Hawaii and the U.S. Army-Corps of Engineers. The inspection field work was carried out by PHRI Field Archaeologists Alan T. Walker and Roy Pua-Kaipo. Subsequent to the field work, an oral preliminary report on findings and tentative recommendations was made to you on January 7, 1985.

Prior archaeological work conducted within the limits of the project area consisted of survey and limited excavations carried out for Boise-Casade Properties by Bishop Museum during the period October 1969-January 1970 (Barrera 1971).* Within the present project area, Barrera identified 27 sites incorporating 52 component features. Barrera grouped nine sites located in Parcel 9 into a site complex referred to as the Ridge Settlement, and eight sites in Parcel 12 into a site complex referred to as the Anaehoomalu Point Cluster.

The basic objectives of our field inspection were two-fold: (a) to relocate and evaluate sites previously identified within the project area (Barrera 1971); and (b) to carry out a limited reconnaissance of the area to determine the presence or absence of any previously unidentified sites. Virtually the entire project area was inspected, with effort being concentrated on the Ridge Settlement complex, the Anaehoomalu Point Cluster complex, the beach area between Kaauau Point and the head of Anaehoomalu Bay, and the area of the brackish tidal ponds. Visual inspection was facilitated by the generally open, rugged terrain. When previously identified sites were relocated,

*William Barrera, Jr., 1971. Anaehoomalu: A Hawaiian Oasis. Pacific Anthropological Records No. 15. Department of Anthropology, B.P. Bishop Museum. Honolulu.

P.O. Box 504 • Kurtistown, Hawaii 96760 • (808) 966-8038

H-5

they were marked with red and blue plastic flagging tape and a metal tag inscribed with the date, site number, PHRI project number (84-152) and the letters "PHRI". Field observations were compared to the descriptive information presented in the Barrera (1971) report, and additional notes were made on the field copy of Barrera's site descriptions. Newly identified sites were marked in similar fashion and assigned a temporary three-digit site number prefixed with "T-".

The results of our field inspection are summarized in the attached Table 1. Of the 27 sites designated by Barrera within the present project area (including nine sites in Ridge Settlement complex and eight sites in Anaehoomalu Point Cluster complex), 21 were definitely relocated during our field inspection. The remaining six sites which could not be relocated appear to have been destroyed by bulldozing done subsequent to Barrera's work. In addition, 22 previously unidentified sites comprised of approximately 25 component features were found during the field inspection--two each within Parcels 9, 10, and 12, nine within Parcel 13, and seven within Parcel 17. No sites were found within Parcel 16.

Inspection of the beach area between the head of Anaehoomalu Bay and Kaauau Point failed to reveal any exposures or other indications of the presence of buried cultural deposits. The general nature of the beach--primarily basalt and coral cobbles, with a capping of sand--suggests the beach to be a relatively active feature of the area, one presenting a low potential for containing undisturbed subsurface cultural deposits. The inspection of the brackish tidal pond areas revealed the presence of three previously unidentified sites: T-120A, located in Parcel 12, is a wall (possibly recent) which separates a tidal pond from the ocean; and T-115 (Feature B) and T-118, both located in Parcel 13, which are low cobble walls dividing each pond into two portions.

In our opinion, the archaeological remains identified within Development Parcels 9, 10, 12, 13, and 17 are, for the most part, of limited significance in terms of potential scientific research, interpretive, and/or cultural values. Of the remains identified within the area, several component sites of the Ridge Settlement complex and the Anaehoomalu Point Cluster complex are believed to have moderate research potential. Site T-119 (Feature A), a newly identified burial cave, is believed to have both moderate research value and high cultural value.

Based on the findings of our field inspection, we believe that a program of intensive archaeological survey, consisting of several specific field tasks, would constitute an adequate recovery of archaeological data present within the project area, and that little or no additional archaeological work beyond such intensive survey would be justified or required. The specific

field tasks for the recommended intensive survey program include the following:

a. Intensive level survey recording of sites--including detailed plan mapping, written descriptions, and photographs;

b. Surface collection of portable remains (midden and artifacts) from sites;

c. Subsurface testing of sites with apparent excavation potential;

d. Limited subsurface testing of beach deposits between the head of Anaehoomalu Bay and Kaauau Point, to determine the presence or absence of buried cultural deposits, and;

e. Preservation, or removal and reburial, of human skeletal remains.

One specific recommendation should be considered for implementation as soon as possible. As an important immediate step, we recommend that all sites be accurately located and plotted by professional surveyors on an appropriate scale topographic map of the project area. This site locational plotting would be done with the assistance of a qualified archaeologist. Accurate site location information would substantially aid development planning by allowing further archaeological work determinations (intensive survey and/or preservation) to be considered on a site-by-site basis.

Please note that the evaluations and recommendations given here have been made on the basis of the surface field inspection only. There is always the possibility, however remote, that previously unknown or unidentified subsurface cultural features or deposits of significance might be encountered in the course of subsequent archaeological investigations or other development activities.

If you have any questions concerning the findings of our field inspection, or if we can be of any further service to you, please contact me at our Hilo office (969-1763).

Sincerely yours,

Paul H. Rosendahl, Ph.D.
President and Principal
Archaeologist

Encl.:Inv.No.152-011785

H-6

Table 1.

SUMMARY OF IDENTIFIED SITES - WAIKOLOA BEACH RESORT DEVELOPMENT PARCELS 9, 10, 12, 13, 16, AND 17

Site No. 50-HA-B1-	Site Type	Field Ident.	Comments
PARCEL 9 - Ridge Settlement Complex			
21	Cave shelter	+	Limited excavation potential
67A	U-shaped terrace	+	Partially walled, limited ex. potential, petroglyph c. 3.0 m west
B	Cave shelter	+	Limited ex. potential
C	Cave shelter	+	Limited ex. potential
D	Cave shelter	+	Moderate ex. potential, grey ashy soil (5-10 cm thick), shell midden visible
68	Cave shelter	+	Moderate ex. potential, grey ashy soil (10-15 cm thick), two petroglyphs near entrance
69A	Enclosure	+	No ex. potential, surface collection potential
B	Enclosure	+	--
C	Enclosure	+	--
D	Enclosure	+	--
72	Cave shelter	+	Limited ex. potential
73	Cave shelter	+	Limited ex. potential
74	C-shape shelter	+	No ex. potential
117	Cave shelters (2)	-	Destroyed by bulldozing
301	Brackish pond	-	Destroyed by road construction

Table 1. (Cont.)

Site No. 50-HA-El-	Site Type	Field Ident.	Comments
PARCEL 9 - Other Previously Identified Sites on Ridge			
75A	C-shape shelter	+	No ex. potential
B	Cave shelter	+	Limited ex. potential
C	Overhang shelter	+	No ex. potential
D-I	Cairns (6)	+	No ex. potential, encircle Features B and C
76	Cairns	+	Only one of three relocated, two others probably bulldozed
77	Cairns	+	Only one of two relocated
116A-P	Cairns (6)	+	Crudely constructed
136	Cave shelter	+	Limited ex. potential, sparse shell midden
137	Cave shelter	+	Limited ex. potential, no shell midden
138	Cave shelter	+	Limited ex. potential, sparse shell midden
PARCEL 9 - Newly Identified Sites/Features			
T-101	Cairn	+	No ex. potential, located below Site 75A
T-102	Overhang shelter	+	No ex. potential, no shell midden
PARCEL 10 - Previously Identified Site			
241	Petroglyph field	-	Apparently destroyed by bulldozing
PARCEL 10 - Newly Identified Sites/Features			
T-121	Cairn	+	Spray painted label "192", poss. Barrera's Site 192 (but not described in Barrera's report)

H-7

Table 1. (Cont.)

Site No. 50-HA-El-	Site Type	Field Ident.	Comments
T-122	Cairn	+	--
PARCEL 12 - Anaehoomalu Point Cluster			
24A-C	Cave shelters (3)	+	All three shelters tested by Barrera, moderate ex. potential (30 cm thick deposits)
27A	C-shape shelter	+	No ex. potential
B	Circular shelter	+	No ex. potential
28A-B	Cave shelters (2)	+	Both shelters tested by Barrera, limited ex. potential; rock-lined firepit c. 2.0 m NW of shelter A entrance
C	Rectangular cairn	+	No ex. potential
29	Rock-lined pit	+	Limited ex. potential; poss. firepit
30	C-shaped wall	-	Destroyed by bulldozing
130	Walls	-	Destroyed by bulldozing
131	Lava Blister	-	Destroyed by bulldozing
133	Burial Cave	+	Tested by Barrera, moderate ex. potential; identified minimum of one burial still present
PARCEL 12 - Newly Identified Sites/Features			
T-119A	Burial cave	+	Located c. 35 m W of Site 133; human remains, wood, nails, and gourd fragments visible
B	Wall segment	+	--
T-120A	Wall	+	Separates brackish tidal pond from ocean; poss. recent (?)

Table 1. (Cont.)

Site No. 50-HA-El-	Site Type	Field Ident.	Comments
T-120B	Shallow bedrock depressions	+	Evidence of scoria abrader manufacturing, located c. 10 m NE of Feature A
PARCEL 13 - Previously Identified Site			
22	C-shape shelter	+	Moderate ex. potential
PARCEL 13 - Newly Identified Sites			
T-110	Cairn	+	Wooden plank upright in middle of cairn
T-111	Cairn	+	Wooden plank upright in middle of cairn
T-112	Cairn	+	Wooden plank upright in middle of cairn
T-113	Cairn	+	Wooden plank upright in middle of cairn
T-114	Cairn	+	Wooden plank upright in middle of cairn; cairns T-110, 111, 112, 113, and 114 form an E-W alignment
T-115A	Circular walled shelter	+	No ex. potential; built atop bedrock outcrop
B	Pond wall	+	Divides pond into two portions
T-116	Wall segment	+	No ex. potential; poss. shelter wall
T-117	Cairn	+	Square or rectangular shaped
T-118	Pond wall	+	Divides pond into two portions
PARCEL 16 - No Identified Sites			
PARCEL 17 - Previously Identified Site			
101	Foot trail	+	Coral and scattered shell along trail

H-8

Table 1. (Cont.)

Site No. 50-HA-El-	Site Type	Field Ident.	Comments
PARCEL 17 - Newly Identified Sites			
T-103	Cairn	+	Near pond
T-104	Overhang shelter	+	No excavation potential, overlooking pond
T-105	Cairn	+	Poss. recent, constructed of two boulders
T-106	Cairn	+	Poss. recent, constructed of two boulders
T-107	Cairn	+	Wooden plank upright in middle of cairn
T-108	Cairn	+	Poss. recent, constructed of three boulders
T-109	Cairn	+	Poss. recent, several wooden planks adjacent to cairn

H-9

DATA RECOVERY PLAN

PLOTS 9, 10, 12, 13, & 17. ANAEHOOMALU.
WAIKOLOA BEACH RESORT,
SOUTH KOHALA DISTRICT, HAWAII ISLAND
STATE OF HAWAII

July 1985

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INTRODUCTION

This plan addresses historic sites on lots 9, 10, 12, 13 and 17 in the Anaehoomalu area of Waikoloa in the South Kohala District of Hawaii Island (Fig. 1). This is in the Waikoloa Beach Resort area. A Hyatt Regency hotel is being built along the shore just north of these parcels. A U.S. Army Corps of Engineers (Honolulu District) permit was applied for by the developer (Transcontinental Development Co. and Atpac Land Company) to excavate a recreational lagoon and fill anchialine ponds.

Forty-six (46) historic (archaeological) sites (see Table 1) were identified in a recent archaeological reconnaissance survey (Rosendahl 1985), twenty-one (21) of which had been studied previously in 1969-70 archaeological reconnaissance and intensive surveys. The Corps of Engineers, State Historic Preservation Office, and the developer all concur that the sites contain significant information on the prehistory of this area and are, thus, determined to be eligible for inclusion on the U.S. National Register of Historic Places based solely on their information content. Better examples of these site types have been preserved by the developer elsewhere in the Anaehoomalu resort area, i.e., the burial caves, petroglyph field and shelter clusters located a little farther inland.

The Corps of Engineers and the State Historic Preservation Office are in concurrence that the significant information can be recovered through an archaeological data recovery program. This program is detailed in this plan, prepared in cooperation with the State Historic Preservation Office. The permit applicant has also reviewed this plan and has agreed to hire a professional archaeological firm to carry out this data recovery program -- with the work to be reviewed by the Corps and State Historic Preservation Office to ensure adequacy.

THE ENVIRONMENTAL SETTING

Anaehoomalu is a coastal land area on the dry (less than 10 inches/year), leeward coast of Hawaii Island (Fig. 1). A sand beach is present at Anaehoomalu Bay, and narrow cobblestone and sand beaches at Waiulua Bay and in two stretches along the coast between these two bays (Fig. 2).

But, the terrain here was dominanted by barren lava flows before the recent resort development. The Sheraton Royal Waikoloa now fronts Anaehoomalu Bay and a golf course parallels the shore just behind the parcels of concern in this data recovery plan (Fig. 3). The planned Hyatt Regency Hotel will be at Waiulua Bay.

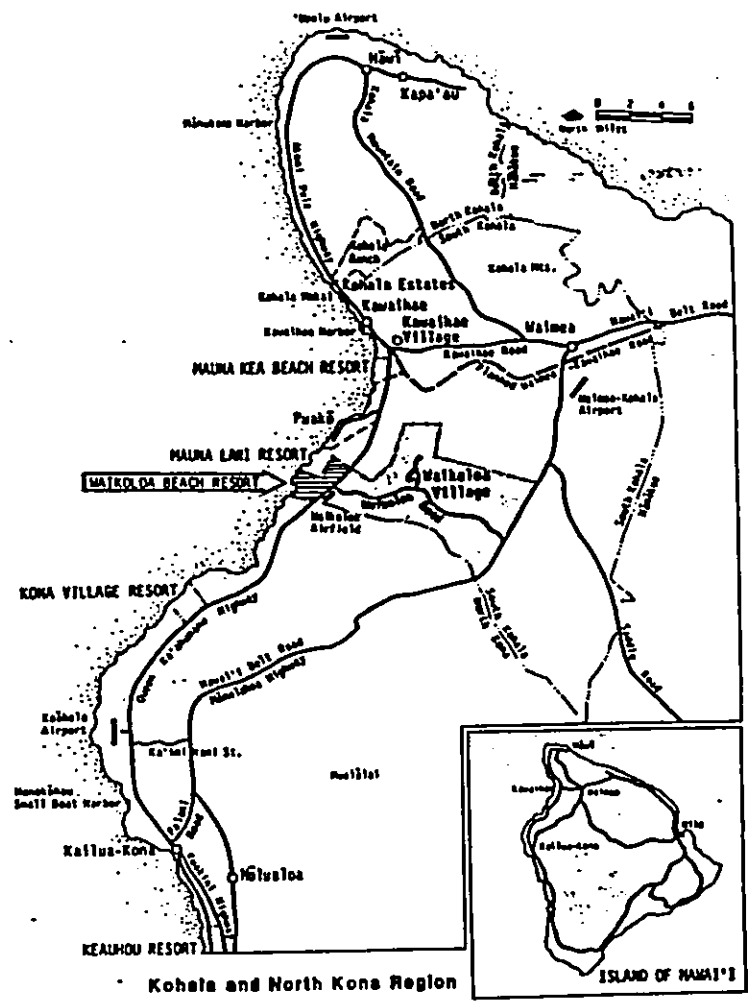

Figure 1. Location of the Waikoloa Beach Resort Area (Anaehoomalu) on Hawaii Island. (U.S. Army Corps of Engineers 1985: II-2).

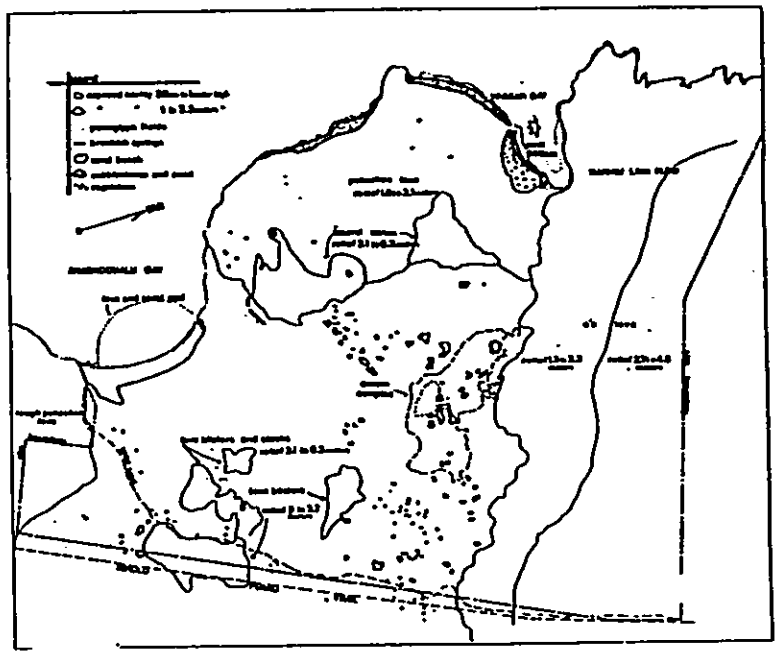

Figure 2. Geologic Map of Anaehoomalu. (Barrera 1971: 5).

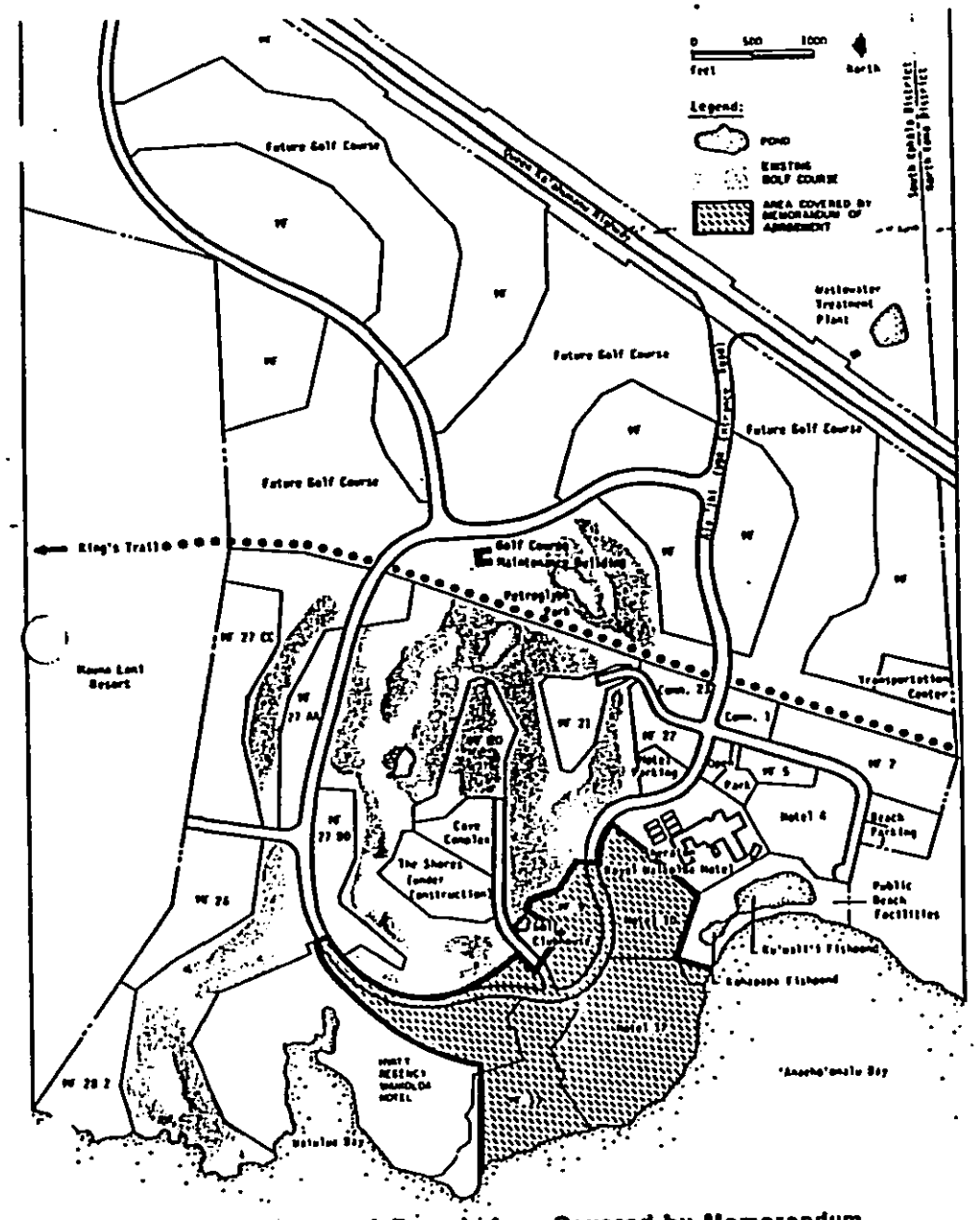

Figure 3. Waikoloa Beach Resort: Area Covered by Memorandum of Agreement

The parcels in this plan lie between the golf course and the shore and between the Hyatt hotel site and the Sheraton hotel (Fig. 3). These plots largely are undulating pahoehoe 1.5-3.1 meters in elevation, with two raised "littoral cones" (3.1-6.2 m elevation) just inland. Numerous caves are present in these parcels -- some small and some sizable underground tubes. Also, small brackish (anchialine) ponds are present in low points in the lava near the shore. A very narrow, cobblestone/sand beach is present on the south side of Anaehoomalu Point. Importantly, a sizable section of Parcel 12 was bulldozed and graded extensively in the past, leaving only a small undamaged area in the center of the parcel and a strip near the shore.

THE SITES

Table 1, at the end of this plan, lists the sites in these plots. The table also notes the presence or absence of cultural deposits. [If a plus is under the EX -- excavation -- column under Fieldwork Tasks, then deposits are present.] The bulk of these 48 sites are caves (14 cases) and stone cairns (18 cases). Two of the caves are burial caves (133 and T-119A, with the latter having only 1 burial). Some sites have multiple features. For example, site 67 has 3 caves and a surface enclosure. (See Fig. 4.)

Most features are quite small, with the exception of a few larger caves (e.g., 21, 68). Most cairns have no cultural deposits, and most surface enclosures have minimal deposits. The caves generally have shallow deposits (10-20 cm), and occasionally bare rock covers portions of the cave floors. However, some caves have deeper deposits.

PRIOR ARCHAEOLOGICAL WORK

Prior archaeological work at these sites has been limited. In 1969-70, the Bishop Museum identified sites in this area (Barrera 1971) -- 21 of which still are present. Descriptions of all sites exist, some are quite brief and lack a number of site dimension measurements. General site maps exist for several clusters of sites (Fig. 5), and these give a general picutre of site sizes and features. A detailed site map was made only for site 133, the large burial cave (Figs. 6, 7). Excavations (ranging from 1-4 square meters) were conducted in 12 caves within 7 sites. These excavations represent 1-25% samples of these caves' floor areas. Artifacts and midden were

Figure 4. The entrances to two small caves in site 24 (Parcel 12) are visible in this photograph. (Barrera 1971: 27).

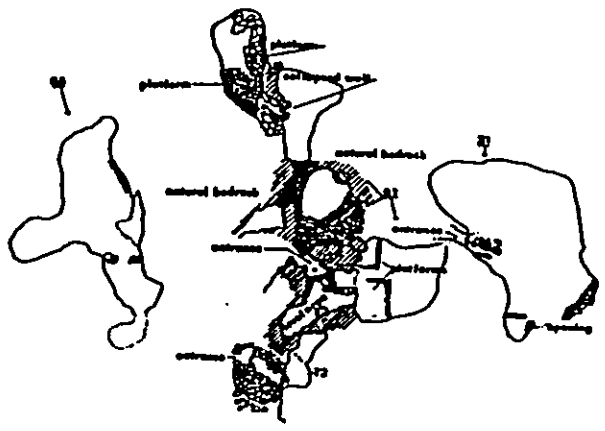

Figure 5. General Map of Sites 21, 67, 68, 69 & 72 (Parcel 9). (Barrera 1971: 75).

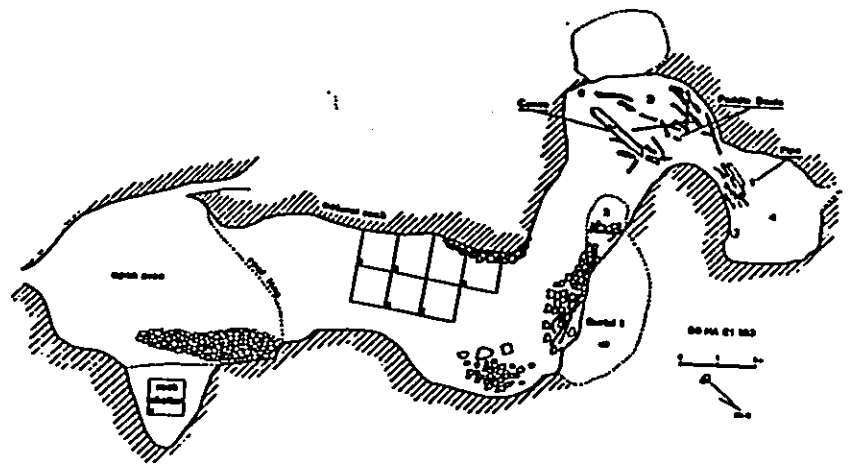

Figure 6. Detailed Map of Burial Cave, Site 133 (Parcel 12). (Barrera 1971: 31).

Figure 7. Photograph of Burial 2 in Site 133 (Parcel 12). (Barrera 1971: 32).

recovered. The artifacts were listed in the report (Barrera 1971). But detailed analyses of the artifacts and all analyses of midden were to occur in a later sutdy, which was never funded (Barrera 1971:1,105). This material is still at the Bishop Museum. All the skeletal remains were removed from burial cave 133 and were analyzed by a physical anthropologist (Pietrusewsky 1971). 12 complete individuals and parts of 77 individuals were documented, and these remains are now at the Bishop Museum.

15 volcanic glass hydration dates were processed from 5 caves in sites 68, 117, 24, and 133, and 1 carbon-14 date was processed from charcoal in 133. Date ranges for these sites were A.D. 1684-1794 (site 68), A.D. 1757-1803 (site 117), A.D. 1381-1469 (site 24), and A.D. 1470-1827 (site 133). This indicates fairly late useage of these caves in prehistory.

In 1985, the Paul Rosendahl, Ph.D. company resurveyed this area at the reconnaissance level (Rosendahl 1985). 48 sites were located -- 27 being new sites. These sites were exactly located on a map, and a table of sites and features by type was prepared.

RELEVANT RESEARCH PROBLEMS

A number of local level research problems have been addressed in Anaehoomalu (see Barrera 1971; Rosendahl 1972; Kirch 1973, 1979; Tainter 1975a, 1975b; Cordy 1975, 1978, 1981; Tainter and Cordy 1977; Shun 1984). These include:

1. Initial human presence in this area. Volcanic glass hydration dates place man in Anaehoomalu in the A.D. 800s, and radiocarbon dates go back to c. A.D. 1000-1100 (Barrera 1971). However, some researchers have questioned the earlier dates.

2. The nature of the occupation. Interpretations have suggested that larger surface structures (platforms and enclosures) were permanent dwellings and that caves and smaller surface structures were temporary habitations used by people living outside Anaehoomalu -- perhaps inland in the Waimea area (Cordy 1975). There are a variety of temporary habitation sites -- from shelters used for brief periods to those used for more extended periods (see Rosendahl 1972). (See Kirch, 1979, for similar interpretations in the adjacent Kalahuipua'a.)

3. Population history. The initial Anaehoomalu study noticed a decline in site numbers later in prehistory, and discussions of decline and abandonment followed (Barrera 1971). The later analysis of permanent housing argued for a general increase with stability at European Contact -- although periods of fluctuation occurred (Cordy 1978). This work indicated that Anaehoomalu's permanent population never exceeded 36 people (Cordy 1978). The demographic ramifications of the temporary sites have yet to be assessed. Their numbers might well reflect demographic patterns in inland areas.

4. Social Organization. Patterns of social organization have been addressed by most researchers. More recent studies have identified the presence of a few commoner local residence groups based on co-varying permanent housing and burial patterns (Tainter and Cordy 1977).

5. Subsistence adaptations. Subsistence adaptations at Anaehoomalu have been minimally studied to date. The faunal remains from the initial study were not analyzed. Good mollusc analyses, however, are available from several temporary sites studied in 1984 at the coastal Hyatt hotel parcel (Shun 1984). A marine adaptation has long been noted based on artifact content of sites. There were two fishponds along Anaehoomalu Bay, and some modification of anchialine ponds occurred all along the shore. Also, pits in the lava have been suggested to be agricultural features (Barrera 1971). Analysis of these topics particularly in relation to two different populations using Anaehoomalu (the permanent coastal dwellers vs the intermittant dwellers) will be important for understanding local subsistence exploitation patterns. (Detailed studies of marine exploitation have occurred in the adjacent Kalahuipua'a providing an excellent source of comparative information.)

Because the dwelling sites in the impact area are all temporary dwelling sites (caves, small surface enclosures), it is expected that much of this project's research will be focused on temporary sites as they related to the above research problems.

These problems also link into wider regional and island-wide considerations of the same topics (e.g., Kirch 1979; Cordy 1978); so although the focus of research is on local patterns, it is anticipated that the findings will have considerable significance for general research in the Hawaiian Islands.

DATA RECOVERY TASKS

Given the extent of prior work and the probability of destruction of the existing sites in these lots, the following tasks have been scheduled as part of the data recovery plan. Table 1 conveniently itemizes general field tasks to be conducted at each site. This plan has been developed by the Corps, an archaeologist at the State Historic Preservation Office (Dr. Ross Cordy), and the developer's consulting archaeologist (Dr. Paul Rosendahl). Tasks have been developed based on review of prior work and on-site inspection of sites.

1. Complete Documentation of Surface Dimensions & Features of the Sites

The prior work has not recorded this information at the newly found sites, and this information is not completely recorded at many of the sites studied in 1969-70.

Data recovery will measure the dimensions of the sites and internal features (height, widths, areal dimensions, dimensions of deposits, cave heights, etc.). It will also include written descriptions to supplment the measurements and photography where needed. Detailed site maps will also be prepared for relevant sites other than individual cairns and walls using surveyors transit and stadia rod. [Note: Some sites were adequately documented in 1969-70 or were partly documented. Redundant documentation will not be done in these cases.]

The completion of this component will conclude data recovery at sites without any deposits (e.g., walls, cairns, and some surface enclosures).

2. Surface Collection of Artifacts, Midden & Debris

This task will occur at all sites with these surface remains, with provenience recorded. Some sites have but a few shells (midden) and other remains on the surface. In these cases, all these remains shall be recovered. In other cases, a sample of at least 20% of the surface area shall be collected. The density and location of surface artifacts collected will be mapped.

The completion of this component will conclude data recovery at features and sites with but a few shells, artifacts, etc. on the surface.

3. Burials

All the burials visible at site 133 in 1969-70 were removed then. Any additional remains found at this site will be recorded and recovered. Also the single burial at T-229A will be recorded and removed. Analysis of these remains will be done by a physical anthropologist or an archaeologist specializing in osteology. Proper reinterment will occur for all burials.

4. Excavation

Excavation will take place at all features with deposits. A minimal sample of 30-50% of the deposits' extent in each feature shall be excavated, with the 1969-70 excavations counted as part of this sample. In the few large caves, this sample can be revised to lower percentages after consultation with the State Historic Preservation Office. Excavations will be by stratigraphic layers with special attention directed to assessing the possibility of repeated fine layering likely in caves. Artifacts, midden and debris (including charcoal, waste flakes) will be collected from these excavations with provenience data. Soil and feature information will be recorded within the stratigraphic layers, and soil samples will be taken for possible later analyses (soil, pollen, botanical,etc.). U.S. Soil Service and Munsell Color Charts will be used together with 1/8-inch mesh screens during the excavations.

The completion of this component will conclude data recovery field work at all the identified sites.

5. Subsurface Testing of the Beach Deposits

Testing of the cobblestone/sand beach just north of these parcels in a prior study (Shun 1984) found no sites. Indeed, these beaches appear to be thin storm debris. Nonetheless, testing will occur to check if subsurface sites are present here. If any are found, they will be excavated and documented as the other sites in this parcel.

6. Laboratory/Data Analyses

This data recovery project will analyze both current findings and unstudied materials from the 1969-70 excavations (if the Bishop Museum will release these materials).

Artifacts will at least be listed by provenience and type and be measured for general size in the case of fishhooks, adzes, abraders, files, and volcanic glass.

Midden will at least be categorized by species and weighed by species -- by provenience.

A sizable number of samples will be submited for dating. This will include radiocarbon dates and will also include induced hydration dates. The focus will be on dating the span of human use of features as well as the frequency of occupation.

7. Interpretations

Interpretive analyses will be presented in the final report. This report will at least include three interpretive sections.

(1) A review of previous analyses of these sites and interpretations of their place in Anaehoomalu's history as related to the research problems noted on pages 11-12. (Discussion will at least cover all the references noted on page 11.)

(2) A presentation of site-by-site findings with an interpretation of site function and age at the end of each site discussion.

(3) A reassessment of the research problems -- these sites' place in Anaehoomalu's history and the nature of human occupation at Anaehoomalu in general.

MONITORING OF PROGRESS

At periodic points during the data recovery's fieldwork, laboratory work, and write-up, members of the U.S. Army Corps of Engineers' and the Hawaii State Historic Preservation Office's staff will conduct checks of work to ensure adequate progress.

CURATION

Artifacts will be curated at a site to be designated by the State Historic Preservation Officer.

REPORT PREPARATION

A final report will be prepared and will cover all the above data recovery tasks. This report will be initially reviewed by the Corps of Engineers and the State Historic Preservation Office to ensure it is adequate. If it proves inadequate, revisions shall occur before this data recovery project is considered complete.

Following normal practices, copies of this report will be filed with the U.S. Army Corps of Engineers (Honolulu District), the Hawaii State Historic Preservation Office (the Historic Sites Section in the Department of Land & Natural Resources), and the Pacific Collection of the University of Hawaii's Hamilton Library. Copies will also be supplied to the Advisory Council on Historic Preservation.

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... R. ROSENDAHL, Ph.D., Inc.
Consulting Archaeologist

164-050885

SURVEY AND EXCAVATION RECOMMENDATIONS FOR IDENTIFIED SITES AND FEATURES
WAIKOLOA BEACH RESORT - PARCELS 9, 10, 12, 13, 16, 17, 24

Site No. 50-Ha-El-	Formal Site/Feature Type	Tentative Functional Interpretation	*Field Work Tasks DR	SC	EX	Comments
PARCEL 9 - Ridge Settlement Complex						
21	Cave shelter	Habitation	+	+	+	—
67A	U-shaped terrace	Habitation	+	+	+	Partially walled; petroglyph c. 3.0 m to west
B	Cave shelter	Habitation	+	+	+	—
C	Cave shelter	Habitation	+	+	+	—
D	Cave shelter	Habitation	+	+	+	Mod. ex. potential; grey ashy soil (5-10 cm thick); shell midden visible
68	Cave shelter	Habitation	+	+	+	Mod. ex. potential; grey ashy soil (10-15 cm thick); two petroglyphs near entrance
69A	Enclosure	Habitation	+	+	-	—
B	Enclosure	Undetermined	+	-	-	—
C	Enclosure	Undetermined	+	-	-	—
D	Enclosure	Undetermined	+	-	-	—
72	Cave shelter	Habitation	+	+	+	—

*Survey and Excavation
Field Work Tasks: DR = detailed recording (scaled drawings, photographs, and written descriptions)
SC = surface collections
EX = excavations

SURVEY AND EXCAVATION RECOMMENDATIONS (Cont.)
WAIKOLOA BEACH RESORT

Site No. 50-Ha- Bi-	Formal Site/Feature Type	Tentative Functional Interpretation	Field Work Tasks DR	SC	EX	Comments
PARCEL 9 – Ridge Settlement Complex (Cont.)						
73	Cave shelter	Habitation	+	+	+	—
74	C-shaped shelter	Undetermined	+	–	–	—
PARCEL 9 – Other Previously Identified Sites on Ridge						
75A	C-shaped shelter	Habitation	+	+	–	—
B	Cave shelter	Habitation	+	+	+	—
C	Overhang shelter	Habitation	+	+	–	—
D-I	Cairns (6)	Undetermined	+	–	–	Encircle Features B and C
76	Cairns (3)	Undetermined	+	–	–	One relocated; others probably bulldozed
77	Cairns (2)	Undetermined	+	–	–	One relocated; other probably bulldozed
116A-F	Cairns (6)	Undetermined	+	–	–	Crude
136	Cave shelter	Habitation	+	+	+	—
137	Cave shelter	Habitation	+	+	+	—
138	Cave shelter	Habitation	+	+	+	—
PARCEL 9 – Newly Identified Sites/Features						
T-125	Cairn	Undetermined	+	–	–	Located below Site 75A
T-126	Overhang shelter	Habitation	+	–	–	—

SURVEY AND EXCAVATION RECOMMENDATIONS (Cont.)
WAIKOLOA BEACH RESORT

Site No. 50-Ha- Bi-	Formal Site/Feature Type	Tentative Functional Interpretation	Field Work Tasks DR	SC	EX	Comments
PARCEL 10 – No Previously Identified Sites						
PARCEL 10 – Newly Identified Sites/Features						
T-121	Cairn	Undetermined	+	–	–	Spray painted label "192"; possibly Barrera's Site 192 (site not described in his report)
T-122	Cairn	Undetermined	+	–	–	—
PARCEL 12 – Anaehoomalu Point Cluster						
24A-C	Cave shelters (3)	Habitation	+	+	+	Tested by Barrera; mod. ex. potential (30 cm thick deposits)
27A	C-shaped shelter	Habitation	+	–	–	—
B	Circular shelter	Habitation	+	–	–	—
28A-B	Cave shelters (2)	Habitation	+	+	+	Tested by Barrera; rock-lined firepit c. 2.0 m NW of Feature A
C	Cairn	Undetermined	+	–	–	Rectangular
29	Rock-lined pit	Firepit	+	+	+	—
133	Cave	Habitation and burial	+	+	+	Tested by Barrera; mod. ex. potential; identified minimum of one burial still present (bones to be removed)

SURVEY AND EXCAVATION RECOMMENDATIONS (Cont.)
WAIKOLOA BEACH RESORT

Site No. 50-Ha-El-	Formal Site/Feature Type	Tentative Functional Interpretation	Field Work Tasks DR	SC	EX	Comments
PARCEL 12 – Newly Identified Sites/Features*						
T-119A	Cave	Burial	+	+	–	Located c. 35 m W of Site 133; human bones, wood, nails, and gourd fragments visible (bones to be removed)
B	Wall segment	Undetermined	+	–	–	—
T-120A	Wall	Undetermined	+	–	–	Separates brackish tidal pond from ocean; recent (?)
T-120B	Bedrock depressions	Industrial	+	–	–	Scoria abrader manufacturing, located c. 10 m NE of Feature A
PARCEL 13 – Previously Identified Site						
22	C-shaped shelter	Habitation	+	+	+	Mod. ex. potential
PARCEL 13 – Newly Identified Sites						
T-110	Cairn	Undetermined	+	–	–	Wooden plank upright in middle of cairn; T-110 thru T-114 form an E-W alignment of cairns
T-111	Cairn	Undetermined	+	–	–	Wooden plank upright in middle of cairn
T-112	Cairn	Undetermined	+	–	–	Wooden plank upright in middle of cairn

*Sand beach area along shoreline of Parcel 12 should also be tested (shovel units) for presence or absence of subsurface cultural deposits.

SURVEY AND EXCAVATION RECOMMENDATIONS (Cont.)
WAIKOLOA BEACH RESORT

Site No. 50-Ha-El-	Formal Site/Feature Type	Tentative Functional Interpretation	Field Work Tasks DR	SC	EX	Comments
PARCEL 13 – Newly Identified Sites (Cont.)						
T-113	Cairn	Undetermined	+	–	–	Wooden plank upright in middle of cairn
T-114	Cairn	Undetermined	+	–	–	Wooden plank up right in middle of cairn
T-115A	Walled shelter	Habitation	+	–	–	Circular; built atop bedrock outcrop
B	Brackish pond	Fishpond	+	–	–	Internal wall divides pond into two portions
T-116	Wall segment	Undetermined	+	–	–	Poss. shelter wall
T-117	Cairn	Undetermined	+	+	+	Square
T-118	Brackish pond	Fishpond	+	–	–	Internal wall partially divides pond
T-124	Brackish pond	Fishpond	+	–	–	Internal wall partially divides pond
PARCEL 16 – No Identified Sites						
PARCEL 17 – Previously Identified Site						
101	Trail	Foot trail	+	–	–	Coral and scattered shell along trail
PARCEL 17 – Newly Identified Sites						
T-127	Cairn	Undetermined	+	–	–	Near pond
T-128	Overhang shelter	Habitation	+	–	–	Overlooking pond

SURVEY AND EXCAVATION RECOMMENDATIONS (Cont.)
WAIKOLOA BEACH RESORT

Site No. 50-Ha-El-	Formal Site/Feature Type	Tentative Functional Interpretation	Field Work Tasks DR	SC	EX	Comments
PARCEL 17 - Newly Identified Sites (Cont.)						
T-129	Cairn	Undetermined	+	-	-	Recent (?); constructed of two boulders
T-106	Cairn	Undetermined	+	-	-	Recent (?); constructed of two boulders
T-107	Cairn	Undetermined	+	-	-	Wooden plank upright in middle of cairn
T-108	Cairn	Undetermined	+	-	-	Recent (?); constructed of three boulders
T-109	Cairn	Undetermined	+	-	-	Several wooden planks adjacent to cairn
PARCEL 24 - Newly Identified Site						
T-123	Brackish pond	Bathing pond	+	-	-	Pond intentionally deepened; well-built internal wall

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SURVEY AND EXCAVATION RECOMMENDATIONS (Cont.)
WAIKOLOA BEACH RESORT

NOTES:

1. The survey and excavation recommendations listed here have been made on the basis of presently available data. In most cases, limited reconnaissance is the level of work that has been conducted to date. For the most part, the work done by Barrera in 1969-1970 for Bishop Museum would not meet the current standards for intensive archaeological survey work. Furthermore, it appears that most of the portable remains recovered during Barrera's limited test excavations in 1970 were never analyzed.

2. As site and feature designations: numbers and letters prefixed by 50-Ha-El- are designations assigned by Barrera in 1969-1970, according to the Bishop Museum system; numbers and letters prefixed by T- are temporary field designations assigned by PHRI during field inspection and site locational plotting work done in January 1985.

3. All sites and features listed here have been accurately located and plotted on the site location map produced by Engineers Surveyors Hawaii, Inc. (map dated March 15, 1985).

4. None of the sites and features listed here are believed to be of such archaeological significance as to require preservation; however, many could be considered for preservation, perhaps for minimal interpretation, as attractive elements which could be incorporated into development landscaping. For those not selected for preservation, an appropriate level of further archaeological work, in the form of survey and excavations would constitute adequate and sufficient recovery of data present within the sites.

Paul H. Rosendahl, Ph.D.
President and Principal
Archaeologist

May 8, 1985

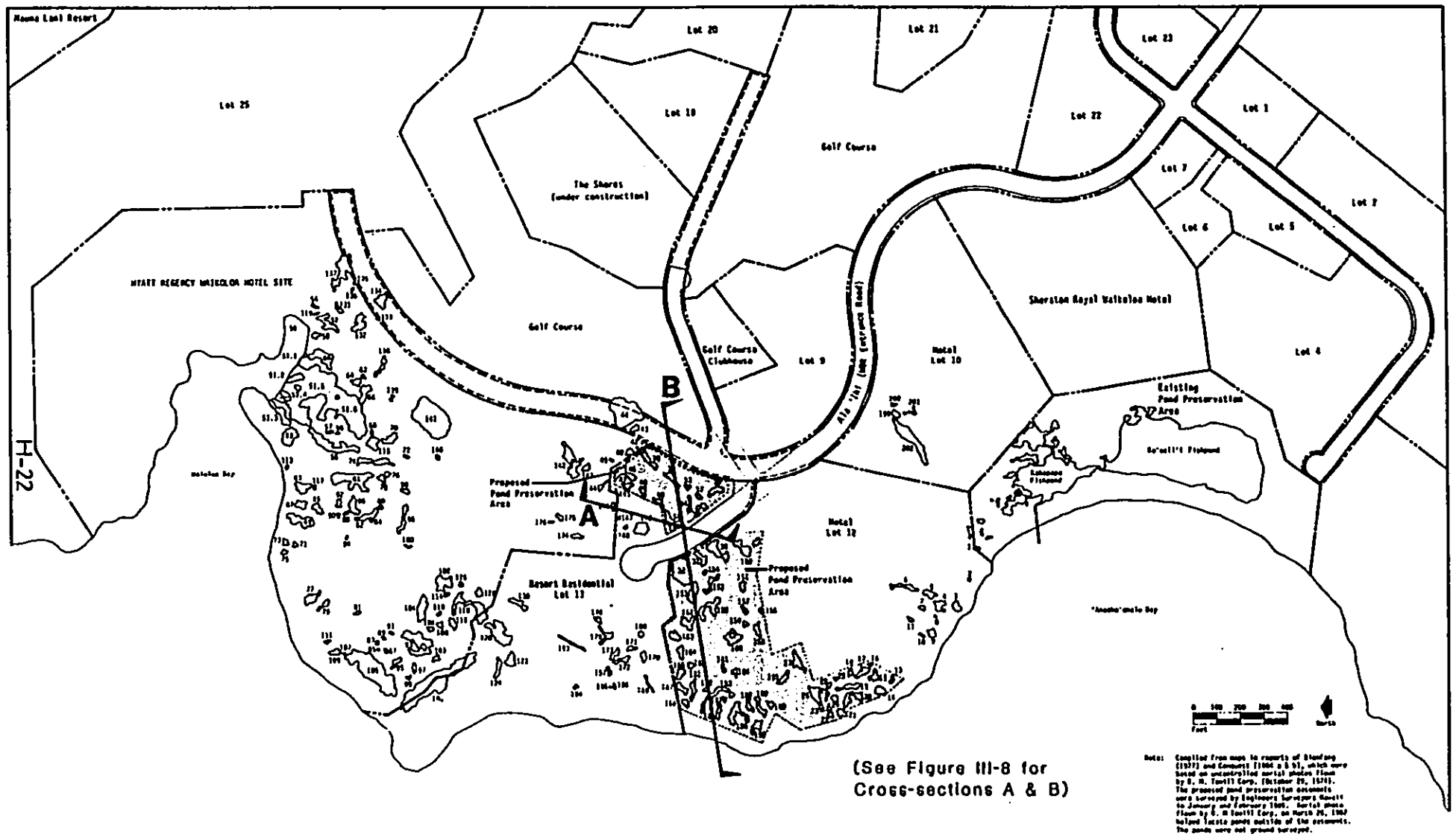

Figure II-4 Applicant's Proposal

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

APR 19 1985

Colonel Michael M. Jenks, District Engineer
Department of the Army
U.S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858

Dear Colonel Jenks:

SUBJECT: Draft EIS, U.S. Department of the Army Permit Application POCO-O 1812, Waikaloa Beach Resort Anchialine Ponds, Waikaloa, South Kohala, Hawaii, TMK: 6-9-07: 10,12,13,14,16, portion 26

We have reviewed the Draft EIS. It adequately reviews prior identification and study of historic sites in the project area (III-27 & 28) and the status of determinations of affect (IV-8, VI-2, App. D). To review our office's position:

1. In the Parcel 14, 16, and 26 area (the "Hyatt Regency Waikaloa Hotel Site"), two archaeological intensive surveys with excavations have located and studied historic sites (Barrera 1971; Shun 1986). We have concurred that sufficient significant information from sites in these parcels has been recovered archaeologically to contribute to the understanding of local and regional historical problems (Jan. 15, 1985 SHPO letter to U.S. Corps of Engineers — App. D, Draft EIS). We further recommended sites be preserved, and the developer has agreed to preserve the Waiulua Bay Settlement (and its coastal trail), the Kaniku Settlement Group, and the Mawahine Settlement Group (Draft EIS: II-13, IV-8). These site complexes are examples of coastal occupation along this arid coastline. With this information recovery and preservation, a no adverse effect determination is suitable for these parcels.
2. In the remainder of the coastal properties with anchialine ponds (Parcels 10, 12, 13), an intensive archaeological survey with excavations (Barrera 1971) and a more recent reconnaissance survey (Rosendahl 1985) have identified historic sites. We have concurred that the sites in this area are significant solely for their information content, and we have recommended several further steps to ensure that this information be collected prior to any site destruction (March 22, 1985 SHPO letter to U.S. Army Corps of Engineers — App. D, Draft EIS). Our recommendations also specify that any human remains be preserved or be removed and reburied. Agreement to these steps will result in a no adverse effect determination. (The Draft EIS, IV-8, also includes additional historic preservation matters regarding these parcels.) As the Draft EIS notes (IV-8), the applicant, the Army Corps of Engineers and our office are finalizing the next steps of action in order to reach a no adverse effect determination for historic sites in these parcels. The finalization and execution of an acceptable "no adverse effect" plan for sites in these parcels should be a condition to the approval of the permit.

Sincerely yours,

SUSUMU ONO
Chairperson and State Historic
Preservation Officer

Atch 4

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

JUL 10 1985

Chief Everette A. Flanders
Construction-Operations Division
Department of the Army
U.S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858

Dear Chief Flanders:

SUBJ: Section 106 Matters, Permit PODCO-1812 (Waikoloa Beach Resort)
Waikoloa (Anaehoomalu), South Kohala, Hawaii
TMK: 6-9-7: 9,10,12,13,14, 16, part 26

This responds to your letter of May 28, 1985. This letter should clarify the matters, as you requested.

In the Waikoloa Hyatt Hotel parcels (14,16,26) we again concur that the undertaking will have no adverse effect, because the significant information has already been recovered archaeologically from the sites. (Also, the sites are not eligible for the National Register because the significant information has already been removed.) As to the conditions of preserving the 3 site complexes ... We have reassessed the need to preserve the Waiulua Bay Settlement Complex and have determined this complex does not merit preservation. (The County of Hawaii concurs. A copy of our letter on this matter should be in your hands.) The Kaniku and Nawahine complexes are in areas outside the proposed Hyatt Hotel development, but the developer has agreed to preserve these sites, and plans for their preservation are being or will soon be formulated.

In the remainder of the parcels covered in this action (9,10,12,13), we believe that the sites are eligible for inclusion on the National Register of Historic Places. They contain significant information on the prehistory of the area. Based on our consultations with your office, we understand that your agency concurs with this significance assessment.

Given the above, a request for a Determination of Eligibility for Inclusion on the National Register should be submittted by your office to the National Park Service. Michael Lee of your office and Ross Cordy of ours have discussed this point, and initial steps for the document's preparation have begun.

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Assuming that the sites will be determined eligible, your office and ours have agreed that the significant information in these sites can be recovered through archaeological data recovery. This requires the preparation of an archaeological data recovery plan and the processing of a Memorandum of Agreement (MOA) through the Advisory Council on Historic Preservation in which the data recovery plan becomes the essence of the MOA to ensure a "no adverse effect" result. A data recovery plan has been developed in draft by the applicant, our office and your office; and it is now being discussed for any revisions prior to its finalization. Then your office should submit this plan as part of a MOA request to the Advisory Council.

One minor point, we do not believe any of the sites in the remaining parcels (9,10,12,13) merit preservation, because they are significant only for their information content and because better examples of these types of sites have already been preserved in the Waikoloa Beach Resort properties. Ross Cordy of our staff and Michael Lee of your staff visited these sites to assess this matter.

In sum, we believe good progress is being made on this permit in accordance with Section 106 of the National Historic Preservation Act.

Sincerely yours,

TSUSUHU ONO
Chairperson & State Historic
Preservation Officer

cc: Belt, Collins & Associates

AH15
1810:10

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

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LAND MANAGEMENT
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WATER AND LAND DEVELOPMENT

JUL 31 1985

Mr. W.J. Paresa
Acting Chief, Construction-Operations Division
Operations Branch
U.S. Army Engineer District, Honolulu
Department of the Army
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Paresa:

SUBJECT: Section 106 Matters, Permit PODCO-1812 (Waikoloa Beach Resort)
Waikoloa (Anaehoomalu), South Kohala, Hawaii
TMK: 6-9-7: 9,10, 12, 13, 14, 16, part 26

We have received and reviewed the Draft Data Recovery Plan for the "no adverse effect" determination. We concur with this document, and we support its submittal to the Advisory Council to be included in a Memorandum of Agreement. We further concur with the other points in your letter of July 23, 1985.

Sincerely yours,

SUSUMU ONO
Chairperson and State Historic Preservation Officer

cc: Belt, Collins & Associates

AKh6

H-25

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

July 23, 1985

Operations Branch

Mr. Susumu Ono
State Historic Preservation Officer
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

In reference to your July 10, 1985 letter, concerning Waikoloa Beach Resort, we have enclosed for your review and concurrence a Draft Data Recovery Plan. Upon receipt of your concurrence, we will forward the document to the US Advisory Council on Historic Preservation for preparation of a Memorandum of Agreement.

The Data Recovery Plan focuses on the parcels outside of the Byatt Development site. As previously discussed between our offices, the Waiulua Bay, Nawahine and Kaniku Settlement sites were determined not to be eligible for inclusion to the National Register of Historic Places. We did agree that the archaeological sites found outside the Byatt site were eligible for inclusion to the National Register of Historic Places, because they contained significant information on the prehistory of the area.

We further agreed with your determination of no adverse effect with the implementation of the Data Recovery Plan by the applicant. However, we believe that the Data Recovery Plan should not be implemented until after the applicant has considered architectural designs that could possibly preserve, enhance or restore some of the archaeological sites. Once specific construction plans are developed, the applicant would notify the Corps and the State Historic Preservation Officer that he intends to execute the Data Recovery Plan.

Sincerely,

H. J. Paresa
Acting Chief, Construction-
Operations Division

Copy Furnished:w/o Encl
US Advisory Council on Historic Preservation
Transcontinental Development Co.
Jack Coulter
Clifton Jenkins
Belt, Collins and Associates

Society for Hawaiian Archaeology
P.O. Box 22911
Honolulu, Hawai'i 96813
May 16, 1985

Colonel Michael M. Jenks
District Engineer
U.S. Army Engineer District, Honolulu
Ft. Shafter, Hawai'i 96858

RE: Draft EIS Waikoloa Beach Resort Anchialine Ponds

Dear Colonel Jenks,

The Peer Review Committee of the Society for Hawaiian Archaeology has reviewed the above document. We conclude that previous archaeological work done in the area has adequately recorded and evaluated sites within portions of the project area.

We concur with the SHPO that the intensive survey as planned by Paul Rosendahl, Ph.D., Inc., should be completed prior to any construction activity. We also agree with the recommendations of the SHPO as listed in his letter of March 12, 1985 (see Appendix D of the above document).

This document (p. IV-8) generally summarizes how the negative impacts of this project might possibly be mitigated. We recommend that the steps for salvage and preservation be clearly stated in the final EIS (e.g. which sites are to be preserved, which sites are to be reconstructed).

Sincerely,

David J. Welch

David J. Welch, Chairperson
Peer Review Committee

cc: State Historic Preservation Officer

H-27

March 20, 1985

Operations Branch

Mr. Perry White
Belt Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Enclosed for your review and action is the State Historic Preservation Officer's comments and recommendations concerning the Archaeological Reconnaissance Report for the Waikoloa Hyatt Development by Dr. Paul Rosendahl (1985). We request that you undertake the necessary action to satisfy the comments and recommendations, and to inform us of the action you've taken.

Sincerely,

Enclosure

Everette A. Flanders
Chief, Construction-Operations
Division

CF: (w/o encl)
State Historic Preservation Officer
Dept of Land & Natural Resources
Honolulu, Hawaii 96809

H-28

[redacted]

EJC. JR B. ARITOSHI
GOVERNOR OF HAWAII

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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

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FORESTRY AND WILDLIFE
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STATE PARKS
WATER AND LAND DEVELOPMENT

March 12, 1985

Mr. Everette A. Flanders
Chief
Construction-Operations Division
U. S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858-5440

Attention: Operations Branch

Dear Mr. Flanders:

Subject: Review of Archaeological Reconnaissance (Rosendahl)
Waikoloa Hyatt Resort Development
Waikoloa Ponds - Waikoloa Beach Resort
Anaehoomalu, South Kohala, Hawaii
TMK: 6-9-07:15, 16, and 26

Thank you for your letter of February 20, 1985 requesting our review and comment on the archaeological field inspection of the subject area conducted by Paul H. Rosendahl, Ph.D., Inc. (January 18, 1985).

Our review of the report has resulted in the following comments and recommendations:

1. The report does not include a map, schematic or otherwise, showing the locations of the sites reported. As a result, we are not able to ascertain exactly what parcels had been inspected. We recommend that the developer and/or consultant provide an accompanying map for this report.

2. While we generally concur with the intensive survey program specified by the consultant (1985: 2), we feel that two of the five points included in his recommendation should be further clarified:

a. All human skeletal material shall be analyzed by a physical anthropologist as part of any mitigative action, including preservation.

b. Subsurface testing of sites with apparent excavation potential shall also include the dating of a representative sample of applicable materials (e. g. volcanic glass and/or carbon).

3. We further recommend that the developer, by instituting the cultural features into his landscaping, attempt to preserve as many cultural sites as possible.

4. The intensive survey shall be completed prior to the start of any construction activity and two copies of this report shall be submitted to our office for review and comment. At that time, we may make further recommendations toward the mitigation of the resources. This further mitigative actions shall also be completed prior to any construction activity for the project.

Should you have any questions, please contact Wendell Kam, staff archaeologist, at 548-7460.

Sincerely yours,

SUSUMU ONO
Chairperson and State Historic
Preservation Officer

H-29

-5440

May 24, 1985

Operations Branch

Mr. Robert Fink
Advisory Council on Historic Preservation
730 Simms Street, Room 450
Golden, Colorado 80401

Dear Mr. Fink:

Enclosed for your review and comments is a Preliminary Case Report and a copy of the Draft Environmental Impact Statement (EIS) for the Waikoloa Beach Resort. In our previous coordination with the State Historic Preservation Officer, we had understood that no properties eligible for inclusion to the National Register were present on the property. Subsequent State Historic Preservation Officer review of archaeological investigations resulted in a determination of no adverse effect subject to conditions. This determination suggests that some sites in the project area are eligible for inclusion to the National Register of Historic Places. We are presently clarifying the State Historic Preservation Officer findings, and anticipate development of a Memorandum of Agreement (MOA). Copies of correspondence to that effect are being forwarded to your office separately. A preliminary case report is attached for your information.

Sincerely,

Everette A. Flanders
Chief, Construction-Operations Division

Enclosures

CF:
State Historic Preservation Officer w/out EIS
Belt,Collins and Associates w/out EIS

1812-SD

36 CFR 800
PRELIMINARY CASE REPORT

WAIKOLOA BEACH RESORT
DEPARTMENT OF THE ARMY PERMIT APPLICATION
PODCO-O 1812-SD

1. A Description of the Agency's involvement with the proposed undertaking with citations of the agency's program authority and applicable implementing regulations, procedures and guidelines.

The US Army Corps of Engineers, Honolulu District, is evaluating a Department of the Army permit application to fill and excavate several anchialine ponds at Waikoloa Beach Resort under the authority of Section 10, Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, as amended. The permit is being processed in accordance with Corps regulations 33CFR320.

2. The status of this project in the agency's approval process.

The Honolulu District is presently evaluating the permit application. A decision on the permit application may be made by mid-August 1985.

3. The status of this project in the agency's NEPA compliance process and the target date for completion of all environmental responsibilities.

A Notice of Draft Environmental Impact Statement (EIS) availability was published in the Federal Register on April 5, 1985. Target date for completion of the Final EIS is 20 June 1985, but may slip due to awaiting comments from the US Environmental Protection Agency.

4. A description of the proposed undertaking including, as appropriate, photographs, maps, drawings, and specifications.

The project is described in the Draft EIS (Enclosure 1). In summary, the permit applicants, Transcontinental Development Co. and ATPAC Land Co. intend to develop the Waikoloa Beach Resort properties with the construction of two hotels and a condominium along the shoreline. They have detailed plans for one hotel, the Hyatt Hotel at Waiulua Bay. Their plans require filling and excavating anchialine ponds found along the shoreline. These ponds are subject to Corps jurisdiction.

The development of the hotels and condominiums would affect the archaeological sites on the Waikoloa Beach Resort.

5. A description of the National Register or eligible properties affected by the undertaking, including a description of the properties' physical appearance and significance.

The properties affected by the hotel and condominium construction include cave habitation sites and a burial. The sites are significant for the scientific information they may contain.

6. A brief statement explaining why any of the Criteria of Adverse Effect apply.

The construction activities would level and cover some of the archaeological sites destroying the scientific information contained in the sites.

7. Written views of the State Historic Preservation Officer concerning the effect on the property, if available.

State Historic Preservation Officer comments are attached (Enclosure 2).

8. The views of other Federal agencies, State and local governments, and the other groups or individuals, when known.

Comments from the Society of Hawaiian Archaeology are attached (Enclosure 3).

H-31

9. A description and analysis of alternatives that would avoid the adverse effects.

Permit denial or the no-action alternative would avoid any adverse effects. Siting the development outside the areas of Corps jurisdiction would avoid any adverse effects to those properties in the area of Corps jurisdiction. Other archaeological sites can be found in upland areas outside of the area of Corps jurisdiction.

10. A description and analysis of alternatives that would mitigate the adverse effects.

The State Historic Preservation Officer recommends data recovery and reinterment of human remains, See Enclosure 2.

11. An estimate of the cost of the undertaking, identifying Federal and non-Federal shares.

The proposed action is not a Federal or local government undertaking. The proposed action is totally funded by private funds. Development costs were requested from the applicants.

-5440

June 10, 1985

Operations Branch

Mr. Robert Fink
Advisory Council on Historic Preservation
730 Simms Street, Room 450
Golden, Colorado 80401

Dear Mr. Fink:

In regards to our letter of May 24, 1985 requesting comments on the Waikoloa Beach Resort permit application, we have enclosed copies of correspondence received since the Draft Environmental Impact Statement was prepared.

We anticipate that a Memorandum of Agreement between ourselves, the State of Hawaii and the applicant may result in a determination of no adverse effect.

Sincerely,

Everette A. Flenders
Chief, Construction-Operations
Division

Enclosures

Copy Furnished: with enclosures
State Historic Preservation Officer
Belt,Collins and Associates

19125.0

H-32

List of Enclosures

1. Letter May 28, 1985, Department of Land and Natural Resources to Clifton Jenkins

2. Corps letter May 28, 1985, to State Historic Preseration Officer

3. Transcontinental Development Co. letter May 9, 1985, to State Historic Preservation Officer

4. State Historic Preservation Officer letter May 8, 1985 to the Corps of Engineers.

5. State Historic Preservation Officra letter April 19,1985 to the Corps of Engineers.

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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

SUSUMU ONO, CHAIRMAN
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EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

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WATER AND LAND DEVELOPMENT

MAY 28 1985

Mr. Clifton H. Jenkins
Transcontinental Development Co.
1001 Bishop Street
Suite 2610
Pauahi Tower
Honolulu, Hawaii 96813

Dear Mr. Jenkins:

SUBJECT: Archaeological Preservation Matters -- Hyatt Regency Waikoloa Hotel Project
Waikoloa (Anaehoomalu), South Kohala, Hawaii
TMK: 6-9-07: 14, 16, 26

Thank you for your letter of May 9, 1985.

We are pleased to see the more detailed preservation plans for the Kaniku Site Complex and the Nawahine Rock Site Complex and are glad to see that preservation of these complexes is moving forward. It would indeed be helpful if you could have these two sites nominated to the State and National Registers of Historic Places. If your staff needs assistance in preparing these nominations or the interpretive signs, please feel free to contact our staff at 548-7460.

As to the Waiulua Bay Settlement Complex, we determine that this complex and its associated trail no longer need be considered for preservation. Following a field inspection, we concur with the points you, the County, and Dr. Rosendahl have made. The complex does not merit preservation.

Our office appreciates the preservation efforts undertaken by your company relating to the Kaniku and Nawahine complex and to previous historic sites preserved in the resort area. We will look forward to receiving the listing of the resort's historic resources that you mention.

Sincerely yours,

SUSUMU ONO
Chairperson & State Historic
Preservation Officer

ccs: Michael Lee, Operations Branch, U.S. Corps of Engineers
Parry White, Belt, Collins & Associates
Virginia Goldstein, Planning Office, County of Hawaii

H-34

-5440

May 28, 1985

Operations Branch

Mr. Susumu Ono
State Historic Preservation Officer
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

Dear Mr. Ono:

This letter concerns the Section 106, National Historic Preservation Act, coordination for the Waikoloa Beach Resort, US Department of the Army Permit Application PODCO-O 1812-SD.

Transcontinental Development Co. and ATPAC Land Co completed a reconnaissance survey of the Waikoloa Beach Resort properties and data recovery of the Waikoloa Hyatt Hotel property. Based on your letter of April 19, 1985 (enclosed) you determined that the construction of the Waikoloa Hyatt Hotel would not have an adverse effect on historic properties, subject to your recommendations to preserve the Waiulua Bay, Kaniku, and Nawahine Settlement sites. You also indicated a determination of no adverse effect for the remainder of the Waikoloa Beach Resort property subject to data recovery and reinterment of human remains. Since that time the applicants have worked with our offices to satisfy our concerns for the protection and preservation of historical resources at Waikoloa.

Your determination of no adverse effects implies that the archaeological sites on the applicants' property could be eligible for inclusion to the National Register of Historic Places. If this is the case, we should work toward a Memorandum of Agreement to protect, preserve and restore the historic sites or to collect the scientific information they contain. We would be interested in preserving some of the archaeological features within the Waikoloa Beach Resort properties after the scientific data are recovered.

We would like a clarification on eligibility of the archaeological sites at Waikoloa Beach Resort, and would like your ideas on the content of the Memorandum of Agreement, so that we can complete the Section 106 coordination. We would make the Memorandum of Agreement as part of our permit documents.

Sincerely,

Everette A. Flanders
Chief, Construction-Operations Division

Enclosure

CF: with enclosure
Advisory Council on Historic Preservation
Belt Collins and Associates

Encl 2
1812-SD

TRANSCONTINENTAL DEVELOPMENT CO.

May 9, 1985

Mr. Susumu Ono, Chairman
Board of Land & Natural Resources and
State Historic Preservation Officer
P.O. Box 621
Honolulu, Hawai'i 96809

Subject: Hyatt Regency Waikoloa Hotel Project
Archaeological Preservation Matters

Dear Mr. Ono:

This letter (1) provides more detailed plans for the preservation of the Kaniku Site Complex and the Nawahine Rock Site Complex in the 'Anaeho'omalu area and (2) requests a reassessment of the need for preservation of archaeological sites within the Waiulua Bay Complex. Preservation of these sites is mentioned in the Draft Environmental Impact Statement (DEIS) issued by the U.S. Army Corps of Engineers for a permit action in this area, and these matters were discussed in an April 26, 1985 meeting at the Historic Sites Section offices between Mr. Perry White of Belt, Collins & Associates, Mr. Mike Lee of the U.S. Army Corps of Engineers, and Dr. Ross Cordy of your Historic Sites Section. The sites were also inspected on May 8, 1985 by the same individuals. During the site visit, they were accompanied by Dr. Paul Rosendahl, the archaeologist who directed the most recent field surveys for the proposed project, Mr. Alan Walker, his assistant, and Mr. Stan Arakaki of the Corps of Engineers.

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The Kapiku Site Complex and the Nawahine Rock Site Complex

These two site complexes lie to the north and west of the area proposed for the Hyatt Regency Waikoloa Hotel, but they are part of the landowner's overall preservation plans for the Waikoloa Beach Resort. They were investigated in 1970 fieldwork by the Bishop Museum (Barrera 1971).

During the course of previous discussions with Mr. Ralston Nagata, State Parks Administrator, and Mr. Wendall Kam of your Historic Sites Section, Mr. Christopher Hemmeter, one of the principals in the group developing the Hyatt Regency Waikoloa Hotel, promised that steps would be taken to insure the preservation of the Nawahine Rock and Kaniku archaeological complexes. In accordance with that commitment, Atpac Land Co., owner of the property on which the two complexes are located, proposes to:

1001 BISHOP STREET SUITE 2810 PAUAHI TOWER HONOLULU HAWAII 96813 PHONE (808) 545-3220 TELEX 287147

- Seek to have both complexes nominated to the State and/or National Register of Historic Places if requested by the Department;
- Maintain the sites in their current condition;
- Preserve and maintain (with possible improvement of deteriorated segments) the portion of the shoreline trail extending from the northwestern boundary of the Hyatt site to the northern boundary of the WBR;
- Police the area around the trail and sites to insure that they remain free of litter;
- Install interpretive signs, comparable to those around the 'Anaeho'omalu Bay fishponds, in the vicinity of the two complexes which explain the nature of the remains and their function within the aboriginal Hawaiian community; and
- Install KAPU signs asking that visitors refrain from climbing on the remains, removing stones, or otherwise tampering with the sites.

We view the sites in these two complexes as a genuine asset to the overall Waikoloa Beach Resort project, and believe the steps outlined above will insure their preservation and interpretation in accordance with past commitments.

Waiulua Bay Settlement Complex

Archaeological fieldwork on the Waiulua Bay Settlement Complex was conducted in 1970 by the Bishop Museum (Barrera 1971) and again by Paul H. Rosendahl, Ph.D., Inc. in 1984 (Rosendahl, August 1984; Shun, September 1984). These studies argued that the value of this site complex lies in its information content. Completion of the 1984 archaeological work by Shun resulted in the recovery of considerable information from the complex. The consulting archaeologists who have studied the area in detail feel that, since the scientific information present has now been recovered, preservation of archaeological remains within the Waiulua Bay Settlement Complex or elsewhere within the proposed site of the Hyatt Regency Waikoloa Hotel is unnecessary.

Your office's review of the Shun (1984) report concurred that sufficient information had been recovered, that no further archaeological work was needed, and that the site was not eligible for inclusion on the National Register (January 15, 1985 letter from Mr. Susumu Ono, State Historic Preservation Officer to Mr. W.J. Paresa, U.S. Army Corps of Engineers, Honolulu District). At the same time, your letter recommended:

...that the developer attempt to minimize impacts to pre-contact features by retaining them in place wherever possible for public appreciation, in particular features clustered in an area designated as the Waiulua Bay Settlement.

Also, your letter requested preservation of the rough trail which passes through the complex.

At the time, the developer of the Hyatt Regency Waikoloa Hotel believed that there would be no difficulty in preserving this site complex and trail, and so we indicated during discussions late in 1984 that we would avoid their destruction.

Subsequent to issuance of the DEIS for the U.S. Army Corps of Engineers permit, the architects for the hotel have begun preparing detailed landscaping and grading plans for the proposed project. During the course of their work, several things have come to light which make preservation of the sites within the Waiulua Bay Settlement complex less desirable than previously thought:

(1) Further discussions with local residents, information provided by the Hawai'i County Planning Department, and testimony at the two public hearings that have been held regarding the project have made it apparent that the people of the Big Island place a high priority on improved shoreline access. Improvement of the shoreline trail trail has been made a condition of approval for the Special Management Area Use Permit granted by the County (see attachment to this letter, page 3, item A.4). Fulfillment of this condition will require construction of a new shoreline trail because the old trail is extremely rough and hazardous.

(2) The architects for the Hyatt Regency Waikoloa Hotel have found that preservation of the sites within the Waiulua Bay Settlement complex would constrain improvements to the shoreline area of the resort complex to such an extent that it would seriously detract from the aesthetic quality of the area and add substantially to the development costs.

(3) A 40- to 50-foot wide graded area is needed around the base of the Swan Lake Tower for movement of equipment and supplies during construction of the building. This means the Tower could not be built in its planned location without destroying some of the archaeological remains within the Waiulua Bay Settlement complex. Shifting the Swan Lake Tower further inland to preserve these marginal sites would impinge significantly on hole number 13 of the existing golf course.

Given these problems, the County's historic sites specialist, Virginia Goldstein, visited the site. She indicated that the preservation value of sites within the Waiulua Bay Settlement complex is inferior to that of many similar features located elsewhere within the resort project and concluded that preservation of the complex was not necessary. The County has suggested that limited resources could be better spent on preservation and interpretation of other sites within the Waikoloa Beach Resort.

In view of the new assessment of the site's preservation value, development needs, and the fact that appropriate archaeological studies have already taken place at the complex, we ask that Transcontinental Development Co./Atpac Land Co. be relieved of any requirement to preserve the Waiulua Bay Settlement complex and the shoreline trail on the Hyatt parcel. Continued pedestrian access along the shoreline will be insured by the construction of a new shoreline pathway to replace the existing trail noted in the archaeological survey.

In closing, I would like to note that in developing the Waikoloa Beach Resort we have endeavored to preserve worthwhile archaeological features and to integrate them into the resort development. The royal fishponds at 'Anaeho'omalu Bay, the King's trail, the large burial cave complex north of the golf course clubhouse, and the large petroglyph field adjacent to the King's Trail -- as well as the proposed preservation of the Nawahine Rock and Kaniku site complexes discussed earlier in this letter -- are examples of the results of this preservation effort. We are now in the process of compiling a more complete listing of the steps that we have taken to preserve the resort's historic resources and will forward it to you shortly.

If you have any questions regarding the issues discussed in this letter, please contact Mr. Perry White or Ms. Ann Yoklavich of Belt, Collins & Associates at 521-5361.

Sincerely,

Will Sanburn
for Clifton H. Jenkins
Transcontinental Development Co.

Attachment

cc: Mike Lee (COE)
Bob Diffley
Will Sanburn
Perry White
Bob Umemura
Mike Brennan
Paul Rosendahl
Virginia Goldstein (Hawai'i Co.)

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

BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAWAYU
DEPUTY TO THE CHAIRMAN

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WATER AND LAND DEVELOPMENT

MAY - 6 1985

Everette A. Flanders
Chief
Construction-Operations Division
U.S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858-5440

Dear Chief Flanders:

SUBJECT: Review of Archaeological Reconnaissance Report (Rosendahl 1985) & Waikaloa Anchialine Ponds Permit Action (PODCO-O 1812)
Waikaloa (Anaehoomalu), South Kohala, Hawaii
TMK: 6-9-07: 9, 10, 12, 13

We have received a draft copy of a site location map for this report -- item 1 which we requested in our March 12, 1985 letter to you. This map is acceptable, and we understand that a final map will be sent to us at a later date.

We also note that Mr. Michael Lee of your office, Mr. Perry White of the developer's offices, and Dr. Ross Cordy of our office met on April 26, 1985 to follow-up on items 2-4 of our March 12, 1985 letter. They will be working further to finalize historic preservation concerns in this area for the Corps' ongoing permit action (PODCO-O 1812).

Sincerely yours,

SUSUMU ONO
Chairperson and State Historic
Preservation Officer

H-37

Enc 4
1872-5D

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

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

APR 19 1985

Colonel Michael M. Jenks, District Engineer
Department of the Army
U.S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858

Dear Colonel Jenks:

SUBJECT: Draft EIS, U.S. Department of the Army Permit Application PODCO-O 1812, Waikoloa Beach Resort Anchialine Ponds, Waikoloa, South Kohala, Hawaii, TMK: 6-9-07: 10,12,13,14,16, portion 26

We have reviewed the Draft EIS. It adequately reviews prior identification and study of historic sites in the project area (III-27 & 28) and the status of determinations of effect (IV-8, VI-2, App. D). To review our office's position:

1. In the Parcel 14, 16, and 26 area (the "Hyatt Regency Waikoloa Hotel Site"), two archaeological intensive surveys with excavations have located and studied historic sites (Barrera 1971; Shun 1984). We have concurred that sufficient significant information from sites in these parcels has been recovered archaeologically to contribute to the understanding of local and regional historical problems (Jan. 15, 1985 SHPO letter to U.S. Corps of Engineers -- App. D, Draft EIS). We further recommended sites be preserved, and the developer has agreed to preserve the Wailuia Bay Settlement (and its coastal trail), the Kaniku Settlement Group, and the Nawahine Settlement Group (Draft EIS: II-13, IV-8). These site complexes are examples of coastal occupation along this arid coastline. With this information recovery and preservation, a no adverse effect determination is suitable for these parcels.
2. In the remainder of the coastal properties with anchialine ponds (Parcels 10, 12, 13), an intensive archaeological survey with excavations (Barrera 1971) and a more recent reconnaissance survey (Rosendahl 1985) have identified historic sites. We have concurred that the sites in this area are significant solely for their information content, and we have recommended several further steps to ensure that this information be collected prior to any site destruction (March 12, 1985 SHPO letter to U.S. Army Corps of Engineers -- App. D, Draft EIS). Our recommendations also specify that any human remains be preserved or be removed and reburied. Agreement to these steps will result in a no adverse effect determination. (The Draft EIS, IV-8, also includes additional historic preservation matters regarding these parcels.) As the Draft EIS notes (IV-8), the applicant, the Army Corps of Engineers and our office are finalizing the next steps of action in order to reach a no adverse effect determination for historic sites in these parcels. The finalization and execution of an acceptable "no adverse effect" plan for sites in these parcels should be a condition to the approval of the permit.

Sincerely yours,

SUSUMU ONO
Chairperson and State Historic
Preservation Officer

Cir-Ops

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H-39

Advisory Council On Historic Preservation

MW

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Reply to: 730 Simms Street, Room 450
Golden, Colorado 80401

June 13, 1985

Everette A. Flanders
Chief, Construction-Operations Division
Honolulu District, Corps of Engineers
Ft. Shafter, HI 96858-5440

SUBJECT: Waikoloa Beach Resort Development

Dear Mr. Flanders:

On May 28, 1985, the Council received a copy of the Draft Environmental Impact Statement (DEIS) and Preliminary Case Report (PCR) for the referenced undertaking. We have reviewed those documents. We have no comments on the DEIS at this time. We do note, however, that the results of the consultation with the Hawaii State Historic Preservation Officer (SHPO) regarding the National Register eligibility of the historic properties in the Waikoloa Beach Resort area may necessitate some revisions to the DEIS.

Before offering our comments on the PCR, we note that it is not altogether clear whether or not there are National Register eligible properties in the project area. We agree with you that the SHPO's letter seems to imply that there are eligible properties present but this question cannot be left to inference. A final resolution of the eligibility question must be achieved before COE can obtain Council comments pursuant to Section 106 of the National Historic Preservation Act and 36 CFR Part 800. If this matter cannot be worked out with the SHPO, COE should seek a formal determination of eligibility from the Keeper of the National Register.

With regard to the PCR, we find that some aspects must be elaborated upon in order to provide sufficient basis for consultation towards the development of a Memorandum of Agreement for the subject undertaking. Specifically:

Item 5 (Description of eligible properties) is far too brief. Although we do not need a full, detailed description of all of the sites in the area of affect, we do need some descriptive data on each site. This information should include a brief description of the site with particular emphasis on those elements that qualify it for inclusion in the National Register, e.g., What significant research questions can be addressed with data from the property? Why does COE believe that the site includes relevant data? What degree of integrity does the site retain? This description should also consider answers to these questions in the context of all of the historic properties present in the impact area, e.g., a site may individually lack the ability to contribute to answering siginficant questions but may make a contribution as part of the complex of sites.

Item 6 (Description of adverse effect) needs to be expanded upon. Will all of the sites be affected? Will they all be equally affected? For the sites that will not be directly affected, what will be the indirect effects (if any) of the development project? For the sites that the developer has already agreed to avoid, will there be indirect effects?

Item 9 (Description of alternatives) should be expanded. For example, Are there any design alternatives that will avoid or minimize effects to some or all of the sites? Are such measures feasible and/or defensible from a cost effectiveness perspective? Is data recovery actually justifiable in accordance with the principles and recommendations detailed in the the Council's "Treatment of Archeological Properties: A Handbook" Parts I and III?

Item 10 cannot be fully evaluated until these questions and the matter of eligibility have been resolved.

Finally, for all alternatives, consideration of possible presence and effect to properties of cultural significance must be incorporated in the PCR.

We will be available to assist in the development of the additional documentation for the PCR and, once the PCR is completed, the MOA in any reasonable fashion. If you have any questions or if the Council can be of assistance, please contact Alan Downer at (303) 236-2682 (commercial) or 776-2682 (FTS).

Sincerely,

Robert Fink
Chief, Western Division of
Project Review

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

REPLY TO ATTENTION OF

August 12, 1985

Operations Branch

Mr. Robert Fink
Advisory Council on Historic
Preservation
730 Simms Street, Room 450
Golden, Colorado 80401

Dear Mr. Fink:

In regards to your letter of June 13, 1985 concerning the Waikoloa Beach Resort permit application (PODCO-O 1812), we have completed our coordination with the Hawaii State Historic Preservation Officer concerning compliance with the National Historic Preservation Act, as amended.

In summary, the State Historic Preservation Officer and we agreed that archaeological sites on the Waikoloa Beach Resort Properties, outside of the Hyatt Hotel site, are considered eligible for inclusion on the National Register of Historic Places because of the scientific information that can contribute to the knowledge of Hawaiian history. We also agree that the proposed Waikoloa Beach Resort project would not have an adverse effect on the eligible properties provided the information is salvaged in accordance with the enclosed Data Recovery Plan dated July 1985 in the Preliminary Case Report (Encl 2).

We request that a Memorandum of Agreement be prepared and executed between the Corps of Engineers, the Hawaii State Historic Preservation Officer and the permit applicants, Transcontinental Development Company and Atpac Land Company. A draft Memorandum of Agreement (Encl 1) and Preliminary Case Report (Encl 2) are provided for your information and comment.

Sincerely,

K. J. Paresa
Acting Chief, Construction-Operations
Division

Enclosures

Copies Furnished with enclosures:

State Historic Preservation Officer
Transcontinental Development Co., Attn: Mr. Jack Coulter

H-40

DRAFT
MEMORANDUM OF AGREEMENT

WHEREAS, the US Army Corps of Engineers, Honolulu District (Corps) is considering a proposed permit to Transcontinental Development Co. and Atpac Land Co. for the excavation and filling of anchialine ponds at Waikoloa, Anaehoomalu, South Kohala District, Island of Hawaii; and,

WHEREAS, the Corps in consultation with the Hawaii State Historic Preservation Officer (SHPO), have determined that this construction (hereafter "undertaking") as proposed would not have an adverse effect upon archaeological sites at Waikoloa that were considered eligible for inclusion to the National Register of Historic Places; and,

WHEREAS, pursuant to Section 106 of the National Historic Preservation Act of 1966 (16 USC Sec. 470f, as amended, 90 Stat. 1320) and Section 800.4(d) of the regulations of the Advisory Council on Historic Preservation (Council), "Protection of Historic and Cultural Properties" (36 CFR Part 800), the Corps has requested the comments of the Council; and,

WHEREAS, pursuant to Section 800.6 of the Council's regulations, representatives of the Council, the Corps, and the Hawaii SHPO have consulted and reviewed the undertaking to consider feasible and prudent alternatives to avoid or satisfactorily mitigate the adverse effect;

NOW, THEREFORE, it is mutually agreed that if the permit is granted the undertaking shall be implemented in accordance with

1

Encl 1

the following stipulations to minimize adverse effects on the above-mentioned properties.

STIPULATIONS

I. The Corps shall condition its permit to Transcontinental Development Co. and Atpac Land Co. as follows:

1. The applicants shall implement data recovery in accordance with the attached Data Recovery Plan, dated July 1985, after they have considered architectural designs that could possibly preserve, enhance or restore some of the archaeological sites.

2. Where no architectural designs are feasible, the applicants shall notify the Corps and the Hawaii SHDP that they intend to execute the Data Recovery Plan.

3. All clearing, ground-disturbing, and borrow/quarry activities shall be monitored by an archeologist. In the event, that previously unidentified archaeological properties, features, or cultural material are discovered, activities that could adversely affect them shall be stopped and they shall be evaluated in consultation with the Hawaii SHPO to determine their potential to contribute information important to Hawaiian history or prehistory. If any such remains are determined to be important, all activities that would adversely affect them shall be delayed until measures developed in consultation with the Hawaii SHPO are taken to protect them or to preserve the important information they contain.

4. All specimens, field notes, photographs, negatives, and processed data (tables, maps, etc.) shall be stored in good order

at an appropriately equipped institution in a manner that makes them available for future study.

36 CFR 800
PRELIMINARY CASE REPORT

WAIKOLOA BEACH RESORT
DEPARTMENT OF THE ARMY PERMIT APPLICATION
PODCO-O 1812-SD

1. A description of the Agency's involvement with the proposed undertaking with citations of the agency's program authority and applicable implementing regulations, procedures and guidelines.

The US Army Corps of Engineers, Honolulu District, is evaluating a Department of the Army Permit application to fill several anchialine ponds at Waikoloa Beach resort under the authority of Section 404 of the Clean Water Act, as amended. The permit is being processed in accordance with Corps regulations (33 CFR 320). The area covered by the permit involving the archaeological sites is shown in Attachment 1, and Figure 3, Data Recovery Plan, dated July 1985 (Attachment 2).

2. The status of this project in the agency's approval process.

The Honolulu District is presently evaluating the permit application. A decision on the permit application may be made by November 1985.

3. The status of this project in the agency's NEPA compliance process and the target date for completion of all environmental responsibilities.

Completion of the NEPA process is scheduled for October 1985.

4. A description of the proposed undertaking including, as appropriate, photographs, maps, drawings and specifications.

Within the subject properties, the permit applicants, Transcontinental Development Co. and ATPAC Land Co., intend to fill several anchialine ponds (ponds outside the highlighted area on Attachment 3). Filling the anchialine ponds would permit the construction of two hotels and a condominium on properties shown on Attachment 1, and Figure 3, Data Recovery Plan (Atch 2). No specific site plans have been developed for the subject properties. However, the process of filling the anchialine ponds and preparing the site for construction would destroy archaeological sites located outside of a pond preservation area.

5. A description of the National Register or eligible properties affected by the undertaking, including a description of the properties' physical appearance and significance.

The properties affected by the hotel and condominium construction are described in the Data Recovery Plan and listed on Table 1, Data Recovery Plan, July 1985 (Atch 2). These properties consist of cave habitation sites, cave burial sites, stone cairns (trail markers) and parts of the coastal trail. Some surface features consist of caves and surface enclosures.

6. A brief statement explaining why any of the Criteria of Adverse Effect apply.

The condominium and hotel projects cannot be built without filling anchialine ponds and raising the ground level. As presently conceived, the construction activities would destroy all the archaeological sites shown on Attachment 1 and identified in Attachment 2.

7. Written views of the State Historic Preservation Office concerning the effect on the property, if available.

State Historic Preservation Officer comments are attached (Attachments 4, 5 and 6).

8. The views of other Federal agencies, State and local governments, and the other groups or individuals, when known.

Comments from the Society of Hawaii Archaeology are attached (Attachment 7).

9. A description and analysis of alternatives that would avoid the adverse effects.

Under the Corps permit application, the applicant has requested authorization to fill and excavate anchialine ponds. Most of the archaeological sites are located on properties adjacent to the ponds, thus the permit applicants could design a condominium or hotel that would not require any filling of ponds, but still destroy the archaeological sites. Under this scenario, denial of the permit application can eliminate present development plans, but may not avoid adverse effects in the long run.

Expansion of the anchialine pond preservation area could also reduce adverse effects by incorporating some archaeological sites into the pond preservation area. This would not preserve the Anaehoomalu Point Cluster or the Ridge Settlement Complex, especially since these archaeological sites are not located in pond areas.

10. A description and analysis of alternatives that would mitigate the adverse effects.

The State Historic Preservation Officer recommended data recovery and reinterment of human remains, see Attachments 4, 5, and 7. The Corps recommends that the Data Recovery Plans should not be implemented until after the applicant has considered architectural designs that could possibly preserve, enhance or restore some of the archaeological sites. Once specific construction plans are developed, the applicant would notify the Corps and the State Historic Preservation Officer that he intends to execute the data Recovery Plan. (See Attachment 8.)

11. An estimate of the cost of the undertaking, identifying Federal and non-Federal shares.

The proposed action is not a Federal or local government undertaking. The proposed action is totally funded by private funds. Development costs were requested from the applicants.

Appendix I

Public Hearing Notice and Record

US Army Corps of Engineers
Honolulu District

Public Notice

Public Notice No: PODCO-O 1812-SD
Date: March 6, 1985
Reply to: District Engineer (PODCO-O), US Army Corps of Engineers, Building 230, Ft Shafter, HI 96858
Respond by: N.A.

POSTPONEMENT OF PUBLIC HEARING

ON DEPARTMENT OF THE ARMY (DA) PERMIT APPLICATION
FOR THE WAIKOLOA HYATT RESORT DEVELOPMENT
WAIULUA BAY, WAIKOLOA, SOUTH KOHALA
ISLAND OF HAWAII, STATE OF HAWAII

1. Notice is hereby given that the public hearing originally scheduled for Thursday, March 14, 1985, at the Sheraton Waikoloa Hotel has been postponed.

2. The public hearing has been rescheduled for:

DATE: Tuesday, April 9, 1985
TIME: 7:00 PM
PLACE: Sheraton Waikoloa Hotel

During the hearing, the applicant will discuss the project's features and its environmental impacts. The public will have the opportunity to present their views, opinions and information on the proposed project. This will assist the District Engineer in making a decision on the permit application.

3. DISTRIBUTION OF NOTICE: This notice of public hearing is being sent to various agencies of the Federal, State, and County governments. It is also being sent to various organizations and citizens' groups that have expressed an interest in the permit action and to the parties requesting a hearing. However, all citizens, whether or not they have received the notice, are invited to be present or represented at the hearing. Everyone will be given full opportunity to present his views on the permit application. Oral statements will be heard, but for the accuracy of the record, all important facts should be submitted in writing. Written statements may be submitted at the hearing or mailed to the District Engineer, at the address given on the letterhead, before the hearing. Please bring this notice of public hearing to the attention of anyone interested in the proposed project.

4. The Draft Environmental Impact Statement (EIS) will be available to the public on March 25, 1985.

5. ADDRESS: Questions regarding the proposed action, DEIS, and public hearing can be answered by:

Mr. Michael T. Lee
Biologist
U.S. Army Corps of Engineers
Construction-Operations Division
Operations Branch
Room 205, Building 230
Fort Shafter, Hawaii 96858-5440
Phone: 438-9258

I-2

THE UNITED STATES OF AMERICA

U.S. ARMY CORPS OF ENGINEERS

HONOLULU DISTRICT

IN RE: PODCO-O 1812-SD)
)
DEPARTMENT OF THE ARMY)
PERMIT APPLICATION FOR)
THE WAIKOLOA HYATT)
RESORT DEVELOPMENT -)
WAIULUA BAY, WAIKOLOA,)
SOUTH KOHALA, ISLAND OF)
HAWAII, STATE OF HAWAII)
)

P U B L I C H E A R I N G

A public hearing was held in the above-entitled matter on Tuesday, April 9, 1985, commencing at 7:00 p.m., at the Sheraton Royal Waikoloa Hotel, Waikoloa, Hawaii, pursuant to Public Notice.

ROSTER OF ATTENDANCE

For the U.S. ARMY CORPS OF ENGINEERS; Honolulu District:

COL. MICHAEL M. JENKS
District Engineer

MICHAEL LEE
Civil Engineer

JOHN EMMERSON
Civil Engineer

CYNTHIA KAYWELL
General Attorney

ELSIE H. SMITH
Assistant Public Affairs Officer

Reported by: CARMEN A. BURDITTE, TCSR 1039
Powers & Associates, Honolulu

STATE & LOCAL OFFICIALS
AND MEMBERS OF THE PUBLIC:

Peter Stine

Reed Flickinger

Bob Nishimoto

Robert K. Lindsey

Jan Auyong

Kalani Schutte

Takashi Domingo

Robert Herkes

A. Lono Hyman

Greg Moores

Norbert A. Vallee

Kem Melrose

Lynn B. Markas

Clifton H. Jenkins

Neele P. Schultz

Glen Byers

Will Sanburn

David E. Kerr

Michael Brennan

1 Stephanie Salazar
2 Denise P. Cosby
3 Chris Hemmeter
4 Ann Yoklavich
5 John J. Fellenstein
6 Nat Wolozin
7 Don J. Daley
8 H. Peter L'Orange
9 Peter Young
10 Bill Knutson
11 Herbert T. Lawton
12 Philip L. Luce
13 Helen Luce
14 George E. "Pete" Goss
15 J. A. Hanlet
16 Deborah Chang Abreu
17 John I. Ford
18 Carrie Markas
19 Paul H. Rosendahl
20 T. Nicely
21 Ronald Lum
22 Lorraine R. Ellison
23 P. Quentin Tomich
24 Thomas F. Schmidt
25 Myron D. A. Olson

1 Kazuhisa Abe
2 Hilda Filipek
3 W. Filipek
4 Elaine Flores
5 Samuel Hook
6 William Ahyou Akau
7 Noelle Bennett
8 Dan Biernie
9 Douglas Blake
10 Cynthia Calderone
11 Douglas Carr
12 Fay Chaffee
13 Al Cho
14 Alika Kailiauu Cooper
15 Armand A. Cote
16 Kathryn S. Diffley
17 David Eldridge
18 Dennis Nakaoka
19 Alfie Fujitani
20 Toni Fortin
21 Derrick H. Fukumoto
22 Dick Goodman
23 Stephen Green
24 Kelly Greenwell
25 H/M Dennis Haserot

1 Joni Hawley
2 Maralyn Kerkes
3 Patrice J. Ishizaki
4 Doris Jacober
5 Frank E. Jacober
6 Sonny A. Kaniho
7 Robert Keakealane
8 Jan Kimball
9 W. Lau
10 Winifred Lilleeng
11 Cathy Lowder
12 Shelley Maesaka
13 Donna T. H. Mah
14 Joseph Mah
15 Maile Melrose
16 Mrs. Thomas Mikita
17 James Naniole
18 Robert W. Nettnin
19 Richard Rowe
20 John H. Sakamoto
21 Harvey R. Schestag
22 Ron Sewell
23 Wade T. Shaffer
24 Richard Sinnott
25 Ramsay R. H. Taum

1 Richard Titgen
2 Robert K. Umemura
3 Hans C. Wedemeyer
4 M/M F. Reeve Williams
5 Julie Williams
6 G. Tweetie Wong
7 Myron Yamasato
8 Fred T. Yamashiro
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I N D E X

I N D E X

April 9, 1985 7:00 p.m.

P R O C E E D I N G S

COLONEL JENKS: Good evening, ladies and gentlemen. I'm Colonel Mike Jenks, District Engineer of the Honolulu District, Corps of Engineers. Welcome to this public hearing on the Department of the Army Permit Application for the excavation of a swimming area and filling of anchialine ponds at Waikoloa Beach Resort Properties, Hawaii.

The applicant is Transcontinental Development Company and Atpac Land Company.

Before we get into the hearing itself, there are some blue sign-in cards that you should be completing; and those are important, because we need to know who you are and whether you wish to speak tonight. Also you will be--if you are interested, you will be indicated on our mailing list for any further consideration of this project. The lady in the red will--if you raise your hand, she will collect any of the cards or provide you with additional cards.

While we're taking care of some of the administrative arrangements, let me tell you a little bit about the purpose here tonight. As you may

know, the U. S. Army Corps of Engineers is responsible for all work in navigable waters of the United States, and all discharges of dredged and fill material into waters of the United States. The proposed excavation of the swimming area and filling of anchialine ponds requires a Department of the Army permit, under Section 10 of the 1899 Rivers and Harbors Act, and Section 404 of the 1972 Amendments to the Clean Water Act.

Copies of our public notice describing the proposed work and the Draft Environmental Impact Statement have been made available to the public in public libraries; and I believe we have a few copies here this evening, if you haven't seen those. We had scheduled this public hearing a little earlier, and apologize to you that we have delayed it until tonight, because some issues were raised and we wanted to make sure that we addressed those in the Draft Environmental Impact Statement so that you could review those prior to the hearing.

The purpose of the meeting today is to obtain information or evidence which will be considered in evaluating the permit application, to give everyone an opportunity to present their

views and opinions and any pertinent information that you may have on this project. In other words, we're here to get your comments, what you have to say.

I will be the decider for the Army permit, and I'll listen very closely to what you have to say, and I'll use that information. And the primary document that I'll be looking at is the Environmental Impact Statement when it's finalized.

During the hearing, I will first call on the applicant to review the features and environmental impacts of the proposed project, and present other pertinent information and explain to you a little bit about what the project is.

Following his presentation, we'll call on the elected officials or their designated representatives who wish to comment on the project. Then I'll call on representatives of various governmental agencies to give their views, followed by individuals who have indicated that they wish to speak this evening.

Finally, the applicant will have the opportunity to comment or to respond to any issues that may have been raised that could be perhaps clarified in some of the minds of the people here.

But this is not a meeting to discuss the pros and cons of the project, or to argue the merits of the project. It's simply an opportunity for me to receive input into the decision process. Consequently, there will be no cross-examination of the applicant or any of the people that wish to speak this evening.

We have a microphone here, and I will ask you to come to the microphone when I call your name; and speak--state your name and who you represent, if you represent any organization or any elected official. I would like to limit comment, because of the number of people that we have, to five to eight minutes. Many of you, I presume, could do it in less time than that, and that's fine. But we will cut you off, though--a maximum of ten minutes.

Are there any comments or questions on the administrative procedures before we get started with the meeting?

We have several representatives of the County, and I apologize if I don't pronounce your name correctly, or if I can't quite make out your writing--but Robert Herkes, would he raise his hand?

Thank you. The chief of--the director of planning, Mr. Lyman--saw him earlier. There he is. And representing the Mayor, Office of the Mayor, Gary Moores.

A PARTICIPANT: Greg Moores. He'll be here after eight.

COLONEL JENKS: Okay, fine.

We have a representative of the Fish & Wildlife Service, Peter Stine--U. S. Fish & Wildlife Service.

Anyone else I missed?

MR. LINDSEY: Representative Robert Lindsey from Waimea.

COLONEL JENKS: Thank you. Anyone else? Any representatives, elected officials?

Again, for those that just came in in the back, please see the lady circulating among you for a blue card, if you haven't filled it out. And just give me a few minutes to go through these cards, if you would.

We're going to have the applicant make a presentation. Representing the applicant--actually, Waikoloa Resort Developments--Mr. Bob Diffley, who will start the presentation. And he'll be followed by Mr. Chris Hemmeter, who will address the Hyatt

Regency Hotel project itself more specifically.

MR. DIFFLEY: Good evening. My name is Bob Diffley. I am project manager here at Waikoloa, and I represent the applicants, who are Transcontinental and Atpac Land Company. One additional--we will have a third party as part of the applicant, who has worked very diligently over the last year in his environmental impact report and is quite familiar with all of the items contained in it.

I would first like to start by giving a brief background of the Waikoloa Beach Resort in order to put our plans that we have today into the proper perspective. This resort was created back in the 1970's, but it was not created only by the developer, nor was it created in isolation as an independent development.

During the 1970's, both the State and County governments realized that there was a great deal of visitor potential for the West Hawaii area. And realizing this potential, the State and County governments cooperated in developing a number of facilities to enable developers in turn to create resorts.

During this period, the Ke Ahole airport

was developed, the Queen Kaahumanu Highway was built.

Waikoloa has its own water, but there has been extensive effort among County officials to create an atmosphere in which beach resorts could be developed along the coastline and make the Kohala coast a true visitor destination area.

In this context, the County also approved a number of proposals that we had made previously to zone our particular properties.

This aerial photograph that you see on your left over here gives you a graphical representation of the subdivisions which have been created, and was created many years ago for Waikoloa Beach Resort.

This zoning was created by the County with the intent of allowing the developers, Transcontinental Development, to develop something in excess of three thousand hotel rooms here at Waikoloa Hotel Beach Resort.

This zoning was contingent upon our fulfilling certain conditions. And among those conditions were that we had to provide sufficient water to handle the development. We have done that.

We have two water wells in the Waikoloa village, which provide over a million gallons a week. And we have done that.

On the aerial photograph, in the upper right hand edge of it, you can actually see a photograph of the sewage treatment plant which we have built.

It has been necessary to bring power in, and utilities, to the site; and we have brought all of those in.

Basically, after fifteen years of effort, we have sites at Waikoloa Beach Resort which are ready for hotel development. We have all of the infrastructure necessary.

We are looking forward to building developments which will make the people of West Hawaii proud that they live here.

Too, I think at this time, realizing that the resort is the result of fifteen years of evolution and work on the part of the County, the State and all of the people of West Hawaii, we think we would really like to have the Hyatt Regency Waikoloa. And so to bring to you the facility that they would like to see built here, I would like to now introduce Chris Hemmeter.

MR. HEMMETER: Good evening. My name is Chris Hemmeter. I appreciate your introduction.

Colonel Jenks and fellow interested citizens of our State: In 1980, Transcontinental approached our organization, soliciting our interest in developing a world class hotel at the Waikoloa Hotel Resort Project.

We spent well over a year in studying various alternatives to the Waikoloa site--various alternatives, not only on this island, but throughout our island chain. We came to the conclusion, after these extensive studies, that the Waikoloa project indeed was a project committed to a long-range program of quality consistent with the needs and expressions of our community.

It was through this study that we decided in 1982 to become directly involved in the development of the Waikoloa Resort Project, with the development of the proposed Hyatt Regency Waikoloa Hotel.

We established certain principles when we initially set out on our task. One principle was to develop a world class facility, a world class facility that would not occupy a small parcel of

land, because we were surrounded by literally tens of thousands of acres of land. And it would be ridiculous to come in here and create the Waikiki syndrome. We wanted to be expansive and create a park-like study where we could develop a hotel that was very water-dependent; that could be responsive to traveling needs.

In this overall study, we determined that the expanse of this hotel should, in fact, include lands south of the proposed hotel sites. This was absolutely necessary to create the critical place which, in fact, would attract the visiting public's attention and bring recognition and, of course, the ultimate marketing success on this island.

When we set out with our principle of developing the finest hotel in the world, we understood that that ought to be integrated with our community. We didn't believe that we could develop this type of a hotel in a vacuum. We knew that we needed community support. We knew that we needed the community to work in our project, and we knew that we were going to create property tax equivalent to ten percent of the property tax base of our island.

Our first year's projection: the hotel is to do as much business as all hotels in the island of Hawaii combined. It will have an enormous economic impact. Thus, we ought to act in a responsible fashion. And we set forth to do that.

Our application precipitated the environmental impact statement, because we wanted to fill certain anchialine ponds. We wanted to do some dredging, because unfortunately, our hotel site was not blessed with some of the beautiful beaches we find in other parts of the island. So, we determined that we were going to have to create an internal lagoon system on the property and to become involved with our natural water.

A hotel in Hawaii is water-dependent. There is some concern that a hotel such as this is non-water-dependent, that it could be moved in from mauka land, and it can be successful.

I would only have to point out a few examples in Hawaii where this has not been the case, and it would be very apparent to all of us how water-dependent resort hotels in Hawaii are.

When we started our discussions with the Army Corps of Engineers, with regard to a permit

to fill certain anchialine ponds on our property, we engaged in what we felt was the top experts in the field of anchialine ponds, other areas that deal with our environment, to be sure that not only did we address these issues in a sensitive manner, but we could defend our position. And our position could hold up on, not only a technical basis, but it could hold up in the area of the overall thrust and need of our community and the expressions that have been given to us as it relates to the environment and how we should be sensitive to it and deal with it.

As we proceeded with this development, it became very apparent to us that we weren't dealing with just a hotel project and specific use of the ocean front property.

Without the ocean front property and the economic project, there will be no further development at Waikoloa and economic chaos will exist. No question about it. So, recognizing this, we decided that we ought to request that the Army Corps take a look at the overall Waikoloa Resort Hotel Project, and not just specifically our hotel site.

That we have attempted to do. And I

think we will propose to you this evening solutions, recommendations, and demonstrate to you our concern and what we are going to do to preserve the anchialine ponds, to preserve the ecological aspects of our water front here that will, in fact, mitigate the circumstances of our filling certain of the ponds. That has been our proposal. We will continue on that endeavor.

There is an awful lot at stake for all of us, and we are sensitive to it. And we understand that there is an awful lot at stake, not only for developers, but for those who live on the island and also for folks concerned about our environment.

We are pleased to be here, and hopefully we can join together and set the further development of this beautiful island.

I would now like to introduce the next gentleman who will be speaking.

If Perry will come forward.

He can give you a little bit of the background of our involvement as it relates to the federal environmental impact statement.

MR. WHITE: My name is Perry White, and I work for Belt Collins and Associates. And we

have had long involvement in the Waikoloa project, from early master planning back in the 1970's through a hiatus in the late 1970's and early '80's, and some involvement both in the engineering for this specific Hyatt site and in preparation or at least coordination of some of the environmental studies which covered all of the coastal parcels on the Waikoloa Beach Resort.

Some of the things which have been said up until now is that the real topic that we are dealing with tonight has to do with the entire Waikoloa Beach Resort. The trigger for that is the Hyatt project. It involves filling of certain anchialine ponds that also require an Army Corps permit. And, in fact, in September 1948, when we were first formally involved in the Corps in the process, that is all that it involved.

The permit application originally was for permission to fill ponds on the Hyatt site, and to create a lagoon on the Hyatt site and, in fact, a preliminary environmental assessment was prepared. And it was completed in November 1984, and dealt only with the high side. It left moot what would happen with ponds elsewhere on the Waikoloa Beach Resort. And I will get back to

this, though, in a minute. But it became apparent as we went through a process of coordinating with our government agencies and listening to public comment on it that probably the Hyatt site alone was not an appropriate limit to the discussion. Because we saw that we really were going to have to deal with anchialine ponds, water qualities and a number of other issues on a much more global basis.

But by the time we got to January 1985, we had made the switch from talking about the Hyatt site and the filling of ponds on the Hyatt site, to filling ponds and preserving across the entire Waikoloa resort.

I am going to do a little bit of work with the drawings and the maps over here. I am sorry they are so low down, because I think they are going to be hard to see--because I want to take nineteen seconds to trace the mystery and give you some good familiarity with what is going on.

This is a very nice photograph taken about 1982. What you see, white lines superimposed on it, are the development as it existed before the Hyatt proposal came along. The Hyatt site--and

again I apologize to the people in the back--consisted of a number of sites as they had existed, several sites around Waiulua. Those were hotel sites. One was a condo, one was a hotel. Site 14, which was zoned for hotel use. 15 had originally been planned for a marina, back in the 1970's, and that is the reason for its open zoning. 14 over here was hotel-zoned--as you move around--you had some condo and other hotel sites. The Hyatt site as we now know it, or as it came to be as part of this procession that I was talking about--I will try hold this up for a while so that you can see it, if you are in back--involved something a lot different.

Okay. Basically what happened is that these separate parcels down here had become one roughly 65-acre site. The site has actually expanded, taken a little bit of the golf course. It now entirely surrounds Waiulua Bay, and coming way over. I don't know if you can compare the line down to here, but originally the Hyatt site went something like this: it had no pond preservation areas.

The pond preservation area is shown in green. And I would like to draw all your attention

to the fact that there is not only one area proposed on here. There is also a--one around the Anaeho'omalu Bay fishpond, also shown in green up here.

As a result of the creation of the proposed pond preservation areas, and that proposal is the developer's proposal. It is one which we feel balances needs of development with needs for pond preservation. It encompasses 36 ponds and about 12 acres of land. It is expensive land, beachfront land.

We think that within the area, based on the studies that have been done for us by consultants and others, it incorporates ponds of a wide range of quality, ponds of all the different types that are found within the Waikoloa Beach Resorts. Basically, a good cross-section of ponds of different types and quality. And we think that it is a microcosm, in fact, of ponds that are found about and throughout the entire resort area.

Perhaps one thing that is missing is the very open kind of pond that is found right down here near the entrance to Waiulua Bay, which is much more bay-like than the traditional or

archetypal anchialine ponds.

One other thing I will do while I'm down here is put one other map down here. Just to put things into perspective, we will do a lot of talking about the ponds that are present on the Waikoloa Beach Resort site--but I think you should get some idea that we are not talking about something that is in a vacuum or something only at Waikoloa.

This represents the ponds that were identified in the study that was published in 1974. Actually, it was representative in 1972, by Maciolek & Brock. They took a good look at many anchialine ponds.

The west coast south point goes all the way up into north Kohala. There was about 300-some different ponds that they identified, but there were certain areas where they didn't count every single pond. So, in fact, the number of ponds present on the coast is somewhere at least in the neighborhood of over 500, maybe higher.

There is no doubt that there are very fine ponds at the Waikoloa Beach Resort. There are also very find ponds elsewhere. And I think the basic point that we have tried to reach that

protects a large number of ponds, roughly a third of those present, the Waikoloa Beach Resort protects some of the best ponds and basically leaves us with a good resource. In fact, the resource that is left here within the pond preservation area is roughly, in terms of pond number, the same as the best of the areas that are found on this coast.

Just a couple of other things I want to hit, and that has to do with the procession that we went through to get here. I have already touched on this--some of those, but I want to go back, and State land use designation for this resort area was given back in 1968. That is sixteen years, ago, seventeen years ago. The general plan designation for resources, use of this area, came in 1970, fifteen years ago.

The zoning for it was first granted in 1972. It was changed slightly in 1977, roughly eight years ago. In 1977 there was also a Corps permit issued that allowed the filling of certain anchialine ponds on Site 12, and those of you who are close enough can see it.

At that time, redevelopment was proposed for that site, and the Corps permit allowed

filling some ponds, preservation of others. Basically, that was the attitude that was taken, in the hope that the ponds were a worthwhile resource, and that some should be saved--and that was the effort that Waikoloa committed to the process.

The original Corps permit application, January 1985--the revised Corps permit application which was proposed by the applicant, a pond preservation area. And at one point--and I would like to correct what has been said by some people--we did not prepare the EIS. That is a Corps EIS. They are responsible. We commissioned and oversaw some of the studies that are on it, and commented on it and gave it our best effort. But that reflects what the Corps has said. And there are a lot of things in there, I think, that we do not have. For example, in the environmental assessment that was submitted to the County--when I talk about that, there is a requirement for the Corps to address all alternatives. And I think we--they did a good job of it, and sat down. And I think we said, "Here is what we have to do." And that is aimed between some balance between pond preservation and development and necessity.

But there are other people who may have

different values of what kind of a plan would they draw up. And we looked at a whole bunch of different alternatives, none of which are believed by the developer to be equally viable. And I think Chris made that fairly clear. But we do have some other values to them. They are addressed in the Corps EIS as well.

I think the only other things I would like to say is that in terms of environmental assessment, which we did, and my reading of the Corps EIS, important points to keep in mind is that there will be a host of ponds. There will be a preservation of ponds. There will not be a significant degradation of coastal water quality as a result of any of the activities proposed. And there will not be a significant degradation of water quality in the ponds remaining in the preservation area. And I think that is a key item. But because of the thing that drove the final shape, the preservation area is to establish one that has sufficient space and a proper location such that it would not be affected by surrounding resort activities.

We have evidence from two studies, one done in 1977 and one done in 1984. So I think we

wound up with something that is durable and it can survive over time. And it is a pond preservation plan which we feel works.

Thank you very much.

COLONEL JENKS: I will not go through them all, but I do have a number of letters that will be introduced and considered in the preparation of the EIS. We have statements here. If you would like to read from them, they are fine. And if you would like to summarize them, that is fine also. But if you have a prepared statement, let us have a copy of that, if you would.

Also, if you do not wish to speak, but if you have a prepared statement, you can leave it with me before you leave this evening, if you would.

The people on the rostrum here with me are from the Corps of Engineers: Mr. Mike Lee, to my far right, is the marine biologist with our regulatory function staff, and is the principal preparer of the Draft Environmental Impact Statement. Next to him is John Emmerson, project manager for this project from the Corps of Engineers. And to my left is Miss Cindy Kaywell, who is with the Office of Counsel for the Corps of Engineers.

The first speaker--I'm going to ask Mr. Lyman, the Director of Planning for the County of Hawaii, to resume, if he would.

Those coming from the floor may use the microphone here, down at floor level--and address me, if you would.

MR. LYMAN: Thank you very much, Colonel.

Members of the audience, and members of the staff of the staff of the Army Corps of Engineers, I'm Albert Lono Lyman, Planning Director of the County of Hawaii. I'm here tonight to speak as the County's chief planning officer.

Before beginning tonight, I'd like to note that the County Planning Commission this afternoon approved three permits and variances required for the development, and recommended approval of zoning changes for the project site. Within the sphere of the County government, the only action that remains is Council approval of the zoning changes.

Other than Council approval of the zoning changes, the permits which are the focus of this hearing remain the only approval required to begin the development.

With respect to the permit application

being considered tonight, I would begin my comments by saying that the County Planning Department will be submitting more detailed written comments. Tonight I would like to make the following remarks, though.

Since the Corps permit has very significant implications related to land use, and to the future economic development of the County, we feel it would have been more appropriate to have consulted with the County throughout the permitting process. We ask that this be done in the future, since the County's administration is directly accountable to the residents of the County; and we strongly believe that we can provide perspectives the federal agencies do not share.

Second is that we feel that the proposed 12-acre pond preservation area more than satisfies the area required to offset the impact of filling the anchialine ponds in the remainder of the resort. Taken with the existing 16-acre pond area designated by the County as conservation of open space, we feel that the total 28 acres that this would comprise represents sufficient pond areas on the resort for the enjoyment of future

generations.

If it's deemed desirable to preserve additional ponds, it should be done elsewhere, not through this project.

We also feel that the management plan for the proposed pond preservation area, which is subject to County review and approval, should be done in a joint effort involving representatives of the resort, the County, and the appropriate federal agencies.

The limited information in the EIS related to the pond management plan indicate that the proposal to set back development on the adjacent parcels, in order to avoid as yet to be substantiated impacts attributable to shadows and disruption of air circulation patterns--the County asks that it be responsible for the task of this and related land use matters.

Additionally, since these impacts are yet to be substantiated, we would conclude that it is imprudent to set such a condition at this time. I would note that the County's building height ordinance limits the height of developments on the island. And as with variances, resort developments have been allowed to go to six

stories, as was the case with the Hyatt Waikoloa. This ordinance is strictly adhered to, and is consistent with the height limits set by all three neighbor island counties. And these height limits reflect the preference of the neighbor island communities, to limit developments to mid-rise heights that are compatible with their rural settings.

We also feel that the project as conceived will provide guests to the Hyatt and other hotels in West Hawaii a broad mix of recreational and other resort facilities. This in terms should broaden the visitor market base for the County, and should stimulate considerable economic growth benefiting the County's residents. This growth is important, given the County's current sluggish economy and the prospect of the island's sugar industry declining.

In closing, I ask that the Army Corps of Engineers and the other federal agencies participating in the federal permitting process carefully consider the economic benefits that the Hyatt Waikoloa would have for the residents of the County.

The federal Environmental Impact Statement

for the project summarizes these benefits. And we believe that the benefits will far exceed any adverse effects from the development of the resort. And the efforts of the developer more than satisfy the concerns of the County administration regarding the Hyatt and future construction planned at the resort,

Denial or further delay of this project, attributable to the federal permitting process, could have very serious negative repercussions, and potentially could deprive the County's residents of the benefits they stand to gain from this project.

Thank you.

COLONEL JENKS: I ask you not to take any photographs. I'm sure Mr. Lyman doesn't, being a public official, but some private individuals may object to that. So if you would refrain from taking photographs of anyone here, please.

County of Hawaii, Mr. Bob Herkes, will speak now, please.

MR. HERKES: Colonel Jenks, I suppose that it would have been possible for the County Council to submit their testimony in writing. But

it is impossible for a group of politicians not to appear in person and speak verbally.

My name is Robert Herkes, and I am a member of the Hawaii County Council, which is the legislative body for this island. At a regularly scheduled meeting of that body, the members voted unanimously to support the project that is under discussion tonight, and instructed the Chairman to present supporting testimony.

He is unable to be here tonight, and asked that I represent the Council. Also in attendance, to show their support, are Vice Chairman Kalani Schutte, and Councilman Domingo, the chairman of the planning committee of the Council--a true bipartisan representation, I might add.

Incidentally, at this point I'd like to congratulate Mr. Hemmeter on being named the Entrepeneur of the Year by our school, Cornell. Congratulations. It's a great school.

Our testimony is:

Thank you for the opportunity to respond to the proposal by Transcontinental Development Company and Atpac Land Company. The applicants are requesting authorization to excavate a 5-acre lagoon; construct and maintain structures and a

beach in the lagoon; create and maintain a 12-acre anchialine pond preservation area; and fill the remaining anchialine ponds on the Waikoloa Beach Resort properties. These proposals are necessary to construct a 1,250 room luxury resort complex consisting of three towers and recreational facilities.

The excavation of a 5-acre recreational lagoon adjacent to Waiulua Bay is necessary to provide easy access into the water due to hazardous conditions of the existing shoreline. The lagoon will encompass an artificial beach which further promotes a safe water recreation area.

The creation and maintenance of a 12-acre pond preservation area will perpetuate the aquatic ecosystem located on the Waikoloa Beach Resort properties. The remaining anchialine ponds located outside the designated preservation area, which consists of 41 percent of the ponds, would be filled to allow for the construction of the Hyatt Regency Waikoloa Hotel facility.

The development of luxury properties along the South Kohala coastline has changed the complexion of the area into a major resort destination. Planned resort developments will

result in substantial increases in employment opportunities and economic activities for the communities of West Hawaii. The proposed resort would further expand the County's economic base by providing recreational opportunities and stimulating housing development and general business activities.

This proposed project has been designed as a world-class resort to entice visitors to the South Kohala area. The lagoon and recreational amenities were uniquely designed into this project to attract selected visitors. Further, the Waikoloa Hyatt Regency would complement the Sheraton Waikoloa Hotel by attracting additional visitors to the area.

Alternatives I, II, and III as proposed in the Environmental Impact Statement prepared by the U. S. Army Corps of Engineers would impede the development of the recreational facilities which may severely compromise the attraction of this world-class resort.

Past experiences with Sheraton Waikoloa Resort, Mauna Lani Resort, and Mauna Kea Properties have shown that projects can be planned to protect the environment and preserve archaeological and

historical sites. The caliber of this commitment will also give the Waikoloa properties the recognition which may promulgate further developments. Any alteration to the project plans of Transcontinental Development Company and Atpac Land Company would incur unnecessary delays and additional expenses.

We believe that the project is in consonance with the type of development the Council has envisioned for the area and that every effort should be made to avoid the imposition of unnecessary obstacles. We, the legislative branch of government, have constantly strived to create a climate conducive to encourage development and economic activity, and have continually sought to minimize delays and streamline the permit processes.

In closing, in behalf of myself and members of the County Council, I recommend that the U. S. Army Corps of Engineers approve the applicants DA permit to allow the developers to proceed with their resort project as planned.

And it's signed by Stephen K. Yamashiro, Council Chairman.

And we also submit a letter that was

sent to the Council by the International Union of Elevator Constructors, which strongly supports the economic impact of the project.

Thank you very much.

COLONEL JENKS: Mr. Bill Knutson, from the Kona-Kohala Chamber of Commerce.

MR. KNUTSON: Colonel, thank you.

It's a pleasure to be here tonight. We're going to talk a little about the economic important of this development to our coastline. I think some of us here read quite frequently in the paper about the battlesheip task force that the City and County of Honolulu has been promoting to attract an economic alternative to their County. I don't think anybody has really sat down to figure out what the economic impact is going to be to our County with this beautiful development here in Waikoloa. It is something that will probably be two to three times what Honolulu is looking for.

We feel that we have a potential solution to some of our problems with this hotel development, that would help us with the unemployment that we've got--which is the highest in the State. It would help us to improve our

visitor count, which we always seem to lag behind on, on a monthly basis. It will help us with the quality of this development, and with the advertising that they're going to be going into, to identify our island better, to separate us from the identity problem that we have with the State of Hawaii.

We do feel that this hotel with complement the other hotels up and down the coastline, and it will help bring additional visitors to those establishments also. We feel that the development is one of the highest quality, that it's one that will be complimentary to our island. It certainly has enough open space to grant the beauty of our island to be enjoyed by the visitors. And it's being put together by Mr. Hemmeter, who has had a tremendous track record for being concerned about the environment, being concerned about the local people having access to his hotel, which is so vital to those of us who have moved to the Big Island for the lifestyle that we enjoy so much here.

And we need this project on this island. We need it to improve our economy. We need it to help us in our visitor count. And we certainly

hope that you will not delay this project any further, because we would like to open it tomorrow.

Thank you very much.

COLONEL JENKS: After each speaker, if you would hold down your applause. The reason I say that is because I don't want--I want a free discussion, and those that have their views to be addressed here and not be intimidated by whatever the majority may or may not be.

Mr. Peter L'Orange from the Hawaii Leeward Planning Conference, please.

MR. L'ORANGE: Colonel Jenks, thank you for the opportunity to speak.

But before I start, I'd just like to share with you that I'm a football coach, and I can't be intimidated. When a parent gets on me, I just tell them, "You may be right," and walk away.

My name is Pete L'Orange. I am president of the Hawaii Leeward Planning Conference. Hawaii Leeward Planning Conference is a non-profit corporation dedicated to monitoring government programs affecting West Hawaii, and providing input to government agencies to assist them in the decision making process.

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The objectives and purposes of Hawaii Leeward Planning Conference are as follows:

Advocated sound planning decisions for West Hawaii to promote the long-term benefits for the communities involved.

Assist in maintaining and enhancing the attractiveness of West Hawaii through concern for the natural beauty and natural resources of the region.

Preserve the significant aspects of Hawaiian history now available in West Hawaii.

Provide information to the public on substantive issues facing public planners.

And to assist public agencies in reaching sound decisions regarding West Hawaii's future.

In pursuing these objectives, we have reviewed the proposed Waikoloa Hyatt project and wish to speak in favor of the project. The project conforms with the County General Plan and the Kona Regional Plan. It is, therefore, consistent with the long-range policy of the County of Hawaii.

Secondly, the project will have a positive economic impact on West Hawaii and the County as a whole. With the uncertain status of the sugar industry, expansion of job opportunities is very

important to our island.

We urge favorably action on this project, and thank you for this opportunity to speak. We will be following this with some more technical written testimony.

Thank you.

COLONEL JENKS: Mr. Douglas Blake from the Kona Conservation Group.

MR. BLAKE: Good evening. My name is Douglas Blake, and I'm a resident here of Kailua-Kona, and have been for some--almost twenty years. I'm here as a member and officer of the Kona Conservation Group, to testify on Transcontinental's permit application to dredge certain so-called anchialine ponds and to construct a swimming lagoon at Waiulua Bay, here in South Kohala.

The Kona Conservation Group would like first to go on record as being in favor of the proposed Hyatt hotel construction. However, it has come to our attention through our own examination of the area in question that the shoreline delineation that has resulted in this area being characterized as "anchialine ponds" is, in part, inaccurate. And what is referred to as "anchialine

ponds" in the area actually are ocean tide pools that are connected to, and are directly contiguous with the ocean--and, as such, they are ocean tide pools. As such, they are public property.

The inaccurate shoreline designation which has been made by the applicant, as well as the State in certifying, is quite easily observed and documentable by photographs.

Therefore, the Kona Conservation Group requests that Transcontinental's application be deferred at this time, and that a new, more accurate survey be performed so as to ascertain the correct shoreline designation and to ensure the protection of the public's interest in an area of obvious public ownership.

The Kona Conservation Group has submitted a complaint to the Department of Land and Natural Resources therefore, and has requested a new survey be performed. We wish the applicant to resubmit their application after such time that the new shoreline survey has been performed by the office of the State Surveyor, as per our complaint.

Thank you very much.

COLONEL JENKS: Mr. P. Quentin Tomich, Sierra Club.

MR. TOMICH: Thank you, Colonel Jenks.

I'll be reading from a draft, here. We're volunteers, and we don't always meet deadlines, because we don't consider them as deadlines necessarily.

My names is Quentin Tomich, and I'm representing the Sierra Club. The Sierra Club on this island has an enrollment of about 256 members, and state-wide about 1900. The Sierra Club's concern for integrity and quality in the national outdoor environment is well known throughout the nation.

Many of our local members have walked the shores of Waikoloa, long before the germ of massive development settled here, and we liked it better under that condition of wildness and remoteness.

However, our realization has been that scales are irretrievably tipped in favor of increased human use, the accouterments of civilization, and the retreat of the sparse but interesting biota at this most unusual meeting place of land and sea.

Perhaps the County General Plan of 1970 was the pivotal document that specified and

virtually assured resort development along the Kohala Coast, at least on privately controlled lands. If there was a challenge in the zoning changes of that time, the conservation community of this island apparently did not make a response to it.

Well, as you can see, I'm leading up to saying that we would support the project. With some resignation perhaps, the Sierra Club does support the applicant's proposal, and we're talking about Figure 11-4 for the single open space Anchialine Pond Preservation Area. But we have certain reservations and comments.

If the 12-acre proposal can be made much larger, naturally it would be very supportive of that move. But we do believe that a minimal expansion should include the adjacent pond cluster in Residential Lot 13, comprising a series of ponds approximately 169 to 196. And a rough estimate would be that would be an addition of about two and a half acres--two and a half acres to the proposed twelve.

This pond cluster contains the deepest example we know of in the preservation area, and adjacent areas--that's Pond 179, which has a

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depth of about 3 or 4 feet.

The ponds in this cluster appear to be newer and on generally bare lava, which supports little or no terrestrial vegetation. One pond is most unuusal, in that it is formed in and adjacent to a collapsed lava bubble. It's Pond 172. An arch of stone spans this pond from that old bubble. It really would be a pity to destroy this natural geological feature.

It appears to us that the residential development in Lot 13 can be made flexible enough to accommodate our proposed addition of these several unusual ponds.

We have a comment to make on management, and certainly long-term management of these ponds is of primary consideration and certainly this has been addressed in the EIS. But out recommendation is that the landowners explore any possibility of a conservation easement for the preservation area, whatever it finally ends up as being, and to look to a suitable arrangement for this conservation easement with the Nature Conservancy of Hawaii. Under such a program--and I don't represent the Nature Conservancy here--ownership of the acreage would be retained by the present landowner. The

Nature Conservancy have an excellent track record in Hawaii of working with many--a large variety of arrangements for preservation and management of land.

Thank you.

COLONEL JENKS: Mr. Peter Young, from the Kona Board of Realtors.

Is Mr. Moores here yet?

MR. YOUNG: My name is Peter Young. I am the president-elect of the Kona Board of Realtors, and I'm here on behalf of the board of directors; and I've just given you a written statement of the board. And I'd like to read a copy of it.

The Kona Board of Realtors strongly supports the proposed resort development of Mr. Chris Hemmeter at Waikoloa, South Kohala. We believe that the proposed development would complement the existing high standards found in the neighboring resorts on the Kohala coast and will be a positive economic influence to our community, both for the immediate vicinity and the island as a whole.

The coastal region of South Kohala has been shown to be an area of quality conscious resort developments, serving a variety of visitors

to the area. The proposed Hyatt is a continuation of these high standards. For a land use concern, the project is a natural extension of the land use patterns already established for the area.

The State, as well as local economies, are dependent on the survival of the visitor industry. As stated in the report called, Economic Development on the Island of Hawaii, Issues and Options:

"The Big Island's visitor industry is now comparable in economic importance to the total agricultural industry on the island. Tourism's considerable growth potential, however, makes it the most important industry in the foreseeable future."

Not only will the proposed project provide the necessary economic stimulus to our economy, it will also provide an economic influence that will assist in the stabilization of the island's economy.

We have no doubt as to the capability of Mr. Hemmeter and his ability to provide a product that we will all be proud of. We are not concerned with the possibility of unfulfilled promises, as he has a proven track record for

developments such as these in the State of Hawaii, as evidenced by his resort developments on Oahu and Maui. When we review the quality aspect of the development, we need only consider our image of the Hyatt resort on Maui--ours will be better.

We believe that the responsible action of the Army Corps of Engineers is to approve the application as soon as possible. We encourage you to do so. At the same time, we encourage all other reviewing agencies to expedite the permit processing for this important and necessary development in our community.

Thank you.

COLONEL JENKS: Mr. Ron Sewell.

MR. SEWELL: Colonel, and ladies and gentlemen, I'm just a concerned citizen that would like to spend a minute talking about the 5 acres of anchialine ponds that are proposed to be deepened and excavated for a swimming area, and a continuation of the lagoon. And I would like to direct my remarks to that particular portion of the project, because I have had many, many years of earning my living from the sea. More than three-quarters of my working years have been occupations which derived my income from the ocean.

So I'm in a position to be very concerned about the environment of the seacoast. And so I've always had a concern about that.

And to qualify myself a little bit, I'm a dredge captain, a commercial fisherman, commercial diver, and have spent many years--approximately 22 years here in the islands--in the ocean, on or above or under. And I've heard comments following this project--I've heard comments concerning this area being a detriment to the marine environment: namely, to fish and the red shrimp. And I'm familiar with the area. I'm familiar with the red shrimp and the fish that live in that locality. And the claims that have been made by certain people that this is going to destroy the environnment of these marine species is not speaking with knowledge. Because through my experiences in dealing with dredging, I have found that marine species many times increase in volume--and to clarify an earlier statement, made earlier today, that when you deepen water you have marine environments that live in deeper water come closer to the shore. And what this has a tendency to do is visually display that marine variety. You will have two, maybe as much

as three times as much marine action come into an area because you deepen the area. You deepen the bottom. You create more food. You create more room for them to move around.

And so, it's my premonition that in deepening this area, that you will enhance the marine life in that area. And it will be better for visitors, better for the local people. I've seen it happen, and I've watched it personally happen myself.

There is really only one way that this area could be polluted and which would destroy the marine envirnonment, and that is if we put poisons into the water. If we had poison sewage or if we had a poison outfall of some sort go into that water, then it would destroy the marine environment. But in this situation, we have none of that. And with the nearly million gallons of fresh water per day flowing from this land mass, you have a situation there where you cannot create a stagnant pond. It's totally impossible in that area.

And that's one of the problems in dredging--if you create a stagnant area, you have a marine environment problem. In that area, there is no

way that you are going to create a stagnant area.

So I just wanted to comment on this, because there are people that feel like that that is destroying the animals that live in that area. And it's my premonition that you will find a bigger, better and more visual action of the local marine species in that area--crustacean and fish.

Thank you.

COLONEL JENKS: Bob Lindsey.

MR. LINDSEY: Thank you, Colonel.

I'm Bob Lindsey, a Waimea resident and a member of the Hawaii Legislature. I represent District 6 in the State House of Representatives. I guess the significance of that is that Waikoloa Beach Resorts falls within the geographical parameters of District 6.

I am here to testify in full support of Waikoloa Beach Resorts development efforts for this area, specifically, the proposed Hyatt Waikoloa.

I will commence by saying I was born and raised on this island. And I intend to spend my final days here. I feel very close to Waikoloa and all that has happened in this area. I worked here in 1970 for Morrison-Knudsen Construction,

when the infrastructure for Waikoloa Village was being put in place. The crew I worked on installed the main water transmission line on A Street, that brings water from the Parker 5 well to Waikoloa Village.

I worked here again for a few months in 1980. My primary job at that time was operating a piece of heavy machinery used to compact the fairways and bunkers for the golf course here at the Sheraton Waikoloa. I mention this simply to establish, I am not just passing through. My roots are here. I have seen, first, Boise Cascade and now the Transcontinental Development Company convert a wasteland into an oasis, and as a result, provide this island an alternative to agriculture.

I am here to ask of you who represent the U. S. Army Corps of Engineers, to expedite the efforts of the Hemmeter Investment Company, as well as Waikoloa Beach Resort, in this massive and exciting venture.

Granted, there are those amongst us who are apprehensive about the future and the impacts a project of this magnitude will have on this island, particularly West Hawaii. You have your side to tell. But where you see darkness, I see

sunshine. I see the Hyatt Waikoloa as essential and necessary. I see the Hyatt Waikoloa as a vessel for opportunity. I see the Hyatt Waikoloa as being a catalyst for moving this island into the 21st century, and a contributor to our tax, employment and economic bases.

There is no turning back. Hawaii has moved from an economy based on agriculture to an economy based on service and information. We are living in a new age and a new time. We need to grow; for if we do not, we will as an island die. If some of our anchialine ponds in the vicinity must fall to earth movers, if some of the coast has to be altered, if some of the aina has to be disturbed--then let it be so.

I trust we will not permit this opportune moment to escape us. Alternatives have been offered. Let us examine these, and let us implement them. Granted, we must remember the past, but let us not let days gone by deny us access to the future.

Thank you for this opportunity to testify.

COLONEL JENKS: Mr. Al Cho.

MR. CHO: Sir, I'm here unprepared with

a written document. The only reason I asked, or put in my application to come here and say something, is for the people of Hawaii and the project that's in process right now.

I feel right now that there's more opportunity to gain for everybody in the community, and I know Mr. Hemmeter will pull this thing together. And the people here in Hawaii are going to get employment; and we all know when there's employment, we're going to take care of our families. And it's not just the construction alone, it's the potential thing that's going on for everybody--my kids, my grandchildren, everybody else. That's what we're looking for.

And I feel everybody I know, all you guys--everybody--wants to see this project go, because number one, it's employment, so everybody can take care of their families.

Thank you guys.

COLONEL JENKS: William Akau.

MR. AKAU: Ladies and gentlemen, my name is William Akau. I reside in Kawaihae. And tonight I would like to speak on this little type pools that we discussed about. I would like to run back in the years--1950--when the Corps of Engineers

--the State--started to make preparation in construction of the Kawaihae deep sea harbor. And so I live right alongside a big fishpond, right in Kawaihae, about three acres of pond. And there were three smaller, little ponds in back of it. And my grandfather is the caretaker, which is Abraham Akau. So he took care of these ponds, and he would go to the ocean during spawning time for the mullet and for the awa. And he would bring these little fish and place them in the little pond. And then he would raise these fish up to about eight inches. And so, as they get a certain size, they used to haul the fish to this point here in Alaualo (phonetic).

So, the Hawaiians had a system, because you just can't take, take, take; you need to replace. And the replacement comes from the ocean. Fish comes in and spawn, and they start running along the shoreline. And so they get a certain size, then my grandfather pull it in. So, as they bring these fishes over to restock the pond, then start raising these fish, and when they get a big luau and stuff like that, they would come and harvest. And, you know, they take out so much, and put back so much.

So, these other ponds we're talking about now--now, if these ponds were very significant, they would have done something in the old days. I'm thinking of the Hawaiians, my race of people. So, my race of people live here for a long time, so they should understand more of the conditions and the land. So, as I see today, these little ponds meaning nothing to me, you see; because my people didn't do anything with them, because one thing: the limu (phonetic) wouldn't grow in these little ponds. You need feed, and if you have the feed, then they would have stocked these little ponds, because limu, as I say, can grow--so, what do you call the fish wasn't able to live in these little ponds.

So, I feel, you know, we need to look ahead, look in the future, and sacrifice like how we sacrifice that three acre pond in Kawaihae. It means a lot to me, because I was raised right alongside that pond, to take care of this pond here, so this pond is very important to us to preserve. But those ponds along the coastline, to me, I feel is not that important.

We need to develop, to create jobs for our people.

So, this is my testimony. I leave with you.

Thank you very much.

COLONEL JENKS: Robert Keakealane.

MR. KEAKEALANE: I am Bob Keakealane, and I've been working on the ranch for 51 years, with the Hinds (phonetic) Limited, with the Dillinghams; so I retire in the year 1982. So I was born and raised on the Big Island; when I was a little boy, I started work on the ranch when I was fourteen year old, which my dad and my grandfather, my greatgrandfather, and we was all employees. So they all pass away, so I was the last old hand on the ranch. I just retired in the year 1982.

So, I am 68 year old, born in the year, October 24, 1916. I was raised in Kona Village. Been a little boy, played around all down through this seacoast, from Kaahole (phonetic) to Maeula (phonetic), Makawaena (phonetic), Kuupio (phonetic), down to Kona Village, Kiholo (phonetic), Kaeweki (phonetic), Wilawila (phonetic), Kapalaua (phonetic), Anaeho'omalu, Konahipua (phonetic), and then Waikoloa right down to Waipio Valley with my grandfather. I know in and out of these place like

I know my ten fingers.

I was called this morning from Alika Cooper (phonetic), and I'm the person came and control the area of Waiulua. A lot of old trail over there, a lot of old fish ponds, and all of these pond there was mention about. Eel--that will compose the name by Frank Brown's (phonetic) beach at Kalaiheapua (phonetic); one pond down there called Waipuhi (phonetic). Puhi means eel. Wai means water. So that area came right up to Waikoloa. That pond called Hanaihoomalu, that was the pond raised with the mullet. Hanai means mullet. Hoomalu means nobody go to destroy the mullet. That was only for the king, Kamehameha. That was in the olden days.

I was taught by my great-greatgrandpa. This island here is controlled under our king, Kamehameha. And my dad and my grandfather, they used to live at Kona Village. They used to get their foot at Kawaihae. They go on a canoe ship. When the Kona wind come, they go to Kawaihae to get their food. When waimeau (phonetic) wind come back, they come back, in this canoe.

So, since this project brought up, like it's about Waikoloa--it is very important for

generations. I'm a grandpa for five grandchildren, and I have four children, one with Parker ranch. So I had one granddaughter in Kamehameha, just graduate from the academy so she's in Kamehameha School now in Oahu. I have two at Parker School. So I have two little grandchild going to school, one is six year old, one is three. Pretty soon he be in school.

So for this project, again, I can say, everybody have to put their heads together, because it take four horse to pull the plow--if three horse hold back, one horse pull the plow. I no think so, going to work.

So, if you put your head together, work together, you'll be all right. And I say, mahalo nui loa, and God bless you folks.

COLONEL JENKS: Richard Titgen.

MR. TITGEN: My name is Richard Titgen, and I'm representing myself.

I would like to speak for a few minutes on the ponds, and then make a recommendation.

First of all, though, I wanted to define the ponds. Fishponds out here that have the connection to the sea aren't anchialine ponds. By definition, they're just--you know, the

anchialine ponds have no surface connection. Therefore, as the previous gentleman said, they wouldn't be considered common property. Also, what we're dealing with here is not a pond system. It's a subterranean system. It's due to the very porous nature of volcanic islands. It's also found in corallinine (phonetic) islands. It's found--commonly known all over the Pacific and the Atlantic. It's got a wide distribution. It's mostly on islands, though.

Now, the animals that we know most are the shrimp. In Hawaii, there are six main species. Four of them are widely distributed all over the Pacific. It's not just something here. There are two endemic species, but we don't know that much about them. Hawaii--this system is probably very extensive. We know that they're here, all the way down to South Point and up at least to Hilo, probably further. We know that they're on Haui, Lanai and Oahu. We don't have the ponds. We just find old ponds that are dried, but you don't have the surface ponds now. But in some of the wells, even on North Oahu, you can get the shrimp out of them. So the fauna is widespread.

What the ponds are, really, are a window

into this system. It's a way for us to look in and see some of this cryptic fauna that we don't normally get to see. What's been done so far on the ponds is basic survey work. Maciolek and Brock did their survey in '72, I guess it was, and they described what animals they found, and they told us that the pools were generally small, the salinity was low, and they showed that--well, the salinity varied, because you have fresh water input, subsurface water, and then you have a tidal influence.

We also know a little bit about the species, as I said. At the university, they have done a little bit of work on one of the shrimp. But that's basically what we know. There's a lot we don't know. We don't know how the system works--because it's not an isolated pond system; because all of it is essentially connected together, we don't really know what the effect is going to be, if we put some kind of an impact on it.

There is things that we should try to learn of the system, not so much just what animals are there, but how it works. What is the flushing rate of the pools? This would depend on the tides; it would depend on the amount of

fresh water input, various things. These are the types of things we need to study, to look at, to understand it.

If--there's no doubt that the construction of this size will have an impact. So--but we don't know how much. It can depend on the specific system here. This sytem may be very good at flushing, so you're not going to affect the system. It may not. We don't know. We don't have the information.

There are several other things that can be studied. We don't know whether the animals --well, if you watch a pond, there are a lot of them: when the tide goes out, the pond dries; and when it comes back up, you'll see the animals. But we don't know if these animals migrate to different ponds. We don't know if they stay right there. We don't know how well these things are connected. It's likely that this whole pond system here is in one way or another connected. But we don't know, you know--if you study something like flushing rate, you can get an idea. You can put certain types of dyes in, and see it just spreads out through different ponds. There are several things you can do.

What I'm here primarily to do is--well, how do I explain? What I would like to see done is some more study. This is an opportunity. This area was described by Maciolek and Brock as having the highest density of ponds in the area. That in itself makes it an important ecological area. And as I said, there is no doubt there will be some kind of an impact. What I think we can do here is study it. Get some people in and watch how the area changes.

This is a way to get information, because rght now we don't have enough information to make any kind of management decisions. What I would recommend is--well, first of all, I don't know how true this is. I heard rumors that the Natur e Conservancy might be approached to monitor the ponds. Monitoring is a good thing, and you can find out that something is happening. But you want to get an idea of why. So I would like to see some moneys put forward to extend this into a more of an experimental program and try to understand the system a little bit.

Then, when the next hotel comes in, or whatever, we will have more data to make decisions on. It's not, then, a matter of saying, "Well, I

think it's going to affect it, so we shouldn't do it." Or: "We don't think it will affect it, so let's build." We need information.

And because this has not started yet, if we can bring people in to study it as the building goes on, we would get some information.

Thank you.

COLONEL JENKS: Donna Mah.

State your name.

MS. ABREU: My name is Deborah Chang Abreu. I'm here as president of the Na Ala Hele non-profit organization. Donna Mah and I are so nervous about speaking before groups that we've been sitting there debating with ourselves whether to take this brave step.

I have submitted a write-up, which I would like to read from.

Just as an introduction, the Na Ala Hele organization basically seeks to preserve historic Hawaiian trails, and also the protection of historic area and natural areas found adjacent to trail routes.

With regard to the twelve acres actually being preserved, the proposed--it's very encouraging that after initially not mentioning

any intention of preserving any of the pools, we now have a twelve acre preserve. And for that, I would like to express my thanks.

We have walked the twelve acre area, and have endeavored to identify each pond according to number. We can't seem to locate Pond Number 39. We also urge the retention of four additional ponds, which appear to be located just outside of the north boundary of your proposed twelve acre area. And the reason why--well, these additional four ponds don't have numbers on the site, so I can't really accurately identify them now.

What makes these four ponds unique among the twelve acre ponds are their aesthetic beauty--one pool has an extremely picturesque arch formation. The four ponds tend to be more deep than the ponds in the preserve. They also lack vegetation surrounding them, and as a result, lack the quote unquote aging characteristics that are commonly found among the majority of the ponds within the proposed reserve.

As is noted in the Draft EIS, the ponds found in the Waikoloa area exhibit great diversity in pond characteristics, such as age, size and salinity. It would then be desirable to represent

that diversity in a preserve.

I believe preservation and, very importantly, management of anchialine pools would be advantageous, because it provides aesthetically appealing open space within the Waikoloa Beach Resort design. And it's very difficult to attach a dollar sign to open space, but I'm sure that that would be extremely valuable to the visitors and the residents.

There are educational benefits as the ponds are studied and managed. There are opportunities for interpretive programs for residents and visitors, which can instruct people in what makes these ponds so unique in our State and, indeed, the world.

It would also help to prevent the loss of these very special habitats, and thereby assisting in the survival of endemic plants and animals, which are found nowhere else in the world except here in Hawaii.

I would also like to mention--and this is more pertinent to Hawaii County, rather than to the Army Corps--that a program aimed at the long-term protection of West Hawaii anchialine resources needs to be included in the Hawaii County

General Plan update. We urge that this be done because--for four reasons.

Number one: anchialine pools are special natural resources of our county and we have a responsibility to protect them.

Number two: these pools are easily degraded by surrounding activities.

Number three: an inventory and identification of pools worthy of protection would apprise potential developers that certain ponds have been earmarked for conservation and management.

And lastly: it cannot be assumed that there are sufficient anchialine pools in West Hawaii to guarantee the survival of these endemic aquatic organisms. Presently, there appear to be no sanctions against bulldozing, filling-in or other destructive treatment of ponds. An anchialine pond preserve at Waikoloa would be the the first Natural Area Reserve for anchialine pools on the island of Hawaii.

Other comments that Na Ala Hele would like to make, outside of the anchialine pools issue, would be that continuous pedestrian public shoreline access needs to be guaranteed and made

explicit within the Waikoloa Beach Resort plan. The Mauna Lani Reosrt to the north has successfully incorporated the Ala Kahakai trail system along that shoreline, and the trail system should be extended through the Waiulua Bay area and north to Honoka'ape Bay.

As for historic resources, along the shoreline north of Waiulua Bay is a concentration of Hawaiian lava storage bins. I call them storage bins because I don't know what else to call them. I have been told that they were used to store salt, because the area was a kind of salt factory a long time ago. And we would like to know if those storage bin features are planned for preservation by the applicants.

Also, the section of the Ala Loa, which is also referred to as the King's Highway and Ala Mamalahoa, in that area that is traversing the proposed development area--we would like to advise you that it is on the Hawaii Register of Historic Places, and that any alterations of that trail must first need to be reviewed and approved by the Department of Land and Natural Resources.

Additional comments on the Hyatt Regency proposal: according to the applicants, the Big

Island's visitor industry has lagged behind that of other islands due to a lack of identity and inadequate promotion. It should also be noted that the Big Island lacks the extensive, white sand beaches so popular with visitors. For example, the Hyatt Regency will need to alter the natural coastline by constructing a man-made beach and lagoon in order to attract clientele. One wonders if the natural, windy character of Kohala also discourages visitors and contributes to the slower growth of the industry.

Secondly: how essential--I have read that you have a deer tower in your plans, and it was my understanding that somehow the importation of deer would be involved. And I would ask how essential is the importation of deer to the success of the resort? Haven't deer been found to be potentially devastating to Hawaii's environment? And how appropriate are deer to the establishment of an identity for the Big Island's visitor industry?

The Hyatt Regency proposal is indeed an ambitious one. It is not, however, the only development currently being proposed. Other projects are being reviewed which will contribute to our

need for jobs. For example, the Mauna Lani Resort, Keauhou, Mauna Kea Beach and Kona Village Resort expansions, and new developments proposed for Kapalaoa, Kuki'o and Mahukona. While the total number of jobs anticipated through resort developments can appear promising, it is more accurate to assess how many of those jobs will be temporary construction jobs, and how many will be part-time, casual or on-call, with little or no employee benefits.

In conclusion, Na Ala Hele is not anti-jobs or anti-development. We are in favor of quality developments that will not involve too great a sacrifice of our natural environment, historic resources, Hawaiian culture and our island way of life.

I do want to say that I myself was born in Kohala and raised in Waimea, and I am a product of this island.

Thank you.

COLONEL JENKS: Is Mr. Moores here, from the Office of the Hayor, please?

MR. MOORES: Colonel Jenks, the Hayor was unable to be here tonight. He had to be in Honolulu, and asked me if I would read his

testimony into the record tonight.

Dear Colonel Jenks:

As Mayor of the County of Hawaii, I would like to submit my testimony in support of the proposed Hyatt Regency Waikoloa Resort.

I believe the developers of the project have made a sincere and commendable attempt to conduct their task with due respect for the citizens and resources of this community. It is my understanding that the matter of anchialine ponds has been the subject of thorough, considerable and lengthy discussions between the applicant and the developers, and that this has resulted in the developer offering to establish a 12 acre preserve in addition to the existing 16 acres of open space surrounding other ponds.

While recognizing the importance of the anchialine ponds, I feel the foregoing measures represent an adequate preservation of the affected resources.

Additionally, while recognizing the importance of the federal permitting process, we must also weigh the benefits of this project and future development of the resort--namely, jobs, economic opportunities, upward mobility, activities,

services and recreational facilities and the means of supporting ourselves and our families in an increasingly competitive and demanding society.

Briefly, the benefits as outlined in the Federal Environmental Impact Statement, include:

One: 700 new construction jobs generated by the Hyatt, and an additional 240 construction jobs due to development of other projects at the resort.

Two: a total of 3,500 operational jobs at the resort, including an estimated 1,900 at the Hyatt.

Three: an increase in personal income for County residents estimated to be $84 million per year for the resort's future development, including $46 million for the Hyatt.

And four: additional real property tax revenues of $3 million per year, resulting from further development of which we estimate the majority will be derived from the Hyatt.

Although we should all be concerned for our natural resources, we must recognize that our people are the most vital resources of all. I believe this project--and others associated with, or dependent upon this development--are important

to the welfare of our community at this critical time.

The use of the property in question is extremely limited, and I feel the development proposed for this area is something which will benefit our community in a positive way for many years to come. On the other hand, the denial or further delay of this project may have very serious and negative repercussions.

In closing, I suggest that the benefits of this project will far exceed any adverse effects, and that the efforts of the developer more than satisfy the concerns of the County administration regarding the Hyatt Waikoloa Resort and construction planned for the future.

I assure you that the County Administration is totally supportive of this development, and ask that the necessary Federal permits be approved as expeditiously as possible.

Respectfully submitted,

Dante K. Carpenter.

COLONEL JENKS: I have a few cards here that people indicated that they wished to speak. G. Wong?

MS. WONG: Ladies and gentlemen, my name

is Tweetie Wong. I'm a realtor, businesswoman from Hilo. And I would like to note that this morning and this afternoon, the planning staff recommended approval for the development of the Hyatt, and sixteen out of sixteen speakers at that meeting supported the development. I find that highly unusual, especially for this island. That showed remarkable community support.

Concerning the studies that have been done about the water project, I can only respect the studies of Belt Collins and Alika Cooper. They are reputed to be well informed of their areas. I can only say I respect as well the experience of Mr. Chris Hemmeter. He knows what would sell and how to sell it. And if he is to develop this project, it must be on the water, not up the hill.

Obviously, he's gone through much time, effort and money to choose this area. And right now, we're looking at whether we need to take more time to study the project in the water area. We have seen the community come out today to say that they want this to happen as soon as possible. If we take the time to take more studies, that means more time that people are not having

their hopes come true, of economic opportunities for their families.

I would like to speak in support of this project, and I would like to take a moment just to present leis to Mr. Chris Hemmeter and Mr. Bob Diffley.

COLONEL JENKS: Jan Auyong, A-u-y-o-n-g, I believe.

MS. AUYONG: I'm not necessarily representing the employer that I--I'm with the U. H. Sea Grant Center. But as a group that is involved with ocean awareness and education--also we do conduct a program with ocean recreation and tourism--I commend Mr. Hemmeter on the project that he does have. And I would suggest that we do go through with the idea of the preserve. I would like to see programs involving the preserve, managed perhaps by the Nature Conservancy or some organization which has experience in land management and preservation. I would like to see educational programs which would inform the visitors as well as residents--I understand there are public access-ways nearby--that would inform the community about these pools.

Also, educational programs would also

include the surrounding marine areas of the Hyatt Regency and the Waikoloa Resort.

I would like to ask a question in regards to the lagoon that was proposed. Is this also included within the present EIS, or would that be in a separate document? Could I ask the question whether this lagoon would be subject to Title Four and under the jurisdiction of the Corps of Engineers, or is that going to be addressed in the Final EIS?

COLONEL JENKS: We'll take questions individually after, if we have some time.

MS. AUYONG: I did have some other questions, and I'll address those later.

Thank you.

COLONEL JENKS: I don't have any more cards indicating that anyone would wish to speak. Is there someone that has not spoken that would like to speak or make a presentation?

If you would state your name, and if you represent any organization, please.

MR. CARR: Thank you, Colonel.

My name is Douglas Carr. And I'm really not representing any particular agency.

My remarks are regarding the developer

and the development.

What the developer means to the community: they basically provide a backbone to any such community that is about to start, or already here. They offer financial support for the community activities, and also a creation of mass employment--which is certainly going to be needed. The construction of needed roadways and recreational areas. The Anaehoomalu Beach Development--from its situation in the earlier years, very difficult to get down and enjoy, to a now very beautiful piece of landscape, done by flowers, plants, roadways. This was financed and paid for by the developer.

The deplorable condition of the ponds five years ago to its very pretty, beautiful surroundings, where you can now get into the area--again, done and paid for by the developer.

The mauka/makai roadways--I speak of Waikoloa mauka to the road down below here. I speak of Kona Palisades,another development project--again, financed by the developer.

Water supplies added to the County system and used during times of emergencies and droughts--again, developer-financed.

Donating developed and undeveloped land

for recreational use. Parks, police and fire property. Landscaping in general.

The donation of corporate money to unlimited civic groups. I have ideas of Boy Scouts, Girl Scouts, your service clubs, unlimited golf sponsorship programs that go on through corporate money hand-overs, which promote community activities. One such one is the Waikoloa Canoe Club--again, corporate money getting in and helping community and supporting community, the backbone of and financing, canoe and equipment purchasing, the legal and required paperwork needed to get something like that going, the land and building made available, and the much-needed clerical work, and many others.

Sugar and its future--job losses, the number one problem on the Honokaa (phonetic) coast. It's a known fact that sugar is on the way out. Why? Well, there's many reasons why. The federal aid money--I believe it's sometimes called AA money--is just about if not totally over. Import sugar is controlled mainly by the big companies, such as your soft drink companies, your candy companies. Billion dollar companies really need a--I hate to use the word, but a cheap source of sweet

products. The lobbying is done, very extensive, on a legislative and congressional area, in the mainland.

What does that mean? The Hawaii sugar--Hawaii's sugar is basically too costly for the world market. The result--the big companies in Hawaii are presently operating at a loss.

We're back to basic one: the loss of sugar cane jobs and now, where do we go? Our job employment market becomes in great danger, and unemployment will soar; the economy will drop off. And you tell me what else is going to happen? Human existence is needed, and how is that accomplished?

Through development of new ideas, places and industry. Development and the developer, and the benefits to all of us: the developer wants his project up. And for that, he must conform to the rules of the land, directed by the State and and the County building codes.

They usually, in almost all cases, make every effort to do a nice, beautiful job. With such a development as Transcontinental, you would have the so-called home-grown personnel, wanting to do the project with good taste to the community.

Spend the required moneys to do the project with pride.

The spin-offs to the community are employment, sometimes often overlooked; opportunities for our growing-up youth to adults, often times forces them away from Hawaii because of the lack of job opportunities.

In conclusion, I feel that the job market is often overlooked in the name of conservation; and I feel that anti-development--and the feeling of anti-development at the present time. I feel that if you have a developer such as mentioned above, Transcontinental Development Corporation, and one who is trying to do everything in their power to develop a world-great hotel, one that will undoubtedly be in the top ten as great hotels, that all of us should try to offer support for that project in every way you can.

Should we come across environmental problems, let's stop, let's discuss the problems and find a workable solution and go on with the project.

The final outcome: a future for all of our growing people in Hawaii; jobs and an environment that we will all be proud of.

I further believe that in my fifteen years as a professional diving and teaching scuba on this coast, I have yet to see where a development--such as the Mauna Kea, the Sheraton and the Mauna Lani Bea Hotel--have created problems with the ocean floor. In fact, they spend millions annually just treating the waste water and turn it around and re-use it for the golf course irrigation, really an environmental conservation effort on their part.

What I have seen along the coastline is the netting of all types of small fish through the use of nets, legal or otherwise, and the harvesting of any and all of these fish with little or no regard to the grow-back or reproduction areas in these reefs. This is where control should be spent, and I also understand that control is now underway.

And I thank you.

COLONEL JENKS: Is there anyone else that wishes to speak?

MS. FLORES: My name is Elaine Flores, and I'm president of the Waimea Hawaiian Civic Club.

I'd just like to say something. For one thing, I never heard in my thirty years, about

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anchialine ponds down here. And all of a sudden we've got all kinds of experts. Where did they come from? I'm surprised. When Sheraton built this place, they weren't concerned about the anchialine ponds. Now Hyatt Regency wants to come in, and everybody is getting excited about the eels. And I never heard one Hawaiian say that they knew the eels were there. How long the Hawaiians live here? They had no connection to the eels.

Anaeho'omalu was known for the mullet ponds. Frances Brown (phonetic) has a awa pond. And every section had a special attraction. Makuawena (phonetic) has the red shrimp. Kukio (phonetic) had something special. But I never heard of the eels; and now I hear there is so many ponds from the other side of the island all the way up to Kohala. So why are you worried about fourteen ponds or fifteen ponds, compared to five hundred? They're going to have a conservation area that they're going to preserve. And people are now asking, what are they? This will be an extra attraction to the area. We never before had access to these areas, even where I'm standing today--it was all private property.

And I wondered, what did the ponds look like? And look what happened. Sheraton came in. We can come to the seashore. We can look at the ponds at the Makahao (phonetic), how the Hawaiians engineered this system. The haoles cannot duplicate. Really.

And so now, we have Hyatt Regency who going to build a beautiful complex, going help us--they're going to bring doctors here. And we'll have all this employment. And let them know, that whole beach is going to be open. People can come; they'll have access to the beaches. So what are we worried about?

Thank you.

COLONEL JENKS: Anyone else?

Well, I want to thank you all for your attendance here this evening, and your courtesy to the developer and his representatives, to the Corps, and to those who spoke this evening.

Before I ask Mr. Hemmeter and his party if they have any closing comments, I want to say a couple of things about what's going to happen from here.

I'm going to hold the comment period open on this public hearing for ten days, until the

19th of April. So if you have any other comments that you wish to make, you may write to me, Colonel Michael Jenks,District Engineer, Corps of Engineers, Pacific Ocean Division, Fort Shafter, Hawaii, zip code 96858.

We also have the Draft EIS, environmental impact statement, out for public comment. I know it has not been out very long. I apologize to you that it was just recently received. I understand that there was some delay at the post office in getting it; but we will accept comments on the Draft EIS until the 20th of May. After that, we will take a look at the comments that we received on the EIS; and as you may know, this hearing is being recorded and we will study the transcript of the hearing and the comments made.

I-45

And we will address those issues. Then, we will incorporate all of that into a Final Environmental Impact Statement. And that will be the principal document that I'll use to make a decision.

I would expect the Final EIS to be probably published during the month of June. That depends on how much difficulty we have in addressing the remaining issues. That document will be

distributed for thirty days for comment, and then I will anticipate making a decision probably in August.

One comment I will clarify is that there was a concern made about the ownership of the ponds, and their location relative to the shoreline, et cetera. It may be or may not be a State issue or County issue, but it's not a federal issue. There is no question that the federal government has jurisdiction over the ponds, regardless of where the ponds are located relative to the ownership of land.

So we're involved, and we'll make our decision based on our jurisdiction over the ponds.

Mr. Hemmeter, do you have any comment that you would wish to make or any issues--or to address anything that we had come up here this evening?

We want to thank our recorder, Carmen Burditte. Also, Miss Elsie Smith from the Corps of Engineers who has been circulating among you in collection of the blue cards.

If you have not filled out a card, if you would, or at least leave your name and address, so that we can inform you of the next

public document that will be available, which will be the Final EIS.

That concludes the public hearing this evening, ladies and gentlemen. Thank you very much.

(Whereupon, the proceedings were concluded at 9:10 p.m.)

CERTIFICATE

I, Carmen A. Burditte, hereby certify that the foregoing is a full, true and correct statement of the proceedings had and the testimony given by the witnesses at the hearing held April 9, 1985, as taken down by me in stenotype and thereafter transcribed into typewriting under my supervision.

Carmen A. Burditte
TCSR 1039

HAWAII LAND MANAGEMENT
A REAL ESTATE CORPORATION

March 7, 1985

Michael T. Lee
U.S. Army Corp of Engineers
Room 205, Building 230
Fort Shafter, Hawaii 96858-5440

RE: WAIKOLOA HYATT RESORT PERMIT APPLICATION

Dear Mr. Lee:

Thank you for your notice with respect to the public hearing scheduled for April 9, 1985 and announcing that the draft EIS will be available shortly before that date.

I would appreciate receiving a copy of the draft EIS as soon as it has been published, along with any other information that you may have with respect to the permit application.

I notice that the April 9th hearing date is actually a rescheduling of the meeting which had previously been set for March 14, 1985. I hope that this will not result in further delays of the proposed Hyatt resort development at Waiulua Bay. I hope that you will exercise all possible means to expedite this permit application so that the Hyatt resort project can proceed as quickly as possible.

Thank you for your courtesy.

Sincerely,

John Michael White, President

JMW:jok

I-47

Post Office Box 10 • Honolulu, Hawaii 96810 225 Queen Street (808) 524-6000 Telex 743 0482

LOCAL UNION NO. 126
OF THE
International Union of Elevator Constructors
AFFILIATED WITH THE AFL-CIO
SUITE 314, 707 ALAKEA STREET • HONOLULU HI 96813 • TELEPHONE 536-8653

April 3, 1985

The Honorable Stephen Yamashiro
Hawaii County Council
Hilo, Hawaii 96720

Dear Councilman Yamashiro:

Subject: Hyatt Regency Project

The officers and members of the International Union of Elevator Constructors, Local 126 are in favor of the proposed Hyatt Regency project and strongly urge your support of the project.

The approval of the Hyatt Regency project will create much-needed jobs for those in the construction industry and other areas of employment.

Thank you for your consideration of the project.

Sincerely yours,

Lawrence S. Sakamoto

Lawrence S. Sakamoto
Business Representative
IUEC, Local 126

LSS:jh

I-48

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

April 8, 1985

Colonel Michael M. Jenks
District Engineer
Honolulu District
U.S. Army Corps of Engineers
Building 230
Ft. Shafter, Hawaii 96858

Re: Public Notice No. PODCO-O 1812-SD
Transcontinental Development Company
- Waikoloa Hyatt Resort Development

Dear Colonel Jenks:

I-49

This letter provides preliminary comments in response to the referenced public notice announcing the public hearing for the project referenced above. Please include them in the hearing record. Our comments focus primarily on the need for the proposed project to comply with the 404(b)(1) guidelines (referred to as "the Guidelines"). We will provide additional 404 comments, as well as an evaluation of the overall environmental impacts of the project following our review of the Draft Environmental Impact Statement.

The applicant proposes to construct a 1,250-room resort hotel and associated amenities, including a 4-acre salt water lagoon, ice skating rink, bowling alley, health spa and sports medicine complex, tennis stadium, and freshwater swimming pool. The construction of the project would result in the destruction of a large number of anchialine ponds located on the project site.

Anchialine ponds are unique natural resources. In Hawaii, they are found only on the west coast of the Island of Hawaii, and in the Cape Kinau area of Maui. They support a community of organisms, some of which are found only in anchialine ponds. The ponds located on the project site have been described as ponds of "... exceptional natural value based on physical structure, diversity, representative aquatic communities and new and endemic species." They are part of a system of ponds that represent, "The largest single concentration of anchialine ponds on the Kona coast and in the state" (Maciolek and Brock, 1974).

We have determined that many of the anchialine ponds are "special aquatic sites" under the Guidelines (40 CFR 230.3(q-1)). In recognition of the special and important values of special aquatic sites and the need to protect these areas from degradation or destruction, the regulations establish a "water

dependency" test for discharges into special aquatic sites. If the activity associated with the discharge of dredged or fill material into a special aquatic site is not "water dependent" (i.e. require access or proximity to or siting within the special aquatic site in order to fulfill its basic purpose), practicable alternatives are presumed to be available unless clearly demonstrated otherwise. The degradation or destruction of special aquatic sites is considered to be one of the most severe environmental impacts covered by the these Guidelines.

The proposed project, a hotel resort, is not water dependent as defined above. As such, one of the first steps in determining compliance with the Guidelines is the evaluation of the applicant's demonstration that there are no practicable alternatives to the proposed discharge into special aquatic sites.

In addition to the demonstration described above, the Guidelines also require that no discharge be permitted if a practicable alternative exists which would have less adverse impact on the aquatic ecosystem. Compliance with this requirement is determined by a thorough evaluation of such alternatives. These alternatives include consideration of revised configurations and/or a reduction in scope of the project in order to minimize adverse effects. The Guidelines further require that no discharge be permitted which will cause or contribute to significant degradation of the waters of the United States resulting in unacceptable adverse impacts.

Based on our site visit and a review of the literature on anchialine ponds, it is clear that the destruction of these ponds could result in significant adverse effects on the aquatic ecosystem. In addition to the direct losses resulting from the filling activities, we are also concerned with the secondary impacts of the proposed project on the remaining ponds, i.e. the effects of: excavation and fill on the subsurface flows, the increased human intrusion into the area, and the flow into the ponds of runoff potentially laden with fertilizer, oil and grease, petroleum hydrocarbons and other pollutants.

The proposed project will be evaluated for compliance with the above criteria. Substantial consideration will be given to the uniqueness of this resource. Please feel free to direct questions on this matter to Ms. Lily Wong of my staff at (415) 974-7194 / FTS 454-7194.

Sincerely yours,

Charles W. Murray, Jr.
Assistant Regional Administrator
for Policy and Management

cc: applicant
USFWS - Honolulu
NMFS - Honolulu

DANTE K. CARPENTER
MAYOR

Office of the Mayor

April 8, 1985

Colonel Michael Jenks
District Engineer
Army Corps of Engineers
Fort Shafter, HI 96858

Dear Colonel Jenks:

I-50

As Mayor of the County of Hawaii, I would like to submit my testimony in support of the proposed Hyatt Regency Waikoloa Resort.

I believe the developers of the project have made a sincere and commendable attempt to conduct their task with due respect for the citizens and resources of this community. It is my understanding that the matter of anchialine ponds has been the subject of thorough, considerable and lengthy discussions between the applicant and the developers, and that this has resulted in the developer offering to establish a 12 acre preserve in addition to the existing 16 acres of open space surrounding other ponds.

While recognizing the importance of the anchialine ponds, I feel the foregoing measures represent an adequate preservation of the affected resources.

COUNTY OF HAWAII • HILO, HAWAII 96720

Additionally, while recognizing the importance of the federal permitting process, we must also weigh the benefits of this project and future development of the resort--namely, jobs, economic opportunities, upward mobility, activities, services, recreational facilities and the means of supporting ourselves and our families in an increasingly competitive and demanding society.

Briefly, the benefits as outlined in the Federal Environmental Impact Statement, include:

1. 700 new construction jobs generated by the Hyatt and an additional 240 construction jobs due to development of other projects at the resort;
2. A total of 3,500 operational jobs at the resort including an estimated 1,900 at the Hyatt;
3. An increase in personal income for County residents estimated to be $84 million per year for the resort's future development including $46 million for the Hyatt; and
4. Additional real property tax revenues of $3 million per year resulting from further development of which we estimate the majority will be derived from the Hyatt.

I-51

Although we should all be concerned for our natural resources, we must recognize that our people are the most vital resources of all. I believe this project--and others associated with or dependent upon this development--are important to the welfare of our community at this critical time. The use of the property in question is extremely limited and I feel the development proposed for this area is something which will benefit our community in a positive way for many years to come. On the other hand, the denial or further delay of this project may have very serious and negative repercussions.

In closing, I suggest that the benefits of this project will far exceed any adverse affects and that the efforts of the developer more than satisfy the concerns of the County Administration regarding the Hyatt Waikoloa Resort and construction planned for the future. I assure you that the County Administration is totally supportive of this development and ask that the necessary Federal permits be approved as expeditiously as possible.

Respectfully submitted,

DANTE K. CARPENTER
MAYOR

COUNTY COUNCIL
County of Hawaii
Hawaii County Building
25 Aupuni Street
Hilo, Hawaii 96720

April 8, 1985

District Engineer
U. S. Army Corps of Engineers
Building 230
Ft. Shafter, HI 96858

I-52

Thank you for the opportunity to respond to the proposal by Transcontinental Development Company and Atpac Land Company. The applicants are requesting authorization to excavate a five-acre lagoon; construct and maintain structures and a beach in the lagoon; create and maintain a 12-acre anchialine pond preservation area; and fill the remaining anchialine ponds on the Waikoloa Beach Resort properties. These proposals are necessary to construct a 1,250-room luxury resort complex consisting of three towers and recreational facilities.

The excavation of a five-acre recreational lagoon adjacent to Kaiulua Bay is necessary to provide easy access into the water due to hazardous conditions of the existing shoreline. The lagoon will encompass an artificial beach which further promotes a safe water recreation area.

The creation and maintenance of a 12-acre pond preservation area will perpetuate the aquatic ecosystem located on the Waikoloa Beach Resort properties. The remaining anchialine ponds located outside the designated preservation area which consists of 41% of the ponds would be filled to allow for the construction of the Hyatt Regency Waikoloa Hotel facilities.

The development of luxury properties along the South Kohala coastline has changed the complexion of the area into a major resort destination. Planned resort developments will result in substantial increases in employment opportunities and economic activities for the communities of West Hawaii. The proposed resort would further expand the County's economic base by providing recreational opportunities and stimulating housing development and general business activities.

COUNTY COUNCIL
County of Hawaii
Hawaii County Building
Hilo, Hawaii 96720

This proposed project has been designed as a world-class resort to entice visitors to the South Kohala area. The lagoon and recreational amenities were uniquely designed into this project to attract selected visitors. Further, the Waikoloa Hyatt Regency would complement the Sheraton Waikoloa Hotel by attracting additional visitors to the area.

Alternatives I, II, and III as proposed in the Environmental Impact Statement prepared by the U. S. Army Corps of Engineers would impede the development of the recreational facilities which may severely compromise the attraction of this world-class resort.

Past experiences with Sheraton Waikoloa Resort, Mauna Lani Resort, and Mauna Kea Properties have shown that projects can be planned to protect the environment and preserve archeological and historical sites. The caliber of this commitment will also give the Waikoloa properties the recognition which may promulgate further developments. Any alteration to the project plans of Transcontinental Development Company and Atpac Land Company would incur unnecessary delays and additional expenses.

We believe that the project is in consonance with the type of development the Council has envisioned for the area and that every effort should be made to avoid the imposition of unnecessary obstacles. We, the legislative branch of government, have constantly strived to create a climate conducive to encourage development and economic activity and have continually sought to minimize delays and streamline the permit processes.

In closing, in behalf of myself and members of the County Council, I recommend that the U. S. Army Corps of Engineers approve the applicants' DA (Department of the Army) permit to allow the developers to proceed with their resort project as planned.

Stephen K. Yamashiro
Council Chairman

I-53

Hawaii Island
Chamber of Commerce
Established in 1897 • 180 Kinoole St Suite 203 • Hilo Hawaii 96720 • Phone (808) 935-7178

April 8, 1985

U. S. Army Corps of Engineers
Public Hearing
Sheraton Royal Waikoloa Hotel
Tour Lobby
South Kohala, Hawaii Island

Subject: Request of Transcontinental Development Co. and Atpac Co. to Excavate and Fill Anchialine Ponds at Proposed $360 million Hyatt Regency Waikoloa Resort.

Gentlemen:

On April 9, 1985 the Hawaii Island Chamber of Commerce at a public hearing at the Sheraton Waikoloa Hotel before the County of Hawaii Planning Commission, went on record supporting the applications by Transcontinental Development Co. and Atpac Co. for a Special Management Area Use Permit to allow the development of their proposed luxury class 1260-room Hyatt Regency Waikoloa on the Kohala Coast of Hawaii Island. That testimoney is made a part of this and is attached hereto.

The Hawaii Island Chamber of Commerce supports the developer's request to the Corps of Engineers to excavate a five acre recreational lagoon on the site of the 60 acre beach front complex and to fill the anchialine ponds that are presently located on the development sites.

The Chamber also supports the applicant's modification to include the establishment of a 12 acre anchialine pond preservation area to insure the continued existence of this unique aquatic ecosystem on the Waikoloa Beach resort property.

The former request is necessary in order to raise the ground elevation of the coastal area above the base flood elevation and by so doing to provide flexibility in designing and constructing this multimillion dollar complex.

Affiliated with the Chamber of Commerce of the United States

Creation of a 5-acre lagoon and artificial beach by the developers will provide a safe water recreation area for visitors unfamiliar with some of the hazards of coastline swimming.

I thank you for this opportunity to submit our testimony and urge your favorable consideration.

Respectfully yours,

Sharon K. Scheele, President
Hawaii Island Chamber of Commerce

RSB:bnm

encl.

Waimea Hawaiian Civic Club

KAMUELA, HAWAII 96743

April 8, 1985

Colonel Michael M. Jenks
Honolulu District Engineer
U.S. ARMY CORPS OF ENGINEERS
Fort Shafter, Building 230
Honolulu, Hawaii 96858-5440

Dear Colonel Jenks:

Re: Transcontinental Development Co. and Atpac Land Co. Proposal/Permit to Excavate Lagoon and Fill Tidal Ponds at Waikoloa Beach Resort

I-54

Thank you for the opportunity to comment on this very important matter that has captured the interest of all informed residents on the island.

As one who was born and raised in the Kohala Districts, I have watched our communities change in both size and character. I have seen the decline of sugar since the 1950's, the beginnings of a Kohala Coast resort destination area with Mauna Kea Beach Hotel, and the shakey beginnings of Waikoloa Village and Waikoloa Beach Resort. I have witnessed those years when the District's greatest export was its own children, who from a young age assumed they had to leave the District to get a nonplantation job. After Laurance Rockefeller's pioneer project here on the Kohala Coast, it took a full decade and a half before a second hotel was built, and another two years thereafter for a third.

The Sheraton Waikoloa and Mauna Lani Bay Hotels have provided this island's children job opportunities and the choice to continue living in the communities they love best, but only after a long lag period. This long lag has had mixed blessings. On the positive side, it has given the Big Island an opportunity to learn from the mistakes of others. Resorts like Mauna Lani have maintained open communication with special interest groups to ensure that community concerns are incorporated in the project in the best possible way. It has proven that public access, lateral shoreline access over the Ala Kahakai, historic preservation, and open space can work well in a master development plan. Other points that make the coastal resorts palatable from a social stand point are these:

- o resort facilities are not mixed with the existing communities; employees can go home at night away from the visitor plant
- o the secondary jobs provided by the hotel developments give our children additional job options beyond the hotels, and this includes construction jobs and other employment generated by investor interest

/...

- o these resorts are being developed on agriculturally poor lands and from an overall planning standpoint, the lands seem to be designated for their highest and best use

If there is one thing I have learned in my long life, it is that life is a series of compromises. I am the greatest advocate for the preservation of things of cultural, historic, and aesthetic significance. But I also believe that our island's children deserve employment choices within a diverse economy, and this diverse economy at this point in time can only be driven by quality resort development on the Kohala Coast.

The Hyatt Regency Waikoloa is an important factor in the overall success of the Kohala Coast as the premier visitor destination for the State. Without this project, it is possible that investor interest in the Big Island will rapidly decline and the Kohala Coast will again suffer from a long lag period and economic stagnation. We urge a speedy compromise of issues to allow the Hyatt to proceed. However, we also urge the developers of Waikoloa Beach Resort to do the following:

- o develop a better attitude toward preservation of historic and cultural assets at Waikoloa
- o provide a safe and well delineated linkage of the Ala Kahakai so that local fishermen and walkers can pass without obstruction
- o take an active part in the prioritization of the most aesthetic and valuable anchialine ponds along the Kona-Kohala Coast
- o work closely with local special interest community groups to ensure a product with which we can all live.

We also urge the U.S. Army Corps of Engineers to do some long range planning rather than "crisis management" dictated by individual project requests. This long range planning should include an inventory and prioritization of wetlands and ponds along the Coast. Developers should be made aware at the outset, what the risks of development are, especially if there are anchialine ponds on the property deemed very important and are not to be disturbed. Most people will find it impossible to speak intelligently on the biological importance of the Waikoloa anchialine ponds in question, especially compared to the many others along the Coast. Let us do that which is reasonable. Let's not merely react to this limited issue. Let's be smart and begin to look at the big picture.

Sincerely,

WAIMEA HAWAIIAN CIVIC CLUB

Sam Hook
Historic Preservation Officer

SH:lms

NA ALA HELE
PO BOX 1572
KEALAKEKUA, HI 96750

April 8, 1985

To: U.S. Army Corps of Engineers
From: Na Ala Hele
Re: Testimony for the April 9, 1985 Public Hearing - Comments on the Draft Environmental Impact Statement, Waikoloa Beach Resort Anchialine Ponds

I. The Twelve Acre Anchialine Preserve

It is encouraging that the applicants have proposed a 12 acre preserve after initially seeking permission to eliminate all pond resources in the area to be developed. We have walked the 12 acres, identified many ponds by their identification numbers, but could not locate pond #39. We urge the retention of four additional ponds which appear to be located just outside of the proposed preserve's north boundary. These pools lacked numbers and thus cannot be precisely identified in this write-up. What makes them unique among the other pools in the 12 acre area are:

a. their aesthetic beauty (one pool has an extremely picturesque arch formation),
b. their greater depth,
c. the lack of vegetation surrounding them, and
d. the lack of "aging" characteristics (p. 111-19) commonly found among the majority of ponds in the proposed preserve.

As is noted in the Draft EIS (p. 111-24) the ponds found in the Waikoloa area exhibit great diversity in pond characteristics such as age, size and salinity. It would be desirable to represent that diversity in a preserve.

II. Preservation and Management of Anchialine Pools Can Achieve:

1. Aesthetically appealing open space within the Waikoloa Beach Resort design
2. Educational benefits as the ponds are studied and managed - interpretive programs for residents and visitors can instruct people in what makes these ponds so unique in the state and the world.
3. Prevention of the loss of these specialized habitats, thereby assisting in the survival of endemic plants and animals

III. Long-Range Planning for West Hawaii's Anchialine Pool Resources

A program aimed at the long term protection of West Hawaii's anchialine resources should be proposed in the Hawaii County General Plan update. We urge that this be done because:

1. Anchialine pools are special natural resources of our county and we have a responsibility to protect them.
2. These pools are easily degraded by surrounding activities.
3. An inventory and identification of pools worthy of protection would apprise potential developers that certain ponds have been earmarked for conservation and management.
4. It cannot be assumed that there are sufficient anchialine pools in West Hawaii to guarantee the survival of endemic aquatic organisms. Presently there appear to be no sanctions against bulldozing, filling-in or other destructive treatment of ponds. An anchialine pond preserve at Waikoloa would be the first Natural Area Reserve for anchialine pools on the island of Hawaii (see p. 111-22).

IV. Public Access and the Ala Kahakai Trail System

Continuous, pedestrian, public shoreline access needs to be guaranteed and made explicit in the Waikoloa Beach Resort plan. The Mauna Lani Resort to the north has successfully incorporated the Ala Kahakai along that shoreline, and the trail system should be extended through the Waiulua Bay area and north to Honoka'ape Bay.

V. Historic Resources

Along the shoreline north of Waiulua Bay is a concentration of Hawaiian lava "storage bins" which appear worthy of preservation. We would like to know if those features are planned for preservation by the applicants.

The section of the Ala Loa (a.k.a. King's Highway and Ala Mamalahoa) traversing the proposed development area is on the Hawaii Register of Historic Places and any alterations must first be reviewed and approved by the Department of Land and Natural Resources.

VI. Additional Comments Re: The Hyatt Regency Proposal

1. According to the applicants the Big Island's visitor industry has lagged behind that of other islands due to a lack of identity and inadequate promotion (p. 11-17). It should also be noted that the Big Island lacks the extensive, white sand beaches so popular with visitors. For example the Hyatt Regency will need to alter the natural coastline by constructing a man-made beach and lagoon in order to attract clientele. One wonders if the natural, windy character of Kohala also discourages visitors and contributes to the slower growth of the industry.
2. How essential is the importation of deer to the success of this resort? Haven't deer been found to be potentially devastating to Hawaii's environment? How appropriate are deer to the establishment of an identity for the Big Island's visitor industry?
3. The Hyatt Regency proposal is indeed an ambitious one. It is not the only development currently being proposed. Other projects are being reviewed which can contribute to our need for jobs, eg. Mauna Lani Resort, Keauhou, Mauna Kea Beach and Kona Village Resort expansions, and new developments proposed for Kapalaoa, Kuki'o and Mahukona. While the total number of jobs anticipated through resort developments can appear promising, it is more accurate to assess how many of those jobs will be temporary construction jobs and how many will be part-time, casual or on-call with little or no employee benefits.

Conclusion

Na Ala Hele is not anti-jobs and development. We are in favor of quality developments that will not involve too great a sacrifice of our natural environment, historic resources, Hawaiian culture and our island way of life.

I-55

DOUGLAS M. CARR

P. O. BOX 1252 KAMUELA, HAWAII 96743

ALSO

WAIKOLOA CANOE CLUB PROFESSIONAL DIVERS HAWAII

APRIL 09, 1985

SUBJECT: REMARKS REGARDING THE DEVELOPER AND THE HYATT DEVELOPMENT

OPENING REMARKS: WHAT A DEVELOPER MEANS TO A COMMUNITY.

A. THEY BASICALLY PROVIDE A BACKBONE TO ANY SUCH COMMUNITY.

1. OFFER FINANCIAL SUPPORT FOR COMMUNITY ACTIVITIES.

CREATING OF MASS EMPLOYMENT.

2. CONSTRUCTION OF NEEDED ROADWAYS, RECREATION AREAS.

A. ANAEHOOMALU BEACH DEVELOPMENT. FROM NOTHING TO BEAUTY. FINANCED AND PAID BY THE DEVELOPER.

B. MAUKA/MAKAI ROADWAYS: WAIKOLOA/KONA PALISADES/OTHERS. FINANCED AND PAID BY THE DEVELOPER.

C. WATER SUPPLIES ADDED TO THE COUNTY SYSTEM AND USED DURING TIME OF EMERGENCIES, DROUGHTS, ETC...

3. DONATING DEVELOPED AND UNDEVELOPED LAND FOR RECREATIONAL USE.

A. PARKS/POLICE AND FIRE PROPERTY/LANDSCAPING IN GENERAL...

4. DONATION OF CORPORATE MONEY TO UNLIMITED CIVIC GROUPS.

A. SERVICE CLUBS/BOY-GIRL SCOUTS/GOLF SPONSORSHIPS.

B. WAIKOLOA CANOE CLUB, THE BACKBONE OF AND FINANCING.

1. CANOE PURCHASE 2. LEGAL PAPERWORK

3. LAND AND BUILDING 4. CLERICAL WORK NEEDED

5. AND OTHERS

B. SUGAR AND IT'S FUTURE... JOB LOSS, THE NUMBER ONE PROBLEM.

1. IT'S A KNOWN FACT THAT SUGAR IS ON THE WAY OUT. WHY?

A. THE FEDERAL AID MONEY CALLED THE (AA) MONEY IS OVER

C. IMPORT SUGAR IS REALLY CONTROLLED BY THE BIG COMPANIES

1. ALL SOFT DRING CO'S 2. CANDY COMPANIES

BILLION DOLLAR COMPANIES NEEDING CHEEP SWEET PRODUCTS AND ALL

LOBBRING VERY HARD IN CONGRESS TO GET THE CHEEP SUBSTITUTE.

1. HAWAII SUGAR TO COSTLY ON THE WORLD MARKET. RESULT. THE BIG COMPANIES IN HAWAII OPERATING AT A LOSS AND WILL QUIT.

2. BACK TO BASIC STEP 1. LOSS OF SUGAR JOBS AND NOW WHERE ARE WE?

3. OUR JOB EMPLOYMENT MARKET BECOMES IN GREAT DANGER AND UNEMPLOYMENT SOURS. THE ECONOMY DROPS OFF YOU TELL ME

C. HUMAN EXISTENCE IS NEEDED AND HOW IS THAT ACCOMPLISHED?

1. THROUGH DEVELOPMENT OF NEW IDEAS, PLACES, AND INDUSTRY.

2. DEVELOPMENT AND THE DEVELOPER AND THE BENEFITS TO ALL OF US.

1. THE DEVELOPER WANTS HIS PROJECT UP. FOR THAT HE MUST.

A. CONFORM TO THE RULES OF THE LAND DIRECTED BY STATE AND COUNTY BUILDING CODES.

B. THEY USUALLY MAKE EVERY EFFORT TO DO A NICE JOB.

C. WITH SUCH A DEVELOPER AS TRANS-CONTENANTIAL, YOU HAVE THE SO CALLED HOME GROWN HAWAII PERSONNEL, WANTING TO DO THE PROJECT WITH GOOD TASTE TO THE COMMUNITY.

D. SPEND THE REQUIRED MONEY TO DO THE PROJECT WITH PRIDE.

E. THE SPINOFFS TO THE COMMUNITY ARE EMPLOYMENT, SOMETHING SOMETIMES OFTEN OVER LOOKED, AND THE OPPORTUNITIES FOR OUR GROWING UP YOUTH TO ADULTS, OFTEN TIMES FORCES THEM AWAY FROM HAWAII BECAUSE OF LACK OF JOB OPPORTUNITIES.

CONCLUSION: I FEEL THAT THE JOB MARKET IF OFTEN OVERLOOKED IN THE NAME OF CONSERVATION, AND THE FEELING OF ANTI DEVELOPMENT AT THE PRESENT TIME.

I FEEL THAT IF YOU HAVE A DEVELOPER SUCH AS MENTIONED ABOVE, (TRANS-CONTENTIAL DEVELOPMENT CORP.), AND ONE WHO IS TRYING TO DO EVERYTHING IT THEIR POWER TO DEVELOPE A WORLD GREAT HOTEL, ONE THAT WILL UNDOUBTEDLY BE IN THE TOP TEN (10) AS GREAT HOTELS, THAT ALL OF US HERE SHOULD TRY OF OFFER SUPPORT FOR THE PROJECT IN EVERY WAY YOU CAN.

SHOULD WE COME ACROSS ENVIRONMENTAL PROBLEMS, LET'S STOP, DISCUSS THE PROBLEMS, FINE A WORKABLE SOLUTION AND GO ON WITH THE PROJECT.

--------FINAL OUTCOME, A FUTURE FOR ALL OF OUR GROWING PEOPLE IN HAWAII-------

JOBS AND AN ENVIRONMENT THAT WE WILL ALL BE PROUD OF.

I FURTHER BELIEVE THAT IN MY 15 YEARS OF PROFESSIONAL DIVING AND TEACHING SCUBA ON THIS COAST, I HAVE YET TO SEE WHERE A DEVELOPMENT SUCH AS THE MAUNA KEA, THE SHERATON, AND THE MAUNA LANI BAY HOTEL HAVE CREATED PROBLEMS WITH THE OCEAN FLOOR. IN FACT THEY SPEND MILLIONS ANNUALLY JUST TREATING THE WAIST WATER AND TURN IT AROUND AND REUSE IT FOR GOLF COURSE IRRIGATION. REALLY AN ENVIRONMENTAL CONSERVATION EFFORT ON THEIR PART.

WHAT I HAVE SEEN ALONG THE COAST LINE IS THE NETTING OF ALL TYPES OF SMALL FISH THROUGH THE USE OF ILLEGAL SIZE NETS AND THE HARVESTING OF ANY AND ALL OF THESE FISH WITH LITTLE OR NO REGARDS TO THE GROW BACK REPRODUCTION AREA OF THESE REEFS. THIS IS WHERE CONTROL SHOULD BE SPENT AND I UNDERSTAND THAT THIS CONTROL IS UNDERWAY NOW.

CORDIALLY SUBMITTED,

DOUGLAS M. CARR

TESTIMONY FOR A PUBLIC HEARING
BEFORE THE U.S. ARMY CORPS OF ENGINEERS
SHERATON WAIKOLOA HOTEL
9 APRIL 1985 7:00 P.M.

I'M BOB LINDSEY, A WAIMEA RESIDENT AND A MEMBER OF THE HAWAII LEGISLATURE. I REPRESENT DISTRICT SIX IN THE STATE HOUSE OF REPRESENTATIVES.

I AM HERE TO TESTIFY IN FULL SUPPORT OF WAIKOLOA BEACH RESORTS DEVELOPMENT EFFORTS FOR THIS AREA, SPECIFICALLY, THE PROPOSED HYATT WAIKOLOA.

I WILL COMMENCE BY SAYING I WAS BORN AND RAISED ON THIS ISLAND. I INTEND TO SPEND MY FINAL DAYS HERE. I FEEL VERY CLOSE TO WAIKOLOA AND ALL THAT HAS HAPPENED HERE. I WORKED HERE IN 1970 FOR MORRISON-KNUDSEN CONSTRUCTION WHEN THE INFRASTRUCTURE FOR WAIKOLOA VILLAGE WAS BEING PUT IN PLACE. THE CREW I WORKED ON INSTALLED THE MAIN TRUNKLINE ON A STREET THAT BRINGS WATER FROM THE PARKER FIVE WELL TO WAIKOLOA VILLAGE. I WORKED HERE AGAIN IN 1980. MY PRIMARY JOB WAS OPERATING A PIECE OF HEAVY MACHINERY USED TO COMPACT THE FAIRWAYS AND BUNKERS FOR THE GOLF COURSE HERE AT THE SHERATON WAIKOLOA. I MENTION THIS SIMPLY TO ESTABLISH, I AM NOT JUST 'PASSING THROUGH'. MY ROOTS ARE HERE. I HAVE SEEN BOISE CASCADE AND NOW THE TRANS-CONTINENTAL DEVELOPMENT COMPANY CONVERT A WASTELAND INTO AN OASIS AND AS A RESULT PROVIDE THIS ISLAND, AN ALTERNATIVE TO AGRICULTURE.

I AM HERE TO ASK OF YOU WHO REPRESENT THE U.S. CORPS OF ENGINEERS, TO EXPEDITE THE EFFORTS OF THE HEMMETER INVESTMENT COMPANY AS WELL AS WAIKOLOA BEACH RESORT IN THIS MASSIVE AND EXCITING VENTURE.

GRANTED, THERE ARE THOSE AMONGST US, WHO ARE APPREHENSIVE ABOUT THE FUTURE AND THE IMPACTS A PROJECT OF THIS MAGNITUDE WILL HAVE ON THE ISLAND, PARTICULARLY WEST HAWAII. YOU HAVE YOUR SIDE TO TELL. BUT WHERE YOU SEE DARKNESS, I SEE SUNSHINE. I SEE THE HYATT WAIKOLOA AS ESSENTIAL AND NECESSARY. I SEE THE HYATT WAIKOLOA AS A VESSEL FOR OPPORTUNITY. I SEE THE HYATT WAIKOLOA AS BEING A CATALYST FOR MOVING THIS ISLAND INTO THE 21ST CENTURY AND A CONTRIBUTOR TO OUR TAX, EMPLOYMENT AND ECONOMIC BASES. THERE IS NO TURNING BACK. HAWAII HAS MOVED FROM AN ECONOMY BASED ON AGRICULTURE TO AN ECONOMY BASED ON SERVICE AND INFORMATION. WE ARE LIVING IN A NEW AGE AND A NEW TIME. WE NEED TO GROW FOR IF WE DO NOT, WE WILL AS AN ISLAND DIE. IF ANCHIALINE PONDS IN THE VICINITY MUST FALL TO EARTH MOVERS. IF THE COAST HAS TO BE ALTERED. IF THE AINA HAS TO BE DISTURBED THEN SO BE IT. I TRUST WE WILL NOT PERMIT THIS OPPORTUNE MOMENT TO ESCAPE US IN ORDER TO SAVE CERTAIN FORMS OF WATERLIFE AND A NETWORK OF PONDS. ALTERNATIVES HAVE BEEN OFFERED. LET US EXAMINE THESE AND LET US IMPLEMENT THEM. GRANTED, WE MUST REMEMBER THE PAST BUT LET US NOT LET DAYS GONE BY DENY US ACCESS TO THE FUTURE.

MAHALO.

KONA BOARD OF REALTORS
TESTIMONY IN FAVOR OF
THE PROPOSED HYATT RESORT AT WAIKOLOA, SOUTH KOHALA

PETER T. YOUNG, PRESIDENT-ELECT
75-5722 KUAKINI HIGHWAY, KAILUA-KONA, HAWAII 96740
329-6488

APRIL 9, 1985

The Kona Board of Realtors strongly supports the proposed resort development of Mr. Chris Hemmeter at Waikoloa, South Kohala. We believe that the proposed development will complement the existing high standards found in the neighboring resorts on the Kohala Coast and will be a positive economic influence to our community, both for the immediate vicinity and the Island as a whole.

The coastal region of South Kohala has been shown to be an area of quality conscious resort developments serving a variety of visitors to the area. The proposed Hyatt is a continuation of these high standards. From a Land Use concern, the project is a natural extension of the land use patterns already established for the area.

The State, as well as local economies are dependent on the survival of the visitor industry. As stated in the report called 'Economic Development on the Island of Hawaii, Issues and Options': "The Big Island's visitor industry is now comparable in economic importance to the total agricultural industry on the Island. Tourism's considerable growth potential, however, makes it the most important industry in the foreseeable future." Not only will the proposed project provide the necessary economic stimulus to our community, it will also provide an economic influence that will assist in the stabalization of the Island's economy.

We have no doubt as to the capability of Mr. Hemmeter and his ability to provide a product that we will all be proud of. We are not concerned with the possibility of unfulfilled promises, as he has a proven track record for developments such as these in the State of Hawaii as evidenced by his resort developments on Oahu and Maui. When we review the quality aspect of the development, we need only consider our image of the Hyatt resort on Maui -- ours will be better.

We believe that the responsible action of the Army Corps of Engineers is to approve the application as soon as possible. We encourage you to do so. At the same time we encourage all other reviewing agencies to expedite the permit processing for this important and necessary development in our community.

HAWAII VISITORS BUREAU • Suite 104, Hilo Plaza • 180 Kinoole Street • Hilo, Hawaii 96720 • Telephone: (808) 961-5797

April 9, 1985

U. S. Army Corps of Engineers
Public Hearing
Sheraton Royal Waikoloa Hotel
Tour Lobby
South Kohala, Hawaii Island

Subject: Request of Transcontinental Development Co. and Atpac Co. to Excavate and Fill Anchialine Ponds at Proposed $360 million Hyatt Regency Waikoloa Resort.

Gentlemen:

The Hawaii Visitors Bureau and the Hawaii Island Chapter of the Hawaii Visitors Bureau support the developer's request to the Corps of Engineers to excavate a five acre recreational lagoon on the site of the 60 acre beach front complex and to fill the anchialine ponds that are presently located on the development sites.

We also support the applicant's modification to include the establishment of a 12 acre anchialine pond preservation area to insure the continued existence of this unique aquatic ecosystem on the Waikoloa Beach resort property.

Creation of a 5-acre lagoon and artificial beach by the developers will provide a safe water recreation area for visitors unfamiliar with some of the hazards of coastline swimming.

I thank you for this opportunity to submit our testimony and urge your favorable consideration.

Respectfully yours,

Roy Shipman Blackshear, Chairman
Hawaii Island Chapter, HVB
Member of the Board, HVB

RSB:bnm

Colonel Jenks
Department of the Army
Corps of Engineers.
Fort Shafter,
HI 96858-5440

April 11, 1985

Dear Mr. Jenks

Enclosed is a copy of the testimony that was delivered to the ACE public hearing on behalf of the Kona Conservation Group by myself on April 9, 1985 at the Royal Sheraton Waikoloa Hotel.

Further investigation of the area and the certified public shoreline designation in question have only served to heighten our deep concern over the state's faulty process of shoreline certification. We have lodged a complaint with the State Department of Land and Natural Resources over this arbitrary and obviously incorrect delineation. If a new and correct shoreline designation is not forthcoming in this instance from the DLNR and the State Surveyors office then our group is prepared to bring legal action against the agencies involved.

Please note that it is our organization's desire that these actions we must take should not be misconstrued as simply obstructionist in nature. The Kona Conservation Group is not opposed to the proposed Hyatt Hotel development. The shoreline delineation in question is but another example of gross negligence in protecting the rights of the public on public owned shoreline. Only after a correct shoreline designation is made and recertified should the state move to negotiate with Transcontinental Development Co. to modify the area to accommodate the proposed Hyatt project. any other procedure will add still more precedent to the state's unwillingness or inability to protect the public shoreline through a conscientious shoreline survey review process.

Being that we believe that it is clear that a portion of the area is within what is a tide pool area, and that there is evidence that the area directly inland of the mauka arm of Waiulua Bay has been subjected to illegal filling by bulldozing over the A'A' lava, we would also like to request of your agency a formal investigation of our charges (I did not bring up the illegal filling issue at the April 9 A.C.E. hearing). We would be willing to go out to the site to show any investigators the area of contention.

Please then review our charges and inspect the area in question. The tidepool area

and the area which has had fill pushed down into the water are both within the jurisdiction of the Federal government.

Thank you for your attention in this matter and we hope to hear back from your office as per our requests for a formal investigation as soon as possible.

AGAIN, MAHALO.

yours truly,

Douglas L Blake

DOUGLAS L. BLAKE
President
Kona Conservation Group
c/o
P.O. Box 307
KAILUA-KONA
HAWAII 96745

I-61

US ARMY CORPS OF ENGINEERS
PUBLIC HEARING
APRIL 9, 1985
ROYAL SHERATON WAIKOLOA HOTEL

Good evening. My name is DOUGLAS BLAKE AND I AM A resident OF KAILUA-KONA OF SOME- ALMOST TWENTY YEARS.

I AM here as a member and officer of the Kona Conservation Group to testify on Transcontinental Development Company's application to dredge certain so-called Anchialine ponds and to construct a swimming lagoon at WAIULUA BAY, SOUTH Kohala.

The Kona Conservation Group would like to go on record as being in favor of the proposed HYATT Hotel construction.

However, it has come to our attention through our examination of the area in question, that the shoreline delineation that has resulted in this area being characterized as "anchialine ponds" ARE in part, actually OCEAN tide pools connected directly to and contiguous with THE OCEAN. As such, THEY ARE public tide pool AREAS AND are therefore public property.

This inaccurate shoreline designation is quite EASILY observed and documentable

by photographs

THE KONA Conservation Group therefore requests that Transcontinental's application be deferred at this time and that a new, more accurate survey be performed so as to ascertain the correct shoreline designation and to insure the protection of the publics interest in an area of obvious public ownership.

THE K.C.G. has submitted a complaint to the Department of Land and Natural Resources and has requested a new survey be performed. We wish the Applicant to re-submit their application after such time as a new, correct shoreline survey has been performed by the office of the State surveyor as per our complaint.

Thank you.

Douglas L Babe
president
KONA Conservation Group
PO Box 307
KAILUA-KONA HI 96745

-5440

10 MAY 1985

Operations Branch

Mr. Douglas Blake
Kona Conservation Group
P.O. Box 307
Kailua-Kona, Hawaii 96745

Dear Mr. Blake:

This is in response to your April 11, 1985 letter transmitting a copy of the testimony you presented at the public hearing held on April 9, 1985 for the proposed Waikoloa Hyatt Development. As I explained at the public hearing, regardless of the State's position on shoreline certification, the Federal interest and jurisdiction in the matter is clearly indicated, and the Department of the Army (DA) permit processing is proceeding.

With regard to your concerns of bulldozing and filling in the area directly inland of the mauka arm of Waiulua Bay, an investigation of such a violation was conducted in July 1984 by my Operations Branch. Crushed basalt rock and debris had been placed across a narrow neck of Waiulua Inlet, forming a roadway, and in a second pile about 50 feet north of the roadway. A map is enclosed to indicate the location of the unauthorized fill. As a result of the investigation and subsequent legal action, Waikoloa Properties/ Transcontinental Development removed the fill in September 1984 and was fined $30,000.

At the time the fill was placed by Transcontinental Development in February 1984, much of the adjacent land area was also disturbed by bulldozing. Restoration of the area focused on removal of the fill placed in tidal waters, particularly the roadway which cut off one to two acres of intertidal area from direct access to ocean waters. The restoration action involved removal of bulldozed material returning it to the area from which it came. An on-site inspector was present to ensure that the material was adequately removed and redeposited on dry land.

-2-

Despite the restoration efforts, the bulldozed and redeposited material could give the area a definite appearance of disturbed conditions. Nevertheless, the material within the tidal waters was removed to the Corps' satisfaction, a fine levied against the violators, the case was considered resolved, and the matter closed. I understand that you have recently spoken to representatives of our Office of Counsel on this matter. If you have additional questions, please contact the Operations Branch at 438-9258.

Sincerely,

Michael M. Jenks
Colonel, Corps of Engineers
District Engineer

Enclosure

I-63

M. Mah
PO Box 1452
Kaneohe, HI
96743

April 12, 1985

District Engineer (PODCO-O)
U.S. Army Corps of Engineers
Bldg 230
Fort Shafter, HI 96858

Dear Col. Jenkes:

I-64

In regards to the public hearing that was held on the 9th of April at the Sheraton Waikiki, I would like to excuse myself for not presenting my public testimony. It was quite intimidating.

As you can see by the response of the local people there, not many of them understand what an anchialine pond is. They don't even know the difference between an anchialine pond from a fishpond. These ponds are far from insignificant. The anchialine ponds at Hawailua Bay have been known to very few people before Waikiki Beach Resorts made access easier. Until then, the only access were by boat or on foot through the old Hawaiian trail system.

It is very unfortunate the people don't understand how valuable they are as far as being a natural resource. It's hard to put a price tag on something like that. If little is known about them and if we are not careful, we will never have a chance to understand them. The pressures of progress is overwhelming. Must we always sacrifice our beautiful resources for economic rewards?

I am not against the Ayatt project, however they themselves have made no compromise nor saving any on their site. Waikiki Beach Resorts has been very generous.

On your final decision, I ask that you not only think of the ponds, but the losses, too. The existence of the anchialine ponds at Hawailua Bay depends on your decision.

Ua-mau-ke-ia-o-ka-aina-i-ka-pono.

Mahalo.

Sincerely,
Mona M. Mah

Telephone (808) 538-1505

Hawaii Building & Construction Trades Council AFL-CIO
205 Empire Bldg. / 49 S. Hotel St. / Honolulu, Hawaii 96813

April 15, 1985

Colonel Michael Jenks
District Engineer
Army Corps of Engineers
Fort Shafter, HI 96858

Dear Sir:

My name is Herbert S. K. Kaopua Sr. and am presently serving as the President of the Hawaii Building and Construction Trades Council. Although I am a resident on Oahu, my roots come from Kona.

I am supportive of the Hyatt Regency project and feel that a project such as this would help the economical and social aspect of this community.

We have communicated with our members and they feel an urgency to initiate such a project. The people want to work. Therefore, we solicit your support.

Sincerely,

Herbert S. K. Kaopua Sr.

Herbert S. K. Kaopua Sr.
President

HSKK:aek

Box 173
Papaaloa, Hi 96780
April 16,1985

Col. Michael H. Jenks
District Engineer(PODCO-O)
U.S. Corps of Engineers
Building 230
Fort Shafter, Hono. 96858

Dear Col. Jenks,

I wish to express my concerns about the proposed Hyatt Regency Hotel at Waikoloa, for there was a definite bias at the hearing held last week.

The first and most obvious concern for many of us is the preservation of the anchialine ponds for biological reasons. To me, one of the major problems facing the world today is the wanton destruction of species and their habitats. With a global perspective, the proposal to dredge and/or fill these ponds is just another example of today's current trend to thoughtlessly destroy for the profit motive. I feel certain that future generations will look upon these blind actions of today with utter dismay, but by then, it will be too late. We must do what we can to raise consciousness about the fact that we are stewards of life on this planet and have sufficient courage to face possible disapproval when a stand is taken to preserve precious habitats. It is important to:

a) preserve and manage more than the 12 acres of ponds

b) gather enough expertise in the selection of ponds to be preserved to ensure an adequate sampling of differing types of ponds (depth, age, etc.) and of the life within

c) do whatever else is necessary to protect and preserve such species as the 'opaeula and the Metabetaeus lohena.

The second concern is the attitude that a dredged, filled, and otherwise artificial landscape is prettier than a natural landscape. This is simply not true for many, many people! Our natural world is vanishing. When a reference to "future generations" was made, it seems obvious that a hotel built around a lovely and undisturbed natural environment would be a positive and appealing attraction even more in the future. The Miami Beaches of the world are loaded with artificialities- we have the opportunity to provide guests to Hawaii with natural beauty- why don't we do a fabulous job building this hotel AROUND these ponds- not on top of their remains. This concern is also true for the proposed excavation of the lagoon.

I-66

The third concern is the proposed introduction of deer. We have already suffered significant and ongoing destruction of invaluable natural areas from sheep and goats- the lesson should be clear. If deer are to be allowed, they must be sterilized so that any accidental or intentional release would have only a temporary negative impact. Again, I fail to believe that our lovely Hawaii would be enhanced by this proposal.

The fourth concern is a general concern about the current "answer" to Hawaii's employment issue- more and more large hotels. Looking at other tourist spots around the world, Bermuda comes to mind as a successful resort following a different model. In Bermuda, there are a large number of small hotels and guest houses, some we would call "bed and breakfasts." These places are charming and provide numerous advantages over large corporations controlling the visitor "industry." A primary advantage is financial. The money earned does not go off to New York or other corporate locations- it stays with the small and numerous owners who are local families, and not merely international investors. Large hotels can mean large profits- but not for the average hotel worker struggling on the minimum wage. We are creating a 2 class society- the very wealthy and the maids, bell hops, and waitresses. This pattern is not inevitable!

Please forgive me if this letter is too lengthy. The issues are very real and I can't help but think that decision-makers of the future would make the decisions quite differently than how it appears they will be made in the rush of today.

My mahalos for your consideration.

Sincerely Yours,

Louise Pape

Louise Pape

cc: Michael T. Lee

L-67

Dear Sir:

I wish to comment on the proposed specification and filling of tidal ponds at Waikoloa Beach Resort, Hawaii.

Three points I wish to make:

1) Although I am not a marine biologist, I have talked to several recently. One of them numerous archaeological ponds with very unique self systems of living organisms and all populations is certainly a loss to all of Hawaii. These ponds are found in only one other spot on Hawaii and cannot be duplicated by man (up to this point.)

2) Fertilizer and pesticide run-off from the golf courses and other areas, through the porous lava rock - will most certainly mean a loss or depletion of reef fish.

3) Employee housing should be a mandatory part of this plan as a whole. Many people prefer the hot, dry, beach climate, and it is quickly becoming too expensive for many people to be able to live at the low elevation - beaches.

Please let me know if I have addressed these issues to the right agency.

Thank you,

Teague Prell
P.O. Box 888
Capt. Cook, Hi
96704

I-68

April 23, 1985

Col. Michael M. Jenks
District Engineer
Corps of Engineers
U.S. Army Engineer District Honolulu
Ft. Shafter, Hawaii 96858

Dear Col. Jenks,

This letter is in regard to the U.S. Dept. of the Army permit application for the proposed excavation of the Maikoloa Beach Resort anchialine ponds by Transcontinental Dev. Co. and Atpac Land Co.

According to the April 8 OEQC Bulletin "NEPA Document" section under the "Draft Environmental Impact Statement" for the above mentioned project it states that "Improvements in the lagoon would include a sand beach, swimming area for resort guests, footbridges, shoreline improvements and other recreational/resort structures."

At the April 9 hearing before the Hawaii County Planning Commission on the SMA permit for this development, Mr. Chris Hemmeter, owner/developer of the Hyatt Hotel to be built at this site testified that the swimming lagoon created by the excavation of the anchialine ponds was to be for public use as well as for use by resort guests.

This being the case I request that any permit issued by the Army Corp of Engineers for excavation of the anchialine ponds reflect Mr. Hemmeter's statement by including a provision in the permit that the 5 acre swimming lagoon be for public use as well as use by resort guests.

Sincerely yours,

Jerry Rothstein

Jerry Rothstein
76-123 Royal Poinciana Dr.
Kailua-Kona, Hawaii 96740
329-1568

WE THE UNDERSIGNED ARE IN FAVOR OF THE HYATT REGENCY PROJECT IN WAIKOLOA, HAWAII.

NAME:	ADDRESS:
[illegible]	107 Kinoole St. Hilo
Ron Matsui	2222 A Kinoole St., Hilo
Dee. Doyle	219 pohaku loui St.
BGN Cooper	711 Ho'Aloha St.
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[illegible]	P.O. Box 777/660 Hilo
[illegible]	11 Lani Pl. Hilo Hawaii
[illegible]	450 Kanoelehua Ave Hilo HI
[illegible]	1375 Kinoole Dr.
William Yamamoto	244 Todd Ave
[illegible]	700 Mamalo
[illegible]	Box 101 Kau Hawaii
[illegible]	Box 101 Kau Hawaii
Dane Besser	526 Kaumana Dr.
Mr., Mrs. Gilbert Aguiao	
[illegible]	1027 Manono St
[illegible]	100 Kainani St. Hilo
[illegible]	791 Hualani St 1616
[illegible]	58 Kapuni Loop
[illegible]	P.O. Box 1192 Keaau.
[illegible]	PO 2162 Pahoa Hawaii
[illegible]	P.O. Box 176 Kealia.

WE THE UNDERSIGNED ARE IN FAVOR OF THE HYATT REGENCY PROJECT IN WAIKOLOA, HAWAII.

NAME:	ADDRESS:
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Edward R Kuwaye	237 Hokia St Hilo
Michio	86 Makahiki St. Hilo
Charles Nishi	310 Hokia St Hilo
Dymitro Mydlowa	991 Jalani St. Hilo
[illegible]	929 Kukuluae St Hilo
Toni Miyasato	1975 Akaka Road Hilo
M. Ogawa	1457 Kilauea Ave Hilo
[illegible]	88 Lono Ct Hilo
[illegible]	195E Kaiulani St. Hilo
[illegible]	878 Kaumana Dr. Hilo.
[illegible]	Mt. View. Hi 96771
[illegible]	Papaikou, Hi
[illegible]	506 Lanikaupu St Hilo Hi
[illegible]	345 Pauahi St Hilo Hi
[illegible]	Pahoa Hi
[illegible]	PAHOA
[illegible]	66 Papala ST. Hilo Hi
[illegible]	349 Iwelani St.
[illegible]	1241 Kumukoa St Hilo
[illegible]	1353 Alp. K.L. H
[illegible]	95 Kaulana St.

WE THE UNDERSIGNED ARE IN FAVOR OF THE HYATT REGENCY PROJECT IN WAIKOLOA, HAWAII.

NAME:	ADDRESS:
	870 N. Kawailani St. Hilo
	219 Lunawili.
	264 NOHEA ST.
	236 Kanoelani St
	187 IWALANI ST., Hilo
	1788 Hualalai St.
	2405 Kal. Suite 410
	" " "
	1176 A Wailuku St & Hilo.
	2058 Kinoole St. Hilo
	605 Hualani St. Hilo
	992A Puainako St., Hilo
	917 Noheali St. Hilo, Hi
	1176 Wailuku St. Hilo
	2058 Kinoole St. Hilo
	1989 Kilauea Ave Hilo
	P.O. Box 1394 Hilo, HI
	264 Kinoea St #4, Hilo.
	2067 Kinoole St. Hilo Hi
	992 A. Puainako St. Hilo, Hi.

WE THE UNDERSIGNED ARE IN FAVOR OF THE HYATT REGENCY PROJECT IN WAIKOLOA, HAWAII.

NAME:	ADDRESS:
	330 Lu Hau place Hilo Hi
	330 Lu Hau Pl. Hilo
	316 Kukuau St. Hilo Hi 96720
	136 C. East Palai St. Hilo, Hi.
	211 Lama St. Hilo, Hi 96720.
	10 Mano Place Hilo, Hi 96720
	211 Lama St. Hilo, Hi 96720
	334 Makani Circle, Hilo, Hi. 96720
	61 Alala Pl.
	2322-D KILAUEA AVE
	521 W. Lanikaula St.
	944 Ainaola Dr.
	408 KEAUHA RD. HILO
	85 Hikoi St.
	1090 Ainaola Dr
	454 Desha Ave
	944 Ainaola Drive, Hilo
	1884 Kilauea Ave.
	P.O Box 506 Pahoa Hawaii
	63 NALANI ST.; HILO, HI. 96720
	1732 Kaiea St. Hilo Hi 96720

1-70

WE THE UNDERSIGNED ARE IN FAVOR OF THE HYATT REGENCY PROJECT IN WAIKOLOA, HAWAII.

NAME:	ADDRESS:
Peter Kuiboard	191 Hoolaula St.
Kenneth Chang	855 Kalanianaole Ave. St
James D. Rhodes	168 Haki St, Hilo, Hi 96720
Shirley Fo Shiroma	76685 Kinoole Av.
Alan Kawamoto	510 Aneca St. Hilo
Tavita Fitzgerald	1552 Kinoole Av.
Fatimi Halcarroz	101 E Palai St. Hilo
Manuel Oliveira	176 Malani Rd Hilo
Jack Bruno	133 Awa St Hil
Douglas Medeiros	1485 Alakula St. Hilo
Henry Kaijiwara	P.O. Box 636 Kurtistown Hi 9870
Alan D. Apo	40 Paipai St Hilo Hawaii 9672
Arlene O. Ahu	251 Pualeilo St Hilo Hi. 9672
Joseph Pua	39 Paipai St Hilo Hi 9672
Donald Medeiros	109 Jones St
Richard Kanoa	393 Ohai St. Hilo Hi. 96720
for Kuhaaua	122 Huaalani Dr. Hilo Hi. 9672
Dennis Ingersoll	98 Popolo St Hilo Hi. 96720
Alfred Solid Sr.	437 Wiwoole Pl
Samuel Lualoha	61 Kaulana St.
Claudia Egan	11 Pohai St.
	105 S. Wiehe Rd.

WE THE UNDERSIGNED ARE IN FAVOR OF THE HYATT REGENCY PROJECT IN WAIKOLOA, HAWAII.

NAME:	ADDRESS:
Richard K. Shiigi	290 Olu St. Hilo
Richard Lualii	5748 Kaawakoa St Hilo
Hawley Magaji	216 Kulana Loop
Masaru Matsuoka	17 Pikake place
Lyra Kaneta	318 Kulana St.
George Lum	185 Apoke St. Hil.
Gerald Nomura	157 Waiwai St.
Calvin Sanchez	40 Wiliuke Rd.
Ralph Hashimoto	325 Olu St
Everett Sakai	Kurtistown
Robert Takemoto	304 Iwalani St.
Ernest Ishida	Box 172 Honomuu. Hi.
Douglas Franks	139 Anela Hilo
Angie Mizuguchi	Box 295 Papaa
Chikara Kuya	6 Wainkano St. Hilo
Alvin Elcesser	760-B Kalanikau Street
Michael P. Gaff	47 Kilauea St. Hilo, Hi.
Allen J. Soper	2175 Kilauea Ave Hilo
Yoshiji Segawa	P.O. Box 530 Papaikou HI
George Abramson	77 Elm Dr. Hilo
Tsuneko Takemura	133 Aunaki Ave. Hilo Hi
Sam Shimabuko	48 Kalakua St. Hilo Hi

WE THE UNDERSIGNED ARE IN FAVOR OF THE HYATT REGENCY PROJECT IN WAIKOLOA, HAWAII.

NAME:	ADDRESS:
Honda Tasano	Box 126 Holualoa Kona
Jack Kyono	39 Aipuni ST.
Sabino Miranda	31 KANEA ST. Hilo Hi.
Jon Moore	1241 Kaiki St Hilo Hi
Rodney Reath	2554 Kilauea Ave Hilo Hi
Kathrin Kawakami	707 Capt. Cook Hwy
Herbert F. Lindsey	Kailua Kona
Thomas Kekahuna	Kona Hawaii
Takashi Hamato	284 Kaumana Dr. Hi.
Fred Cabanting	1244 Oihana St. Hilo
Brad Farwell	P.O. Box 732, Captain Cook, Hi
Gene F. Tomey	R.R. 1 Box 4086 Captain Cook
Daniel Yadao	" "
Andrew A. Allen	P.O. Box 2064 Kamuela, Hawaii 96743
Jocelyn Gould	P.O. Box 512 Capt Cook, Hi.
Glenn Kuiha	P.O. Box 638 Kealakekua 96750
Ernest Kaiama	P.O. Box 356 Honaunau
Noboru Kimura	160 Kinoole St Hilo Hi.
Isamu Akayama	Box 324 Papaikou
Arlene Wong	34 Terrace Circle, Hilo

WE THE UNDERSIGNED ARE IN FAVOR OF THE HYATT REGENCY PROJECT IN WAIKOLOA, HAWAII.

NAME:	ADDRESS:
W.C. Hill	1514 Waianuenue Ave. Hilo, Haw
Evan Hiraoka	1104 Aiwaiu Ave - Hilo
Hugh Yoshida	111 Manono St.
Raymond Akau	75 Malani Rd.
Samuel Newcomb	1141-A Komohana St.
Craig Nakagawa	379 Lono st
Daniel Ambo	297 Puumaile St. Hilo Hawaii
Jack T. Fujiwara	1556-Wailuku Dr. Hilo, Hi.
Natsuko Kikawa	1556 Wailuku Dr. Hilo Hi.
Ann Ishimaki	40 Awapuhi St, Hilo
Mitsuo Akau	Kamuela Hi P.O. Box 1134
Patsy D. Akau	76-6237 Plumeria RD. Kailua Kona 96740
Judith Pettibone	79-7199 Mamalahoa Hwy.
Edward F. Clarke	P.O. box 4241 Kailua Kona 96740
Bruce L. Campbell	P.O. Box 1432 Kealakekua Kona Hi 96750
Albert K. Pi'o	75 6118 Plumeria Road
Gary Navarro	P.O. Box 1216 Kealakekua, Hi. 96750
J. Kealamai	P.O. Box 1051, Kailua Kona
Alex Kealamai	77-6007 Kamamalu St. Kailua 96740
Mike Kayashima	PO Box 4679 Kailua
Kiyoshi Tsumoto	78-7016 Kaukini Hwy Kailua, Kona,

WE THE UNDERSIGNED ARE IN FAVOR OF THE HYATT REGENCY PROJECT IN WAIKOLOA, HAWAII.

NAME:	ADDRESS:
Yoshiyuki Yamada	45 Holehilehi St Hilo
Wayne Osorio	299 Ainaola Dr. Hilo
Kazuo Hayakawa	RFD 1 Hilo
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Harry Nakayama	245 Ohu St. Hilo
Keith Yamashita	700 Manono St
Iris Okada	135 Malia St. Hilo
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Diane Kawamoto	Box 271 Papaikou 96781
Frank De Luz	Bx 7 Laupahoehoe 96764
Walter Kubo	R.F.D. Kurtistown
Shunji Honda	765 Junior St
Yukiko Masaki	24 Alo Ale St. Hilo
Keiji Yamada	45 Holehilehi St. Hilo
Yoshiko Nakayoshi	55 Holehilehi St., Hilo

WE THE UNDERSIGNED ARE IN FAVOR OF THE HYATT REGENCY PROJECT IN WAIKOLOA, HAWAII.

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[illegible]	1501 Manono Lp., Hilo, Hi 96720
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Appendix J

List of DEIS Recipients

APPENDIX J

LIST OF DEIS RECIPIENTS

HAWAI'I CONGRESSIONAL DELEGATION (HAWAI'I AND WASHINGTON, D.C. OFFICES)

Senator Daniel K. Inouye
Senator Sparky M. Matsunaga
Representative Daniel K. Akaka
Representative Cec Heftel

FEDERAL AGENCIES

U.S. Advisory Council on Historic Preservation
U.S. Army Corps of Engineers, Washington, D.C.
U.S. Environmental Protection Agency
    Office of Environmental Review, Washington, D.C.
    Region IX, San Francisco, CA
U.S. Department of Commerce
    Assistant Secretary of Environmental Affairs, Washington, D.C.
    Region IX, San Francisco, CA
    National Marine Fisheries Service
        Southwest Region Office, Terminal Island
        Western Pacific Program, Hawai'i
U.S. Department of the Interior
    Office of Environmental Project Review, Washington, D.C.
    U.S. Fish and Wildlife Service, Hawai'i
    U.S. Geological Service, Hawai'i
    National Parks Service
        Hawai'i Office
        Interagency Archaeological Services, San Francisco, CA
U.S. Department of Health, Education and Welfare
U.S. Department of Housing and Urban Development
    Region IX, San Francisco, CA
    Honolulu Office
U.S. Department of Agriculture
    Environmental Quality Activities, Washington, D.C.
    Agricultural Stabilization and Conservation Service, Hawai'i
    Soil Conservation Service, Hawai'i
U.S. Department of Transportation
    Federal Highway Administration, San Francisco, CA
    Federal Highway Administration, Hawai'i
    U.S. Coast Guard, 14th District, Hawai'i

STATE OF HAWAI'I

Office of Environmental Quality Control
Department of Land and Natural Resources
    Chairman
    Division of Aquatic Resources
    Division of Water and Land Development
    Division of Forestry and Wildlife
    State Parks Division
    Historic Sites Section
State Historic Preservation Officer
Department of Planning and Economic Development
    Coastal Zone Management Office
Department of Health

STATE OF HAWAI'I (continued)

State Library System
- Main Office, Honolulu
- Kailua-Kona Library
- Thelma Parker Memorial Library
- Bond Memorial Library
- Honokaa Library
- Keaau Community Library
- Kealakekua Library
- Laupahoehoe Community Library
- Mountain View Library
- Pahala Library
- Pahoa Library

COUNTY OF HAWAI'I

- Mayor Dante Carpenter
- Planning Department
- Department of Public Works
- Office of Housing and Community Development
- Department of Water Supply
- Legislative Auditor

ORGANIZATIONS

- Cave Species Specialist Group
- Colorado State University Library
- Greenpeace
- Hawai'i Land Management
- Hawai'i's Thousand Friends
- K.G. Hawaii Corporation
- Kohala Community Association
- Life of the Land
- Na Ala Hele
- The Nature Conservancy
- Rohr Development
- Sierra Club
  - Honolulu Chapter
  - Hawai'i Chapter
- University of Hawai'i, Environmental Center
- University of Hawai'i, Water Resources Research Center
- Alfred A. Yee Division of Leo Daly

INDIVIDUALS

- Kazuhisa Abe
- Deborah Chang Abreu
- Ron Bachmar
- Ann Fielding
- Paul Friesema
- Dr. Alison Kay
- Donna Mah
- J. Sanchez
- Wade Shaffer
- Jack Streka
- Richard Titgen
- John Michael White
- Dan Yasui

Appendix K

DEIS Letters Received and Comments and Responses

US Army Corps of Engineers
Honolulu District

Public Notice

Public Notice No | Date: 5 April 1985

Reply to: District Engineer (PODCO-O), U.S. Army Corps of Engineers, Building 230, Ft Shafter, HI 96858 | Respond by: N.A.

K-1

NOTICE OF AVAILABILITY

DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR DEPARTMENT OF THE ARMY PERMIT APPLICATION
FILE NO. PODCO-O 1812-SD

WAIKOLOA BEACH RESORT ANCHIALINE PONDS
WAIKOLOA, SOUTH KOHALA DISTRICT, ISLAND OF HAWAII

1. Notice of Availability: The availability of the Draft Environmental Impact Statement for the US Department of the Army permit application, PODCO-O 1812-SD, Waikoloa Beach Resort Anchialine Ponds, was published in the Federal Register on April 5, 1985. The date of availability as published in the Federal Register begins the 45-day review period for comments on the Draft Environmental Impact Statement. Any persons interested in obtaining or desiring access to a copy of the draft environmental impact statement should contact the Operations Branch, Phone: (808)438-9258. Copies of the draft environmental impact statement were sent to local libraries.

2. Comments Due: Any written comments on the Draft Environmental Impact Statement are to be sent to the District Engineer by May 20, 1985, rather than the May 9, 1985 as indicated in the Draft Environmental Impact Statement. Comments received by May 20, 1985 will be evaluated and considered in arriving at a final decision on the permit application, and will be included in the Final Environmental Impact Statement.

3. Summary of Permit Application: The applicants, Transcontinental Development Co. and ATPAC Land Co., have requested authorization to excavate a recreational lagoon and to fill anchialine ponds on the Waikoloa Beach Resort in conjunction with their plans to construct the Hyatt Regnecy Waikoloa Hotel and the remainder of the Waikolo Beach Resort. The Draft Environmental Impact Statement compares the environmental consequences of the proposed action, three alternatives, that differ principally in the size of the anchialine pond preservation area, and the no-action alternative or permit denial. Public Notices on the permit application were issued on October 19, 1985 and January 29, 1985.

4. Public Hearing: A public hearing on the permit application is scheduled for April 9, 1985, 7:00 pm, at the Sheraton Royal Waikoloa Hotel, Anaehoomalu, Hawaii.

APPENDIX K

Comments and Responses on the Draft Environmental Impact Statement

(a) Congressional Representative:

(1) Senator Spark M. Matsunaga. Acknowledge receipt of the Draft EIS.

(b) Federal Agencies:

(1) Soil Conservation Service, US Department of Agriculture:

No comments.

(2) National Marine Fisheries Service (NMFS), US Department of Commerce:

(2.1) Comment: The blasting recommendations included in a report by Darby and Associates (April 25, 1985), "Additional Evaluation of Proposed Excavation Using Explosives With Respect to Potential Damage to Major Marine Life - Waikoloa, Hawaii", should be detailed in the DEIS.

Response: Darby & Associates report (April 25, 1985) is included in Appendix as part of the NMFS Endangered Species coordination. Permit conditions requested by the NMFS were included in the proposed action description.

(2.2) Comment: NMFS continues to be concerned with the loss of anchialine ponds at WBR, and recommends as further mitigation that as much of the unique macro-biota as possible be removed from the ponds prior to filling. The biota should be transplanted to anchialine ponds in the preservation area or to off-site ponds. Local community volunteers could be used to carry out the mitigation plan.

Response: The Corps of Engineers (COE) will consider transplanting impacted macro-biota and will consider use of local community volunteers. However, the need for definitive action will require time that volunteers may not be able to provide or cannot be counted on to provide.

(2.3) Comment: The pond preservation area should be managed by someone other than the applicant as envisioned and stated in the DEIS.

Response: Management will be undertaken by FWS as agent for applicant. See Comment (b)(6).

(2.4) Comment: The proposed pond preservation area management plan should be approved by the US Fish and Wildlife Service, the Federal Agency with primary jurisdiction over the anchialine pond biota.

Response: The pond preservation management plan was

developed in consultation with the USFWS. However, the final decision on the contents of the management plan would rest with the Corps of Engineers, the permitting agency, who has primary regulatory responsibility over the anchialine ponds.

(2.5) Comment: The need for the pond preservation area is clearly demonstrated and only the management plan should be periodically reviewed by the Corps.

Response: The pond preservation area and the management plan should both be reviewed periodically. The intent of periodic review is to allow modifications for changes in law and with the acquisition of new scientific data that changes our preception of the pond resource and its management.

(2.6) Comment: The permit denial is the NMFS's environmentally preferred alternative, because permit denial saves the anchialine pond resources.

Response: Comment noted. The significant effects on the quality of the human environment should also be considered, this includes anchialine ponds, historic resources, jobs, and other human values. The no-action or permit denial alternative would not preserve ponds in the long term. The uncontrolled human activity in the ponds, such as trash disposal, waste disposal, fishing and the introduction of exotic aquatic organisms are expected to degrade the pond resource. As already observed by the Corps, introduction of exotic aquatic organisms has reduced the presence of the rare shrimp in some pond clusters. This has occurred outside of the Corps regulatory jurisdiction. Thus, the preferred environmental alternative is an alternative that involves man's active management of the pond resources, such as pond preservation area.

(2.7) Comment: Waiulua Bay appears to be an important nursery area for several species of reef fish based upon underwater surveys by a NMFS biologist.

Response: Information was added to the FEIS, Chp III, para. 8.1(e).

(2.8) Comment: Sightings of humpback whales in coastal waters off South Kohala are very common between January and April.

Response: Information was added to the FEIS, Chp III, para. 8.1(g).

(2.9) Comment: The temporary berm to confine turbidity to the lagoon excavation site should be impervious, possibly a filter cloth could be used. Construction details should be provided in the FEIS.

Response: The termporary berm would be made impervious, and typical sections were included in the FEIS, Figure II-8.

(3) Department of Housing and Urban Development, Honolulu Area Office:

The project would not impact any HUD program or project in the vicinity.

(4) US Department of the Interior:

(4.1) Comment: The alternatives discussion may be lacking in objectivity. The alternatives seem to treat the proposed action as the only reasonable solution, while portraying sound environmental alternatives as being too flawed to warrant serious consideration. The alternatives should contain more substance.

Response: More substantive discussions of alternatives is provided in the FEIS.

(4.2) Comment: The discussion of the siting inland alternative seems to be an advocacy of the applicant's position.

Response: The discussion quotes the rationale provided by the applicant. Your attention is directed to the impacts discussion (Chap IV, 3) where the COE identifies that the alternative saves the ponds from filling. See Comment (b)(2.6).

(4.3) Comment: The USFWS worked extensively with the Corps and the developer to develop the 12-acre, on-site, pond preservation area together with terms for guaranteeing long-term viability of the pond system. Unfortunately, some of the vital conditions for the preservation area management were not included in the DEIS, such as the concept of perpetual protection and management, water quality characteristics, and light impacts.

K-3

Response: At the time the DEIS was prepared, the details of the managment plan were not available because the applicant was trying to work out the preliminary details of the pond management plan with The Nature Conservancy, a third party that was suggested by the USFWS. The management plan details in the Final EIS were developed in consultation with the USFWS, and addresses the concerns cited above.

(4.4) Comment: In light of discussions, the environmentally preferred alternative should be identified and discussed.

Response: The preferred environmental alternative is identified in Chp II, para. 6.

(4.5) Comment: Regional background could mention discussions with prior developers covering mitigation for loss of ponds and the recent unauthorized fill at the site.

Response: A regional background was included in the Final EIS, Chp. III, para 8.3.2.

(4.6) Comment: The history of the permit application should be expanded to stress the USFWS long-standing concern for the anchialine pond resources, and that the USFWS position was well-known to the developer.

Response: The USFWS long-standing concern for the anchialine ponds is not relevant to the history of the permit application or discussion of alternative impacts. The USFWS concern is reflected in its actions to develop a pond preservation area and a management plan.

(4.7) Comment: The US Department of the Interior would like to be included in the periodic review and approval of the management plan.

Response: The management plan would be developed and modified in consultation with the USFWS, as agent for the Department of the Interior. However, approval of the management plan and any modifications to the plan would remain within the jurisdiction of the COE only.

(4.8) Comment: The importation of deer and its adverse impacts to Hawaii's ecosystem and agriculture are well-documented. The applicant should be informed of the adverse impacts and referred to the State of Hawaii, Department of Land and Natural Resources for specific State permits.

Response: The COE has no regulatory jurisdiction over the importation of exotic organisms to the State of Hawaii or the United States. The US Department of Agriculture and the US Department of the Interior should notify the applicant directly.

(4.9) Comment: We do not know the effect of fill material on ground and marine waters.

Response: The use of volcanic rock and cinder or grout to fill the ponds would not result in the release of contaminants to the ground or marine waters. The cobble size, basalt rock fill is not expected to interfere with groundwater flow in the area. This is based on the fact that groundwater flow and leakage occurs throughout the developed portions of the West Coast of Hawaii, i.e, groundwater leakage still occurs despite golf course development inland. Hawaii's groundwater has its origins in rainfall at higher elevations. Since rainfall averages less than 10 inches/year at the project area, recharge of the groundwater table at Waikoloa is not dependent upon rainfall along the coast.

(4.10) Comment: The EIS should discuss the quantitative effects of pumping groundwater to flush the lagoon on pertinent aquifer characteristics.

Response: No effect is anticipated. Chp. IV, para. 3.6.

(4.11) Comment: Editing errors provided.

Response: Editing errors corrected.

(5) US Fish and Wildlife Service, Regional Office, Portland:

(5.1) Comment: The Service reserves the right to elevate the resolution of issues to higher authority if final recommendations of the Honolulu Environmental Services Project Leader are not accepted.

Response: Comment noted.

(5.2) Comment: The Honolulu Office is working with the applicants to preserve, in perpetuity, a portion of the anchialine ponds on the project site. The Service desires to fully cooperate in expediting the

permit and preventing unncessary delays.

Response: Comment noted.

(5.3) Comment: We hope that the Corps acknowledges the international importance of the threatened anchialine pond habitats by assisting the Department of the Interior in acting vigorously to protect these areas from further degradation.

Response: The Corps has recognized the importance of the anchialine pond resources in the preparation of the Draft EIS, and has acted vigorously to protect those areas by placing the ponds under the Corps regulatory jurisdiction. The Corps has also taken the lead in updating surveys of the anchialine pond resources in its efforts to consider long-range management of the resource.

(6) US Fish and Wildlife Service, US Department of the Interior, Hawaii:

(6.1) Comment: The USFWS would prefer the permit denial alternative.

Response: Comment noted. The USFWS should also consider the consequences of unmanaged human uses of the ponds and its effects on the rare biota, as a result of permit denial. See Comment (b)(2.6).

(6.2) Comment: The pond preservation area and the long-term management concepts previously discussed with the Corps and the applicant are considered to be minimally acceptable.

Response: Comment noted.

(6.3) Comment: Details of important considerations in the management plan were not incorporated into the proposed action.

Response: The details of the management plan or pond preservation concept were not available at the time of the preparation of the EIS. The applicant working with The Nature Conservancy was working out preliminary details for our review. The Corps coordinated and consulted with the USFWS in the development of the management plan contained in the FEIS.

(6.4) Comment: The selection and approval of the pond management organization should be jointly determined by the USFWS and Corps.

Response: The Corps will consult with the USFWS, but the final decision on the pond manager will be made by the Corps. The USFWS will be the agent for the applicant.

(6.5) Comment: List of conditions and guidelines for inclusion in a management plan.

Response: List noted. The pond preservation area management plan was developed in consultation with the USFWS who would include and consider their conditions and guidelines as listed. See USFWS

letter and Corps response in this appendix.

(7) US Coast Guard, 14th Coast Guard District; US Department of Transportation:

No objections to the permit application and no constructive comments to offer.

(8) Federal Highway Administration, US Department of Transportation:

No comments.

(9) US Environmental Protection Agency:

See EPA letter dated May 24, 1985, this appendix.
See Corps letter to EPA dated June 24, 1985 this appendix.

(c) State Agencies:

(1) Office of Environmental Quality Control, State of Hawaii.

(1.1) Comment: Office of Environmental Quality Control suggests that another site for the Waikoloa Beach Resort be considered because of the adverse primary and secondary impacts anticipated to the anchialine ponds.

Response: Comment noted.

(2) Department of Accounting and General Services, State of Hawaii:

No comments.

(3) Department of Agriculture, State of Hawaii:

Comment: The proposed action would not affect agricultural resources in the area or plans, programs and activities of the Department.

Response: Comment noted.

(4) Department of Defense, State of Hawaii:

No comment.

(5) Department of Hawaiian Home Lands, State of Hawaii:

(5.1) Comment: The proposed action would have significant impacts on the environment that should be studied and evaluated in totality.

Response: The EIS reasonably addresses significant impacts and further studies were performed as necessary to refine the analysis in the EIS.

(5.2) Comment: The applicant's assertions that construction within the 40-foot setback are not significant are biased and a negative declaration should not be recognized.

Response: The shoreline setback is managed under the County of Hawaii. The negative declaration is a State EIS requirement managed by the Office of Environmental Quality Control and the County of Hawaii.

(5.3) Comment: A full assessment of anchialine pond hydraulics and water flow in relationship to the ocean should be performed.

Response: By their very nature, anchialine ponds are directly related to tidal fluctuations, and ocean waters and groundwater directly influence pond salinity.

(5.4) Comment: Mathematical and physical models should be used to determine if wave and current patterns would be altered resulting in erosional or depositional problems along the shoreline.

Response: Based on site inspections, erosional and depositional patterns along the shoreline are dependent upon storm conditions, and does not involve sandy beaches or alluvial deposits. The existing shoreline consists of basalt outcrops and ledges that are not subject to erosional or depositional forces. Secondly, the project does not modify the coastal geology in middle or outer Waiulua Bay or the nearshore waters.

K-5 (5.5) Comment: Would blasting, dredging and filling wash detritus into the ocean and adversely affect the ocean?

Response: Detrital material would not be released into the ocean by blasting, dredging or filling. The blasting and dredging associated with lagoon construction can create and suspend volcanic sediments into the water column. A temporary berm would be used to isolate the excavation site from the ocean to minimize water turbidity or sedimentation in Waialua Bay. Filling in the ponds is confined to inland areas. The material used to fill the ponds is expected to consist of large or cobble-size basalt that could not erode into the ocean.

(6) Department of Health, State of Hawaii:

(6.1) Comment: The proposed lagoon waters would be classified Class AA waters. Pumping groundwater into the lagoon may alter the natural and pristine state of water quality resulting in a degradation of the Class AA waters.

Response: The applicant was informed to consult with DOH and DLNR on permit requirements for discharging groundwater into Class AA waters and withdrawing groundwater. The applicant plans to discharge into the lagoon seawater pumped from the ground.

(6.2) Comment: The comparison of pond biota indicates that a deterioration and disappearance of biota in the Waikoloa Beach Resort Ponds may be due to human intrusion and misuse of the anchialine ponds. Thus, the pond preservation area together with concerted monitoring proposal would have a positive tone on the continued existence of the biota remaining in the ponds.

Response: Comment noted.

(6.3) Comment: Potential impacts of sewage, irrigation water aerosol drift on inhabitated areas around the golf course should be addressed.

Response: Comment incorporated in the FEIS, Chp. IV, para. 9.1.3

(7) Department of Land and Natural Resources, State of Hawaii:

(7.1) Comment: The possible presence of the endangered Hawaiian stilt and the possible impact of filling anchialine ponds on the stilt should be addressed.

Response: The DEIS has provided the known information on the Hawaiian stilt in the Waikoloa Beach Resort area. Endangered Species Act coordination with the US Fish and Wildlife Service was completed with a determination that the project would not jeopardize the continued existence of the species. Through several site surveys by the Corps, no stilt were seen in the anchialine ponds. Conditions to minimize the taking of any stilt, as recommended in the US Fish and Wildlife Service consultation, were included in the permit conditions.

(7.2) Comment: The Department strongly agrees with the DEIS statement that "maintenance of pond health would require sensitive management of developed areas which affect the groundwater flow into the ponds."

Response: Comment noted.

(8) Department of Planning and Economic Development, State of Hawaii:

(8.1) Comment: More specific information should be provided on plans for public accessways, including their number and general locations and whether any public use of the excavation would be allowed.

Response: Concerning public access, the Corps has no jurisdiction to manage public access to the ocean across private lands. Thus, the Corps EIS can only reflect public access agreements made between the applicant and County or State agencies. Concerning public access to the lagoon, under the Department of the Army permit, the applicant is not allowed to restrict navigation or use of the lagoon waters. However, the lagoon shoreline area and ancillary facilities remain private property.

(8.2) Comment: Recreational use of Waiulua Bay and the affected shoreline should be described in the EIS.

Response: See page III-43, para 10.3.4.3(c) and (d) and page IV-17, para 8.1(c), (d) and (f) in the DEIS.

(8.3) Comment: The natural resource value of individual ponds that are to be filled and saved are not comparatively evaluated.

Response: Maps comparing open and closed ponds, Opaeula

and non-Opaeula ponds, and vegetated and unvegetated ponds were added to the FEIS, Figures III-9, III-10 and III-12.

(8.4) Comment: Viable alternatives to the proposed action should be explored further.

Response: Reasonable and practicable alternatives were considered in the FEIS, Chapter II.

(8.5) Comment: The applicant's proposed action does not minimize the environmental impacts to the coastal ponds.

Response: Comment noted.

(8.6) Comment: The EIS should study and address facility design and location to minimize adverse social, visual and environmental impacts in the CZM area to insure a project design that is compatible with the objectives and policies of the CZM law.

Response: The EIS is not the vehicle for studying and addressing design and location that would make the project compatible with the State of Hawaii, CZM law. The EIS would discuss the effects of those alternatives on environmental, social and visual resources. The applicant needs to work with the Department to satisfy CZM requirements and obtain Federal CZM consistency determination prior to issuance of the DA permit.

(8.7) Comment: The long-term protection of the anchialine pond preservation area rests with maintenance of their unique qualities. The Department recommends that an organization which has expertise in this area and is a disinterested third party be given the responsibility for management of the ponds.

Response: The Department of the Army permit is not binding on an independent third-party. The Corps has no desire to have an independent third-party who is not bound by the permit conditions, assume management of the ponds. Presently the USFWS will be the pond manager for the applicant. See Comment 6.

(9) Department of Transportation:

(9.1) Comment: Traffic projections for the existing Waikoloa Beach Resort access road intersection in 1987 indicates a level of service greater than E for northbound turning vehicles. Until such time that signalization is warranted, we do not anticipate decreasing the speed limit of Queen Kaahumanu Highway.

Response: Comment noted.

(9.2) Comment: The Department will consider signalization when traffic signal warrants have been met.

Response: Comment noted.

(9.3) Comment: Physical improvements to the intersection by the developer will be required when the development is implemented. The

applicant should coordinate these plans with the Highways Division.

Response: Comment noted. The applicant was given a copy of the letter for his information and necessary action.

(9.4) Comment: The second access road for Waikoloa should be constructed as part of the necessary infrastructure for the proposed development. The EIS should incorporate traffic volumes and peak hour distributions with this access availability.

Response: The Corps regulatory jurisdiction does not extend to regulation of highway impacts. Since the impact is not directly related to the Corps permit, the Department should coordinate directly with the applicant in relation to Comment 9.3. The Corps recognizes in the EIS that traffic will increase.

(9.5) Comment: The Mahukona boat ramp has been removed and is no longer in existence. The County maintains an electric hoist for boaters to launch and retrieve their craft.

Response: The information was added to the Final EIS.

(10) University of Hawaii, Environmental Center, State of Hawaii:

(10.1) Comment: Suggest a standard scale map of project developments be overlayed on the ponds to determine which ponds are filled and which ponds are saved.

Response: All ponds not preserved would be filled or excavated. The maps in the DEIS showing the pond preservation areas have the same scale.

(10.2) Comment: In comparison to the 1976, State EIS, 1.7 mgd of sewage would be used for irrigation. The present EIS indicates that 2.3 mgd of sewage would be generated. Would all of the sewage be used for irrigation?

Response: The applicants indicate that sewage would be used for irrigation. Other methods of disposal would be considered when sewage increases to a point when it is no longer possible to dispose of all the effluent as irrigation water. All disposal methods must be approved by the State Department of Health.

(10.3) Comment: Maintenance of a health pond environment within the pond preservation area is possible as long as flushing rates remain high.

Response: Comment noted.

(10.4) Comment: With increased nutrient loading related to use of sewage for irrigation, the health of the anchialine ponds is far from certain.

Response: While continued nutrient loading would occur, the degradation of anchialine pond is not expected to occur as long as

groundwater flushing is unimpeded. Unless something alters the flushing characteristics, eutrophication is not anticipated in the short-term. See Environmental Center comment (c)(10.3) above.

(10.5) Comment: The recreational lagoon water quality could be jeopardized if groundwater nutrients increase as a result of using sewage in irrigation.

Response: The coastal water quality would probably reflect nutrient increases as a result of sewage irrigation and fertilizing on the WBR.

(10.6) Comment: Pumping water into the lagoon may not effectively flush the deeper, more saline water in the lagoon.

Response: The seawater would be pumped into the lagoon from the bottom of the deeper parts of the lagoon in order to enhance water turnover. The water would not be pumped into the lagoon at the surface of the lagoon.

(10.7) Comment: Consideration should be given to flushing the lagoon with low-nutrient salt water from deeper wells, than brackish water that would be laden with nutrients from the golf course.

Response: The applicant intends to use seawater pumped from the ground.

(10.8) Comment: The value and protection of anchialine ponds was established prior to the applicant's purchase of the land. Did the State and County approved plans also approve destruction of the anchialine ponds? Have State and County permits or plans been approved?

Response: The County of Hawaii has indicated that their earlier planning permits required an anchialine ponds preservation plan. The applicant is obtaining the necessary State and County permits and approvals.

(10.9) Comment: Mitigation measures such as siting structures mauka of the ponds and establishing walkways to the ocean and a scaled-down lagoon would significantly reduce the number of ponds that would be destroyed without jeopardizing the economic viability of the project.

Response: Siting the structures mauka of the ponds would significantly reduce the number of ponds destroyed, and can be done without a Department of the Army permit. This is the permit denial alternative.

(10.10) Comment: The ponds can be a valuable addition to the resort and should not be considered "waste" land.

Response: Comment noted.

(10.11) Comment: The proposed project is located too far from economically depressed areas, such as Hawi and Kapa'au to provide any economic benefits to those communities.

Response: Comment noted. Some workers at the Sheraton presently commute to work from Hawi and Hamakua. Sheraton does bus some employees to and from work.

(10.12) Comment: Suggest the consideration of an alternative that would place a 500-room hotel on the Kaniku Flow and a 500-room hotel between the Sheraton and Anaehoomalu beach parking area.

Response: This comment is expressed in concept in Alternative 4 and the permit denial alternative.

(10.13) Comment: An alternative that would minimize loss of the ponds would be environmentally preferred over a "high-class" development that destroys most of the ponds. The retention of natural features would be advantageous to the "high-class" hotel.

Response: Comment noted. See Comment (b)(2.6).

(10.14) Comment: Data provided on earthquake risk.

Response: Data incorporated into the FEIS, Chp III, para. 2.2(c).

(10.15) Comment: The historical tsunami data is accurately cited.

Response: Comment noted.

(10.16) Comment: The temporary berm would tend to decrease both storm-wave and tsunami inundation inland, except with long-period waves.

Response: The temporary nature of the berm, as a turbidity and sedimentation control device, has little bearing on the long-term effects of the lagoon and tsunami hazards.

(10.17) Comment: The Sea Engineering, Inc, report, 1985, should be reviewed. The wave analysis was not based on a two-dimensional analysis neglecting the effects of long-period waves entering Waiulua Bay and diffracting from the inlet to the lagoon. If the effect were neglected, exposure of the lagoon area to large tsunamis would be greater than the exposure estimated under the National Flood Insurance Program.

Response: The analysis was not based on a two-dimensional analysis.

(10.18) Comment: Will the public be permitted to use the swimming lagoon?

Response: The Corps permit does not allow the applicant to restrict navigational servitude or public use of the lagoon waters. The permit cannot require the applicant to allow public use of lands around the lagoon or access to the lagoon across his land. See Comment (c)(8.1).

(d) County of Hawaii:

(1) Department of Parks and Recreation, County of Hawaii:

No comments.

(2) Department of Public Works, County of Hawaii:

(2.1) Comment: The Department has reviewed and accepted the applicant's analysis that the fill would not aggravate flooding in the coastal area.

Response: Comment noted.

(e) Organizations and Individuals:

(1) First Hawaiian Bank:

(1.1) Comment: The project is essential to both the County and the State for growth of the visitor industry and replacement of jobs as a result of the reduction in agricultural activities.

Response: Comment noted.

(1.2) Comment: Based on our experience, a luxury hotel in Hawaii must be located on the shoreline to succeed.

Response: Comment noted.

(1.3) Comment: The establishment of the pond preservation area at the cost of $12,000,000 for the land and $1,000,000 in design alterations costs represents the largest mitigation in the history of Hawaii.

Response: Comment noted.

(2) Island Explorations:

(2.1) Comment: The Sheraton Waikoloa preservation area is a splendid example of enhancing the existing natural and cultural environment. This should be an example for the Hyatt.

Response: Comment noted.

(2.2) Comment: The applicant has no regard for the uniqueness of the site and sees the ponds as an obstacle.

Response: Comment noted.

(2.3) Comment: The Waikoloa ponds are in pristine condition, are in large concentration and include a very rare eel.

Response: The Waikoloa ponds are not in a pristine condition, although the ponds are concentrated. Biota changes have occurred and the rare eel is harder to find. The pond continues to provide a habitat for the rare crustacenan fauna, but its long-term ecological viability can be threatened by the introduction of exotic aquatic organisms, an action that can occur outside of the Corps regulatory jurisdiction.

(2.4) Comment: The anchialine ponds ought to be preserved.

Response: Comment noted.

(3) Mauna Lani Resorts:

Comment: We hope that on-going discussions with various special interest groups would result in an expeditious resolution of issues and a mutually beneficial plan.

Response: Comment noted.

(4) Sheraton Hotels in the Pacific:

(4.1) Comment: Based on their experience in hotel management, a hotel like the Hyatt must be located on the shoreline in order to be successful.

Response: Comment noted.

(4.2) Comment: Providing 2,000 permanent jobs would benefit other hotels operating in West Hawaii and the Hawaiian tourist industry as a whole.

Response: Comment noted.

(5) Society of Hawaiian Archaeology:

(5.1) Comment: The previous archaeological work done in the area has adequately recorded and evaluated sites within the portions of the project area.

Response: Comment noted.

(5.2) Comment: We concur with the State Historic Preservation Officer that an intensive survey be conducted prior to any construction.

Response: Comment noted.

(5.3) Comment: We agree with the recommendations of the State Historic Preservation Officer, dated March 12, 1985.

Response: Comment noted.

(5.4) Comment: We recommend that steps for salvage and preservation be clearly stated in the FEIS.

Response: The salvage and preservation plan developed in consultation with the State Historic Preservation Officer was included in the FEIS, Appendix H.

(6) Nelson Ho:

(6.1) Comment: Implementation of the proposed action would be

an extreme loss, ecologically and esthetically. Alternative 2 would be the best compromise.

Response: Comment noted.

(6.2) Comment: The whole project does not reflect any sensitivity to its surrounding .

Response: Comment noted.

(6.3) Comment: Request that the worst-case-analysis for the proposed action and the two alternative proposals.

Response: The worst case analysis was used in the Final EIS.

(7) E. Alison Kay:

(7.1) Comment: The anchialine ponds are unique for their native and endemic biota, geologically transient nature, diversity in structure and physical attributes.

Response: Comment noted.

K-9 (7.2) Comment: All the ponds along the coast are interconnected, such that activity in one can affect the remainder of the ponds.

Response: The concept was included in the PEIS.

(7.3) Comment: The ponds cannot survive surrounded by the resort development.

Response: The rare organisms in the pond are already threatened by unmanaged or unregulated activities by man, such as the introduction of exotic organisms into the ponds. The ponds appear to be unaffected by surrounding, if preserved and managed to control human activities in the ponds.

(7.4) Comment: The permit should be denied.

Response: Permit denial does not guarantee the long-term ecological viability of the anchialine ponds. See Comment (b)(2.6).

(8) Tim Newstrom:

(8.1) Comment: The permit should be denied to preserve the ponds and public access rights to the pond water under State law.

Response: The Corps permit does not grant any rights that would conflict with State law and does not grant public access across private lands. Pond preservation in an anchialine habitat is not guaranteed with permit denial. See Comment (b)(2.6).

(8.2) Comment: The Corps must abide by the Coastal Zone Management Act and State CZM provisions.

Response: The Corps permit cannot be issued without a State Coastal Zone Consistency Determination from the State of Hawaii Department of Planning and Economic Development. The applicant has applied for the CZM consistency determination.

(8.3) Comment: The anchialine ponds are a water resource to be protected under State law.

Response: The anchialine ponds are also under Federal regulatory jurisdiction and subject to Federal laws. The Department of the Army permit does not negate the applicants requirements to comply with State or County statutes.

(8.4) Comment: State law requires the Corps of Engineers to act responsibly in managing the "public interest".

Response: The Corps permit evlauation process is a "public interest" review and balancing process in compliance and accordance with Federal statutes and guidelines.

(9) Jerry Rothstein:

(9.1) Comment: The applicant indicated that the swimming lagoon was to be for public use, as well as for use by resort guests. The Corps permit should contain a provision that the 5-acre swimming lagoon be for public use, as well as use by resort guests.

Response: See Comment (c)(8.1) and (c)(10.18).

(10) Lani Stemmermann:

(10.1) Comment: The proposed development should proceed in such a manner as to maintain the anchialine ponds.

Response: Comment noted.

(10.2) Comment: The permit should be denied to preserve the natural pond attributes and due to the lack of information concerning the resource.

Response: See Comment (b)(2.6).

(10.3) Comment: The EIS fails to adequately answer certain questions regarding environmental impacts.

(10.3(a)) Comment: What is the minimum size and number of ponds necessary to preserve this fragile ecosystem which is a habitat for unique assemblage of organisms, including the rare eel, Gymnothorax hilonis.

Response: The FEIS addresses the concerns to the extent practicable and reasonable based on available information. G. hilonis may no longer inhabit the Waikoloa ponds or has become harder to find in the ponds. Conversations with Dr. Richard Brock indicate that a significant decline in biota has occurred since his initial survey of the

area in 1972.

(10.3(b)) Comment: What are the biological effects of added nutrients and pesticides that will seep into the pond?

Response: Under existing conditions, nutrient loading has not contributed to eutrophication, probably due to adequate flushing of the ponds. Nutrient loading would probably occur even if the development were built outside of the ponds due to the highly porous nature of the area allowing contaminants to seep into the groundwater from irrigation. Human activity in and around the ponds would be unregulated contributing further to pond degradation. The effects of pesticides are immediately evident in the WBR or Hauna Lani Resort ponds. See Comment (b)(2.6).

(10.3(c)) Comment: What were the results of the "after development" survey performed by the applicant?

Response: The survey detected the increase in nutrient levels in the pond water, but was not adequate enough to allow any analysis of effect on the crustaceans. The Opaeula are still abundant in ponds in which they occur.

(10.3(d)) Comment: The EIS should map the tratification of species associated with ponds of different ages at various istances from the coast.

Response: Maps were added to the FEIS, Figures III-9, III-10 and III-12.

(10.3(e)) Comment: The vegetation map is satisfactory on a gross level, but did not provide detailed information.

Response: Detailed information is provided in the applicant's technical reports. Under the applicants' proposal, all the existing vegetation, except for that in the pond preservation area would be destroyed and replaced with landscaping species.

(10.4) Comment: If Alternative 2 is selected, a more detailed ecological inventory of each of the ponds to be filled or excavated should be conducted to identify species present, diurnal salinity and nutrient trends and pond age. Similar studies should also be completed for a selection of preserved ponds.

Response: Comment noted. The Corps believes a reasonable amount of data already exists for the ponds to be filled. The pond management plan provides for more scientific studies in the preserved ponds.

(10.5) Comment: There would be less adverse biological impact if the hotel were set back some distance from the coast. The setback of a few hundred yards is probably not significant. The setback would also preserve vistas and enhance coastal recreation experiences.

Response: The FEIS addresses alternatives that would

preserve the coastal vistas and openness. See Comment (b)(2.6).

(11) Richard H. Titgen:

(11.1) Comment: The Waikoloa area was unique because of the occurrence of Gymnothorax hilonis and marine fish in the ponds. However, the area the area has been impacted to the extent that these unique organisms may no longer be there. I recommend that as much undisturbed pond area as possible be preserved.

Response: Comment noted.

(11.2) Comment: The ponds are inter-connected underground, and little is known about the subterranean-anchialine pond system. This lack of information makes it difficult to make a valid decision.

Response: The lack of data on this concept is noted in the FEIS. The assessment of impacts is based on the best available knowledge, and that was reasonably attainable.

(11.3) Comment: Information is needed to determine how the pond systems operate, how extensive they are, and how impacts on one portion affect impacts on the other portions. Moneys should be set aside to allow University of Hawaii graduate students perform research to answer some of the questions. The opportunity would provide training and information as part of the cost of destroying the anchialine ponds.

Response: Comment noted.

(t) Letters received are reproduced and included in this Appendix K.

EOP..
EOT..

-5440

June 12, 1985

Operations Branch

Mr. Allan Marmelstein
Pacific Islands Administrator
US Fish and Wildlife Service
P.O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Marmelstein:

K-11

This letter addresses your concerns of May 2,1985 in regards to the Waikoloa Beach Resort, Department of the Army Permit Application, File No. PODCO-O 1812-SD, and begins the process of developing the details for the anchialine pond preservation area.

We appreciate the efforts of your staff over the last six months working with us and the applicant on mitigation proposals for anchialine pond loss. Because this joint effort has not progressed beyond the conceptual stage, we included only this general concept and preservation goal in the DEIS. We are continuing to work on a modified proposal from the applicant which includes a managed pond preservation area.

Indeed, we are now at a stage in permit processing where we can begin to define the details of the proposed managed pond preservation area. We understand that the applicant's representative has discussed your comments with your staff (Enclosures 1). Based on those discussions and our evaluation, we have provided responses to your letter (Enclosure 2).

We suggest that we meet to discuss any questions regarding our responses and the management plan. Contact Mr. Michael Lee, Operations Branch, phone 438-9258, to arrange a meeting or discuss the contents of this letter.

Sincerely,

Everette A. Flanders
Chief, Construction-Operations Division

Enclosures

Copy Furnished: with enclosures
Mr. Richard J. Myshak, Regional Director, USFWS, Portland, OR
Mr. Clifton H. Jenkins, Transcontinental Development Corp.
Mr. Perry White, Belt Collins and Associates
Mr. Doyle Gates, National Marine Fisheries Service, Honolulu
Ms. Judith Ayres, EPA, Region IX, San Francisco, CA

COMMENTS TO US FISH AND WILDLIFE LETTER, DATED MAY 2,1985

1. PERPETUAL PROTECTION AND MANAGEMENT

a. COMMENT: The US Fish and Wildlife Service does not believe the applicant should be solely responsible for stewardship of the pond preservation area. A conservation organization with the necessary expertise should assume management of the pond preservation area.

RESPONSE: We agree that the pond preservation manager should have the necessary expertise to assume management of the pond area. However, the Department of the Army permit conditions are binding on the permit applicant, not an independent third party.

b. COMMENT: The approval and final selection of the pond manager would be jointly determined by the USFWS and the Corps of Engineers.

RESPONSE: The Corps would consult with the USFWS in approving or changing the pond manager. While the applicant and the County of Hawaii would also be consulted, the final decision would be made by the permitting agency.

c. COMMENT: Some form of perpetual easement is essential to the pond preservation concept as no conservation organization could guarantee the long-term, ecological viability of the pond preservation area without an easement. This concept of perpetual easement means that the ponds be managed in perpetuity.

RESPONSE: The Department of the Army permit is, indeed, a perpetual permit that would establish the pond preservation area and the management requirements. The permit is binding on the applicant for as long as the project is present at the Waikoloa Beach Resort, and is binding on the next project owner.

The permit is not binding on an independent third party. The Corps has no desire to have an independent third party, who is not bound by the permit, assume total management responsibility over the ponds because this third party would not be bound by any of the permit conditions levied by the Corps of Engineers. The independent third party cannot be a party to the permit since the party has no interests in the proposed action, other than to profit from the Corps requirement on the applicant to set aside and manage the pond preseration area.

The Department of the Army (DA) permit is not a land conveyance document. An "easement", as understood in the real estate concept, is not established by the DA permit. The DA permit cannot be used to convey a land right. Under the DA permit the applicant agrees to abide by a permit condition. In the case of Waikoloa, the applicant may agree to set aside 12-acres for an anchialine pond preservation area. If he fails to comply with the DA permit conditions, the permit is revoked with whatever legal consequences may follow.

We believe that a fixed-perpetual managment scheme does not allow us any flexibility in adjusting the pond preservation area or site when new information or factors require a re-evaluation of the ecological viability or advisability of maintaining the pond preservation area at Waikoloa Beach Resort.

We believe that criteria for selecting and approving the use of suitable pond manager can be developed.

2. WATER QUALITY CHARACTERISTICS.

a. COMMENT: An intensive water quality monitoring program in and adjacent to the preservation area before, during and after construction should be required.

RESPONSE: Water quality monitoring shall be part of the management of the pond preservation area.

b. COMMENT: Injection wells and dry wells (sumps) shall not be located directly upstream from the pond preservation area.

RESPONSE: The Corps suggests that a no injection well zone be delineated on maps.

c. COMMENT: No sewage effluents or toxic materials would be injected into the groundwater on the Waikoloa sites.

RESPONSE: See item b. No sewage effluents or toxic materials shall be injected into the groundwater at Waikoloa within the zone delineated on the map.

d. COMMENT: No other potential pollutants (e.g. stormwater runoff from paved areas, biocides, fertilizers, untreated wastewater) would be allowed to enter the pond preservation area.

RESPONSE: The applicant had indicated that he intends to slope the land to drain stormwater from roadways and buildings away from the pond preservation area.

3. DIRECT AND INDIRECT LIGHTING.

COMMENT: Lighting shall not be directly aimed at ponds in the pond preservation area.

RESPONSE: The condition would be included in the permit.

4. MODIFICATIONS IN THE POND PRESERVATION AREA.

a. COMMENT: Modifications that would alter the ecological stability of the anchialine systems would not be allowed.

b. RESPONSE: The condition may be too restrictive. We suggest modifying the condition to read: "Modifications that would alter the ecological stability of the anchialine ponds system would not normally be allowed without the approval of the permitting agency in consultation with the US Fish and Wildlife Service." This would allow us to permit experiments, such as studying pond creation and colonization, or efforts to remove exotic vegetation.

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440
June 24, 1985

Operations Branch

Ms. Judith E. Ayres
Regional Administrator
U.S. Environmental Protection Agency
Region IX
215 Fremont Street
San Francisco, California 94105

Dear Ms. Ayres:

The Corps of Engineers (COE) has reviewed and analyzed the Environmental Protection Agency (EPA) comments and concerns regarding the Draft Environmental Impact Statement (DEIS) for the Waikoloa Beach Resort Anchialine Ponds, Waikoloa, South Kohala District, island of Hawaii, dated May 24, 1985. A detailed response to those concerns is enclosed for your review and consideration.

We appreciate the agency's views and are giving them considerable attention. It is intended that certain areas will be broadened and strengthened in the Final Environmental Impact Statement (FEIS). We do, however, have an apparent disagreement regarding whether the DEIS does or does not adequately assess and disclose reasonable and potentially significant environmental impacts to the anchialine ponds. In regards to your specific comments:

a. We consider that the impact of the discharge on the ponds and the pond organisms were presented in the DEIS.

b. The DEIS indicated that the pond organisms were rare. The organisms, however, are not listed on the List of Threatened and Endangered Species and are being considered accordingly.

c. EPA's estimate of anchialine pond loss in the State of Hawaii fails to consider ponds in East Hawaii or ponds preserved at the Cape Kinau Natural Area Reserve.

d. The DEIS presented certain alternative arguments provided by the developer and so displays them as such but does not reflect COE endorsement of the arguments. The COE will consider those arguments in its decisionmaking process.

e. The COE detailed comments point out that the COE considered and presented the Section 404(b)(1) analysis for the Waikoloa Beach Resort development, but did not indicate that a decision had been reached. Therefore, concern by EPA as expressed in its comments on Section 404(b)(1) guidelines seem premature.

In regards to the need for a Draft Supplemental Environmental Impact Statement (EIS), the COE finds that the majority of EPA's comments and concerns were identified and addressed in the DEIS. The COE believes that EPA has not provided the COE with any significantly new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts that justify the preparation of a Draft Supplement EIS. The COE will clarify its assessments, will include appropriate EPA concerns and concepts, and will incorporate supplemental information that becomes available as the COE permit application evaluation progresses into a FEIS.

EPA has raised some research questions that, unfortunately, cannot be practicably answered in a reasonable length of time. EPA has also expressed some interesting and speculative concepts, which though certainly worthwhile from an academic perspective are not required for making a decision in a specific permit case.

The COE is continuing to work with the applicant on the analysis of alternatives and with the U.S. Fish and Wildlife Service on a pond preservation plan.

I appreciate your taking the time to meet with me at your office on July 18, 1985. In the interim, I have asked Mr. Michael Lee (phone (808) 438-9258) of my Operations Office and Ms. Cindy Kaywell (phone (808) 438-1388), Office of Counsel, to meet with your staff in early July in order to clarify the major issues.

Sincerely,

Michael H. Jenks
Colonel, Corps of Engineers
District Engineer

Enclosure

Copy Furnished: with enclosure

Ms. Josephine S. Cooper, Assistant Administrator, Office of External Affairs, EPA
Ms. Kathy Winer, Office of General Counsel, EPA
Mr. Allan Hirsch, Office of Federal Activities, EPA
Mr. Paul A. Schuette, Office of Public Affairs, EPA
Mr. A. Alan Hill, Council on Environmental Quality
Mr. Robert Dawson, Assistant Secretary of the Army (CW)
Lieutenant General E. R. Heiberg III, Chief of Engineers, U.S. Army
Mr. Lester Edelman, Chief Counsel, U.S. Army Corps of Engineers
Mr. Cecil Goad, Chief, Operations and Readiness Division, U.S. Army Corps of Engineers
Mr. Richard Myshak, Regional Director, U.S. Fish and Wildlife Service, Portland, Oregon
Mr. Allan Marmelstein, Pacific Islands Administrator, U.S. Fish and Wildlife Service, Honolulu
Mr. Doyle E. Gates, Administrator, National Marine Fisheries Service, Honolulu
Mr. Leslie Matsubara, Director, State Department of Health
Ms. Letitia M. Uyehara, Director, State Office of Environmental Quality Control
Mr. Dante Carpenter, Mayor, County of Hawaii, Island of Hawaii
Mr. Clifton Jenkins, Vice President and Manager, Transcontinental Development Company, Honolulu
Mr. Perry White, Belt, Collins and Associates, Honolulu

June 24, 1985

RESPONSES TO EPA COMMENTS
ON
WAIKOLOA BEACH RESORT ANCHIALINE PONDS

GENERAL COMMENTS.

1. Comment: A comprehensive EIS describing the impacts of the Waikoloa Beach Resort and future development near the anchialine ponds in Hawaii, may be required by NEPA.

Response: The Waikoloa Draft Environmental Impact Statement (DEIS) addresses the comprehensive impacts of the Waikoloa Beach Resort Development on anchialine ponds at Waikoloa and relates that impact to anchialine ponds resources in the State of Hawaii, in accordance with NEPA. We identified the number of ponds at Waikoloa and on West Hawaii, and the major complex at Cape Kinau, Maui (Page III-17, para. 8.3.1.1(d) and identified the past, present and future trend in pond resources in the State (Page III-22, para. 8.3.1.6). We further indicated that the Natural Area Reserve at Cape Kinau, Maui, contains ponds that would provide a long-term example of anchialine ponds in the State of Hawaii (Page III-22, para. 8.3.1.6(d). We indicated that the reduction in ponds at Waikoloa does not eliminate their existence in the State of Hawaii (Page IV-3, para. 3(f)).

We plan to provide a numerical assessment in the Final Environmental Impact Statement (FEIS) to quantify pond loss, and make the discussions on the subject more concise in the FEIS.

2. Comment: Assess the plans for condominium and additional hotel construction, as well as, ancillary facilities. The DEIS does not disclose the complete development concept.

Response: The DEIS assesses the impacts, not the plans, of condominium, additional hotel and ancillary facilities of the Waikoloa Beach Resort development on anchialine ponds. We did not believe it was significant whether the applicant built a hotel, condominium or other facility on the ponds, because we can anticipate, based on present major resort land use zoning, that resort/residential facilities constructed on the ponds would result in the destruction and loss of ponds. Thus, we concentrated our discussions on management of the anchialine resources in relation to permitting use of the lands and the impacts of those uses on the anchialine pond resources.

We indicated that the applicant proposed to excavate and fill all ponds on the Waikoloa Beach Resort property outside of the 12-acre preservation area (Page ix(1) and 1-1(a). We illustrated the extent of the Waikoloa Beach Resort development in Figure II-2. We noted on Figure II-3 the total anchialine pond resource at Waikoloa Beach Resort. We indicated in Figure II-4 all the anchialine ponds that would be destroyed by the proposed action. We indicated on Figure II-9 and II-10 the anchialine ponds that would be destroyed under two alternative land uses for the same development concept. We indicated that anchialine ponds on the Hyatt hotel site and other anchialine pond properties would be filled (Page II-12, para. 2.1.1.5). On Table II-1, we laid out the number of ponds destroyed and preserved by the total Waikoloa Beach Resort development within the Corps' jurisdiction.

We will present the information more concisely in the FEIS, and make corrections to the maps, where necessary.

3. Comment: Inadequate disclosure of all development proposals and ensuing environmental impacts for Waikoloa Beach Resort properties.

Response: Comment is too broad to provide specific answers. We concentrated our discussions on impacts directly related to the Corps permit action and related that discussion to impacts resulting from the remainder of the development outside of the Corps' jurisdiction. The discussion was specific where data allowed specific discussions, i.e., the Hyatt Hotel development, and was broad and general where data and information was speculative, i.e. future development outside of the Corps' jurisdiction, based on existing land use zoning.

We will reassess the amount of information that reasonably and practicably can be added to the FEIS concerning secondary impacts outside of the Corps' jurisdiction.

4. Comment: A complete evaluation of environmental impacts associated with development of the whole Waikoloa Beach Resort, makai of the Queen Kaahumanu Highway, i.e., anchialine pond ecosystem, water quality, air quality, sewage capacity, ground water resources and cumulative impacts from development should be provided.

Response: See Responses 2 and 3.

SIGNIFICANT ADVERSE EFFECTS AND LACK OF ADEQUATE INFORMATON ON ANCHIALINE PONDS.

5. Comment: EPA views the potential loss of more than one-third of the anchialine pond resources in Hawaii, a substantial portion of National resources, as a significant degradation of waters of the United States.

Response: The one-third loss does not represent the loss of one-third of the pond resource in the State of Hawaii, but a one-third loss in West Hawaii, assuming all the ponds at Waikoloa are destroyed. We indicated that about 215 ponds were found at Waikoloa Beach Resort, but also noted that 15 ponds are located in the Ku'uali'i and Kahapapa fishpond preservation area. This leaves 200 ponds in the Waikoloa Beach Resort property subject to developmental pressures. With the 12-acre pond preservation area, 62 ponds are preserved. Thus, only 138 ponds would be destroyed representing a 23% loss in West Hawaii.

We plan to include the ponds from East Hawaii and Cape Kinau and a more accurate count of ponds in West Hawaii to clearly describe the pond loss percentage on the island of Hawaii.

6. Comment: Inadequate assessment of potentially significant environmental impacts to the anchialine ponds, including the possibility that some of the organisms in the ponds may qualify as rare or endangered species. The US Fish and Wildlife Service (USFWS) proposed five species as Category 2 status under the

Endangered Species Act. EPA recommends close coordination with the USFWS.

Response: Status of the five species will be included in the FEIS. At the present time, the species remain unlisted. We have already identified the anchialine pond organisms as rare and unique with limited and restricted distribution in the State of Hawaii (Page ix, para.(3); Page III-17, para. 8.3.1.1(b); page III-19, para. 8.3.1.5(a); page III-20, para. 8.3.1.5(d) and (h)). Indeed, this identification contributed to the decision to prepare the DEIS.

We completed Section 7, Endangered Species Act, consultation with the USFWS on February 22, 1985 (Appendix C). Their decision to consider five pond organisms for listing on the Threatened and Endangered Species List was made on April 18,1985. Category 2 means that the organisms should probably be listed, but there is insufficient information to biologically support a proposal to list the species. The USFWS decision to study the organisms does not change the present status of the organisms, as discussed in the DEIS.

We are working closely with the USFWS concerning the anchialine ponds and the associated species because we have a regulatory interest in the anchialine pond resources in the State of Hawaii. Both the USFWS and the Corps are working to study and develop the pond preservation concept as discussed in the DEIS. Our discussions would extend into management concepts for the entire pond resource in the State of Hawaii.

K-17

6. Comment: To fully assess the impacts of the proposed project on the anchialine pond species, baseline data should be collected regarding:

a. The extent and distribution of the anchialine ponds.

b. The biological requirements of the organisms found in the ponds.

Response: The baseline data for anchialine ponds in West Hawaii was gathered by Maciolek and Brock (1974). The extent and distribution of anchialine ponds in the State of Hawaii is avaiable in other literature and from other sources (State of Hawaii, Natural Area Reserve Commission for Cape Kinau, Wong (1975) and Brock (personal communication), the US Fish and Wildlife Service and the Corps of Engineers. Maciolek and Brock's survey assessed pond condition and value for use in making land use decisions. We discussed and provided the baseline data in the DEIS and discussed the future trends of the resource (Page III-17 - III-27). We also used the information to compare Waikoloa pond values with other ponds on the West Coast of Hawaii identifying those ponds where more significant anchialine pond organisms were found (Page III-22, para. 8.3.1.5(d)). We also discussed the presence of the rare eel, Gymnothorax hilonis and the fact that the eel was not found in two subsequent surveys of the Waikoloa Beach Resort ponds (Oceanic Institute 1977, and 1984) (Page III-20, para. 8.3.1.5.; Page III-24, para.8.3.2(f); Table III-4).

We believe that the information cannot be obtained in a reasonable time or cost. We further believe that the applicant should not be totally responsible for obtaining the information

because the resource occurs State-wide and that the resource should also be the interest of the County, State and Federal Government. We believe the management plan provides a mechanism for obtaining the information.

7. Comment: The EIS should also describe the subterranean connections between ponds, movement of pond species within these subterranean connections and the relationship between the surface and subterranenan habitats. The number, size and subsurface connections should be quantified in the EIS.

Response: The concept of subterranean connections and underground movement of organisms are expressed in the DEIS (Page III-17, para.8.3.1.1(a),(b) and (c), page III-17 - 19, para. 8.3.1.2(b) and (c); Page III-19, para. 8.3.1.5(c) and (e).. We have described the substrate as highly permeable lava with the presence of large voids (Page III-18, para. 8.3.1.2(b). We recognized the fact that organisms can move vertically within the water table (Page III-18, 8.3.1.2(c) and know from experience that they can appear in created ponds, such as Pond 199 which is a bulldozer scar. Dr. Brock also notes that opaeula appear in excavate depressions that have become ponds. We have recognized that some organisms may migrate from filled ponds to unfilled (Page IV-3, para. 3(f)).

Dr. Brock has informed us that opaeula have appeared in quarries in karst limestone substrates at Kahuku and Barbers Point. No one knows how long the opaeula or other shrimp can survive underground without the ponds, especially when the shrimp can be found in low oxygen environments and in underground caverns and tubes without any opening to the sunlight or ponds.

We will make these discussions more concise in the FEIS and add whatever additional details are obtained in coordination of the DEIS.

As in Comment 6, we do not believe that the information can be reasonably or practicably obtained. Boring holes are a "hit or miss" activity such that most engineering in the recent lavas assumes that the lava is porous, highly permeable and full of voids, that would have to be filled if uncovered or discovered. Sonic testing may be able to detect voids if it can be compared to solid subtrate in the same area, a factor that cannot be readily achieved in recent lavas. Pumping water into the ground can determine the porosity of the ground. In recent lava at Keahole Natural Energy Laboratory the injection well pumps approximately 500 gpm into the ground with no upwelling in the well indicating the ground is highly porous. The ability for water wells to work in recent lava further attests to the grounds porosity.

8. Comment: Conceivably, the 215 anchialine ponds at Waikoloa may represent a single, interconnected resource with many surface openings. There is too little information to evaluate the impacts of the prposed action and alternatives on the resource at Waikoloa and on the island of Hawaii.

Response: The concept will be included in the discussions of underground movement in the FEIS. As in Comment 6, we do not believe that the information can be practicably obtained in a

reasonable length of time. Additionally, whether or not this concept is conclusively proven, the impacts are still speculative. Opening holes, drilling holes or creating ponds may prove that organisms can move between ponds underground, but may not result in a any more knowledge about the underground resource. We assume based on Comment 7, that the resource does exist, possibly as a vast reservoir in highly porous and permeable substrates in Hawaii, and would be available to colonize pond areas created in the substrate. Dr. Brock expressed the idea that recent lavas may have been colonized by organisms residing in similar adjacent habitats or substrates.

9. Comment: Present a written evluation regarding potential short-term and long-term effects of the proposed fill activities on physical, chemical and biological components of the aquatic environment.

Response: The DEIS provides the evaluation of potential short-term and long-term effects of the proposed fill on the physical, chemical and biological components of the aquatic environment.

We have indicated that the fill would directly eliminate 70% of the pond resources at Waikoloa (Page IV-2-3).

We have indicated the discharge of lava, basalt rocks into the ponds would not release contaminants or salts into the water (Page IV-3, para. 3(h). The fill into the ponds does not introduce organics that would decompose and reduce dissolved oxygen levels. The lava rock does not contain nutrients that would cause one group of organisms to outcompete another.

We have indicated that the lava, basalt stones would not interfere with groundwater flow (Page IV-4, para. 3(i)) because our inspection of the construction site indicates that the lava basalt rocks would have voids that would not interfere with groundwater flow or tidal exchange. This is evident in previously filled areas where the ponds still exhibit un-inhibited tidal response. Secondly, crushed lava is used in layers to building up the elevation. This crushed lava has not exhibited any migration into the ground on golf courses that are constantly watered. On existing road slopes through anchialine ponds, opaeula continue to use the pond habitat at the toe of the fill. The fill has not silted the ponds or interfered with tidal exchange further inland.

We have indicated that the fill would kill any organisms residing in the filled ponds (Page IV-3, para. 3(f)) and that some organisms may survive.

We have indicated that the secondary effects of development would affect groundwater quality that could affect the pond, and have recognized that this would probably occur without the filling of ponds (Page IV-4, para. 3(k) and (l)). We have indicated that existing water quality has been degraded by upland activities, but that the ponds appear to be a viable resource (Page IV-4, para. 3(m)), a factor that makes us and the USFWS feel that the pond preservation area is viable.

We will clarify this disucussion in the FEIS.

10. Comment: The number of species inhabiting these pools and

their abundance are not completely known.

Response: Comment will be added to the FEIS. The high interstitial space prevents an easy population census. By qualitative esitmate based on several visits to the sites, the number of organisms in the ponds are too numerous to count. The amount of the resource residing underground can never be censused easily. The use of presence or absence was used for pond comparison.

11. Comment: There is insufficient data in the DEIS to adequately identify anchialine pond resources. Additional species that have not been described because only qualitative sampling methods were used during previous pond studies.

Response: We recognized the possibility that species previously undescribed could be found in any pond (Page III-20, para. 8.3.1.5(e)). We will not base our decision on the speculation of some unknown factor. The baseline by Maciolek and Brock identified significant areas and organisms in West Hawaii, ponds. The Oceanic Institute surveys at Waikoloa did not find any new organisms, and noted a reduction in organisms. We believe it unreasonable for the applicant to wait for an unspecified and undeterminable length of time, while inventories are carried out until previously undescribed and unforeseen organisms are or are not found at Waikoloa. Based upon surveys to date, high porous substrates, such as A'a lava flows at Cape Kinau, Maui, have yielded more rare organisms, than sites on the island of Hawaii. The Waikoloa ponds are found in old pahoehoe lava flows. Therefore, reasonably available, sufficient data apperas in the DEIS to adequately identify anchialine pond resources.

12. Comment: Communities of organisms found in anchialine ponds may conceivably occur beneath ancient lava flows with no surface connection, but to our knowledge, no one has investigated this possibility.

Response: See Comment 11. The fact that they appear in created ponds and quarries and in limestone caverns without surface connection, which implies that the organisms can survive underground. We have addressed this on Page III-18, para.8.3.1.2(c).

13. Comment: It is unclear to what extent site preparation, filling and construction will affect groundwater flows and circulation patterns in the subterranean ponds.

Response: See comment 8 and 9.

14. Comment: The DEIS should explain why only those ponds being filled will be affected by the project (Page IV-3).

Response: See Comment 9. We indicated on Page IV-3, para.3(h), that only filled ponds would be directly affected by the fill. Natural basalt rock can not degrade water quality. Based upon our observations of groundwater leakage and developed areas at Mauna Lani and at Waikoloa we do not see the secondary fill and landscaping (crushed lava basalt) entering the ground through leaching.

15. Comment: Identify the proposed location and siting criteria for wells used to flush the lagoon.
Response: The information will be added to the FEIS.

16. Comment: Assess how pumping 4.6 mgd from the groundwater will affect subsurface flows, flushing rates and water quality in the anchialine ponds in the pond preservaiton area.
Response: The information will be added to the FEIS.

17. Comment: Describe the effects of groundwater flow alteration by pumping on nitrate, ammonia and phosphate levels in the ponds.
Response: See comment 16.

18. Comment: Quantify the relationship between groundwtaer flows, nutrient levels and pond clarity. The discussion should focus on the effect of higher nutrient concentrations on anchialine pond phytoplankton, other aquatic species and general ecology of the habitat.
Response: See Comment 16.
We have indicated that nutrient concentrations in the ponds are not presently limiting phytoplankton growth (Page IV-4, para.3(m)). We have suggested that tidal flushing appears to limit water residence time in the ponds preventing phytoplankton from over-producing.

PRACTICABLE ALTERNATIVES ANALYSIS

19. Comment: The alternatives in the DEIS are not sufficient to rebut the presumption that practicable alternatives exist, and an extensive evluations should be provided.
Response: The DEIS provides information to the decision maker, but is not a decision document. In the DEIS, we presented the information and arguments provided to us by the applicant for public disclosure and review. As a DEIS, the document is subject to change with the addition of new information concerns, and evaluations. The FEIS is still subject to public review and comment and consideration of new information and concerns upon review of the FEIS enters into the decision making process. We have requested more data from the applicant and intend to evaluate the adequacy of the information in accordance with our regulations and in light of your concerns.

20. Comment: We have identified reasonable available alternatives that are outside the spectrum of alternatives analyzed by the Corps and applicant in the DEIS.

a. The entire project could be relocated to the north and west margins of Waiulua Bay.
Response: This alternative is the no-action alternative (Page II-20) forces the applicant to either reduce the fill (alter the development to fill fewer ponds), or site in-land (fill no ponds). If the project was rotated as suggested no DA permit would be required. If only a portion of the project was

rotated, then a condition similar to Alternatives 2 and 3 would occur. The alternative is considered a variation of an existing alternative presently under consideration.

b. Avoid the anchialine ponds having unique habitat or other values.
Response: This suggestion was considered in the designation of the pond preservation concept (Page IV-3, para. 3(d)). We are still working on the details of the preservation site boundaries and management plan.

c. Habitat development and restoration.
Response: We are considering this under the pond preservation and management concept.

d. Revised configurations.
Response: Revised configurations does not constitute a significantly different alternative. Alternatives 2 and 3 provide variations of revised configurations. The use of piles, siting inland, on other locations within the Waikoloa Beach Resort and outside the Waikoloa Beach Resort are presented in the DEIS (Pages II-13 to II-22).

e. Consideration of other areas not presently owned by the applicant that could be reasonably obtained, utilized, expanded or managed in order to fulfil the basic purpose of the proposed activity.
Response: The alternative was addressed on Pages II-21 and II-22. We are continuing to evaluate and assess the off-site alternatives.

MITIGATION

21. Comment: Saving 30% of the ponds is not considered mitigation. There is 70% uncompensated losses at the applicant's site, not considering the additonal losses or degradation that may occur to the remaining ponds through secondary impacts.
Response: The concept of mitigation and compensation are being considered in the development of the pond preservation area and management. EPA's opinion will be considered. We are working with the USFWS to develop an adequate plan to mitigate or compensate for the loss of the anchialine pond organisms under the pond preservation area concept.

22. Comment: The DEIS should evaluate pond preservation mangement plans in order to determine the likelihood of maintaining or enhancing the pond ecosystem. The evaluation should determine the ability of the plan to actually preserve the unique resource in perpetuity.
Response: We are working with the USFWS in evaluating the pond preservation concept. We have indicated in the DEIS the likelihood that the pond preservation might succeed (Page IV-4 and IV-5, para. 3(k)-(m). We will consider your suggestions below in the development of the pond preservation area and management plan.

a. Identify the responsibilities of the management agency and the enforcement agency, including legalling binding commitments to implement the management plan.
Response: Comment will be considered.

b. Identify a preferred management plan including enforcement procedures to maintain management objectives.
Response: A preferred plan will be provided in the FEIS.

c. Define compliance criteria and methods to monitor the ponds.

Response: Comment will be considered.

d. Identify options for corrective action to ensure pond preservation.
Response: Comment will be considered.

e. Discuss the possibility of requiring the applicant to post a bond for the preservation of the anchialine ponds.
Response: Comment will be considered.

f. Identify those mitigation measures (features) which will minimize potentially adverse impacts on anchialine ponds, such as:

(1) Introduction of runoff potentially laden with fertilizers, pesticides, petroleum hydrocarbons, oil and grease or other pollutants.

Response: As indicated in the DEIS, the area around the ponds would be graded to prevent the flow of the stated materials directly into the ponds (Page II-7, para. 2.1.1.4(a), and II-12, para. 2.1.1.4(b)).

(2) Increases in human intrusion, including refuse accumulation and introduction of exotic species.

Response: The purpose of the management plan will prevent the negative aspects itemized above, and will provide an educational element for the people of Hawaii.

9. The plan should be monitored more rigorously, such as every six months during construction and yearly for the next 20 years.

Response: Comment will be considered.

WATER QUALITY

23. Comment: Corps should assure that water quality of the lagoon would not affect the availability of groundwater for public water supply. Evidence of this assurance should be displayed as a table showing current water uses, proposed projected demand and future development demands.
Response: The Corps has no regulatory jurisdiction to assure that lagoon water quality would not affect public water supply as a result of the withdrawal of groundwater. The Corps can regulate the discharge of fill and require monitoring of

water quality in the lagoon. The Corps considered the impact in the DEIS. We indicated in the DEIS that the withdrawal of water for the lagoon at the coastline would not affect groundwater withdrawal at the existing Waikoloa Wells located 5 miles inland and uphill from the coast (Page III-46, para. 10.3.4.7.(e) and page IV-19, para. 9.1.2.).

The withdrawal of groundwater in the State of Hawaii is regulated by the State of Hawaii, Department of Land and Natural Resources, Division of Land and Water Development.

The County of Hawaii regulates development on the island of Hawaii and requires that any development in the South Kohala area must prove that it can provide water to satisfy the development. This planning constraint was levied because of the limited water resources in the area. Thus, private developments have had to find their own water sources to satisfy their demands. This policy is reflected in the Corps South Kohala Water Supply study for the area.

We will clarify this discussion in the FEIS.

BERM CONSTRUCTION AT THE MOUTH OF THE LAGOON.

24. Comment: The Corps should evaluate the construction of the temporary berm on the nearshore marine habitats. The analysis shoud include sedimentation impacts during berm construction, berm removal and potential maintenance dredging of sand at the mouth of the lagoon.

Response: We did evaluate the impacts and found them to be insignificant. We will provide a discussion in the FEIS. The berm would be constructed on barren, intertidal basaltic lava. The nearshore marine environment in the middle and outer Waiulua Bay is devoid of significant coral growth. The excavation of recent lava basalt does not result in the release of fine sediments that could result in significant turbidity plumes. Stone size, lava basalt would be used to construct the berm and a filter cloth used to confine any finds. The removal may result in a small turbidity plume.

There does not appear to be a need for maintenance dredging of sand in the lagoon, because the man-made beach would be located at the back of the man-made lagoon, protected from any alongshore currents or erosive wave energy. Periodic sand replace is anticipated using imported sand.

25. Comment: A bathymetric map of Waiulua Bay showing sand areas and marine ecosystem should be included in the EIS.
Response: A bathymetric map will added.

AIR QUALITY

26. Comment: The dispersion model cited in the DEIS should be presented in the FEIS.
Response: See Comment 28. EPA was sent a copy of the study on November 21, 1984.

27. Comment: The model should investigate additional traffic related to the development of the remainder of the Waikoloa Beach

Resort.

Response: See Comment 28.

28. Comment: Identify and discuss effective methods to mitigate or alleviate adverse air quality impacts, to include:

a. Redesigning or reconstructing intersections that violate air quality standards.

b. Providing high-occupancy or mass transit to reudce traffic volumes.

Response: The comment extends beyond the Corps regulatory jurisdiction. In the DEIS, we have addressed the fact that air quality may degrade as a result of increased traffic related to the overall development. The Corps lacks the expertise to discuss effective measures to mitigate or alleviate adverse air quality impacts related to activities far beyond the Corps' control or regulatory jurisdiction.

EPA and the State Department of Health and the Federal Highways Administration can coordinate their own requirements on the Waikoloa Beach Resort.

SPARK M. MATSUNAGA
HAWAII

WASHINGTON OFFICE
[illegible]

HONOLULU OFFICE
[illegible]

United States Senate

WASHINGTON, D.C. 20510

CHIEF DEPUTY
DEMOCRATIC WHIP

MEMBER
COMMITTEE ON FINANCE
COMMITTEE ON ENERGY AND NATURAL RESOURCES
COMMITTEE ON LABOR AND HUMAN RESOURCES
COMMITTEE ON VETERANS' AFFAIRS

March 26, 1985

Colonel Michael M. Jenks, USA
Corps of Engineers, District Engineer
Department of the Army
Ft. Shafter, Hawaii 96858

Dear Mike:

Re: Hyatt Regency Waikoloa

This is just to acknowledge receipt of your recent communication addressed to Senator Spark Matsunaga.

Please be assured that your communication will be brought to the Senator's attention at the earliest possible moment.

Yours truly,

Cherry Matano

Cherry Matano (Ms.)
Administrative Assistant
to Senator Matsunaga

United States Department of Agriculture
Soil Conservation Service
P.O. Box 50004
Honolulu, Hawaii
96850

April 22, 1985

Colonel Michael H. Jenks
District Engineer
Honolulu District
U.S. Army Corps of Engineers
Bldg. 230
Ft. Shafter, HI 96858-5440

Dear Colonel Jenks:

Subject: U.S. Department of the Army Permit Application
Waikoloa Beach Resort Anchialine Ponds, Waikoloa, Hawaii

We have reviewed the subject draft environmental impact statement and have no comments to make.

Thank you for the opportunity to review the document.

Sincerely,

ACTING
WmHMann
FRANCIS C.H. LUM
State Conservationist

K-23

May 6, 1985

Colonel Michael M. Jenks
District Engineer
U.S. Army Corps of Engineers
Fort Shafter, Hawaii 96858

Dear Colonel Jenks:

The National Marine Fisheries Service (NMFS) has reviewed the Draft Environmental Impact Statement (DEIS) for the Waikoloa Beach Resort Anchialine Ponds, Waikoloa, South Kohala District, Island of Hawaii. The following comments are offered for your consideration.

General Comments

NMFS was consulted during development of the subject DEIS. For the most part resources for which NMFS bears a responsibility and alternatives to reduce adverse impacts on these resources have been addressed to our satisfaction in the document.

We note that throughout the DEIS statements indicate that construction of the proposed 5-acre lagoon will probably not require blasting. However, in recent discussions with several project consultants we now understand that blasting is presently considered the preferred excavation technique rather than a possible alternative.

A report to Darby and Associates, Inc. (April 24 1985) entitled "Additional Evaluation of Proposed Excavation Using Explosives With Respect to Potential Damage to Major Marine Life - Waikoloa, Hawaii" contains additional information on the proposed blasting and recommendations to protect marine life from potential damage. NMFS concurs with these recommendations and feels that proposed blast plan and mitigation measures should be detailed in the DEIS. We are presently evaluating the potential impacts to threatened and endangered species under NMFS jurisdiction from use of explosives in excavating the lagoon. A separate report under Section 7 of the Endangered Species Act of 1973, as amended, will be prepared and submitted for your consideration.

NMFS concurs with the applicant's plan in the preferred alternative to create a 12-acre "anchialine pond preservation area" containing approximately 62 ponds. We continue to be concerned, however, with the loss of the anchialine ponds and their unique biota outside the designated preservation area on the Waikoloa Beach Resort property proposed for development. As additional mitigation for destruction of the approximately 136 ponds, NMFS recommends as much of the unique macrobiota as possible be removed from the ponds prior to filling. The biota should be carefully transplanted to anchialine ponds in the pond preservation area or offsite anchialine ponds. The possibility of creating anchialine ponds onsite should also be investigated. It is likely that volunteers from the local community could be utilized for carrying out the recommended mitigation.

NMFS feels the pond preservation area should be managed by someone other than the applicant, as presently envisioned and stated in the DEIS. Long-term management by an organization such as the The Nature Conservancy (mentioned on Page II-12 of the DEIS) would be more appropriate in achieving management goals. We recommend the proposed pond preservation area management plan be approved by the U.S. Fish and Wildlife Service, the Federal Agency with primary jurisdiction over the anchialine pond biota.

Specific Comments

2.1.1.4 Pond Preservation Area

Page II-12, paragraph (c). This paragraph states that "the management plan and the need for the anchialine pond preserves would be reviewed by the Corps..." NMFS feels the need for an anchialine pond preserve has been clearly demonstrated. Only the management plan itself and not the "need for the anchialine pond preserves" should be reviewed by the Corps.

2.5 Environmentally Preferred Alternative

Page II-22, paragraph 6. The statement is made that "no environmentally prefer ed alternative has been identified at this time." We wish to point out that the "Deny the Permit" alternative would maintain the Waikoloa Beach Resort as the area having the greatest number, concentration, and diversity of anchialine ponds in the State of Hawaii.

8.1 Waiulua Bay

Page III-16, paragraph (e). Underwater surveys by a NMFS biologist substantiated large numbers of juvenile parrot fish and surgeon fish feeding on the algae covered substrate within portions of Waiulua Bay. The bay appears to be an important nursery area for several species of reef fish.

Page III-16, paragraph (f). The statement is made that sightings of the endangered humpback whale off the project coast are rare. We wish to point out that sightings of humpback whales in coastal waters of South Kohala are very common between January and April.

4.1 Effects On Coastal Water Quality

Page IV-5, paragraph (e). NMFS concurs with the proposed placement of a temporary berm between the middle and inner portions of the bay to prevent turbid water during construction from being carried out into Wailua Bay. The berm should be made impervious to properly contain suspended sediments, possibly

by utilizing filter cloth in constructing the berm. Construction methods and materials used for the temporary berm should be detailed in the DEIS.

Sincerely yours,

Doyle E. Gates
Administrator

cc: P/SWR, Terminal Island, CA
P/M4, Washington, D.C.

bc: Honolulu District
Corps of Engineers

U.S. Department of Housing and Urban Development
Honolulu Area Office, Region IX
300 Ala Moana Blvd., Room 3318
Honolulu, Hawaii 96850

85-159

April 18, 1985

Colonel Michael M. Jenks
Corps of Engineers
U. S. Army Engineer District, Honolulu
Ft. Shafter, HI 96858

Dear Colonel Jenks:

SUBJECT: Draft Environmental Impact Statement (DEIS)
U. S. Department of the Army Permit Application
Waikoloa Beach Resort Anchialine Ponds,
Waikoloa, South Kohala District, Island of Hawaii

We have reviewed the DEIS on the proposed action to excavate a five-acre recreational lagoon at the head of Waialua Bay and to fill Anchialine Ponds on other portions of the Waikoloa Beach Resort Properties.

We find that the proposed action will not impact any HUD program or project in the vicinity.

We appreciate the opportunity to comment on the EIS and look forward to receiving a copy of the FEIS.

Very sincerely yours,

Robert K. Fukuda
Manager, 9.2S

K-26

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
PACIFIC SOUTHWEST REGION
BOX 36098 • 450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102
(415) 556-8200

ER 85/471

Colonel Michael M. Jenks
District Engineer, Honolulu District
U. S. Army Corps of Engineers
Fort Shafter, Hawaii 96858

Dear Colonel Jenks:

The following comments on the Draft Environmental Impact Statement (DEIS) on the Waikoloa Hyatt Development and the Waikoloa Beach Resort Properties at Anaehoomalu, Hawaii, dated March 1985, are being provided in compliance with provisions of the National Environmental Policy Act (NEPA).

K-27

General Comments

Fish and Wildlife Resources

We appreciate the effort the Corps of Engineers (CE) has made on this DEIS. However, it appears that the section on Alternatives may be lacking in objectivity. The document seems to treat the proposed action as the only reasonable solution while portraying sound environmental alternatives as being too flawed to warrant serious consideration. We believe there is more substance to these alternatives than is documented in the DEIS.

The original proposal would have eliminated all 215 anchialine ponds on the project site which amounts to over 1/3 of all such ponds on Hawaii. In light of the magnitude of losses anticipated, the U.S. Fish and Wildlife Service (FWS) worked extensively over a six month period with the CE, the developer, and the applicants prior to the submission of the permit application in an effort to find a means of mitigating these losses.

As a result of these protracted negotiations, the concept of an on-site "preservation area" involving a 12-acre pond preservation area together with associated terms and conditions necessary for guaranteeing long term viability of this pond system, was mutually developed as a minimally acceptable form of mitigation. Unfortunately, some of the vital conditions which would have made this pond preservation area concept acceptable have not been incorporated in the DEIS. These are as follows:

a. Perpetual Protection and Management: It was generally conceded by all parties that in order to be certain the ponds were preserved in perpetuity management responsibility for the area had to be assigned to a conservation organization which had the necessary expertise in resource management. The FWS also emphasized the need for some form of perpetual easement. Unfortunately, the applicant, rather than an environmentally oriented organization, is identified in the DEIS as the management entity for the pond preservation area.

b. Water Quality Characteristics: Anchialine ponds are characteristically mixohaline and are variously influenced by inland extension of tides and seaward flow of fresh groundwater. The ponds located at the Waikiloa site range in salinity from 2 ppt to 17.5 ppt. It is thought that most or all ponds are interconnected by flow through subterranean interstices in the porous lavas. As a result, water quality impacts affecting one can be transmitted throughout the system. Although this issue is addressed on page II-12, our present ability to anticipate and mitigate the impacts of construction and other activities on the ponds in the preservation area has to be considered inadequate. The DEIS should emphasize the need for an intensive water quality monitoring program in and adjacent to the preservation area before, during, and after construction. In addition, prior to installation and use of any injection wells, water quality integrity within the pond system should be guaranteed. Potentially contaminated waters (i.e., stormwater runoff from paved areas, sewage effluents, and toxic materials) should be directed away from the preservation area. If such water quality protection can not be achieved, then the present mitigation concept is threatened. The DEIS should deal with these considerations in clear and unequivocal language.

c. Direct or indirect artificial lighting of the pond preservation area must be avoided.

Specific Comments

Page II-1 - The "Regional Background" section could be improved by mentioning discussions with prior developers covering mitigation for loss of ponds and the recent unauthorized fill at the site.

Page II-5 - The FWS suggests that the section on the history of the permit application be expanded to include reference to PONCO 0 1358-S. This was the first permit issued authorizing work at the Waikoloa site, in 1977. The FWS would like to stress that our concern for these anchialine ponds is long standing and was well known to the consultants for the applicant and the current landowner.

Page II-12 - Section 2.I.I.4(c) refers to a management plan that would be approved by the CE and reviewed after 20 years and every 5 years thereafter. Because of the critical importance of this plan we would like to be included in the review and approval of the plan.

Page II-6 - The reference to Figure III-8 for cross sections of A and B, should be for Figure II-8.

Page II-14 - The figure should include shading for the disjunct section of ponds suggested for preservation under Alternative I.

Page II-15 - In Section 2.1.2.2(b) (and elsewhere), there is reference to a Deer Park Tower. We should point out that there is a risk involved in bringing deer to the Island of Hawaii. The impact of introduced ungulates to Hawaii's ecosystems is well documented. Also, the potential adverse impacts to the important cattle industry on the Big Island is of serious concern. Although the risk of escape is probably small, there are presently no deer on Hawaii. Even the remote chance of deer escaping and establishing a population should be viewed with apprehension. Though quite a separate issue from the anchialine ponds, the applicant should be informed of this problem and referred to the State Department of Land and Natural Resources for specific State permits required for bringing non-native animals into Hawaii.

Page II-15 - The entire discussion of the "Economic Viability of the Alternatives" appears to be biased in favor of the applicant's proposal. The DEIS would benefit from a more dispassionate discussion of all alternatives.

Page II-19 (Table II-1 - The conclusion in this table regarding the effect of fill material on ground and marine water is questionable. We do not know what impacts will occur.

Page II-20 - The discussion of siting inland, while perhaps accurate in its assessment of the attractiveness of shoreline location, seems an inappropriate review of this potential alternative. It again appears to be an advocacy of the applicant's position.

Page II-22 - In light of the lengthy discussions between the CE and FWS, it would seem responsive and informative to identify and discuss the environmentally preferred alternative.

General Comments

Water and Geological Resources

The Geological Survey reports the statement should evaluate quantitatively the effects of the proposed pumping of 3,200 gallons per minute of groundwater to flush the 5-acre lagoon to be constructed adjacent to Waiulua Bay. The analysis should include: pertinent aquifer characteristics; anticipated depth of the well and distance from the lagoon; and anticpated effects on the basal groundwater lens and on overlying water of better quality, including calculated effects on upgradient water levels, on groundwater underflow that now discharges to the bay, and on the intrusion of saltwater.

Thank you for the opportunity to review and comment on this DEIS.

Sincerely,

Patricia S. Port

Patricia Sanderson Port
Regional Environmental Officer

cc: Director, OEPR (w/copy incoming)
Reg. Dir., FWS
Reg. Dir., NPS
Reg. Dir., GS

United States
Department of the Interior

Fish and Wildlife Service
Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To: Your Reference:

May 29, 1985

Colonel Michael M. Jenks
District Engineer, Honolulu District
U. S. Army Corps of Engineers
Building 230
Fort Shafter, Hawaii 97858

Dear Colonel Jenks:

This is to inform you, as required under the July 2, 1982, Memorandum of Agreement, that the Service wishes to reserve the right to elevate the resolution of issues related to the project proposal reviewed in your public notice PDCO-01812-SD, dated February 14, 1985. This action will be necessary if the final recommendations of the Honolulu Environmental Services Project Leader, dated May 2, 1985, are not accepted. The applicants, Waikoloa Hyatt Development and Waikoloa Beach Resort Properties, have applied for a permit to fill numerous anchialine ponds at Waiulua Bay, South Kohala, Hawaii for the purpose of constructing resort hotels and condominiums.

Our Honolulu Field Office is working with the applicants to preserve, in perpetuity, a portion of the anchialine ponds on the project site. If you propose to issue a DA permit without including the Service's recommendations or over our objections, please forward a copy of your Notice of Intent to Issue concurrently to the Honolulu Project Leader.

It is our desire to cooperate fully in expediting the Corps of Engineers' permitting system and preventing unnecessary delay. We will continue to work closely with your staff in resolving the environmental issues. We hope that you acknowledge the international importance of these threatened habitats by assisting the Department of the Interior in acting vigorously to protect these areas from further degradation.

Sincerely,

Richard J. Myshak
Regional Director

cc: FWS-ES Honolulu Field Office

K-29

K-30

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P.O. BOX 50167
HONOLULU, HAWAII 96850

IN REPLY REFER TO:

Colonel Michael M. Jenks
U.S. Engineer District, Honolulu
Attention: PODCO-O
Building 230
Fort Shafter, Hawaii 96858-5440

Re: PODCO-O 1812-SD, Waikoloa
Hyatt Resort Development

Dear Colonel Jenks:

We have reviewed the referenced public notice (PODCO-O 1812-SD) dated February 14, 1985, on the Waikoloa Beach Resort anchialine ponds. Our evaluation of this public notice includes a review of the accompanying Draft Environmental Impact Statement (DEIS). Additional comments on the DEIS are included in the Department of Interior review, under separate cover. We offer the following comments on PODCO-O 1812-SD for your consideration.

These comments have been prepared under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and other authorities mandating Department of the Interior concern for environmental values. It is also consistent with the intent of the National Environmental Policy Act.

The U.S. Fish and Wildlife Service (USFWS) has worked extensively over the last six months with the Corps of Engineers, the developer, and the applicants prior to the submission of the permit application. In our initial meetings we all realized that considerable work was necessary to accommodate proposals for mitigating what would have been loss of all anchialine ponds on the project site. This would have affected some 215 ponds, or over a third of all such ponds found on the island of Hawaii.

The concept of an on-site "preservation area" was developed through these continued discussions. This concept, with its 12-acre pond preservation area and the terms and conditions necessary for guaranteeing long-term viability of this pond system, was formulated by representatives of the Corps of Engineers, the applicant, the developer, and the USFWS as one that would be minimally acceptable.

The proposed action described in PODCO-O 1812-SD reflects only a portion of the many considerations evolved over several meetings among representatives of the Corps of Engineers, the applicant, the developer, and the USFWS. The basic concept of the pond preservation area and the configuration of the 12-acre site represents a minimum of what appeared to have been a consensus reached by the participants as being necessary to protect these anchialine ponds. Most of the vitally important considerations which would have made this pond preservation area concept a viable alternative have not been incorporated in the current proposed action. The USFWS believes that without the following conditions, the pond preservation plan as described is seriously flawed and not likely to attain the objective of conserving this unique ecosystem in perpetuity.

a. Perpetual protection and management: This was considered to be the primary objective of the pond preservation proposal. It was generally conceded during the group's discussions that designation of a conservation organization with the necessary expertise to assume management of this area was the key element in making this proposal acceptable. The USFWS further stressed that some form of perpetual easement was essential if this pond preservation concept were to be a viable alternative. No conservation organization could guarantee the long-term ecological viability of this site without this easement.

Unless some reputable resource organization is given the responsibility for protecting and managing this area, the concept of the proposed preservation area is seriously flawed.

The proposed action suggests that the applicant would be responsible for management of the pond preservation area. We do no believe the applicant should be solely responsible for stewardship of the pond preservation area. This is a burden that should be borne by an organization that has experience, expertise, and frequent contact and interchange with scientists with knowledge of anchialine pond ecosystems. The difficult task of ensuring long-term management of the 12-acre preservation area should be relegated to an organization which can focus all of its energies to attaining this objective. The applicant will be primarily concerned with management of the neighboring developments, and the USFWS believes it is in the best interest of all parties concerned to assign perpetual management responsibilities to a reputable conservation organization.

b. Water Quality Characteristics: Anchialine ponds are characteristically mixohaline and are variously influenced by inland extension of tides and seaward flow of fresh groundwater. The ponds located at the Waikoloa site range in salinity from 2 ppt to 17.5 ppt. It is thought that most or all ponds are connected to some degree by flow through subterranean interstices in the porous lavas. Thus, the complex of ponds at Waikoloa can

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be thought of as one system. This creates an aquatic microenvironment that is truly unique.

Because of the relationship of the ponds to one another, maintenance of proper water quality in the system as a whole is critical. Although this issue is addressed in the DEIS our present ability to anticipate and mitigate the impacts of construction and other activities on the ponds in the preservation area has to be considered inadequate.

Because of the importance of this issue, we believe it is necessary to provide more reliable safeguards to avoid water quality problems. An intensive water quality monitoring program in and adjacent to the preservation area before, during, and after construction should be required. We should also be certain, prior to installation and use, that any injection wells will not affect the pond system. Potentially contaminated waters (e.g. stormwater runoff from paved areas, sewage effluents, and toxic materials) should be directed away from the preservation area. These stipulations need to be specific permit conditions.

c. Direct or indirect artificial lighting of the pond preservation area must be avoided.

Summary

The USFWS believes that the proposed action is contrary to the requirements of Federal regulations regarding the water dependency aspects of projects constructed in waters of the United States (portions of 40 CFR 230 and 33 CFR 320), and therefore, considers the alternative of denying the permit to be the Preferred Alternative. However, the USFWS believes that the proposed action would be minimally acceptable if our recommendations are incorporated into the DA permit. We have worked extensively with all concerned parties to arrive at a negotiated settlement. We believe our position represents the minimum necessary protection for the fish and wildlife resources at the project site. Thus the USFWS will not object to PODCO-0 1812-SD provided the following conditions are incorporated into the DA permit and observed by the applicant.

a. A conservation/natural resource management organization with the necessary technical and scientific expertise and facilities be given perpetual rights to manage the pond preservation site. The approval and final selection of this organization would be jointly determined by the USFWS and the Corps of Engineers.

b. There will be no modification of existing ponds in the pond preservation area (identified in proposed action) which

might alter the ecological stability of the anchialine systems that presently exist.

c. No sewage effluents or toxic materials may be injected into the groundwater on the Waikoloa site. Because of the porosity of the lava and the interconnecting groundwater system, these restrictions apply throughout the site.

d. No other potential pollutants (e.g. stormwater runoff from paved areas, biocides, fertilizers, untreated wastewater) be allowed to enter the pond preservation site.

e. Direct or indirect artificial lighting must be aimed away from the pond preservation area.

We are prepared to continue our efforts with all concerned parties to achieve solutions to unresolved issues. We have expended a considerable amount of effort on this permit application, and we are committed to continued cooperation in completing this permit process.

Sincerely yours,

Allan Hamelstein
Pacific Islands Administrator

cc: RD, FWS, Portland, OR (AHR)
NMFS - WPPO
EPA, San Francisco

K-31

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

be thought of as one system. This creates an aquatic microenvironment that is truly unique.

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K-31

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b. There will be no modification of existing ponds in the pond preservation area (identified in proposed action) which

might alter the ecological stability of the anchialine systems that presently exist.

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We are prepared to continue our efforts with all concerned parties to achieve solutions to unresolved issues. We have expended a considerable amount of effort on this permit application, and we are committed to continued cooperation in completing this permit process.

Sincerely yours,

Allan Marmelstein
Pacific Islands Administrator

cc: RO, FWS, Portland, OR (AHR)
NMFS - WPPO
EPA, San Francisco

U.S. Department of Transportation
United States Coast Guard

Commander (dpl)
Fourteenth Coast Guard District

Prince Kalanianaole
Federal Building
300 Ala Moana Blvd.
Honolulu, Hawaii 96850
Phone: (808)546-2861

16518
Serial No. 5/100
16 April 1985

From: Commander, Fourteenth Coast Guard District
To: District Engineer, U.S. Army Corps of Engineers, Honolulu

Subj: DEIS FOR WAIKOLOA BEACH RESORT DEVELOPMENT PROJECT

Ref: (a) Your public Notice No. PODCO-O 1812 SD dtd March 1985

1. The Fourteenth Coast Guard District has reviewed the Draft Environmental Impact Statement (DEIS) for a US Department of the Army permit application, PODCO-O 1812-SD, concerning the Waikoloa Hyatt Development and Waikoloa Beach Resort Properties, at Anaehoomalu, Island of Hawaii, Hawaii, and has no objection or constructive comments to offer at this time.

J. F. HILBRAND
By direction

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE
Hawaii Division
Box 50206
Honolulu, Hawaii 96850

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April 4, 1985

IN REPLY REFER TO
HEC-HI
(574.6)

Colonel Michael M. Jenks, U. S. Army
Corps of Engineers, District Engineer
Pacific Ocean Division, Bldg. 230
Ft. Shafter, HI 96858

Dear Col. Jenks:

Subject: Draft EIS - Waikoloa Hyatt Development and Waikoloa Beach Resort Properties, Annahoomalu, Island of Hawaii

Thank you for the opportunity to review your Draft Enviromental Impact Statement for the Waikoloa Beach Resort Anchialine Ponds at Waikoloa, South Kohala, Hawaii.

The Federal Highway Administration has no comments on the DEIS and proposed undertaking. We will not need a copy of your Final EIS.

Sincerely yours,

H. Kusumoto
Division Administrator

By N. L. Arthur
N. L. Arthur
Assistant Division Administrator

K-33

Environmental Protection Agency
215 Fremont Street
San Francisco CA 94105
Arizona, California
Hawaii, Nevada
Pacific Islands

EPA

MAY 24 1985

Colonel Michael M. Jenks
District Engineer
U.S. Army Corps of Engineers
Honolulu District
Building 230
Fort Shafter, Hawaii 96858

Dear Colonel Jenks:

The Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) titled PERMIT APPLICATION: WAIKOLOA BEACH RESORT ANCHIALINE PONDS, WAIKOLOA, SOUTH KOHALA DISTRICT, ISLAND OF HAWAII, STATE OF HAWAII. The enclosed comments are provided in accordance with EPA's responsibilites under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act.

EPA's concerns regarding this project include: 1) inadequate assessment of potentially significant environmental impacts to the anchialine ponds, including the possibility that some of the organisms in the ponds may qualify as rare or endangered species, 2) potential destruction of one-third of the anchialine pond habitat on the island of Hawaii, 3) inadequate assessment of proposed project alternatives and practicable alternatives, 4) potential violation of Section 404 of the Clean Water Act (CWA) based on interpretation of the Section 404(b)(1) Guidelines, and 5) inadequate disclosure of all development proposals and ensuing environmental impacts for Waikoloa Beach Resort properties.

EPA strongly encourages the U.S. Army Corps of Engineers (COE) to develop alternatives for the Waikoloa Beach Resort project which would assure the protection and maintenance of existing environmental quality. We, therefore, recommend that COE prepare a Draft Supplement to the EIS (DSEIS).

We have classified this DEIS as Category 3, Inadequate (see the enclosed sheet titled Summary of Rating Definitions and Follow-Up Actions). The DEIS does not adequately assess the potentially significant environmental impacts of the proposed Waikoloa Beach Resort project. We have also identified reasonably available alternatives that are outside the spectrum of alternatives analyzed by COE and the applicant in the DEIS.

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The additional information required to evaluate the alternatives, those discussed in the DEIS and those identified by EPA, are of such magnitude that they should have full public review at the draft stage. EPA has determined that the DEIS is inadequate for the purposes of NEPA and Section 309 review. If the inadequate assessment of practicable alternatives is not broadened and strengthened at the Final Environmental Impact Statement stage, EPA may recommend that this proposed project be referred to the Council on Environmental Quality (CEQ).

The classification and date of EPA's comments will be published in the Federal Register in accordance with our public disclosure responsibilities under Section 309 of the Clean Air Act. In addition, 40 CFR 1504 and EPA's Section 309 responsibilities require us to notify the CEQ and the Chief of Engineers of our rating. We are available to meet with COE to discuss our concerns in detail. Please contact Patrick J. Cotter, Federal Activities Branch, at (415) 974-0948 or FTS 454-0948.

Sincerely,

Judith E. Ayres

JUDITH E. AYRES
Regional Administrator

Enclosure (11 pages)

cc: Ms. Josephine S. Cooper, Assistant Administrator, OEA, EPA
Mr. Paul A. Schuette, Office of Public Affairs, EPA
Mr. Allan Hirsch, Office of Federal Activities, EPA
Mr. A. Alan Hill, Council on Environmental Quality
Lt. General E. R. Heiberg III, Chief of Engineers, U.S. Army
Mr. Allan Marmelstein, Pacific Islands Administrator, U.S. Fish and Wildlife Service, Hawaii
Mr. Doyle E. Gates, Administrator, National Marine Fisheries Service, Hawaii
Mr. Leslie Matsubara, Director, Hawaii Department of Health
Ms. Letitia N. Uyehara, Director, Hawaii Office of Environmental Quality Control
Mr. Dante Carpenter, Mayor, County of Hawaii, Island of Hawaii
Mr. Clifton Jenkins, Vice President and Manager, Transcontinental Development Company, Hawaii

Overview of Section 404 Comments

EPA has reviewed the proposed project for compliance with Section 404 of the Clean Water Act (CWA) and the regulations for its implementation at Section 404(b)(1) promulgated at 40 CFR 230. Fundamental to these regulations is the precept that dredged or fill material should not be discharged into the aquatic ecosystem, such as anchialine ponds, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or cumulatively.

It is the purpose and policy under the 404(b)(1) Guidelines (Guidelines) that the degradation or destruction of special aquatic sites is considered to be among the most severe impacts. Impacts to anchialine ponds, classified as special aquatic sites, may cause an irreversible loss of this valuable aquatic resource. EPA believes that the proposed project conflicts with the Guidelines because: 1) anchialine ponds qualify as special aquatic sites, 2) the proposed project individually may destroy one third of the anchialine pond resources on Hawaii, and 3) other developments may adversely impact anchialine ponds. A comprehensive environmental impact statement, describing the impacts of this and future developments near anchialine ponds in Hawaii, may be required by NEPA.

A. Compliance with Section 404 (b)(1) Guidelines

The DEIS does not consider alternatives in sufficient detail to respond to the requirements of the Guidelines. The Guidelines prohibit fill in waters of the United States if there is a practicable alternative which would have less adverse impact on the aquatic ecosystem [40 CFR 230.10(a)(4)]. These alternatives include, but are not limited to, avoidance of placing fill in waters of the United States or discharging materials at less damaging locations. An area not presently owned by the applicant may be considered as a practicable alternative site [40 CFR 230.10 (a)(1-2)].

Under the Guidelines, a hotel is not classified as a "water dependent" project. The Guidelines presume that a practicable alternative is available, when filling of special aquatic sites are involved, and where such a project is not water dependent [40 CFR 230.10(a)(3)]. The alternatives presented in the DEIS are not sufficient to rebut the presumption that practicable alternatives exist. An extensive evaluation of alternate sites was not provided in the DEIS. It appears that the entire project could be relocated to the north and west margins of Waiulua Bay. This would require little or no fill of anchialine ponds.

The Guidelines also prohibit the placement of dredged or fill material in waters of the United States, if such actions cause or contribute to significant degradation of the waters of the United States. These impacts include, but are not limited to, effects on fish, shellfish, wildlife, special aquatic sites, or loss of fish and wildlife habitat [40 CFR 230.10(c)(1,3)]. EPA views the potential loss of more than one-third of the entire anchialine pond resource on Hawaii, a substantial portion of this national resource, as a significant degradation of the waters of the United States.

In addition, no discharge of dredged or fill material is permitted under the Guidelines, unless appropriate and practicable steps have been taken to minimize potentially adverse impacts on the aquatic ecosystem [40 CFR 230.10(d)]. Such steps for the proposed project could include, but are not limited to, avoiding sites having unique habitat or other values and habitat development or restoration [40 CFR 230.75 (c-d)]. Anchialine ponds are considered as unique habitats (Maciolek and Brock, 1974) and should not be used as fill disposal sites.

Although EPA has provided comments on the management plans for the proposed pond preservation areas, we do not believe preservation of existing ponds constitutes mitigation. The "preferred" preservation plan proposes to avoid filling 30% of the ponds on the site as mitigation for the proposed destruction of 70% of the ponds. The result of this proposal is the 70% uncompensated loss of resource values at the applicant's site, not considering additional losses or degradation that may occur to the remaining ponds through secondary impacts.

B. Needs for Documentation Under the Guidelines

Under the Guidelines, COE must present a written evaluation regarding potential short-term and long-term effects of the proposed fill activities on physical, chemical, and biological components of the aquatic environment. These determinations are the basis for findings of compliance or non-compliance with the restrictions on discharge in 40 CFR 230.10. Although the DEIS provides much of the required factual determinations on physical and chemical components, information required to make a reasoned decision regarding the biological components is not adequate. The number, size and subsurface connections of the anchialine ponds on the island of Hawaii have not been quantified in the DEIS.

The number of species inhabiting these pools and their abundance are not completely known. There may be additional species that have not been described because only qualitative sampling methods were used during previous pond studies. Communities of organisms found in anchialine ponds may conceivably occur beneath ancient lava flows with no surface connections, but to our knowledge, no one has investigated

this possibility. The U.S. Fish and Wildlife Service (FWS) has proposed that five species be given Category 2 status, under the Endangered Species Act. EPA recommends close coordination with FWS on the possibility of endangered species living in the ponds.

EPA has determined that the proposed project does not comply with the Guidelines at the present time [40 CFR 230.12 (a)(3)(iv)]. This determination is based on the lack of adequate information necessary to make a reasonable judgement on the project as well as the practicable alternatives analysis, potentially significant adverse impacts and the lack of mitigation alternatives. NEPA requires that, if such information is needed to make a reasoned choice and the costs of obtaining that information are not exorbitant, the information must be included in the EIS, the DSEIS in this case (40 CFR 1502.22).

Several of the concerns noted above are reiterated in greater detail in the following Section 404 comments.

Detailed Section 404 Comments

A. Practicable Alternatives Analysis

1. Anchialine ponds are defined as "waters of the United States" [40 CFR 230.3(s)] and many are classified as "special aquatic sites" [40 CFR 230.3(q-1), 230.41, and 230.43]. In recognition of the values of special aquatic sites and the need to prevent their degradation or destruction, the Guidelines establish a "water-dependency" test for discharges into special aquatic sites. If the activity associated with the discharge of dredged or fill material into a special aquatic site is not "water dependent" (i.e. requiring access or proximity to or siting within the special aquatic site in order to fulfill its basic purpose), practicable alternatives are presumed to be available unless clearly demonstrated otherwise [40 CFR 230.10 (a)(3)]. The degradation or destruction of special aquatic sites is considered to be one of the most severe environmental impacts covered by the Guidelines.

   While EPA recognizes that hotel resort facilities are classified as "coastal dependent" in the Hawaii Coastal Zone Management Plan (p. II-20), a hotel resort project is not defined as water dependent by the Guidelines. As such, one of the first steps in determining compliance with the Guidelines is the evaluation of the applicant's demonstration to rebut the presumption that there are practicable alternatives to the proposed discharge into special aquatic sites.

   In order for an alternative to be practicable, it must be capable of achieving the basic purpose of the project. "An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered" [40 CFR 230.10 (a)(2)]. However, the Guidelines do not require that an alternative be comparable to the proposed project, only practicable. It is implicit that the practicable alternatives include consideration of revised configurations and/or reductions in scope of the project [40 CFR 230.10(a)].

2. The DSEIS should provide a detailed evaluation of those alternatives which would avoid filling the ponds. Section 2.2 (pp. II-20 to II-22) attempts to address these issues, but does not contain sufficient information to rebut the presumption that practicable alternatives exist. The DSEIS should evaluate all practicable

alternatives including the reconfiguration of the proposed project by rotating the complex to maximize the use of the area north of Waiulua Bay. This would avoid the need to fill anchialine ponds south of the bay.

B. Significant Degradation

1. The most adverse impact of filling anchialine ponds is that many organisms living in the ponds and their habitat would be eliminated. Section 8.3.1.5 (p. III-19) describes the organisms found in the ponds, some of which are found only in anchialine ponds. Much of this information is based on a report by Maciolek and Brock (1974). In this report, the authors acknowledged that not all species present in anchialine pond habitats have been identified, and that species distribution data was incomplete (p. III-20). Despite an additional study for the DEIS, EPA believes that there is insufficient data in the DEIS to adequately identify anchialine pond resources.

2. The proposed project includes several actions which may affect ground water flows (pp. IV-5 to IV-7). It is unclear to what extent site preparation, filling, and construction will affect ground water flows and circulation patterns in the subterranean pond connections. The DEIS states that only those ponds being filled are expected to be affected (p. IV-3). The DSEIS should explain the basis for this statement and fully describe the site preparation process.

3. The DEIS states that in order to maintain good water quality in the excavated lagoon, ground water will be pumped from shallow on-site wells at a rate of 4.6 million gallons per day (mgd) (pp. II-7 and IV-6). The DSEIS should include the following information:

   a. Identify the proposed location and siting criteria for the wells, and

   b. Assess how pumping 4.6 mgd from the ground water resource will affect subsurface flows, flushing rates and water quality of the anchialine ponds.

4. The DEIS states that concentrations of nitrate, ammonia and phosphate have increased in certain ponds due to the use of fertilizers and waste water effluent irrigation practices on the adjacent golf course (p. III-27). The DEIS also states that water clarity has been maintained by the flushing effect of high ground water flows and tidal exchanges.

In light of the concerns regarding the proposed pumping described above, the DSEIS should describe the effect of potential alterations in ground water flows on nitrate, ammonia and phosphate levels in the ponds. The DSEIS should also quantify the relationship between ground water flows, nutrient levels, and pond clarity. The discussion should focus on the effect of higher nutrient concentrations on anchialine pond phytoplankton, other aquatic species and general ecology of the habitat.

C. Measures to Minimize Impacts

1. EPA does not consider the proposed preservation plans as mitigation for the loss of the ponds because the habitat values lost are not being minimized or compensated. The Guidelines state that no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem [40 CFR 230.10(d)]. However, we are providing comments on the proposed plans because they are part of the DEIS.

2. The DSEIS should evaluate pond preservation management plans in order to determine the likelihood of maintaining or enhancing the pond ecosystem. The evaluation should determine the ability of the plan to actually preserve this unique resource in perpetuity.

3. The anchialine pond preservation management plan should:

   a. Identify and discuss the responsibilities of the management agency and the enforcement agency, including legally binding commitments to implement the management plan,

   b. Identify a preferred management plan including enforcement procedures to maintain management objectives,

   c. Define compliance criteria and methods to monitor the ponds,

   d. Identify options for corrective action to ensure pond preservation.

   e. Discuss the possibility of requiring the applicant to post a bond for the preservation of the anchialine ponds, and

   f. Identify those mitigation features which will minimize potentially adverse impacts on the anchialine ponds, such as:

1) Introduction of runoff potentially laden with fertilizers, pesticides, petroleum hydrocarbons, oil and grease, or other pollutants, and

2) Increases in human intrusion, including refuse accumulation, and introduction of exotic species.

4. The DEIS states that the management plan will not be reviewed by COE for 20 years, then every 5 years thereafter. This time frame is not an acceptable management format and could negate any benefits to be derived from the establishment of a management plan. EPA recommends a more rigorous monitoring time schedule, such as every six months during construction and yearly for the next 20 years.

D. Additional Documentation

EPA staff inspected the proposed project site at high tide and found a small pond, complete with many Halocaridina rubra (atyid shrimp) in a shallow depression in the applicant's access road. When the tide receded, this pond and the shrimp were gone. The shrimp had apparently moved to the surface with the rising tide and receded into the cracks of the crushed lava roadbed when the tide ebbed. If the proposed project site is underlain with interconnections, it is conceivable that the 215 anchialine ponds on this site may represent a single, interconnected resource with many surface openings. EPA has concluded that too little information exists to evaluate the impacts of the proposed action, or any of the alternatives presented in the DEIS, on the anchialine pond resources on the island of Hawaii.

In order to fully assess the impacts of the proposed project on anchialine pond species, baseline data should be collected regarding the extent and distribution of the anchialine ponds, and the biological and ecological requirements of the organisms found in the ponds. The DSEIS should also describe subterranean connections between ponds, movement of pond species within these subterranean connections, and the relationship between the surface and subterranean habitats.

E. Reference Cited

Maciolek, J. A. and R. E. Brock. 1974. Aquatic survey of the Kona Coast ponds of Hawaii. University of Hawaii Press, Honolulu, Hawaii. 441 pp.

K-38

General Comments

It is EPA's understanding from discussions with COE staff that this DEIS serves as the NEPA document for all proposed development actions in the Waikoloa Beach Resort area, not just the Hyatt Regency Waikoloa Hotel. The DEIS did not fully disclose the complete development concept. We recommend that the DSEIS assess the plans for condominium and additional hotel construction as well as other ancilliary facilities.

The DSEIS should contain a complete evaluation of environmental impacts associated with these projects including, but not limited to, environmental degradation of the anchialine pond ecosystem, water quality, air quality, sewage capacity, ground water resources and cumulative impacts from development. The parcels in question include: Comm. 1, Comm. 23, Hotel 10, Hotel 12, MF (East of King's Highway), MF 2, MF 5, MF 9, MF 13, MF 20, MF 21, MF 22, MF 26, MF 27AA, MF 27CC, MF 27DD, and MF 28Z (Figure II-2).

Water Quality Comments

1. Potable water is a valuable resource on the island of Hawaii. COE should ensure that the pumping of ground water, to maintain the water quality of the lagoon, will not affect the availability of ground water for public water supply (p. IV-19). Evidence for this assurance should be displayed in a table showing current uses, proposed project uses and cumulative uses resulting from further developments near the hotel.

2. COE should evaluate the impact of berm construction on nearshore marine habitats. This analysis should include sedimentation impacts during berm construction, berm removal and potential maintenance dredging of sand at the mouth of the lagoon.

   EPA recommends that the DSEIS include a bathymetric map of Waiulua Bay showing sand areas and marine ecosystems. This map would be useful for determining potential areas of environmental impact and the berm location (p. IV-5).

Air Quality Comments

The DEIS states that carbon monoxide (CO) concentrations might exceed the State of Hawaii 8-hour standard at the intersection of Queen Ka'ahumanu Highway and the Waikoloa Beach Resort entrance road (p. IV-21). Congestion resulting from additional traffic generated by development on the remaining sites "would lead to markedly higher pollutant levels in the vicinity." The DEIS also states that this "is of little consequence at present because the land surrounding

the intersection is now vacant, and motorists in waiting vechicles would be subject to only short-term exposures."

For an adequate discussion of the air quality impacts of the proposed project, the DSEIS should:

1. Present the results of the dispersion modeling cited in the DEIS,

2. Present the results of further modeling which would include the cumulative impact of additional traffic generated by development on the remaining sites within the project area, and

3. Discuss methods of mitigating the adverse air quality impacts identified above. Possibilities include, but are not limited to:

   a. Redesigning and/or reconstructing any intersection(s) where violations of air quality standards are predicted to occur,

   b. Providing high-occupancy vehicles, such as buses or vans, to transport employees, guests, and other tourists, and

   c. Discussing the existing and potential public transit that was recommended in our scoping letter of November 6, 1984 (DEIS, Appendix B).

4. The DSEIS should identify such mitigation measures as are found to be effective in alleviating the adverse air quality impacts of this project and others in the vicinity.

Summary of EPA Recommendation for the DSEIS

To highlight EPA's detailed comments above, we request that the following information be included in the DSEIS for the Waikoloa Beach Resort complex:

1. Detailed analysis of practicable alternatives and other viable project alternatives,

2. Detailed evaluation of the biology and ecological requirements of anchialine pond species,

3. Assessment of site construction activities and project water uses on ground water resources and the survival of the pond resource due to ground water modification.

4. Reevaluate and redesign the pond preservation plan to reflect better management objectives and monitoring time periods,

5. Completely describe the anchialine pond resources in terms of geochemical, physical and biological aspects,

6. Describe and evaluate the environmental impacts and economic viability of all development plans for the Waikoloa Beach Resort,

7. Provide a discussion of potential nearshore marine ecosystem impacts, and

8. Provide data and appropriate mitigation for potential air quality impacts.

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP* ACTION*

Environmental Impact of the Action

LO—Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC—Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO—Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU—Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1—Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2—Insufficient Information
The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3—Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment

GEORGE R. ARIYOSHI
GOVERNOR

LETITIA N. UYEHARA
DIRECTOR
TELEPHONE NO.
548-6915

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
500 HALEKAUWILA STREET
ROOM 301
HONOLULU, HAWAII 96813

May 14, 1985

Colonel Michael H. Jenks
District Engineer
Corps of Engineers
Fort Shafter, Hawaii 96858

Dear Colonel Jenks:

Subject: Comments to the Waikoloa Beach Resort Anchialine Ponds Draft EIS

Anchialine ponds, because of their unique habitat, contain rare organisms. The importance of the Waikoloa ponds are magnified because they are the largest single concentration of anchialine ponds in West Hawaii and represent a broad diversity of anchialine pond characteristics. Approximately 33 percent of Hawaii's anchialine ponds are located at Waikoloa.

The Waikoloa Beach Resort, if developed, will have an extremely adverse effect upon the anchialine ponds. While the project is under construction, surface runoff and siltation will negatively affect the ponds. After the resort is constructed, the increased runoff from paved surfaces will have a large effect upon the salinity and nutrient loading of the ponds. The large number of tourists that the resort will attract will also have a detrimental effect. The large swimming lagoon that is being proposed will destroy approximately 17 of the largest ponds with a total estimated area of two acres.

Because of the presence of the anchialine ponds, we suggest that another site be considered for the resort.

We are also attaching copies of comments received by this office from other state agencies.

Sincerely,

Letitia N. Uyehara
Director

Attachments

K-41

K-42

GEORGE R. ARIYOSHI
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 119, HONOLULU, HAWAII 96810

MIDEO MURAKAMI
COMPTROLLER

MARK H. TOKUNAGA
DEPUTY COMPTROLLER

LETTER NO (P)1194.5

Ms. Letitia Uyehara
Director
Office of Environmental
Quality Control
550 Halekauwila Street
Room 301
Honolulu, Hawaii

Dear Ms. Uyehara:

Subject: Draft EIS by U.S Department of the Army
Waikoloa Beach Resort Anchialine Ponds
Waikoloa, South Kohala, Hawaii

We have reviewed the subject document and have no comments to offer.

Very truly yours,

TEUANE TOMINAGA
State Public Works Engineer

CT:jk

GEORGE R. ARIYOSHI
GOVERNOR

JACK K. SUWA
CHAIRPERSON, BOARD OF AGRICULTURE

SUZANNE D. PETERSON
DEPUTY TO THE CHAIRPERSON

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814

Mailing Address:
P. O. Box 22159
Honolulu, Hawaii 96822

April 4, 1985

MEMORANDUM

To: Ms. Letitia N. Uyehara, Director
Office of Environmental Quality Control

Subject: Draft Environmental Impact Statement (DEIS) for the
U.S. Dept. of the Army Permit Application, Waikoloa
Beach Resort, South Kohala, Hawaii

The Department of Agriculture has reviewed the subject DEIS and offers the following comments.

The proposed project will not affect the agricultural resources of the area, nor the plans, programs and activities of this Department.

We are returning this document for your further use.

Thank you for the opportunity to comment.

Jack K. Suwa
JACK K. SUWA
Chairman, Board of Agriculture

Enclosure

GEORGE R. ARIYOSHI
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD, HONOLULU, HAWAII 96816

ALEXIS T. LUM
MAJOR GENERAL
ADJUTANT GENERAL

DANIEL K. C. AU
COLONEL
DEPUTY ADJUTANT GENERAL

HIENG

Letitia N. Uyehara, Director
Office of Environmental Quality
Control
550 Halekauwila Street
Honolulu, HI 96813

Dear Ms. Uyehara:

Thank you for providing us the opportunity to review the Draft Environmental Impact Statement for a U. S. Department of the Army Permit Application.

We have completed our review and have no comments to offer at this time.

Yours truly,

JERRY M. MATSUDA
Major, HANG
Contr & Engr Officer

Enclosure

K-44

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

PROJECT OFFICES
WAIMEA OFFICE
P. O. BOX 125
KAMUELA, HAWAII 96743
KEAUKAHA OFFICE
P. O. BOX 833
HILO, HAWAII 96720

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

May 13, 1985

PROJECT OFFICES
MAUI OFFICE
P. O. BOX 32
KAHULUI, MAUI 96732
MOLOKAI OFFICE
P. O. BOX 186
HOOLEHUA, MOLOKAI 96729
KAUAI OFFICE
P. O. BOX 338
LIHUE, KAUAI 96766

MEMORANDUM

TO: Letitia N. Uyehara, Director
Office of Environmental Quality Control

FROM: Georgiana K. Padeken, Chairman
Hawaiian Homes Commission

SUBJECT: Draft EIS for the U.S. Department of Army Permit Application - Waikoloa Beach Resort Anchialine Ponds, Waikoloa, South Kohala, Hawaii

As requested in your memorandum of April 4, 1985, we offer the following comments on the subject draft environmental impact statement (EIS):

1. The proposed project will have significant impacts on the environment, which should be studied and evaluated in totality. The applicant's assertion that the improvements within the forty-foot shoreline setback area will not constitute major impacts (page 7, OEQC Bulletin, No. 7, April 8, 1985) appears to be a biased determination, and a negative declaration should not be recognized.

2. A full environmental assessment should be conducted which should include a study by experts into:

   a) the hydraulics of the area, especially the water flow relationships between the ocean and among the anchialine ponds;

   b) water composition and quality in the ocean and ponds, and how alterations may impact habitat plants and animals; and

   c) mathematical and physical models of the impacts of proposed developments on the shoreline, especially after construction of the shoreline berm and excavation of the recreational lagoon. Will wave patterns and currents be altered such that erosional and depositional problems will occur along the shoreline? Will the blasting, dredging and filling wash detritus matter into the ocean to adversely affect conditions on the ocean bottom?

Thank you for the opportunity to comment on this draft EIS. Should there be any questions concerning our comments, please call Mr. Jason Ota at 548-2686.

GKP:RF:JC:JO:eh

K-45

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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

LESLIE S. MATSUBARA
DIRECTOR OF HEALTH

In reply, please refer to:
EPHSD

May 15, 1985

Col. Michael M. Jenks
Honolulu District Engineer
Corps of Engineers
U.S. Department of the Army
Building 230
Ft. Shafter, Hawaii 96858

Dear Col. Jenks:

K-46

Subject: Request for Comments on the Draft Environmental Impact Statement (EIS) for Waikoloa Beach Resort Anchialine Ponds, Waikoloa, S. Kohala, Hawaii

Thank you for allowing us to review and comment on the subject draft environmental impact statement. We wish to provide the following comments:

Lagoon

The proposed lagoon for water-contact recreation will be connected to Waiulua Bay, a Class AA water, based on the Administrative Rules of the Department of Health, Chapter 11-54, entitled Water Quality Standards. It is the objective of this class of water to remain in their natural and pristine state as nearly as possible with an absolute minimum of pollution or alteration of the water quality, from any human-caused source of action [Section 11-54-03(c)(1)]. Depending on the water quality of the proposed pumped ground water used to aid the natural flushing action of the tide and groundwater flow, this pump flushing action may alter the natural and pristine state of the water quality.

Anchialine Ponds

Based on Table III-4 a comparison of the pond biota study, there appears to be some deterioration and disappearance of biota in the WBR ponds as compared to the Maciolek and Brock Report and the existence in nearby Waiulua Bay. This may be due to human intrusion and misuse of anchialine ponds as pointed out in the draft EIS. Although some of the anchialine ponds may be filled, the proposed creation of the pond preservation area together with the concerted monitoring proposal will certainly have a positive tone on the continued existence of the biota in the remaining anchialine ponds.

Wastewater Disposal System - Irrigation

Although the treated wastewater effluent is blended with brackish water for the golf irrigation, it should be cautioned that the aerosol drift should be further addressed for the inhabited areas adjacent to the golf course.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

Sincerely,

MELVIN R. HOIJUMI
Deputy Director for
Environmental Health

cc: DBSA, Hawaii

K-47

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT PROGRAMS
AQUATIC RESOURCES
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

Colonel Michael M. Jenks
District Engineer
U.S. Army Corps of Engineers
Honolulu District
Ft. Shafter, HI 96858

Dear Colonel Jenks:

We appreciate the opportunity to review the draft environmental impact statement (EIS) for the Waikoloa Hyatt Resort Development, and have some comments to offer.

The EIS should address more, the possible presence of the endangered Hawaiian Stilt and the possible impact of filling the anchialine ponds on these species. These species could have been overlooked as they have seasonal habits. While this site is not a major habitat for the stilt (it is not listed in the Stilt recovery plan), elimination of a whole series of minor sites, statewide, may have an accumulative impact on the species. It is suggested that mitigation be considered.

Destruction probably would be irreversible; the value of the "preservation area" may be ephemeral unless its management is effective. No details of the proposed management plan are available other than proposed stipulations that the plan would require the Corps' approval, and would be reviewed by the Corps after 20 years, and every fifth year thereafter. Managerial effectiveness would depend heavily on adequate monitoring (cumulative degradation may become irreversible unless detected in time) and on adequate implementation of remedial measures. For example, soils on site are "extremely porous" (p. III-3), and pond waters are flushed rapidly by inflowing groundwater (p. III-18); we agree very strongly with the draft EIS that "maintenance of pond health will require sensitive management of development on areas which affect the groundwater flow into the ponds" (p. IV-4).

Sincerely yours,

SUSUMU ONO
Chairperson

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

KAMAMALU BUILDING, 250 SOUTH KING ST, HONOLULU, HAWAII
MAILING ADDRESS: P.O. BOX 2359, HONOLULU, HAWAII 96804 • TELEX: 7430250 HIDPED

Ref. No. P-1666

May 16, 1985

Colonel Michael M. Jenks
District Engineer
Corps of Engineers
U. S. Army Engineer District Honolulu
Fort Shafter, Hawaii 96858

Dear Colonel Jenks:

Subject: Draft Environmental Impact Statement, Waikoloa Beach Resort Anchialine Ponds, South Kohala, Hawaii

K-48

We have reviewed the subject draft EIS and offer the following with respect to the relevant policies of the Hawaii Coastal Zone Management (CZM) Program.

As part of the development of a resort complex, Transcontinental Development Co. and Atpac Land Co. propose to excavate a 5-acre recreational lagoon at the head of Waiulua Bay and to fill 136 anchialine ponds in other areas of the site. Several alternatives to the proposed action are presented involving modifications to the size of the pond preserve area and lagoon.

Recreational Resources

CZM policies advocate the protection of coastal resources uniquely suited for recreational activity and the provision of public access to and along shorelines with recreational value. The draft EIS discusses the proposed recreational amenities to be created by the resort development, but more specific information should also be provided on plans for public accessways, including their number and general locations, and whether any public use of the excavated lagoon will be allowed. The EIS should also describe the existing recreational uses and values of Waiulua Bay and the affected shoreline.

Coastal Ecosystems

The most significant impact of the project relates to the filling or excavation of the anchialine ponds on the site. As noted in the EIS, these ponds constitute a unique natural resource of the State. Under the CZM Program, a specific policy calls for preserving valuable coastal ecosystems of significant biological or economic importance. In a 1974 study of the Kona coast (Maciolek and Brock), the ponds in the Waiulua Bay areas were

specifically noted for their "exceptional natural geological and biological qualities that deserve protection as a unique and valuable resource."

Of the 215 ponds in the development area, 136 ponds are proposed to be filled. An additional 17 ponds are to be excavated in conjunction with the lagoon. In the discussion of impacts and alternatives, the natural resource values of the individual ponds which are to be filled and saved are not comparatively evaluated. The draft EIS further implies that the proposed action must be accepted, or the project would be economically unfeasible (page II-15 et seq.). In view of the significant impacts to the ponds, we believe that viable alternatives to the proposed action should be explored further.

Economic Uses

On page I-1 of the draft EIS, reference is made to the State's CZM policies regarding the coastal dependent nature of visitor facilities. This reference, if used, should also reflect that such facilities should be located, designed, and constructed to minimize adverse, social, visual, and environmental impacts in the CZM area. The applicant's proposed alternative does not minimize the environmental impacts to the coastal ponds.

These concerns should be studied and addressed in the EIS. This will assure a project design that is compatible with the objectives and policies of the CZM law.

In addition, we note that page II-12 indicates that the pond preservation areas would be managed by the applicants and that specific arrangements for pond management have yet to be concluded. Proper management of the ponds is essential to assure the continued quality of the ponds and their long-term protection. The long-term protection of the ponds rests upon the maintenance of their unique qualities. We recommend that an organization which has expertise in this area and is a disinterested third party be given responsibility for management of the ponds.

We appreciate this opportunity to comment.

Very truly yours,

Kent M. Keith

cc: Office of Environmental Quality Control

K-4

GEORGE R. ARIYOSHI
GOVERNOR

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

WAYNE J. YAMASAKI
DIRECTOR

DEPUTY DIRECTORS
JONATHAN K. SHIMADA, Ph.D.
WALTER T.M. HO
CHERYL D. SOON
ADAM D. VINCENT

IN REPLY REFER TO:

STP 8.10593

May 20, 1985

Ms. Letitia N. Uyehara, Director
Office of Environmental Quality Control
550 Halekauwila St., Room 301
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Waikoloa Beach Resort Anchialine Ponds
Waikoloa, Hawaii
Draft Environmental Impact Statement

We have the following comments on the subject draft EIS:

1. Traffic projections for the existing Waikoloa Beach Resort access road intersection in 1987 indicates a level of service greater than E for northbound turning vehicles. Until such time that signalization is warranted, we do not anticipate decreasing the speed limit of Queen Kaahumanu Highway. The Department will consider signalization when traffic signal warrants have been met. Physical improvements to the intersection by the developer will be required when the development is implemented. The applicant should coordinate these plans with the Highways Division.

2. The second access road for Waikoloa Beach Resort should be constructed as part of the necessary infrastructures for the proposed development. Discussion in the traffic section of the EIS should incorporate traffic volumes and peak hour distributions with this access availability.

3. The Mahukona Boat Ramp has been removed and is no longer in existence. The County maintains an electric hoist for boaters to launch and retrieve their craft.

Thank you for the opportunity to review this EIS.

Very truly yours,

Wayne J. Yamasaki
Director of Transportation

University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

May 15, 1985

RE:0414

Ms. Letitia Uyehara
Office of Environmental Quality Control
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Ms. Uyehara:

Draft Environmental Impact Statement
Waikoloa Beach Resort
(Anchialine Ponds)
Waikola, South Kohala, Hawaii

The Environmental Center has reviewed the DEIS for the Waikoloa Beach Resort Anchialine Ponds with the assistance of Richard Brock, Sea Grant; Frans Gerritsen, Ocean Engineering; James Parrish, Hawaii Cooperative Fishery Research Unit; David Welch, Anthropology; Jacquelin Miller and Eileen Anthony, Environmental Center. The DEIS was prepared to address the impacts of the construction of a swimming lagoon and the filling of anchialine ponds as a part of the development of a large luxury hotel and resort complex. We note that our files on this project date back to 1977 and it appears that many of the same environmental concerns expressed in our previous correspondence remain. These concerns mainly involve the water quality of the lagoon and anchialine ponds to be preserved and the proposed destruction of other anchialine ponds. We also call attention in the forthcoming paragraphs to errors in the discussion relative to earthquake risk and some additional information relative to tsunamis.

Anchialine ponds, lagoon and water quality

In the State of Hawaii, anchialine ponds occur almost exclusively along the shorelines of west Hawaii and southwest Maui. They constitute a rare and unique ecosystem which has been increasingly decimated in recent years by coastal development.

According to the DEIS, some 215 anchialine ponds are located within the Waikoloa Beach Resort area (p. II-1). The proposed development calls for the creation of a 28 acre "total pond preservation area" consisting of approximately 63 ponds in a new 12 acre preservation area (p. II-7) and 15 ponds in a 16.3 acre existing open space area. This equates to an intended destruction of 137 ponds (215 - 78 = 137). (The discussion on page IV-2 cites the loss of 136.) Other combinations of numbers of ponds to be filled (destroyed) or preserved are given for different alternative development plans.

It would be most helpful if a standard scaled, basemap of the anchialine ponds with overlays of the various alternative developments was included in the EIS. In the description of the three alternatives, it is not always clear how many ponds are involved and which ones are to be filled. For example, on page II-15 under Alternative 2, the development of Sites 10 and 12 is mentioned and it is implied that the ponds on those sites will be filled. Yet it is not specifically so stated. Are they to be preserved? Furthermore, each of the maps seems to be of a different scale making comparisons between locations of ponds and construction of structures most difficult.

We note in the 1976 EIS for this project that all of the sewage effluent, estimated at 1.7 mgd, was expected to be used for irrigation on the golf course and adjacent landscape. The present DEIS cites a total volume of 2.3 mgd. Will the additional .6 mgd also be used for irrigation? The document recognizes (p. IV-4 to IV-5) that increases in nitrate, ammonia, and phosphate levels have been measured in the anchialine ponds. That the increases have resulted from the use of the sewage effluent for golf-course irrigation is expressed as a hypothesis. However, because the increases are expectable consequences of that use of the sewage effluent and no other reasonable explanation for the increase has been identified, the cause-and-effect relationship seems fairly certain. From the lack of evidence of stimulation of phytoplankton in the ponds, it is concluded that something other than nutrient concentrations limit the phytoplankton production, and that the flushing of the ponds by tidal action "reduces the tendency of high nutrient levels to increase the standing stock of phytoplankton". It is concluded that "maintenance of a healthy pond environment within the pond preservation area is possible as long as flushing rates remain high."

The rate of tidal exchange with the ponds in the preservation area will not be altered by the Hyatt Regency project, but the rate of nutrient loading by way of the sewage system and golf-course irrigation will be increased. It seems far from certain from the analysis reflected in the original EIS and this supplement on the anchialine ponds that the healthy environment will be maintained with the increase.

Furthermore, we are concerned that the 15-fold proposed increase in wastewater from approximately .150 mgd to 2.3 mgd will also result in significant increases in the nutrient concentrations in the lagoon. The recreational use of the lagoon could be significantly jeopardized if excessive nutrients produced algal blooms.

It is proposed (p. II-7) that the flushing of the lagoon will be increased by pumping ground water from shallow on-site wells. Such wells will, however, draw water with increased nutrient concentrations from the Herzberg lens. This brackish water may not result in effective flushing of the deeper and more saline water of the lagoon. It seems desirable to consider the alternative of use of low-nutrient salt water from somewhat deeper wells.

K-50

Economic considerations (p. II-15 to II-18)

It is reported on page 11-17 that millions of dollars have been spent on the infrastructure for the resorts. It should be acknowledged that the value and protection of the anchialine ponds was well established prior to the purchase of the land by Transcontinental Development Company and Atpac Land Company (late 1960's). Page II-1 of the Draft EIS refers to State and County approved plans for the resort to provide for the ultimate development of approximately 3,000 hotel rooms and 3,400 residential units. However, there is no indication in the DEIS that the plans approved development of the hotels on or at the expense of the anchialine ponds. Have such permits or plans been approved? Mitigation measures such as siting the structures further mauka of the pond area, establishing adequate walkways to the ocean front and a scaled-down lagoon for swimming, could surely reduce significantly the number of ponds that would need to be destroyed without jeopardizing the economic viability of the project. The pools can be a valuable addition to the resort and would not constitute "wasted" land as is stated.

It is stated that the project would "fulfill a publicly recognized need for more employment opportunities and increased economic activity". We note, however, that the proposed project location is too far from economically depressed areas, such as Hawi and Kapa'au to provide much in the way of economic benefits to those communities.

Page I-20 (2.2.3) states that there are two coastal areas at the resort where development would not require pond filling. One site is already a part of the proposed Hyatt Regency Waikoloa Hotel and could accommodate a 500-room hotel. The other location available is on Site 4 which could also accommodate a 500-room facility. The total 1,000 rooms is close to the 1,200 needed for economical feasibility. This could be considered as an alternative also.

We suggest that, particularly in the case of high-class resorts such as the one intended at Waikoloa, the retention of natural features such as the ponds would be advantageous. On page II-22, it is stated "that no environmentally preferred alternative has been identified at this time". What is probably meant is that no environmentally preferred alternative has been identified by the developers that they consider economically practical. An alternative without effects to the anchialine ponds would certainly be environmentally preferable, and we suggest that such an alternative or one minimizing the loss of the ponds would in the long run be economically superior in the case of "high-class" developments.

Earthquake risk

The great earthquake of 1868 had a Richter magnitude estimated as 7.25 to 7.75 (by Furumoto), not 10 as stated on page III-3. The value 10 is its estimated maximum intensity on the Modified Mercalli scale. The range of 7-8 indicated for the 1868 earthquake at Waikoloa and the value of 5 (for the 1951 earthquake) are also intensities, not magnitudes. The great earthquake of 1975 (magnitude 7.2) also probably had an intensity of about 5 at Waikolua. (The "D" in Macdonald should not be capitalized and Abbott has two "t's".)

Tsunamis

The discussion of the historical tsunami data at the site is accurately cited (p. III-5). Under existing conditions (excluding the lagoon) portions of the project area are located in a flood hazard zone and subject to certain building restrictions. It is concluded in the document (p. IV-1) that "Neither the changes to the inner zone of the bay nor the shoreline berm would increase the susceptibility of shoreline areas to inundation by tsunami". The berm proposed for construction between the lagoon and the sea will tend to decrease both storm-wave and tsunami inundation inland and, in the case of the storm waves, the decrease will probably not be offset by the construction of the lagoon. In the cases of longer-period waves of tsunamis and of long-duration storm surges, however, the protective effect will at least be reduced. We have not requested for review the report cited as a basis for the conclusion quoted above (Sea Engineering, Inc., 1985). That report should be carefully checked to assure that the conclusion is not based on a two-dimensional analysis neglecting the effects of long-period waves entering the inlet at the head of Waiulua Bay and diffracting from the inlet to the lagoon. If the effect of diffraction has been neglected, it may be that the exposure of the area inland of the lagoon to large tsunamis will be greater than the exposure estimated for present conditions in the National Flood Insurance Program.

Recreational resources

Section 8 indicates that "Impacts on Recreational Resources and Activity" provision will be made for public rights-of-way to the shoreline (p. IV-17). Since the creation of the swimming lagoon and other structures would significantly alter the existing shoreline for fishing or other non-water contact recreational activities and, as recognized in the DEIS, the specific coastal area is not safe for water contact sports, will the public be permitted to use the swimming lagoon?

We appreciate the opportunity to comment on this DEIS and look forward to your response.

Yours truly,

Doak C. Cox
Director

cc: Michael Jenks, Corps of Engineers
Richard Brock
Frans Gerritsen
James Parrish
David Welch
Jacquelin Miller
Eileen Anthony

K-51

K-52

University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 283 • 2540 Dole Street
Honolulu, Hawaii 96822

8 May 1985

Col. Michael M. Jenks
District Engineer
Corps of Engineers
U.S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858

Dear Col. Jenks:

SUBJECT: Draft Environmental Impact Statement, U.S. Dept. of the Army Permit Application, Waikoloa Beach Resort Anchialine Ponds, Waikoloa, South Kona District, Island of Hawaii, State of Hawaii, March 1985

We have reviewed the subject DEIS and have no comment to offer. Thank you for the opportunity to review this material.

Sincerely,

Edwin T. Murabayashi

Edwin T. Murabayashi
EIS Coordinator

ETM:jm

K-53

DEPARTMENT OF PARKS & RECREATION
COUNTY OF HAWAII

Dante K. Carpenter, Mayor
Patricia Engelhard, Director

April 15, 1985

Col. Michael Jenks
Corps of Engineers
U.S. Army Engineer District, Honolulu
Fort Shafter, HI 96858

RE: U.S. Dept. of Army Permit Application for Waikoloa
Hyatt Development and Waikoloa Beach Resort Anchialine
Ponds Project (PODCO-O-1812-SD)

We have reviewed the draft EIS for the subject project and have no adverse comments to offer.

Thank you for the opportunity to participate in the review process.

Pat Engelhard
Director

PE:GH:al

• 25 AUPUNI STREET • HILO, HAWAII 96720 • TELEPHONE 961-8311

Mayor
HUGH Y. ONO
Chief Engineer
BRUCE C. McCLURE
Deputy Chief Engineer

DEPARTMENT OF PUBLIC WORKS

COUNTY OF HAWAII - 25 AUPUNI STREET - HILO, HAWAII 96720 - TELEPHONE (808) 961-8321

April 9, 1985

COL MICHAEL M JENKS
CORPS OF ENGINEERS
DISTRICT ENGINEER
DEPARTMENT OF THE ARMY
FORT SHAFTER HI 96858

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT
US DEPT. OF THE ARMY PERMIT APPLICATION, PODCO-O 1812-SD
WAIKOLOA STATT DEVELOPMENT
ANAEHOOMALU, SOUTH KOHALA, HAWAII

We have reviewed the subject document and our comments are as follows:

Various sections of the document indicate the development is within a coastal high hazard area as determined by the Federal Insurance Agency and also that the elevation requirements are being proposed to be me met through the use of landfill. The document, however, fails to indicate that as stipulated by the Hawaii County Code, such a landfill must not aggravate flooding and that a study addressing this concern has been submitted to and is currently under review by this department. Because of the nature and complexity of the study, we intend to conduct a review through the use of a consultant.

Thank you for the opportunity to review the documents.

HUGH Y. ONO
Chief Engineer

Years of Yespertise
FIRST HAWAIIAN BANK
P.O. Box 3200, Honolulu, Hawaii 96847

JOHN D. BELLINGER
CHAIRMAN OF THE BOARD AND
CHIEF EXECUTIVE OFFICER

April 18, 1985

Colonel Michael M. Jenks
District Engineer
Honolulu District
U. S. Army Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858

Dear Colonel Jenks:

It has come to my attention that certain staff members in the Regional Office of the United States Environmental Protection Agency in San Francisco have questioned whether the proposed Hyatt Regency Waikoloa resort hotel is truly "water dependent."

First Hawaiian Bank has participated in the financing of several resort hotels in Hawaii, including the Sheraton Royal Waikoloa Hotel, and will be the lead bank for the financing of the proposed Hyatt Regency Waikoloa. This $360 million project is designed to be the finest resort hotel in the world and, in our estimation, will have a tremendously beneficial impact on the tourist industry on the Island of Hawaii and throughout the entire state. Faced with the potential demise of the sugar industry, it is essential to both the county and the state that the visitor industry grow and replace the jobs which inevitably will be lost in the agricultural sector of our economy.

Our experience has shown that to be successful a luxury resort hotel in Hawaii must be on the shoreline. Those who have tried to develop such hotels without being immediately on the shoreline have failed. Two examples are the Waiakea Inn in Hilo and Makaha on Oahu. All of the successful luxury hotels in Hawaii, including the Sheraton Waikiki, the Royal Hawaiian, the Kahala Hilton, the Hyatt Maui, and the Mauna Kea Beach Hotel and Mauna Lani Bay Hotel on the Island of Hawaii, are located right on the shoreline. In order to compete with these hotels, the proposed Hyatt Regency Waikoloa must also be located on the shoreline. Any other location simply will not work. The Kohala coast - and particularly Waikoloa - is a well-planned region and destination resort, and the only place in Hawaii where this ambitious project can succeed.

I can assure you that, as lead bank along with our participating banks from the United States mainland, we would not finance this hotel unless it were located on the shoreline at Waikoloa as presently planned.

In order to satisfy the interest of the environmental community, the developer has agreed to set aside twelve acres of ponds as a permanent preservation area. These twelve acres will be conservatively valued at $12 million and I am told that the creation of this preservation area has already cost approximately $1 million in alterations to the original design of the Waikoloa Beach Resort. This pond preservation agreement has to represent one of the largest mitigation provisions, if not the largest, in the history of Hawaii. I feel that it is more than reasonable.

Sincerely,

FIRST HAWAIIAN BANK

John B. Bellinger
Chairman & Chief Executive Officer

JL/31624/1d

K-55

island explorations

ANN FIELDING POST OFFICE BOX - ONE ONE ZERO SEVEN - MAKAWAO, MAUI, HAWAII - 96768

May 17, 1985

Col. M. M. Jenks, District Engineer
U.S. Army Corps of Engineers
Bldg. 230
Fort Shafter, Hawaii 96858

Dear Col Jenks:

My interest in anchialine ponds began in 1978 when the Department of Education, State of Hawaii, asked me to write a field guidebook for teachers on Hawaii's non-marine aquatic ecosystems. I did so, and the guide is called "Hawaii's Endangered Aquatic Ecosystems". Anchialine ponds became one of the major components of the field guide because they are a very unique ecosystem, found in only a few places in the world, and because many of the Hawaiian ones stand directly in the way of development. The purpose of the guide was to explain the biology of the habitats we felt were endangered, suggest field trip activities and sites for those activities, and finally have students discuss the tradeoffs between the loss of these environments and the "gains" of economic development. Anchialine ponds in West Hawaii are a classic example of this type of struggle.

At the time I began researching the ponds, the Boise-Cascade project at Waikoloa was just beginning. As this project progressed I was greatly relieved to find that most of the ponds were to be saved, and not only that, but an interpretive trail was built! I have taken many natural history groups to the Sheraton Waikoloa to see the fish ponds, anchialine ponds and archeological sites. This development has done a splendid job of enhancing the existing natural and cultural environment.

I have been an observer of anchialine ponds since I began that project in 1978. I have visited all the ponds on Maui and many on the Big Island. I have been saddened by the demise of many pond shrimp by the introduction of exotic fishes. It is with great dismay that I have learned of the proposed hotel development north of the Sheraton. The developer obviously has no regard for the uniqueness of the site, and in fact sees the ponds as obstacles to be filled! This is the worst of the "development-at-all-costs" mentality. Did the environmental movement of the last two decades teach us nothing?

The ponds at the proposed hotel site are definitely worthy of preservation. They are in pristine condition, they are in a large concentration, they include a very rare eel. Anchialine ponds and their associated flora and fauna have not been thoroughly studied by biologists. To just fill in a large number of the best ponds in the State is not in the best interests of the people of Hawaii.

In conclusion: There will always be hotel developers and hotels in Hawaii. These are neither endangered species nor unique environments. Anchialine ponds are a unique enviroment and they contain life that can easily become endangered. Let's preserve the special things about Hawaii.

Sincerely,

Ann Fielding

K-56

MAUNA LANI RESORT
On the Kohala Coast/Big Island of Hawaii

April 1, 1985

Colonel Michael M. Jenks
Honolulu District Engineer
U.S. ARMY CORPS OF ENGINEERS
Fort Shafter, Building 230
Honolulu, Hawaii 96858-5440

Dear Colonel Jenks:

Re: Transcontinental Development Co. and ATPAC Land Co. Proposal/Permit to Excavate Lagoon and Fill Tidal Ponds at Waikoloa Beach Resort

Mauna Lani Resort has been an advocate of quality growth on the Kohala Coast, Big Island of Hawaii, and a proponent of the premise that success of the Coast as a world-class destination will ultimately depend on how well we succeed in sustaining a momentum that inspires investor interest and reflects achievement of planning goals set over 20 years ago. Since the Hyatt Regency Waikoloa proposal is a very important element in the overall success of the Kohala Coast in terms of timeliness and type of facility, we are hopeful that the ongoing discussions with various special interest groups will result in an expeditious resolution of issues and a mutually beneficial plan.

With warm regards,

MAUNA LANI RESORT, INC.

Nobuo Kitsuda
Executive Vice President

NK:lms

P.O. Box 4959 • Kamuela, Hawaii 96743-4959 • Telephone (808) 885-6677
TELEX 752410 • FAX (808) 885-6375

R.W. BOB HOLDEN
PRESIDENT, SHERATON HOTELS IN THE PACIFIC
SENIOR VICE PRESIDENT, THE SHERATON CORPORATION

Sheraton Hotels in the Pacific
SHERATON HOTELS AND INNS WORLDWIDE

P O BOX 8559
HONOLULU, HAWAII 96815
TELEPHONE (808) 922-4422

April 29, 1985

Colonel Michael M. Jenks
Department of the Army
U.S. Army Engineer District
Fort Shafter, Hawaii 96858-5440

Dear Colonel Jenks:

It has recently come to my attention that staff members at the San Francisco Regional Office of the United States Environmental Protection Agency have questioned the "water dependency" of the Hyatt Regency Waikoloa Resort Hotel, proposed to be built on Waiulua Bay on the Island of Hawaii.

The Sheraton Corporation is the largest hotel operator in Hawaii, with hotels on all of the major islands, including the Sheraton Royal Waikoloa Hotel on the Island of Hawaii of which we are one of the owners. Sheraton also operates major hotels in most of the Pacific Rim countries.

During my years in Hawaii, I have been very active in Visitor Industry Associations, including the Hawaii Visitors Bureau, the Hawaii Hotel Association, and was founder of the Visitor Industry Education Council.

All of Sheraton's successful luxury resort hotels in Hawaii are located immediately on the shoreline. These include the Royal Hawaiian and Sheraton Waikiki on Oahu, the Sheraton Maui, the Sheraton Kauai, and the Sheraton Royal Waikoloa. The shoreline locations of these hotels are absolutely essential in order for them to be competitive with other luxury resort hotels in Hawaii. Only by being located on the water have these hotels been able to command the room rates necessary to provide the amenities and activities which the luxury hotel visitor demands.

Sheraton was asked to manage two luxury hotels which are not located on the water -- the Sheraton Makaha Resort and Country Club on Oahu and the Waiakea Village Resort on the Island of Hawaii. Although both of these are attractive facilities, neither has been able to operate successfully as a luxury resort hotel due to off-water location. As a result, the Waiakea Village Resort has been shut down and is being converted to condominiums.

I have seen the model and plans for the proposed Hyatt Regency Waikoloa, with its wide range of amenities. In my judgement, this hotel must be located on the shoreline in order to be successful. The proposed location on Waiulua Bay at Waikoloa is the only possible place on the land owned by the developer, where I understand they have already spent $1 million. This hotel will provide the amenities the affluent tourist expects, but it must be on the water to do so.

We at Sheraton welcome the addition of the Hyatt Regency Waikoloa to the Waikoloa Beach Resort. We believe that, in addition to providing almost 2,000 permanent jobs, it will also benefit the other hotels operating in West Hawaii and the Hawaiian tourist industry as a whole.

Sincerely,

R. W. Bob Holden

RWH:bb

K-58

Society for Hawaiian Archaeology
P.O. Box 22911
Honolulu, Hawai'i 96813
May 16, 1985

Colonel Michael M. Jenks
District Engineer
U.S. Army Engineer District, Honolulu
Ft. Shafter, Hawai'i 96858

RE: Draft EIS Waikoloa Beach Resort Anchialine Ponds

Dear Colonel Jenks,

The Peer Review Committee of the Society for Hawaiian Archaeology has reviewed the above document. We conclude that previous archaeological work done in the area has adequately recorded and evaluated sites within portions of the project area.

We concur with the SHPO that the intensive survey as planned by Paul Rosendahl, Ph.D., Inc., should be completed prior to any construction activity. We also agree with the recommendations of the SHPO as listed in his letter of March 12, 1985 (see Appendix D of the above document).

This document (p. IV-8) generally summarizes how the negative impacts of this project might possibly be mitigated. We recommend that the steps for salvage and preservation be clearly stated in the final EIS (e.g. which sites are to be preserved, which sites are to be reconstructed).

Sincerely,

David J. Welch

David J. Welch, Chairperson
Peer Review Committee

cc: State Historic Preservation Officer

May 15, 1985

Comments on the Draft EIS, Waikoloa Hyatt, South Kohala
District, Island of Hawaii

Dear Mr. Michael Lee,

I have within the past two weeks walked the shoreline of the proposed Hyatt at Waikoloa. With the EIS in hand, I located the site of Deer Park Tower and the preferred Pond Reserve Area. It would be an extreme loss, ecologically and esthetically, if the preferred alternative were allowed. I do endorse Alterative 2 as being the best compromise.

I would like to point out that there is no replicate for this system anywhere in the world. The local endemics and esthetics would be lost forever.

This project does not reflect any sensitivity to the surr-ounding resources. This Hyatt, as proposed, could be transplanted to Florida , or Mexico without any hint of being misplaced. Its siting does not enhance the esthetic resources around it, merely places itself over the grave of these anchialine pools. It is not harmonious to bury ponds under yards of fill or import alien deer and swans to an environment that is vulnerable to them. Farmers and ranchers understand the danger of deer.

I understand that Federal EISs must incorporate Worst Case Scenarios (WCS), yet I don't find amy such analysis in this draft. Will the nutrients and biocides from the golf course make their way into the remaining ponds? I would formally like to request WCS analysis for the preferred and alternative two proposals.

I do hope the Army Corp of Engineers would consider Alternative 2 as the best for this hotel project. Thank you for the opportunity of allowing me to comment on this EIS.

Yours,

Nelson Ho

Nelson Ho
P.O.Box 590
Mountain View, Hi 96771

University of Hawaii at Manoa

Department of Zoology
Edmondson Hall • 2538 The Mall
Honolulu, Hawaii 96822

May 18, 1985

District Engineer (PODCO-O)
U.S. Army Corps of Engineers
Building 230
Ft. Shafter, HI 96858

Dear Sir:

Reference: Environmental Impact Statement
U.S. Department of the Army
Permit Application
Waikoloa Beach Resort Anchialine Ponds
Waikoloa, South Kohala District, Island of Hawaii

K-61

I have studied the west Hawaii, South Kohala district shoreline for more than 20 years as a marine biologist particularly interested in coastal biota. I, therefore, wish to express my concern for the proposal by the Waikoloa Beach Resort for development which will essentially destroy many of the anchialine ponds in the Waikoloa area.

A significant attraction along the Waikoloa coastline is the series of anchialine ponds which infiltrate the lava flows comprising the shoreline. These ponds form a rare and unique ecosystem. The ponds consist of near-shore water expanses of varying size, with a crustacean-mollusk dominated community, augmented by fishes and an eel. The biota is highly endemic and includes three shrimp known only from these ponds in the Hawaiian Islands. Two of the shrimp are blind and inhabit subterranean waters associated with the ponds. Other representatives of the pond biota include a marl-forming blue green alga, the vascular plant Ruppia maritima, other endemic shrimp such as the small red shrimp Halicaridina rubra and the alpheid Metabetaeus lohena, and several endemic mollusks.

The significance of these ponds as a unique ecosystem in the Hawaiian Islands lies in their native and endemic biota, their geologically transient nature (which therefore essentially restricts their occurrence in the Hawaiian Islands to the west coast of Hawaii), their varying chemistry, and their fragile ecological balance. They are diverse: each one is a little different from the other in color, in inhabitants, in depth, in water chemistry. They are extraordinarily subject to variations in temperature and salinity. All the ponds along that coastline are interconnected: what affects one will ultimately affect all of them because of their interconnections and the porous nature of the basalt substrate in which they lie. They lie beyond the reach of wave action, but they respond to tides, although slowly. That fact alone means that circulation in the subterranean reaches of the ponds is very sluggish. All of these factors mean that development as proposed will affect not one pond but all of them. Even such a simple act as the application of fertilizer to a grassy area or newly planted flower bed will serve to disrupt not one pond, but many ponds as the alien nutrient is slowly moved in the subterranean waterway from one pond to another.

The proposal acknowledges that several of the anchialine ponds will be destroyed by the resort development. The alternatives proposed are for (1) separated pond preservation areas within the resort development; (2) a large pond preservation area within the resort development; and (3) development without the lagoon. Given the nature of the ponds, the biota, and the porous basalt substrate, I do not believe that any pond site enclosed within the resort area will serve to preserve the ponds. I therefore urge that all the proposed alternatives be rejected and that the permit be denied. The anchialine pond ecosystem in the Waikoloa area is sufficiently unique that it should be preserved in toto for future generations.

Sincerely,

E. Alison Kay

E. Alison Kay
Professor of Zoology

Michael Jenks

Enclosed please find information for you to consider before making a decision to grant permits to Transcontinental and ATPAC Corp. to destroy the BRAKISH WATER SPRINGS and ANCHIALINE ponds AT WAIULUA BAY. (WAIKOLA Beach Resort)

Sincerly
Tim Newstrom
C/o General Delivery
Hilo HI 96720

K-62

To: US Army Corps of Engineers
— Hawaii County Planning Commission

Regarding: Permit application of Transcontinental Development Corp. and ATPAC Land Corp

The Applicants seek permission from you to Fill or excavate ~~Anchialine~~ springs and anchialine Ponds (ie Shoreline Pools with out surface Connection to the Sea, having waters of mesurable Salinity and showing Tidal Rythms) and combine 17 Anchialine Ponds by blasting, grading and excavating on the Waikola Beach Resort Property located on Wainlua Bay; except those ponds located in an "Anchialine pond Preservation Area"

I would like you to concider NOT granting the Applicants permission to destroy the springs or Anchialine ponds for the following reasons:

(1) ~~_____~~ these pools serve Hawaiians as potable water sources, bathing facilities, and natural sources of food and bait.

Loko I'a: Fish ponds ~~in~~ are ~~a~~ integral parts of *ahupua'a*, a land tenure system involving hierarchial control over land and resource distribution. Ideally, *ahupua'a* are radial strips of land running from the mountain to the sea that contained all the necessary resources required to support its resident human population. ~~[illegible]~~

~~and destroying these ponds~~ And the use of And access to ~~the~~ These springs and ponds is a right enumerated in HRS Chapter 7;

CHAPTER 7
MISCELLANEOUS RIGHTS OF THE PEOPLE

§7-1 Building materials, water, etc.; landlords' titles subject to tenants' use. Where the landlords have obtained, or may hereafter obtain, allodial titles to their lands, the people on each of their lands shall not be deprived of the right to take firewood, house-timber, aho cord, thatch, or ki leaf, from the land on which they live, for their own private use, but they shall not have a right to take such articles to sell for profit. The people shall also have a right to drinking water, and running water, and the right of way. The springs of water, running water, and roads shall be free to all, on all lands granted in fee simple; provided, that this shall not be applicable to wells and water-courses, which individuals have made for their own use. [CC 1859, §1477; RL 1925, §576; RL 1935, §1694; RL 1945, §12901; RL 1955, §14-1]

nd guaranteed Under the Hawaii State nstitution Article XII

TRADITIONAL AND CUSTOMARY RIGHTS

Section 7. The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua'a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights. [Add Const Con 1978 and election Nov 7, 1978]

(2) That The Army Corps of Engineers as well as The Planning Commission Are required to Abide by The Policy - Guidelines, controls, and objectives of HRS 205A-2, 205A-4, 205A-5 205A-26, 205A-21, 205A-22,

[205A-2 Coastal zone management program; objectives and policies. (a) The objectives and policies in this section shall apply to both parts I and II of this chapter.

(b) Objectives.

(1) Recreational resources;

(A) Provide coastal recreational opportunities accessible to the public.

(2) Historic resources;

(A) Protect, preserve, and, where desirable, restore those natural and man-made historic and pre-historic resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

(3) Scenic and open space resources;

(A) Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.

(4) Coastal ecosystems;

(A) Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

(5) Economic uses;

(A) Provide public or private facilities and improvements important to the State's economy in suitable locations.

(6) Coastal hazards;

(A) Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, and subsidence.

(7) Managing development;

(A) Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

(c) Policies.

(1) Recreational resources;

(A) Improve coordination and funding of coastal recreation planning and management; and

(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by;

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(ii) Requiring replacement of coastal resources having substantial recreational value, including but not limited to surfing sites and sandy beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) Encouraging expanded public recreational use of county, State, and federally owned or controlled shoreline lands and waters having recreational value;

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, county planning commissions; and crediting such dedication against the requirements of section 46-6.

(2) Historic resources;

(A) Identify and analyze significant archaeological resources;

(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and

(C) Support state goals for protection, restoration, interpretation, and display of historic resources.

(3) Scenic and open space resources;

(A) Identify valued scenic resources in the coastal zone management area;

(B) Insure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

(D) Encourage those developments which are not coastal dependent to locate in inland areas.

(4) Coastal ecosystems;

(A) Improve the technical basis for natural resource management;

(B) Preserve valuable coastal ecosystems of significant biological or economic importance;

(C) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

(D) Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.

(5) Economic uses;

(A) Concentrate in appropriate areas the location of coastal dependent development necessary to the State's economy;

(B) Insure that coastal dependent development such as harbors and ports, visitor industry facilities, and energy generating facilities are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

(C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when;

(i) Utilization of presently designated locations is not feasible;

(ii) Adverse environmental effects are minimized; and

(iii) Important to the State's economy.

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Sec. 205A-4 PLANNING-ECONOMIC DEVELOPMENT

§205A-4 Implementation of objectives, policies, and guidelines. (a) In implementing the objectives of the coastal zone management program full consideration shall be given to ecological, cultural, historic, and esthetic values as well as to needs for economic development.

(b) The objectives and policies of this chapter and any guidelines enacted by the legislature shall be binding upon actions within the coastal zone management area by all agencies. [L 1977, c 188, pt of §3; am L 1979, c 200, §3]

Amendment Note

L 1979 substituted "may" for "shall" in subsection (b).

§205A-5 Compliance. All agencies shall amend their regulations, as may be necessary, to comply with the objectives and policies of this chapter and any guidelines enacted by the legislature. [L 1977, c 188, pt of §3; am L 1979, c 200, §4]

PART II. SPECIAL MANAGEMENT AREAS

Part heading was amended by L 1979, c 200, §6.

§205A-21 Findings and purposes. The legislature finds that, special controls on development within an area along the shoreline are necessary to avoid permanent losses of valuable resources and the foreclosure of management options, and to ensure that adequate access, by dedication or other means, to public owned or used beaches, recreation areas, and natural reserves is provided. The legislature finds and declares that it is the State's objective to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawaii. [L 1975, c 176, pt of §1; am L 1977, c 188, §3]

Amendment Note

L 1977 deleted provisions which ordered an interim ecological

§205A-22 Definitions. As used in this part, unless the context otherwise requires:

(1) "Applicant" means any individual, organization, partnership, corporation, including any utility, and any agency of government that proposes to undertake a development.

(2) "Authority" means the county planning commission, except in counties where the county planning commission is advisory, in which case "authority" means the county council or such body as the council may by ordinance designate. The authority may, where appropriate, delegate the responsibility for administering this part.

(3) "Development" means any of the uses, activities, or operations on land; in or under water, within the special management area that are included below, but not those uses, activities, or operations excluded in subparagraph (B):

(A) "Development" includes the following:

(i) The placement or erection of any solid material or gaseous, liquid, solid, or thermal waste;

(ii) Grading, removing, dredging, mining, or extraction of any materials;

(iii) Change in the density or intensity of use of land, including but not limited to the division or subdivision of land;

(iv) Change in the intensity of use of water, ecology related thereto, or of access thereto, and

(v) Construction, reconstruction, demolition, or alteration of the size of any structure.

(B) "Development" does not include the following:

(i) Construction of a single-family residence that is not part of a larger development;

(ii) Repair or maintenance of roads and highways within existing rights-of-way;

(iii) Routine maintenance dredging of existing streams, channels, and drainage ways;

(iv) The repair and maintenance of underground utility lines, including but not limited to water, sewer, power, and telephone and minor appurtenant structures such as pad mounted transformers and sewer pump stations;

(v) Zoning variances, except for height, density, parking, and shoreline setback;

(vi) Repair, maintenance, or interior alterations to existing structures;

(vii) Demolition or removal of structures, except those structures located on any historic site as designated in national or state registers;

(viii) The use of any land for the purpose of cultivating, planting, growing, and harvesting of plants, crops, trees, and other agricultural, horticultural, or forestry products or animal husbandry, or aquaculture or mariculture of plants or animals, or other agricultural purposes subject to review by the authority in accordance with subparagraph (C);

(ix) The transfer of title to land;

(x) The creation or termination of easements, covenants, or other rights in structures or land;

(xi) The subdivision of land into lots greater than twenty acres in size;

(xii) The subdivision of a parcel of land into four or fewer parcels when no associated construction activities are proposed, provided that any such land which is so subdivided shall not thereafter qualify for this exception with respect to any subsequent subdivision of any of the resulting parcels;

(xiii) Installation of underground utility lines and appurtenant aboveground fixtures less than four feet in height along existing corridors;

(xiv) Structural and nonstructural improvements to existing single-family residences including additional dwelling units, where otherwise permissible; and

(xv) Nonstructural improvements to existing commercial structures.

(C) Whenever the authority finds that any use, activity, or operation excluded in subparagraph (B) is or may become part of a larger project, the cumulative impact of which may have a significant environmental or ecological effect on the special management area, that use, activity, or operation shall be deemed as "development" for the purpose of this part.

(4) "Special management area" means the land extending inland from the shoreline as delineated on the maps filed with the authority as of June 8, 1977, or as amended pursuant to section 205A-23.

(5) "Special management area emergency permit" means an action by the authority authorizing development in cases of emergency requiring immediate action to prevent substantial physical harm to persons or property or to allow the reconstruction of structures damaged by natural hazards to their original form, provided that such structures were previously found to be in compliance with requirements of the Federal Flood Insurance Program.

(6) "Special management area minor permit" means an action by the authority authorizing development, the valuation of which is not in excess of $65,000 and which has no substantial adverse environmental or ecological effect, taking into account potential cumulative effects.

(7) "Special management area use permit" means an action by the authority authorizing development, the valuation of which exceeds $65,000 or which may have a substantial adverse environmental or ecological effect, taking into account potential cumulative effects.

6

§205A-26 Special management area guidelines. In implementing this part, the authority shall adopt the following guidelines for the review of developments proposed in the special management area:

(1) All development in the special management area shall be subject to reasonable terms and conditions set by the authority in order to ensure:

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(A) Adequate access, by dedication or other means, to publicly owned or used beaches, recreation areas, and natural reserves is provided to the extent consistent with sound conservation principles.

(B) Adequate and properly located public recreation areas and wildlife preserves are reserved.

(C) Provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon special management area resources.

(D) Alterations to existing land forms and vegetation, except crops, and construction of structures shall 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 earthquake.

(2) No development shall be approved unless the authority has first found:

(A) That the development will not have any substantial adverse environmental or ecological effect, except as such adverse effect is minimized to the extent practicable and clearly outweighed by public health, safety, or compelling public interests. Such adverse effects shall include, but not be limited to, the potential cumulative impact of individual developments, each one of which taken in itself might not have a substantial adverse effect, and the elimination of planning options; and

(B) That the development is consistent with the objectives, policies, and special management area guidelines of this chapter and any guidelines enacted by the legislature.

(C) That the development is consistent with the county general plan and zoning. Such a finding of consistency does not preclude concurrent processing where a general plan or zoning amendment may also be required.

(3) The authority shall seek to minimize, where reasonable:

(A) Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough or lagoon;

(B) Any development which would reduce the size of any beach or other area usable for public recreation;

(C) Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the special management areas and the mean high tide line where there is no beach;

(D) Any development which would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast; and

(E) Any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land. [L 1975, c 176, pt of §1; am L 1977, c 188, §10; am L 1979, c 200, §9; am L 1984, c 113, §2]

con't

(3) That The Anchialine ponds and springs on The ~~[illegible]~~ WAIKOLA Beach Resort Property on WAIKUNA BAY Are A "Water Resource" AS defined in HRS 176-1 (2)

SEC. 176-3

CHAPTER 176
WATER RESOURCES

Historical note. Source notes for this chapter begin with L 1961, c 166, which completely amended and reenacted this chapter. For prior law see L 1957, c 22.

§176-1 Definitions. The following terms whenever used and referred to in this chapter have the following respective meanings unless a different meaning clearly appears in the context:

(1) "Board" means the board of land and natural resources.

(2) "Water resources" means all sources of water supply in the State which are or may be used or can be made to be usable to supply the domestic, military, agricultural, and industrial water requirement within the State, and without limiting the generality of the foregoing includes surface water, ground water and brackish, salt and other water which is or may be made usable to supply any of the water requirements. [L 1961, c 166, pt of §5; Supp, §87A-1]

And Thus Are ~~[illegible]~~ protected ~~[illegible]~~ in the State Constitution Article XI Section 1

ARTICLE XI

CONSERVATION, CONTROL AND DEVELOPMENT OF RESOURCES

CONSERVATION AND DEVELOPMENT OF RESOURCES

Section 1. For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State.

All public natural resources are held in trust by the State for the benefit of the people. [Add Const Con 1978 and election Nov 7, 1978]

(4) That if The Army corps of engineers or The Planning Commission ACT in ~~[illegible]~~ manner AS To cause or to contribute to The Deprivation OF The Constitutional Rights OF The People or in ~~[illegible]~~ MANNER That is not consistant with HRS 205A-2, 205A-4, 205A-5b, 205A-26, 205A-21, 205A-22

HRS 205A-6 provides for cause OF ~~OF~~ ACTION TO compell you to ACT in Accordance to The LAW And TO ACT Responsibly ~~[illegible]~~ in managing The "PUBLIC TRUST" ~~[illegible]~~ NATURAL Resources

Amendment Note

L 1979 amended section generally.

§205A-6 Cause of action. (a) Subject to chapters 661 and 662, any person or agency may commence a civil action alleging that any agency:

(1) Is not in compliance with one or more of the objectives, policies, and guidelines provided or authorized by this chapter within the special management area and the waters from the shoreline to the seaward limit of the State's jurisdiction; or

(2) Has failed to perform any act or duty required to be performed under this chapter; or

(3) In exercising any duty required to be performed under this chapter, has not complied with the provisions of this chapter.

(b) In any action brought under this section, the lead agency, if not a party, may intervene as a matter of right.

(c) A court, in any action brought under this section, shall have jurisdiction to provide any relief as may be appropriate, including a temporary restraining order or preliminary injunction.

(d) Any action brought under this section shall be commenced within sixty days of the act which is the basis of the action.

(e) Nothing in this section shall restrict any right that any person may have to assert any other claim or bring any other action. [L 1977, c 188, pt of §3; am L 1979, c 200, §3]

Amendment Note

L 1979 amended subsections (a)(1) and (3).

Finally, I would like to Thank you IN Advance for ~~doo~~ TAKing ~~Action~~ My Concern into Consideration prior to any action or decision you Two may make Regarding This matter.

Sincerely

Tim Newstrom
% General Delivery
Naalehu, HI
96772

Prepared 4/8/85

K-68

April 23, 1985

Col. Michael M. Jenks
District Engineer
Corps of Engineers
U.S. Army Engineer District Honolulu
Ft. Shafter, Hawaii 96858

Dear Col. Jenks,

This letter is in regard to the U.S. Dept. of the Army permit application for the proposed excavation of the Waikoloa Beach Resort anchialine ponds by Transcontinental Dev. Co. and Atpac Land Co.

According to the April 8 OEQC Bulletin "NEPA Document" section under the "Draft Environmental Impact Statement" for the above mentioned project it states that "Improvements in the lagoon would include a sand beach, swimming area for resort guests, footbridges, shoreline improvements and other recreational/resort structures."

At the April 9 hearing before the Hawaii County Planning Commission on the SMA permit for this development, Mr. Chris Hemmeter, owner/developer of the Hyatt Hotel to be built at this site testified that the swimming lagoon created by the excavation of the anchialine ponds was to be for public use as well as for use by resort guests.

This being the case I request that any permit issued by the Army Corp of Engineers for excavation of the anchialine ponds reflect Mr. Hemmeter's statement by including a provision in the permit that the 5 acre swimming lagoon be for public use as well as use by resort guests.

Sincerely yours,

Jerry Rothstein

Jerry Rothstein
76-123 Royal Poinciana Dr.
Kailua-Kona, Hawaii 96740
329-1568

1812

P.O. Box 308
Volcano, Hawai'i
96785
17 May 1985

Col. H. M. Jenks
District Engineer
U.S. Army Corps of Engineers
Bldg. 230
Fort Shafter, Hawai'i
96858-5440

Dear Col. Jenks:

On 10 May 1985 I visited the site of the proposed Hyatt Regency Waikoloa Hotel. The site is beautiful — the ponds lovely and biologically unique. Mauna Kea, Mauna Loa, Hualalai, Kohala, and Haleakala can all be seen from the coast fronting the property. My initial reaction to seeing the site was that development should proceed in such fashion so as to maintain these unique natural attributes.

I would like to see permits for the present proposal denied on the grounds that 1) as planned, these natural attributes are violated, and, 2) there are unanswered questions as to the biological effects of the proposals. Alternatively, a development situated further inland would serve to protect the ponds, and ensure a visual corridor. As a biologist familiar with wetland habitats, I consider rejection of all of the proposed alternatives to be the environmentally preferred alternative, with the maximum allowable compromise being the described Alternative 2 which provides for a large pond preservation area.

The EIS reports that Maciolek and Brock (1974) consider that the anchialine ponds in this vicinity represent the largest concentration of anchialine ponds in West Hawai'i, as well as greatest diversity in terms of age, size, salinity, and, though not stated in the EIS, likely biological diversity as well. Given that these anchialine ponds are recognized by the experts to be among the best of a scattered, naturally rare, and recently much-depleted ecosystem, filling, excavating, or contaminating them as proposed is a very serious jeopardy to the continued diversity and even existence of this unique ecosystem.

I feel that the EIS fails to adequately answer certain questions regarding the biological impact of the development. 1) What is the minimum size and or number of ponds necessary to preserve this fragile ecosystem which is habitat for an unique assemblage of species, including the very rare, locally endemic eel Gymnothorax hilonis? 2) What are the biological effects of added nutrients and pesticides which will seep into the ponds? I find it difficult to understand how an increase of 98% in the level of nitrates, a 55% increase in phosphates and a 134% increase in ammonium would have no biological effect (see III-8.3.2-g and IV-3-m). Such eutrophication has been known to degrade biologically aquatic ecosystems all over the world. 3) Also there has not been reported any biological study of the Waikoloa anchialine pools after development in the area -- what are the adverse impacts to this unusual ecosystem?

So far as the EIS addresses the biological attributes of the site, I find the plant species checklist to be correct. I am not qualified to assess the completeness of the list of aquatic species, but some of the names mentioned in the text are absent from the tables. As an ecologist, however, I find that both plant and aquatic species sections should more completely map the stratification of species associated with ponds of different ages at various distances from the coast. The vegetation map, Table III-2 (Plant species checklist) and Table III-4 (a comparison of pond biota surveys for the Waikoloa Beach Resort), while satisfactory on a gross level, do not provide this detailed information.

Should Alternative 2, which I consider the maximum allowable compromise, be granted, a more detailed ecological inventory of each of the ponds to be filled or excavated should be conducted. This survey should identify species present (including those observed during crepuscular and nighttime hours), diurnal salinity and nutrient trends, and pond age. Similar inventories should also be completed for a selection of the ponds to be preserved.

There would likely be less adverse biological impact if the hotel were set back some distance from the coast much as the nearby, successful Sheraton Waikoloa. Biologically non-sensitive acreage exists just inland of the proposed site, though construction of resort facilities there might necessitate minor relocation of the fairway in the immediate vicinity. While the applicants argue that a luxury resort hotel must be situated on the shoreline (II-2-2-2), a setback of the facilities a few hundred yards is probably not significant, particularly since there would be no visual obstruction of the coast.

The draft EIS addresses numerous other potential concerns. Among these are the impacts on recreational resources and activities by the project (IV-8). The inevitable increase of the demand on existing public parks is recognized; however it is suggested that sufficient parks are planned to accommodate this development. A setback of development from the coast will ensure the preservation of vistas, and should enhance varied coastal recreational experiences for both visitors and public, as well as serving to preserve the ponds in question.

I had intended to attend the public meeting in Kona earlier this year, but if there was any publicity of this meeting after the date had been postponed, I missed it. Thank you for accepting my written comments now. I would appreciate a copy of the final EIS.

Aloha,

Lani Stemmermann

cc: Senator Inouye
Senator Matsunaga
Representative Akaka
Representative Heftel
Mayor Dante Carpenter, Hilo
U.S. Environmental Protection Agency
County of Hawaii Department of Planning
John Maciolek

K-69

Mr. Michael T. Lee
Biologist
U.S. Army Engineer District
Operations Branch
Build 230
Fort Shafter, Hawaii 96858-5440

9 May 1985

Dear Mr. Lee:

I have a few comments on the proposed construction of the Waikoloa Beach Resort on the Island of Hawaii. My comments are directed primarily toward the proposed filling of a major portion of the anchialine ponds that occur in the area.

I'm sure you are aware of Maciolek & Brock's (1974) statement that the Anaehoomalu Bay area has the largest concentration of ponds in the State, and that the area is (was) unique because of the occurrence of eels, Gymnothorax hilonis, and marine fishes in the ponds. However, the area apparently has already been impacted to an extent that these unique organisms may no longer be there. I would, therefore, recommend that as much undisturbed pond area as possible be preserved. A buffer zone around the preserve should also be designated to help insulate the core from future impacts.

It should be pointed out that what is being dealt with is not just a group of "ponds." The ponds are interconnected coastal depressions that lay below the high tide level and thus flucuate with the tidal cycle via underground connections with the sea. They can be thought of as windows into a complicated subterranean system that is influenced by the ocean, ground water, and land.

Very little is known about this subterranean-anchialine pond system. The studies that have occurred in Hawaii and other places have essentially been baseline studies to determine the organisms that live, at least part time, in the pools. Virtually nothing is known about the much larger subterranean system, or if there are organisms that live there exclusively.

Presently, there is not enough known about the subterranean and anchialine system to make a valid decision concerning the impact of a large development such as the Waikoloa Beach Resort. While there is no doubt that an impact will occur, there is no way to determine what the results will be. There is, therefore, a need for study if rational decisions are to be made concerning future coastal development in areas with anchialine pools.

The type of information necessary for a planning decision goes beyond knowing what plants and animals live in the ponds, or monitoring the population to see if change occurs (change occurs in all populations). Information is needed on how the systems operate, how extensive they are, and how an impact in one portion affects other parts of an interconnected system. These are not easy questions to answer, but the technology is available to begin this work.

I believe money should be made available to study and publish information on the subterranean-anchialine pond systems of Hawaii. The systems represent a unique aspect of the natural history of the Islands and are part of the heritage. A possible mechanism to conduct the studies would be to direct the funding to the University of Hawaii to support graduate student research. This would have the added advantage of training young researchers in a unique aspect of Hawaii's natural history.

Finally, I believe that the developers of the Waikoloa Beach Resort should bear at least part of the expense of conducting research on the subterranean-anchialine system. The reason is that they are using one of the most spectacular areas of the system (a common heritage) for personal profit. By bearing some of the cost, they will be giving information back to the community and training its students.

Thank you.

Sincerely,

Richard H. Titgen, Ph.D
Oceanographer

K-70

Sierra Club

moku loa group

Hawai'i Chapter

P.O. Box 1137, Hilo, HI 96720

April 9, 1985

Michael M. Jenks
Col., Corps of Engineers
District Engineer
U.S. Army Engineer District, Honolulu
Fort Shafter, HI 96858

DRAFT EIS,
WAIKOLOA HYATT,
ISLAND OF HAWAII
March, 1985

Dear Colonel Jenks:

With some reservations, the Sierra Club supports the Applicants' Proposal (Figure II-4) for a single open space Anchialine Pond Preservation Area.

Many of our local members have walked the shores of Waikoloa long before the germ of massive development settled here; and we liked it better under that condition of wildness and remoteness.

However, our realization has been that the scales are irretrievably tipped in favor of increased human use, the accoutrements of civilization, and retreat of the sparse but interesting biota at this most unusual meeting place of land and sea.

Perhaps the County General Plan of 1970 was the pivotal document that specified and virtually assured resort development along the Kohala Coast, at least on privately controlled lands. If there was a challenge in the zoning changes of that time, the conservation community did not make a response to it.

We have the following comments:

1. If the 12-acre proposed pond area can be made much larger we certainly would support that move.

2. A minimal expansion should include the adjacent pond cluster in Lot 13, comprising ponds in the series 169-196. This would require 2.0 to 2.5 acres of land (see map attached).

3. This pond cluster contains the deepest example we know of in the region, Pond 179 with a depth of 3 to 4 feet.

4. The pond series proposed for addition appears to be in a newer lava flow which is generally bare, supporting little or no terrestrial vegetation.

5. Pond 172 is most unusual in that it is formed under and adjacent to a collapsed pahoehoe bubble. An arch of firm stone spans this pond. It would be a pity to destroy this natural geological feature.

K-71

6. It appears that residential development in Lot 13 can be made flexible enough to accommodate our proposed addition of these several unusual ponds.

MANAGEMENT

Long term pond management is an important consideration, which the DEIS does address. Management should include a significant research segment, in addition to a monitoring process. Our recommendation is that the land owners explore seriously with The Nature Conservancy of Hawaii the possibility for setting up a conservation easement for management and research in the Pond Preservation Area. Under such an arrangement and program, ownership of the acreage would be retained by the landholder.

Sincerely yours,

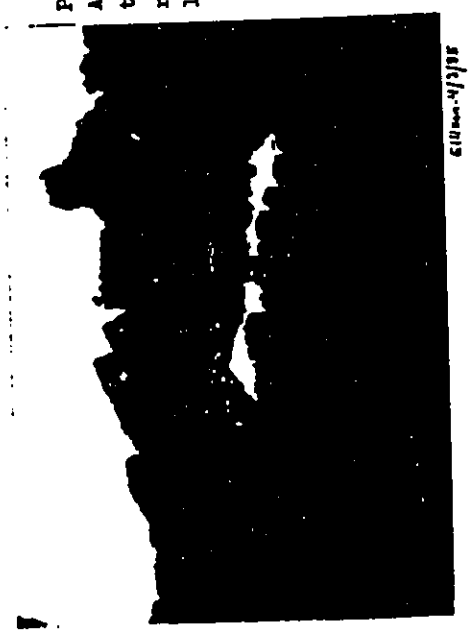
P. Quentin Tomich

P. Quentin Tomich
Co-Chair,
Conservation Committee

ENCL.
Map, and photos of
Ponds 179 and 172.

Pond # 179, portion.
Deep pond (3 to 4 feet).
Note day-pack for scale.

Pond # 172, portion.
Arched pond, looking through arch of stone residual from collapsed lava bubble.



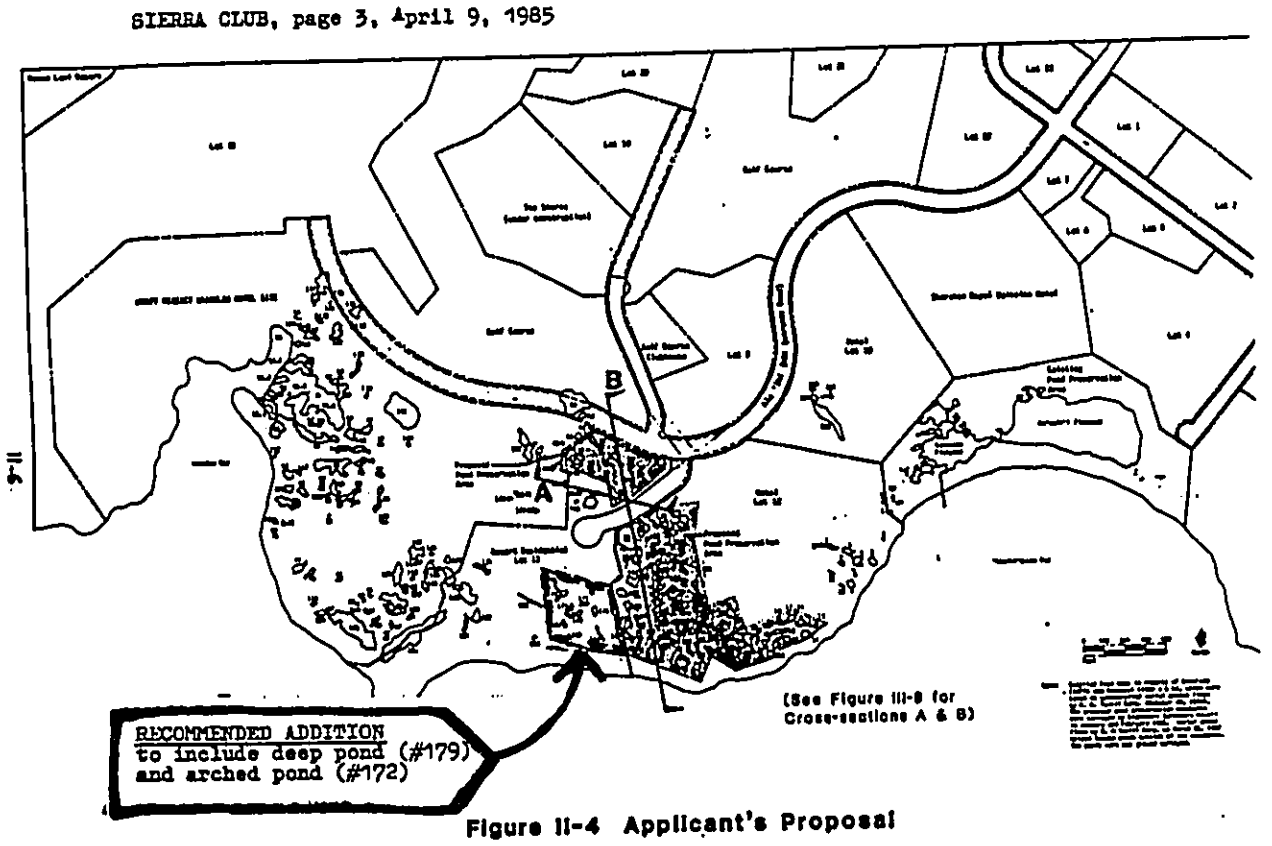


Figure II-4 Applicant's Proposal

Appendix L

Coastal Zone Management Consistency Determination

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

KAMAMALU BUILDING, 250 SOUTH KING ST, HONOLULU, HAWAII
MAILING ADDRESS: P.O. BOX 2359 HONOLULU, HAWAII 96804 • TELEX: 723250 HIDPED

KENT M. KEITH
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LINDA KAPUNAI ROSEHILL
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PLANNING DIVISION
RESEARCH AND ECONOMIC ANALYSIS DIVISION

OFFICES
ADMINISTRATIVE SERVICES OFFICE
INFORMATION OFFICE

Ref. No. P-2590

September 5, 1985

BELT, COLLINS & ASSOCIATES
10285

Mr. Perry J. White
Belt, Collins and Associates
606 Coral Street
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Coastal Zone Management (CZM) Consistency Determination, Waikoloa Beach Resort Anchialine Ponds, Anaehoomalu, South Kohala, Hawaii (FC/85-026)

We have reviewed the subject consistency determination and offer the following for your consideration.

As part of the development of a resort complex, Transcontinental Development Co. and Atpac Land Co. propose to excavate a 5-acre recreational lagoon at the head of Waiulua Bay and to fill 136 anchialine ponds in other areas of the site.

We support the overall development concept and the economic benefits it will bring to the County of Hawaii. We are, nevertheless, responsible for assuring that development occurs in a manner consistent with the legislative CZM objectives and policies.

In this regard, we believe the proposed filling of over 130 anchialine ponds on the project site may represent a substantial resource loss to the State. Anchialine ponds (shoreline ponds without surface connection to the sea having waters of measurable salinity and showing tidal fluctuations) are unique coastal ecosystems. In the United States, they are found only on the Kona coast of Hawaii and Cape Kinau on Maui. Rare species of shrimp, fish, and mollusks inhabit the pond systems. We understand in fact that some of the species are found only in anchialine ponds. In recognition of their values, the anchialine ponds at Cape Kinau were designated as part of the State's Ahihi-Kinau Natural Area Reserve.

The site of the proposed resort contains one of the most extensive systems of such ponds. As noted in a 1974 study of Kona coast ponds (Maciolek and Brock), the ponds in the Waiulua Bay area have "exceptional natural geological and biological qualities that deserve protection as a unique and valuable resource." The proposed development calls for filling two-thirds of the 215 ponds, and despite leaving a third of them intact, could degrade and eventually destroy the habitats in these remaining ponds.

A specific policy of the Hawaii CZM Program is to "preserve valuable coastal ecosystems of significant biological or economic importance" (Section 205A-2(c)(4)(B), Hawaii Revised Statutes). As compensation and mitigation for the loss of these ponds, a 12-acre area has been identified for the long-term protection of a representative cluster of anchialine ponds. Sixty-two (62) ponds will be thus preserved, with the remainder filled as part of the resort development.

Given the significant number of ponds which will be lost, nearly 20% of the total number of anchialine ponds in the State, the integrity of the proposed management plan for the remaining ponds becomes all the more important. Issues such as the need for studies, frequency of monitoring, the allowance of lighting and pathways, increased human presence, effects of nearby development on groundwater quality, and control over the introduction of exotic fauna should be considered and addressed through the plan. As such, assurances that the remaining anchialine ponds will be adequately protected and maintained are necessary.

In consideration of the above, therefore, we will agree with your determination that the proposed project is consistent with Hawaii's CZM Program predicated on the following conditions:

- The final management plan shall be submitted to the Department of Planning and Economic Development and the Department of Land and Natural Resources for concurrence.
- The applicant shall comply with and assume the costs associated with implementing the management plan, including any mitigation measures which may subsequently be recommended to ensure the long-term integrity and natural resource values of the remaining anchialine ponds and habitat.
- Free access and parking shall be provided to the preservation area for public educational and research purposes consistent with the proposed pond management objectives.

By copy of this letter, we are also informing the Federal permit issuing agency of our conditioned concurrence. Your written acceptance of these conditions or objections to them should be submitted to us within 30 days after receipt of this letter, with a copy to the Federal permit issuing agency. We will consider our concurrence valid upon receipt of your written acceptance.

We appreciate your cooperation in complying with the Hawaii CZM Program.

Very truly yours,

Kent M. Keith

cc: U.S. Army Corps of Engineers
Planning Dept., County of Hawaii
Dept. of Land and Natural Resources
Dept. of Health

L-2

We appreciate your cooperation in complying with the Hawaii CZM Program.

Very truly yours,

Kent M. Keith

cc: U.S. Army Corps of Engineers
Planning Dept., County of Hawaii
Dept. of Land and Natural Resources
Dept. of Health

-2-

wilsonjones.

END

CERTIFICATION

I HEREBY CERTIFY THAT THE MICROPHOTOGRAPH APPEARING IN THIS REEL OF FILM ARE TRUE COPIES OF THE ORIGINAL DOCUMENTS.

2006
DATE

SIGNATURE OF OPERATOR

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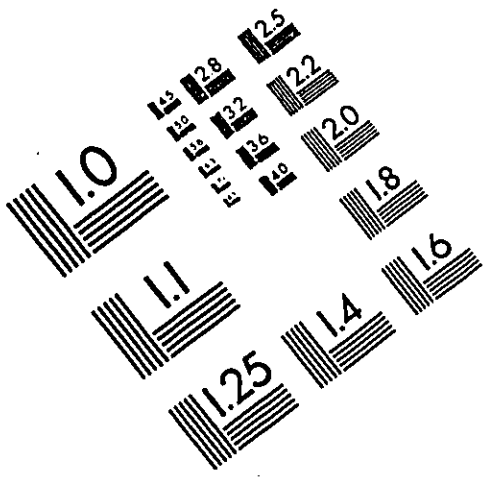

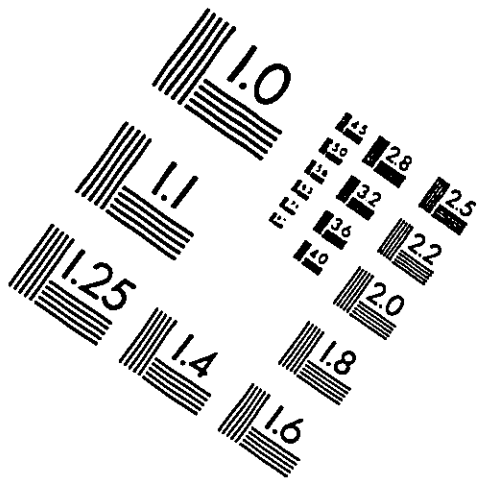

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PRECISION[SM] RESOLUTION TARGETS

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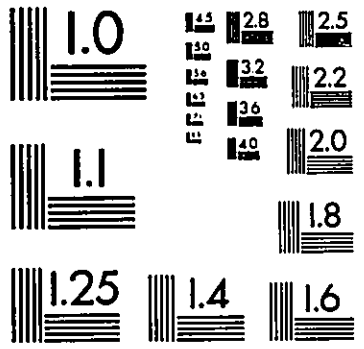

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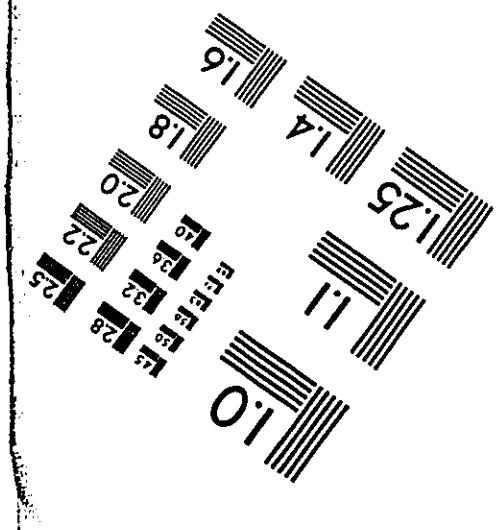

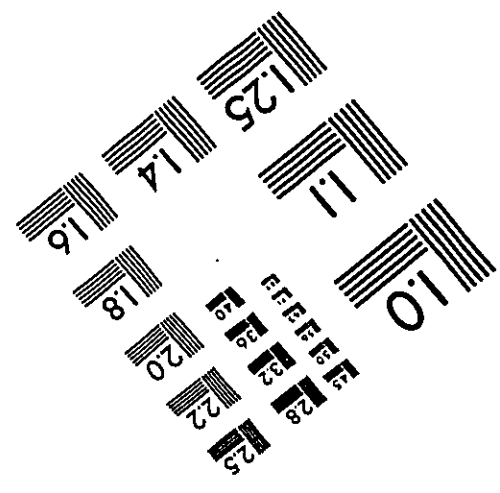

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DENSITY TARGET