

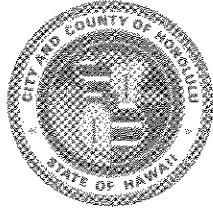
DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

RECEIVED

'89 MAR 28 12:00



DONALD A. CLEGG
CHIEF PLANNING OFFICER

GENE CONNELL
DEPUTY CHIEF PLANNING OFFICER

OFC. OF ENVIRONMENTAL
QUALITY CONTROL

RH/DGP 3/89-849

March 21, 1989

Honorable Marvin T. Miura, Director
Office of Environmental Quality Control
State of Hawaii
465 South King Street, Room 104
Honolulu, Hawaii 96813

Dear Dr. Miura:

Final Environmental Impact Statement (FEIS)
Sheraton Makaha Resort Expansion
Tax Map Key 8-4-02: 54

We are notifying you of our acceptance of the above as an adequate fulfillment of Chapter 343, HRS, and the EIS Rules.

Unresolved issues to be addressed prior to the subsequent zoning process are:

1. Highway and street improvement plans and programs as required by the City Department of Transportation Services and the State Department of Transportation. All future road widening costs and improvements beyond the interim measures required by the Department of Transportation Services shall be borne by the developers of Makaha Valley. This agreement should be secured in writing. At this time, they include ANA Hotels Hawaii, Inc.; Makaha Valley, Inc.; Honfed; and Nitto Hawaii.
2. A sewer master plan for on- and off-site system improvements funded by the applicant and approved by the Department of Public Works.

Honorable Marvin T. Miura, Director
Office of Environmental Quality Control
Page 2
March 21, 1989

3. A drainage plan for on- and off-site improvements funded by the applicant and approved by the Department of Public Works.

These issues are discussed in the attached Acceptance Report. If there are any questions, please contact Randy Hara of my staff at 523-4483.

Sincerely,



DONALD A. CLEGG
Chief Planning Officer

DAC:js

Attach.

cc: Mr. Vincent Shigekune, Helber Hastert & Kimura
ANA Hotels Hawaii, Inc.

DEPARTMENT OF GENERAL PLANNING (DGP)

ACCEPTANCE REPORT: CHAPTER 343, HRS
ENVIRONMENTAL IMPACT STATEMENT (EIS)
SHERATON MAKAHA RESORT EXPANSION
ANA HOTELS HAWAII, INC.
MAKAHA VALLEY, WAIANAЕ, OAHU, HAWAII
TAX MAP KEY 8-4-02: 54

A. Background

ANA Hotels Hawaii, Inc., is proposing to expand the existing facilities of the Sheraton Makaha Resort in Makaha Valley. They have applied for an amendment to the Waianae Development Plan to redesignate approximately 36 acres of land from Residential to Resort use.

ANA Hotels Hawaii, Inc., owns the 200-room Sheraton Makaha Resort and Country Club which is located on an adjacent 26 acres of land and the 18-hole Makaha Resort West Golf Course on 255 acres. The proposed Master Plan for the Sheraton Makaha Resort includes 300 additional hotel rooms, 150 new resort condominiums, a new conference facility, additional tennis facilities, 5,500 square feet of resort-related retail space and a new 50-unit health spa.

The proposed site of the expansion is mostly vacant except for a closed private sewage treatment plant and maintenance facilities, two unoccupied wooden residential structures, an unused swimming pool, and an abandoned mango orchard.

The proposed project will result in a loss of approximately 26 potential residential units based on its Country zoning. These dwelling units would house approximately 102 future residents (based on 3.89 persons per household, Waianae, 1980). It is expected that the buyers of the resort condominiums will be "empty nesters" from out-of-state who will occupy their unit during varying times of the year. Given an estimated occupancy rate of 60 percent and 3 occupants per unit, it is anticipated that there will be about 270 residents at any given time. It is estimated that the average daily visitor population associated with the hotel addition and health spa would be about 466. This estimate assumes a 70 percent average occupancy and 1.9 persons per occupied room on average.

Based on the experience of the existing Sheraton Makaha Resort, the applicant expects the proposed expansion to generate a total of 272 jobs. The hotel addition is expected to generate 0.5 employees per room or 150 jobs. The resort-related commercial activities is estimated to require 1 employee for every 300 square feet (s.f.) of commercial space or 18 jobs. The health spa is anticipated to require 1 employee for every room or 50 jobs. The expanded tennis facilities will create 4 jobs: 1 head pro, 1 assistant pro, 1 clerk and 1 maintenance. The resort condos will generate 1 job for every three condos or 50 positions.

Water

Potable water demand for the entire resort project is estimated to be 175,000 gallons per day (350 gpd per resort unit) and irrigation demand is estimated to be 176,400 gallons per day. The project is likely to be served by the Board of Water Supply's 525 system. The system includes a 2.0 mg reservoir located 3,000 feet mauka of the Kili Drive/Huipu Drive intersection and 16" lines along Kili and Huipu Drives. The existing 16" water line will be extended along Huipu Drive to the southern boundary of the project. 12" mains will be constructed within the project site to service the resort facilities. Construction of the necessary transmission/distribution system will be at the applicant's expense.

The Board of Water Supply (BWS) indicated that 125,000 gpd of water is being reserved for ANA Hotels Hawaii, Inc., from Makaha Valley, Inc.'s, water allotment. This allotment will not be available until BWS Makaha Wells project (4.0 mgd) is completed and placed in operation in late 1989.

Requests for quantities exceeding the 125,000 gpd allotment shall conform to BWS current water commitment policy. The availability of water will be determined when building permits are submitted for BWS review and approval. Water System Facilities Charges for source transmission and daily storage shall apply to the amount exceeding 125,000 gpd.

Access and Traffic

Access to the project area will be from Farrington Highway via Makaha Valley Road. Farrington Highway is a two-lane highway. Makaha Valley Road is two lanes wide in a 60-foot right-of-way and connects to Farrington Highway at an unsignalized T-intersection.

To mitigate the impact of future traffic in Makaha Valley (including those generated by the proposed project), the following improvements to a 2-lane configuration for Makaha Valley Road have been generally agreed upon as an interim measure by the City Department of Transportation Services (DTS):

- . Installation of a traffic light at the intersection of Makaha Valley Road and Farrington Highway (subject to State Department of Transportation approval);
- . Curb to curb pavement of Makaha Valley Road from Farrington Highway to Lahaina Street;
- . Installation of turning pockets at those intersections deemed necessary by DTS;

- . Realignment of the "kink" in the roadway near the entrance to the Sheraton Makaha Resort;
- . Road surface improvements; and,
- . Retention of street right-of-way to allow future widening as required.

The ultimate roadway alignment will be designed in accordance with applicable City standards. All future road widening costs and improvements shall be borne by the developers of Makaha Valley. As recommended by DTS, this should be secured in writing. At this time, the developers of Makaha Valley include ANA Hotels Hawaii, Inc.; Makaha Valley, Inc.; Honfed; and Nitto Hawaii.

Wastewater

The resort expansion is expected to generate an additional 62,600 gpd of wastewater. Wastewater will flow to the municipal line at the end of Jade Street for treatment at the Waianae Sewage Treatment Plant. The Sheraton Makaha Resort private STP has been closed and effluent from the resort is presently being transported to the Jade Street sewer line.

Drainage

Development of the project will include a drainage system built to County standards which will accommodate the existing drainage requirements of the site as well as provide for any increase in runoff due to the addition of improvements which will change the permeability of the surface in some areas. The drainage will be discharged into the Makaha Resort West Golf Course and Makaha Stream through Easement 156, in accordance with drainage plan for Makaha Valley filed with the City and County of Honolulu in 1979.

A specific drainage plan has not been adopted for the development at this level of planning. It is anticipated that maintaining levels of discharge into Makaha Stream at current levels will be accomplished primarily by providing areas for flood water retention on the existing golf course. A drainage report will be submitted by the applicant to the City and County of Honolulu Department of Public Works, Division of Engineering, Drainage Section for review and approval.

Historic and Archaeological Resources

A preliminary archaeological reconnaissance survey of the project site was conducted during October 1988. No prehistoric or early historic native Hawaiian cultural remains are known to exist within the project area.

However, three late historic reservoirs associated with sugarcane cultivation in Makaha Valley between 1880 and 1946 were recorded. Most of the project area has been extensively modified in recent times. According to the State Historic Sites Section, sufficient information has been gathered (including historic background information), making the reservoir sites "no longer significant."

No impacts to archaeological or historical resources are expected as a result of the project. In the event that any previously unidentified sites or remains are encountered during construction and site work phases, the applicant indicated that work in the immediate area will cease until the State Historic Preservation Officer is notified and is able to assess the impact and make further recommendations for mitigative actions, if warranted.

B. Procedures

An EIS Preparation Notice, for the proposed project, appeared in the October 23, 1988 Office of Environmental Quality Control (OEQC) Bulletin. Copies of this notice were distributed to interested Federal, State, and City and County agencies, as well as community interest groups.

Comments from consulted parties were received until November 22, 1988, allowing all parties the required 30-day minimum consultation period. Twenty-five parties submitted written comments during this period, which were responded in writing by the applicant.

The Draft EIS was received by the OEQC on January 5, 1989. Notice of the Draft EIS was published in the January 8, 1989 issue of the OEQC bulletin. The deadline for public review was then set for February 22, 1989.

Twenty-six parties responded to the request for comments on the draft EIS. The applicant made point-by-point responses to all substantive comments on the 26 replies received during the public review deadline.

C. Content

The Final EIS for the proposed Sheraton Makaha Resort Expansion adequately addresses the content requirements specified in Section 11-200-17 and 11-200-18 of the EIS Rules.

D. Responses to Comments

The applicant provided adequate point-by-point responses to all comments received within the 45-day review period established for the Draft EIS.

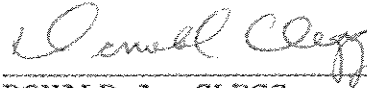
E. Unresolved Issues

The following unresolved issues require resolution prior to the acceptance of an application for rezoning:

1. Highway and street improvement plans and programs as required by the City Department of Transportation Services and the State Department of Transportation. All future road widening costs and improvements shall be borne by the developers of Makaha Valley. This agreement should be secured in writing. At this time, they include ANA Hotels Hawaii, Inc.; Makaha Valley, Inc.; Honfed; and Nitto Hawaii.
2. A sewer master plan for on- and off-site system improvements funded by the applicant and approved by the Department of Public Works.
3. A drainage plan for on- and off-site improvements funded by the applicant and approved by the Department of Public Works.

F. Determination

The Final EIS is determined to be acceptable under the procedures and requirements established in Chapter 343, HRS, and the State "EIS Rules." This determination in no way implies a favorable recommendation on the applicant's request for any approvals required by the Department of General Planning.



DONALD A. CLEGG
Chief Planning Officer

DAC:js

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SHERATON MAKAHA RESORT EXPANSION

Waianae, Oahu, Hawaii

FINAL
ENVIRONMENTAL
IMPACT
STATEMENT

March 1989



ANA HOTELS



FINAL

**ENVIRONMENTAL
IMPACT
STATEMENT**

March 1989

**SHERATON
MAKAHA
RESORT
EXPANSION**
Waianae, Oahu, Hawaii

Prepared for:
ANA Hotels Hawaii, Inc.

Prepared & Submitted by:
Helber, Hastert & Kimura Planners


Mark H. Hastert, AICP, Managing Principal

For Submittal to:
City & County of Honolulu
Department of General Planning



ANA HOTELS

ANA HOTELS HAWAII, INC.

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- C. Archaeological Reconnaissance of a Proposed Resort Expansion in Makaha Valley, Leeward Oahu. International Archaeological Research Institute, Inc. October 1988.
- D. Traffic Assessment Sheraton Makaha Resort Expansion. Parsons Brinckerhoff Quade and Douglas, Inc. September 1988.
- E. Demand Assessment for Sheraton Makaha Resort and Country Club Expansion. Chaney Brooks & Company. December 1988.
- F. "Makaha Resort Wetland Determination." Corps of Engineers. September 1988.
- G. Air Quality Study for the Proposed Sheraton Makaha Resort Expansion. Barry D. Root and Barry D. Neal. March 1989.

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CHAPTER I

INTRODUCTION AND SUMMARY



ANA HOTELS

1.1 INTRODUCTION

ANA Hotels Hawaii, Inc. (hereinafter referred to as the "applicant") has applied to the City and County of Honolulu Department of General Planning (the "Accepting Agency") for an amendment to the Waianae Development Plan (DP) to permit the expansion of the Sheraton Makaha Resort in Waianae, Oahu.*

Specifically, the application requested the redesignation of the 36-acre project area (henceforth referred to as "the area of application") from the present Residential DP designation to the Resort DP designation.

By letter dated September 30, 1988, the Department of General Planning (DGP) notified both the applicant and the Office of Environmental Quality Control (OEQC) of its determination that an Environmental Impact Statement (EIS) would be required for the application (refer to Chapter IX, page IX-4).

1.2 INTENDED USES OF THIS DOCUMENT

This EIS has been prepared to support the applicant's DP amendment request. Pursuant to DGP's determination, an environmental impact statement preparation notice (EISPN) was published in the October 23, 1988 issue of the OEQC Bulletin. In addition, a more detailed version of the EISPN was sent directly to 37 agencies, organizations, individuals and surrounding landowners and lessees thought to have an interest in providing input into the preparation of the EIS. A total of 26 agencies or individuals responded by letter and these letters are reproduced in Chapter IX. Concerns raised in these letters have been addressed in relevant chapters of this report.

The Draft EIS was filed with the accepting agency (DGP) and with OEQC for public distribution on 5 January 1989. Notice of the Draft was published in the 8 January 1989 issue of the OEQC Bulletin. A total of 26 agencies or individuals responded by letter and these letters are reproduced in Chapter XI. All comments were responded to and any necessary revisions are incorporated in the appropriate sections of the Final Environmental Impact Statement.

The report is intended to comply with Chapter 343, HRS and the EIS regulations promulgated by Chapter 200 of Title 11, Department of Health. The purpose of the report is to provide information about the nature of the subject action to public agencies and interested members of the community; to assess the existing environmental conditions of the property and surrounding areas; to evaluate and disclose probable impacts of the action; to propose mitigative measures to minimize adverse project impacts; and to consider alternatives to the proposed action.

* Application for Development Plan Amendment and Environmental Assessment, Sheraton Makaha Resort Expansion, Waianae, Oahu. (Department of General Planning Reference No. 89/W-1). Prepared for ANA Hotels Hawaii, Inc. by Helber, Hastert, and Kimura, Planners. September 15, 1988.

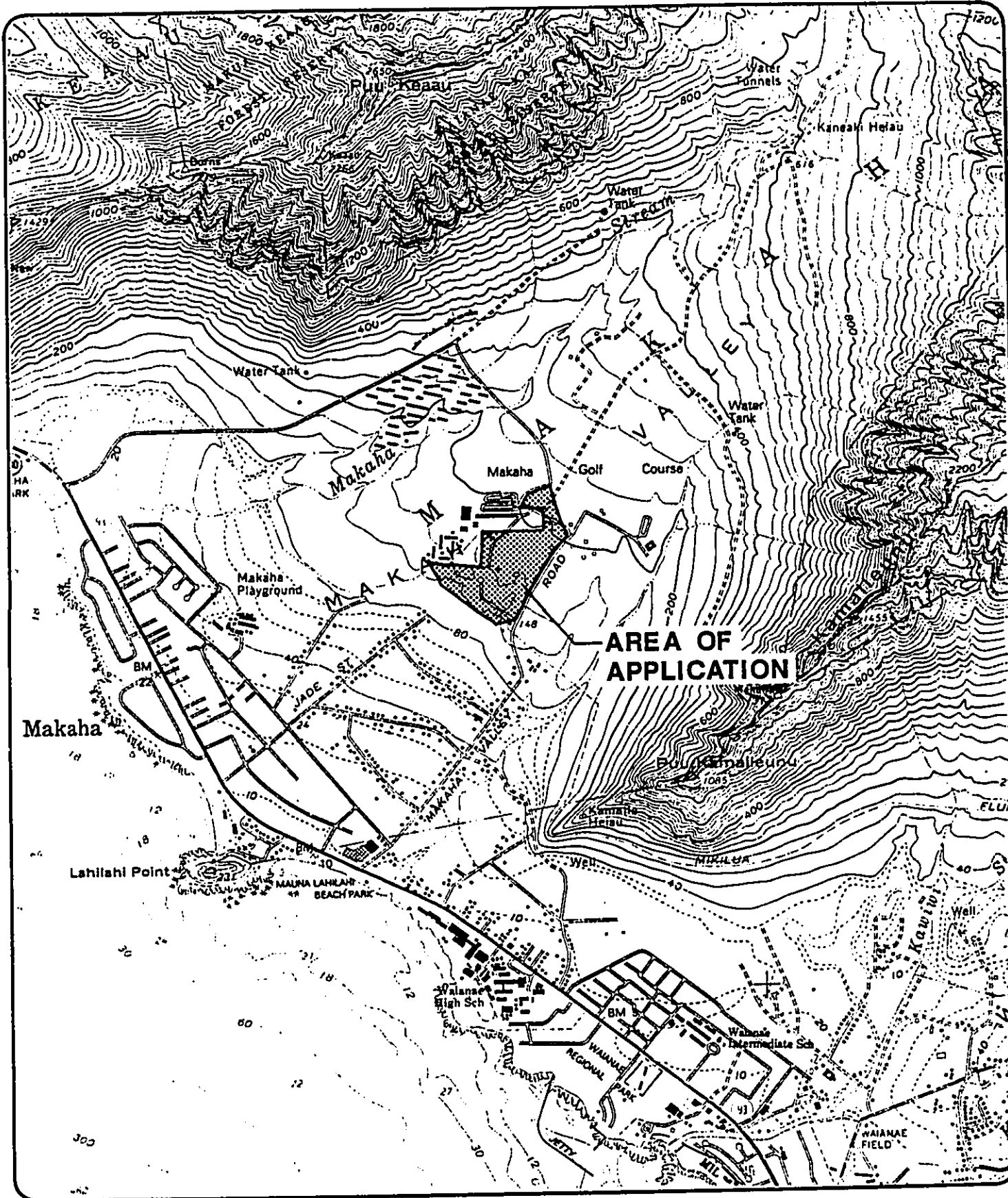
1.3 DEVELOPMENT SUMMARY

ANA Hotels Hawaii, Inc. is proposing to expand the existing facilities of the Sheraton Makaha Resort in Waianae, Oahu. The area of application encompasses a 35.709-acre site adjacent to the existing facilities of the Sheraton Makaha Resort and Makaha Valley Road. Central elements of the entire resort expansion include 300 additional hotel rooms, 150 new resort condominiums, a new conference facility, additional tennis facilities, 5,500 square feet (s.f.) of resort-related retail space and a new 50-unit health spa. A brief summary of the subject action is presented below.

- Applicant:* ANA Hotels Hawaii, Inc.
Post Office Box 896
Waianae, Hawaii 96792
- Action:* Applicant requests amendment to the Waianae Development Plan (from residential land use to resort) during the 1989 Development Plan annual amendment review. This DP amendment application has triggered the Chapter 343 HRS requirements pursuant to which this report has been prepared.
- Accepting Agency:* Department of General Planning
- Project Location:* Between the Sheraton Makaha Resort and Makaha Valley Road (Figure 1).
- Acreage:* Approximately 36 acres
- TMK:* 8-4-02: 54 (Figure 2)
- Proposed Uses:* Hotel, resort condominiums, and recreational facilities
- Existing Uses:* Mostly vacant except for 2 unoccupied residential structures, a private STP and maintenance facilities (Figure 3).
- State Land Use District:* Urban
- Development Plan Designation:* Residential
- Zoning:* Country

1.4 DEVELOPMENT CONCEPT

ANA Hotels Hawaii, Inc. owns the 200-room Sheraton Makaha Resort and Country Club, which is located on 26.413 acres. This area is designated for Resort use on the City and County of Honolulu's Waianae Development Plan Land Use Map.



Location Map

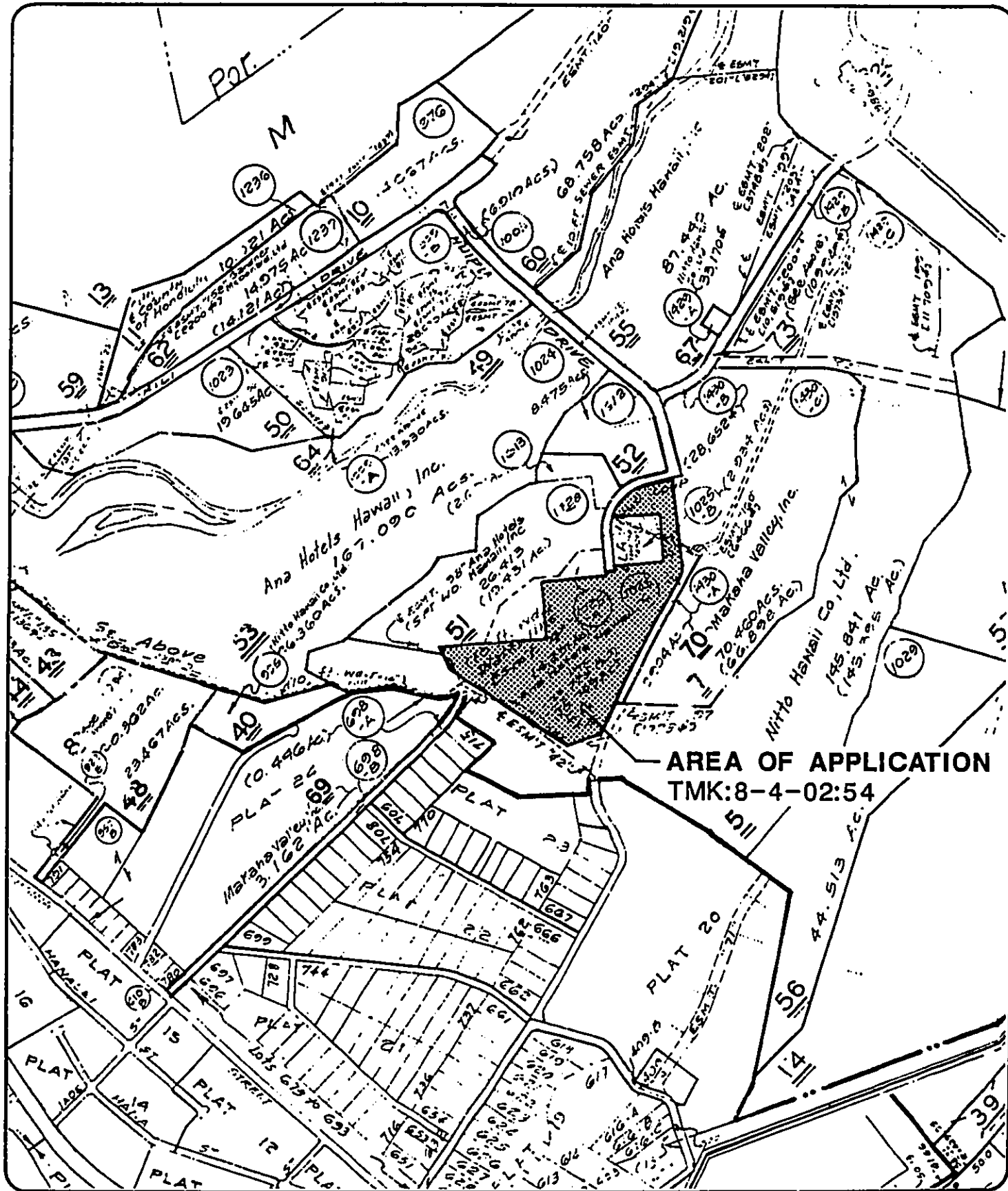


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Figure 1

ANA Hotels Hawaii, Inc.

HELBER, HASTERT & KIMURA PLANNERS
GROSVENOR CENTER • PUI TOWER • 733 BISHOP STREET • SUITE 2500
HONOLULU, HAWAII 96813 • TELEPHONE: (808) 545-2055



Tax Key Map

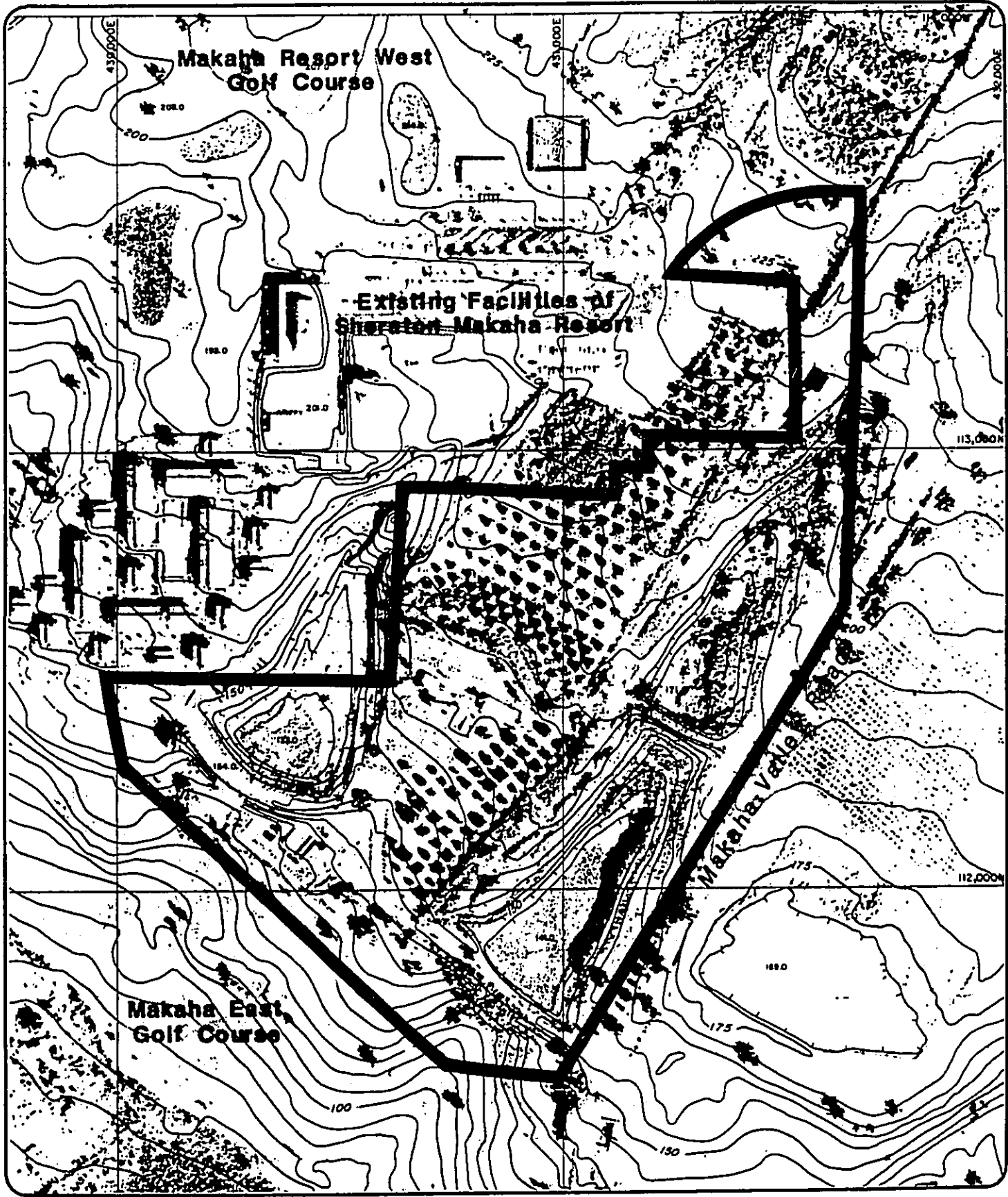
ANA Hotels Hawaii, Inc.



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Figure 2

HELBER, HASTERT & KIMURA PLANNERS
GROSVENOR CENTER • PFI TOWER • 733 BISHOP STREET • SUITE 2500
HONOLULU, HAWAII 96813 • TELEPHONE: (808) 545-2055



**Aerial Photo &
Topographic Map**

ANA Hotels Hawaii, Inc.



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Figure 3

HELBER, HASTERT & KIMURA PLANNERS
GROSVENOR CENTER • PFI TOWER • 733 BISHOP STREET • SUITE 2500
HONOLULU, HAWAII 96813 • TELEPHONE: (808) 545-2053

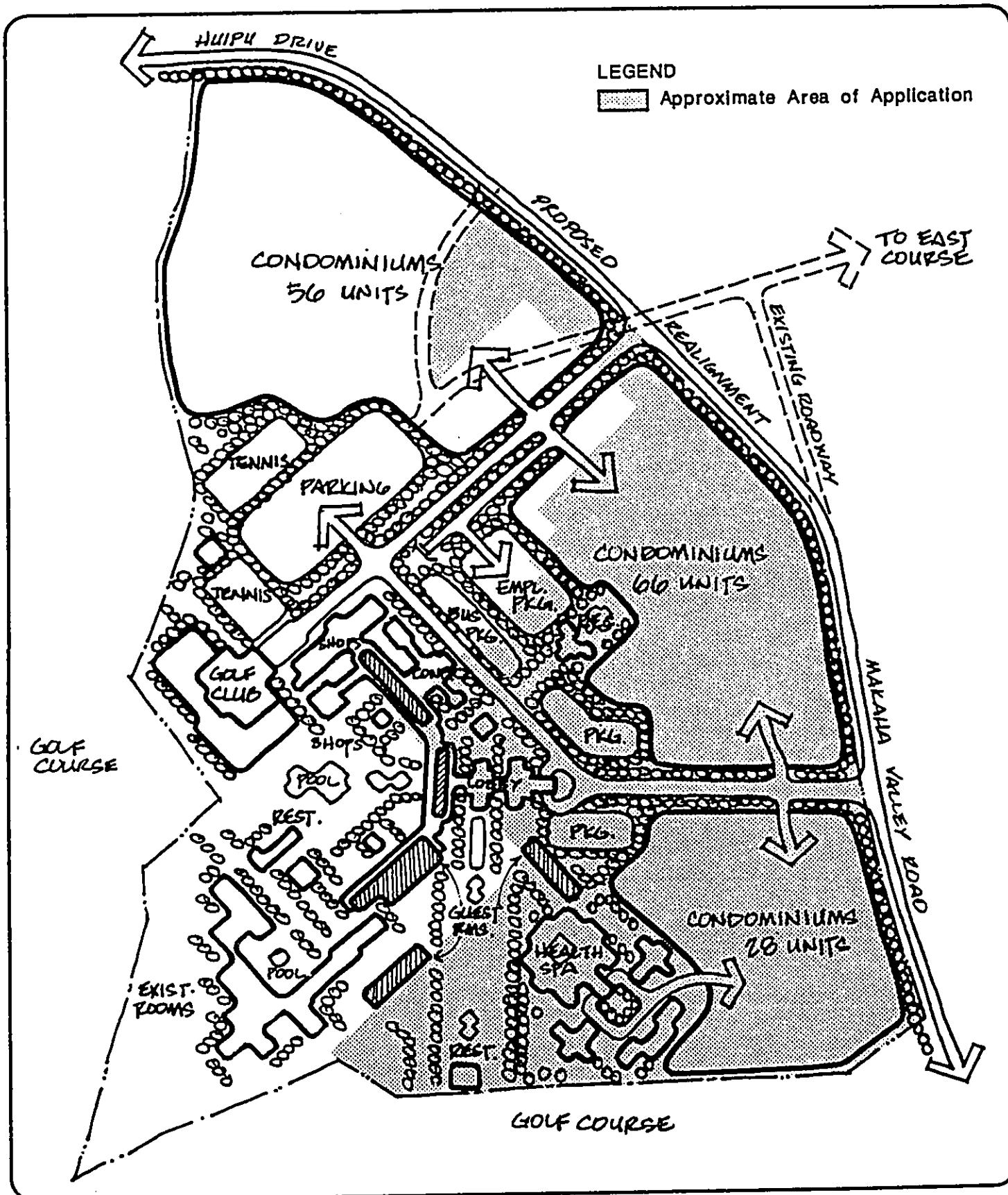
In December 1987, ANA Hotels Hawaii, Inc. acquired two additional parcels adjacent to the Sheraton Makaha Resort. One of the parcels is 8.475 acres, vacant and designated for Resort use (DP). The other property that was acquired is 35.709 acres, mostly vacant and designated for Residential use (the area of application). ANA Hotels Hawaii, Inc. also owns another 255± acres in Makaha Valley which is occupied by the 18-hole Makaha Resort West Golf Course. ANA Hotels Hawaii, Inc. proposes to expand the facilities of the Sheraton Makaha Resort on the newly acquired 44± acres. The proposed Master Plan for the Sheraton Makaha Resort includes 300 additional hotel rooms, 150 new resort condominiums, a new conference facility, additional tennis facilities, 5,500 s.f. of resort-related retail space and a new 50-unit health spa. See Figure 4.

1.5 SUMMARY OF PROBABLE IMPACTS

- o *Land Use.* The proposed action will commit the project site to urban uses.
- o *Historic and Archaeologic Resources.* No significant historic or archaeological resources were found within the project area.
- o *Flora and Fauna.* No endangered flora or fauna were found to inhabit the project site.
- o *Employment.* The operation of the expanded facilities of the resort is estimated to require up to 272 employees.
- o *Public Facilities and Services.* The development will create additional demands on public services and infrastructure. Wastewater generated by the project will be treated at the Waianae Sewage Treatment Plant. Increased allocations for potable water are required. Projected traffic volumes are expected to decrease levels of service at the Farrington Highway/Makaha Valley Road intersection without improvements.

1.6 SUMMARY OF MITIGATING MEASURES

- o Installation of a traffic light at the intersection of Makaha Valley Road and Farrington Highway (subject to State Department of Transportation review and approval).
- o Curb to curb pavement of Makaha Valley Road from Farrington Highway to Lahaina Street.
- o Installation of turning pockets at intersections deemed necessary by the Department of Transportation Services.
- o Realignment of the "kink" in the roadway near the entrance to the Sheraton Makaha Resort.
- o Road surface improvements.
- o Retention of street right-of-way for future widening as need dictates.



Preliminary Master Plan

ANA Hotels Hawaii, Inc.



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Figure 4

HELBER, HASTERT & KIMURA PLANNERS
 GROSVENOR CENTER • PFI TOWER • 733 BISHOP STREET • SUITE 2500
 HONOLULU, HAWAII 96813 • TELEPHONE: (808) 545-2055

- o Comply with provisions of Title 11, Administrative Rules Chapters 42 and 43, Vehicular Noise Control for Oahu, and Community Noise Control for Oahu, respectively.

1.7 RELATIONSHIP TO LAND USE PLANS AND POLICIES

Chapter III contains a detailed discussion of the relationship between government plans and policies and the proposed action. The proposed action is generally consistent with all relevant public goals, objectives, policies, plans and controls.

1.8 ALTERNATIVES CONSIDERED

A number of alternatives were analyzed for the present site including no-action, project postponement, residential development, and golf course uses.

Postponement of action, residential development and golf course use were projected to yield returns far short of those anticipated by the proposed action. Further, the benefit to the community in terms of jobs for residents was a key consideration in opting for resort expansion of the site.

In conclusion, the applicant has evaluated alternative proposals and finds that the proposed resort expansion represents the most feasible use of the site.

1.9 NECESSARY PERMITS AND APPROVALS

A number of permits and approvals must be secured by the applicant before development of the site can begin. Major permits and approvals still outstanding are listed in Table 1.

Table 1: NECESSARY PERMITS AND APPROVALS

<i>Authority</i>	<i>Approval Required</i>
Honolulu City Council	Waianae DP Amendment Zone Change
Department of Land Utilization	Subdivision Approval
Building Department	Building Permits Grading Permits
Board of Water Supply	Water Commitment

1.10 UNRESOLVED ISSUES

A written agreement specifying the parties that will be responsible for the improvements to Makaha Valley Road has not been finalized. In addition, it is not known at this time whether Makaha Valley Road will remain a private roadway. However, the applicant will continue its efforts in finalizing the agreement.

CHAPTER II

PROJECT DESCRIPTION



This chapter describes the proposed Sheraton Makaha Resort Expansion. The project location is first described. The development concept is then reviewed leading into a discussion of the conceptual master plan and an overview of the key land use and infrastructure features of the project. The preliminary market and economic feasibility of the project is then reviewed ending with a brief discussion of project phasing and costs.

2.1 LOCATION

The area of application is adjacent to the existing facilities of the Sheraton Makaha Resort and Country Club. Makaha Valley Road delineates most of the southeastern boundary of the subject area. A portion of the Makaha East Golf Course borders the southwestern portion of the property (Figure 3).

2.2 DEVELOPMENT CONCEPT

The proposed master plan for the Sheraton Makaha Resort and Country Club includes a highly sophisticated conference facility with a total of 500 guest rooms, 150 low-rise condominium units, extensive golf and tennis amenities, a 50-unit health spa, and 5,500 square feet (s.f.) of resort-related commercial space. Refer to Figure 4.

The convention facility will have high tech communication and video amenities with trained personnel. State-of-the-art electronics for conferencing and education will be showcased at this property. There could also be a business communications center that displays the latest technology in communication electronics, including a manufacturer-sponsored showroom for demonstration and sales.

The integration of golf and tennis with the convention activities will be focused on creating opportunities for convention participants to meet with other members of the convention through loosely structured recreational programs which foster fellowship and communication.

The new commercial facilities (approximately 5,500 s.f.) will be designed primarily for resort guests but may be attractive to other Makaha Valley residents, as well.

A portion of the 150 resort condominiums with 50 visitor units will be located to provide golf course and ocean views. The 50 visitor units will be one to one-and-one-half story units being the premium resort condominiums with special privileges for golf and tennis.

The balance of the resort condominiums will be clustered (two story) around a landscaped courtyard and swimming pool. The owners and guests of the

condominiums would be encouraged to use the recreational, food and beverage, and retail facilities of the hotel.

A special health spa will be located makai of the hotel porte cochere. This spa would offer amenities and services similar to the Golden Door or La Costa.

Preliminary plans for development within the area of application include the new hotel lobby, health spa, restaurants, 70± hotel rooms, 120± resort condominiums and a condominium recreational center.

2.3 PRELIMINARY MASTER PLAN

The 35.709-acre area of application would be part of a master plan to upgrade the existing Sheraton Makaha Resort. The preliminary master plan identifies seven major uses (Figure 4): new hotel rooms, resort condominiums, a conference facility, additional tennis facilities, resort-related commercial space, golf clubhouse and a health spa. A summary of the various land use acreages of the project area are provided in Table 2 below.

Table 2: PRELIMINARY LAND USE SUMMARY

<u>Land Use</u>	<u>Acres</u>
Existing Hotel	1
New Hotel & Amenities (Commercial, Tennis, Conference, Golf Clubhouse)	3.4
Resort Condominiums	5.6
Health Spa	1.2
Open Space (including paved surfaces)	58.8
Total	<u>70</u>

Source: Wimberly Allison Tong & Goo, Architects and Planners. 1988.

A preliminary land use plan for the Sheraton Makaha Resort has been prepared and is presented in Figure 4. This plan is for illustrative purposes only and is subject to change based on updated financial, design and cost considerations. As more information is generated, the plan will be refined.

2.4 SUPPORTING INFRASTRUCTURE

This section provides a discussion of the on-site infrastructure improvements required to support the preliminary master land use plan. Information for this

section has been summarized from the civil engineering report (Appendix A), and the Traffic Study (Appendix D). Regional and off-site improvements are discussed in Chapter VI.

2.4.1 Water

Potable water requirements are estimated at 175,000 gallons per day (See Appendix A). The irrigation demand is estimated to be 176,400 gallons per day. According to the Board of Water Supply (BWS), 125,000 gallons per day is being reserved for the applicant, ANA Hotels Hawaii, Inc. The availability of BWS water will be determined when building permits are submitted for BWS review and approval. Construction of the necessary transmission and distribution system will be at the applicant's expense. All facilities will be designed to BWS's standards and are intended to be dedicated to the BWS upon completion.

2.4.2 Wastewater

Wastewater generated by the project will be transmitted to and treated at the Waianae Sewage Treatment Plant located approximately 3.7 miles from the project site. Total average wastewater flows are estimated at 62,600 GPD (Appendix A).

2.4.3 Drainage

Development of the project will include a drainage system built to County standards which will accommodate the existing drainage requirements of the site as well as provide for any increase in runoff as a result of changes to the permeability of the surface in some areas. The drainage will be discharged into the Makaha Resort West Golf Course and Makaha Stream (Appendix A).

2.4.4 Access

The proposed master plan for the Sheraton Makaha Resort includes a realignment of Makaha Valley Road (Figure 4). The purpose of the realignment would be to eliminate the sharp turns at the existing Makaha Valley Road/Sheraton Makaha Access Road, Sheraton Makaha Access Road/Ala Holo Loop, and Ala Holo Loop/Huipu Drive intersections (See Appendix D).

2.4.5 Power and Communications

The electrical and communication improvements necessary to support the project will be served by the existing utility systems (Appendix A).

2.5 PROJECT RATIONALE

A demand assessment for the proposed resort expansion has been prepared by Chaney Brooks & Company, is summarized below, and attached to the EIS as Appendix E.

The Sheraton Makaha Resort is the only resort-designated site within the Waianae Development Plan area with an operating hotel. The resort has been in continuous operation for almost thirty years with a history of marginal profitability. During

the past three years the resort has been financially successful under the management of the Sheraton Hotels in Hawaii - Japan management company.

According to preliminary projections published by the State Department of Business and Economic Development (DBED) in January of 1988 (M-K series), the demand for resort units statewide is expected to double between 1985 and 2010 from 65,900 and 134,000. Based on the same source, the demand for resort units on Oahu is expected to increase from 38,600 to 57,800 units or 50 percent during the same period.

The supply of resort units on Oahu is currently limited to existing units plus approximately 8,600 new units.

The necessity for the proposed expansion is to meet the indicated demand and to build on the strengths of the existing facilities in order to remain competitive in the Hawaii resort market. According to Sheraton executives, the small size (200 rooms) of the Sheraton Makaha Resort has resulted in lost business due to lack of rooms and facilities. The most basic problem is that the existing facilities will not allow for the implementation of the Sheraton marketing plan for the property which is as follows:

1. Develop a Unique Resort Identity;
2. Appeal to both the visitor and local resident;
3. Achieve the status of a full-service, self-contained, destination resort;
4. Develop and maintain a variety of market segments which insure high average occupancies while providing insulation from any single market.

This program was developed based on Sheraton's internal forecast of 32 percent visitor growth by the year 1995 or an average growth rate of 4 percent. This growth is expected to come from a 1 percent annual growth in Westbound travel and a 10 percent growth in Eastbound travel.

The current resort property lacks the "critical mass" to provide the facilities and services necessary to develop the self-contained resort which could compete in today's marketplace, especially with a physical plant thirty years old. If the number of activities and experience can be increased so that the average visitor stay can be extended from the current two days to three days, the overall resort occupancy could be increased by 50 percent.

2.5.1 Intended Market

The fastest growing segment for the Sheraton Makaha Resort has been the demand for business conferences. In 1985, the hotel hosted 900 groups, in 1986, 1,100 groups and in 1987, 1,400 groups. The average group required ten hotel rooms. However, the lack of rooms as well as the lack of function rooms resulted in the hotel losing business due to inadequate facilities. The bulk of this demand came from Hawaii-based companies seeking a location where conference participants could concentrate on the business purpose yet at the same time capitalize on the enjoyable Makaha experience.

The Japanese market segment is expected to become a larger and larger proportion of the total market. Sheraton research indicates that the Japanese market is currently segmented into three major groups: honeymooners, young single working women and retirees. The honeymooner group is on the decline in Hawaii. The young single working women market is expanding due to the increase in incomes and changing social standards. This group is a candidate for a short stay at the Sheraton Makaha Resort. The retiree segment is expanding and is strongly interested in the golf and isolation offered at Makaha. The expansion of the Sheraton Makaha Resort would make the resort more attractive to the growing segments of the Japanese market.

2.6 PROJECT PHASING AND COSTS

The project will commence immediately upon obtaining the necessary governmental approvals and the 300-room hotel addition and 50-unit health spa will be completed approximately 2 years after commencement. The first 30 condominium units will be completed approximately 18 months after opening of the hotel and approximately 30 condominiums will be built and available for occupancy every 18 months thereafter, depending on market conditions.

Total construction costs have been estimated at about \$90 million in 1988 dollars.

CHAPTER III

RELATIONSHIP OF THE PROPOSED PROJECT TO
EXISTING PUBLIC PLANS, POLICIES AND CONTROLS



ANA HOTELS

This Chapter analyzes the relationship of the proposed Sheraton Makaha Resort expansion with existing public plans, policies and controls as required by Section 11-200-17(h) of the Department of Health Chapter 200 Environmental Impact Statement Rules. Relevant Hawaii State plans and policies are examined first, followed by a discussion of relevant City and County of Honolulu plans and policies.

3.1 THE HAWAII STATE PLAN

The Hawaii State Plan (Chapter 226 Hawaii Revised Statutes, as amended) establishes a set of goals, objectives and policies which are to serve as long-range guidelines for the growth and development of the State.

...[T]he Hawaii State Plan... shall serve as a guide for the future long-range development of the State; identify the goals, objectives, policies, and priorities for the State of Hawaii; provide the basis for determining priorities and allocating limited resources, such as public funds, services, manpower, land, energy, water, and other resources; improve coordination of state and county plans, policies, programs, projects, and regulatory activities; and to establish a system for plan formulation and program coordination to provide for an integration of all major state and county activities (Chapter 226-1: Findings and Purpose, HRS).

In this section, the project is analyzed with respect to relevant State Plan goals, objectives and policies.

Sec. 226-5 Objectives and Policies for Population

- (b)(1) Manage population growth statewide in a manner that provides increased opportunities for Hawaii's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county.

Comment: The proposed project will provide numerous jobs which will allow Oahu's population to work in the Waianae area. Such an employment opportunity will help alleviate future congestion in Honolulu, and help to distribute growth on Oahu in a desirable, manageable manner.

- (b)(3) Promote increased opportunities for Hawaii's people to pursue their socio-economic aspirations throughout the islands.

Comment: The economy in the area of the proposed project has traditionally been based on agriculture. Recently, it has begun to diversify. The proposal will help to provide greater economic opportunities for residents in the Waianae region.

Sec. 226-6 Objectives and Policies for the Economy - in General

- (a)(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people.
- (b)(4) Expand existing markets and penetrate new markets for Hawaii's products and services.
- (b)(6) Strive to achieve a sustained level of construction activity responsive to, and consistent with, state growth objectives.
- (b)(8) Encourage labor intensive activities that are economically satisfying and which offer opportunities for upward mobility.
- (b)(10) Stimulate the development and expansion of economic activities, which will benefit areas with substantial or expected employment problems.
- (b)(12) Provide equal employment opportunities for all segments of Hawaii's population through affirmative action and non-discrimination measures.
- (b)(13) Encourage businesses that have favorable financial multiplier effects within Hawaii's economy.

Comment: The proposal will increase the potential number and variety of jobs on Oahu. Since the project will be located in the Waianae region, a deemphasis will be placed on commuting to Honolulu, which could increase the quality of life for the Waianae residents that work at the expanded facilities of the Sheraton Makaha Resort.

Construction of the 300-room hotel addition and 50-unit health spa would take approximately 2 years. The condominiums will be built in 30-unit increments, with each phase taking approximately 18 months. During the first two years of construction, the project will generate 223 full-time equivalent (FTE) direct jobs per year, and approximately 23 FTE direct jobs over the next 7.5 years. The expansion of the resort would provide a significant contribution towards the maintenance of a healthy construction industry in the Waianae area, the island of Oahu and the State in general.

The project offers unique opportunities to expand Hawaii's employment and economic growth and increase the strength of the visitor industry. A small percent of the full-time positions to operate the expanded facilities of the Sheraton Makaha Resort will be senior managerial staff with the remainder filled by a mix of administrative, professional, managerial, technical, supervisory and service positions.

In addition, segments of the economy that would benefit from the development of the proposal include, but are not limited to, construction, commercial/retail, and the visitor industry.

Sec. 226-8 Objectives and Policies for the Economy - Visitor Industry

- (a) Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawaii's economy.
- (b)(1) Support and assist in the promotion of Hawaii's visitor attractions and facilities.
- (b)(2) Ensure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawaii's people.
- (b)(3) Improve the quality of existing visitor destination areas.
- (b)(4) Encourage cooperation between the public and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.
- (b)(5) Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawaii's people.

Comment: The expanded facilities of the Sheraton Makaha Resort will be designed to ensure a scale consistent with existing and planned residential projects in Makaha Valley.

The development of the proposed project, will add to the Waianae region's growth in the visitor industry. The diverse array of employment opportunities offered by the proposed project will provide a major source of long-term primary jobs for Waianae residents. In doing so, the facility will further the policy of allowing for upward mobility within the visitor industry.

Sec. 226-10 Objectives and Policies for the Economy - Potential Growth Activities

- (b)(2) Expand Hawaii's capacity to attract and service international programs and activities that generate employment for Hawaii's people.
- (b)(3) Enhance Hawaii's role as a center for international trade, finance, services, technology, education, culture and the arts.
- (b)(5) Promote Hawaii's geographic, environmental, social, and technological advantages to attract new economic activities into the State.

Comment: The proposed conference facility has the potential to expand Hawaii's economic base by demonstrating Hawaii's strategic location and cultural connection between the eastern and western worlds. This would improve Hawaii's capacity to attract new businesses and activities, which would provide jobs for Hawaii's people.

Sec. 226-11 Objectives and Policies for the Physical Environment Land-based, Shoreline, and Marine Resources.

- (b)(3) Take into account the physical attributes of areas when planning and designing activities and facilities.
- (b)(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawaii.

Comment: The site for the proposed project is gently sloping and therefore will require very little grading. Construction of the project should occur without generating costly or irreparable environmental damage. The physical setting will also add to the "sensory" effect that the project will have on visitors, by being located in Makaha Valley surrounded by the scenic Waianae Range. As mentioned in Chapter IV, no rare or endangered species will be affected by the proposal.

Sec. 226-12 Objectives and Policies for the Physical Environment - Scenic, Natural Beauty, and Historic Resources.

- (b)(1) Promote the preservation and restoration of significant natural and historic resources.
- (b)(3) Promote the preservation of views and vistas to enhance visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.

Comment: The applicant has contracted a biological reconnaissance survey to identify significant natural resources, and an archaeological field reconnaissance survey and historical land use study to identify any natural archaeological and historical resources on-site.

Public views of the mountains and the ocean shall be protected by observing appropriate building heights, setbacks, design and siting controls established in the City and County of Honolulu's Land Use Ordinance and the Special Provisions for the Waianae Development Plan area.

Sec. 226-13 Objectives and Policies for the Physical Environment - Land, Air, and Water Quality.

- (b)(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawaii's people.
- (b)(5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.
- (b)(6) Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.
- (b)(7) Encourage urban developments in close proximity to existing services and facilities.

Comment: The subject site is relatively flat and therefore there will be little need for extensive grading in site preparation.

Sec. 226-14 Objectives and Policies for Facility Systems - in General

- (b)(1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.
- (b)(3) Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.

Comment: Public facilities and services necessary will be planned and coordinated with the appropriate State and County agencies as development occurs. More detailed descriptions of proposed facility systems follow under the appropriate sections of this report.

Sec. 226-15 Objectives and Policies for Facility Systems - Solid and Liquid Wastes.

- (a)(1) Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.
- (a)(2) Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility and other areas.
- (b)(1) Encourage the adequate development of sewerage facilities that complement planned growth.

Comment: Wastewater generated by the project is expected to be disposed of through the Waianae Sewage Treatment Plant located approximately 6.7 miles south of the project. The construction of the sewage system will be closely coordinated with the appropriate County agencies and with other private developments in the area to assure a minimum of disruption to present levels of service. Solid wastes generated by the project will be collected and disposed of in accordance with accepted policies and programs of the City and County of Honolulu.

Sec. 226-16 Objectives and Policies for Facility Systems - Water.

- (b)(1) Coordinate development of land use activities with existing and potential water supply.
- (b)(6) Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs."

Comment: The projected water demand will be met from Board of Water Supply wells presently operating and wells now under development.

Sec. 226-17 Objectives and Policies for Facility Systems - Transportation

- (b)(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties.
- (b)(6) Encourage transportation systems that serve to accommodate present and future development needs of communities.

Comment: The traffic assessment prepared for the Sheraton Makaha Resort expansion concluded that with full development in Makaha Valley, all of the major intersections in the Valley except at Farrington Highway and Makaha Valley Road have adequate capacity to accommodate future traffic. Improvements to the latter intersection that would mitigate the impact from future traffic volumes are described in Chapter IV.

Sec. 226-104 Population, Growth and Land Resources Priority Guidelines

- (a)(1) Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawaii's people.
- (a)(2) Manage a growth rate for Hawaii's economy that will parallel future employment needs for Hawaii's people.
- (a)(3) Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.
- (b)(1) Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of life styles.
- (b)(3) Restrict development when drafting of water would result in exceeding the sustainable yield or in significantly diminishing the recharge capacity of any groundwater area.
- (b)(6) Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open space.
- (b)(13) Protect and enhance Hawaii's shoreline, open spaces, and scenic resources.

Comment: County General and Development Plan policies clearly establishes a secondary resort in Makaha. The project is adjacent to existing resort facilities and is consistent with the needs and desires of the residents of the City and County of Honolulu.

3.2 STATE FUNCTIONAL PLANS

The Hawaii State Plan directs the appropriate State agencies to prepare functional plans for their respective program areas including; agriculture, transportation, conservation lands, housing, tourism, water resources, historic preservation, energy, recreation, education, higher education and health. The State Functional Plans serve as the primary implementing vehicle for the goals, objectives and policies of the Hawaii State Plan.

The plans set forth "...the policies, programs, and projects designed to implement the objectives of a specified field of activity when such activity is proposed, administered, or funded by an agency of the State" (Section 226-2 (10) Hawaii Revised Statutes). Each Functional Plan contains objectives to be achieved and policies to be pursued within the specified areas. "...[S]uch policies shall address major programs and the location of major facilities" (Section 226-57 (b) HRS).

All twelve State Functional Plans have been adopted by the Hawaii State Legislature. These plans "...[S]hall be taken into consideration in amending the county general plans (Section 226-52 (a) (3) HRS)." It is important to note that the policies, objectives and implementing actions within the Functional Plans are not mandates for County or private actions. Rather, they should be viewed as a guide, fully recognizing the inherent competing policy interests between the twelve plans. The applicable functional plans have been reviewed and considered in the formulation of this report.

3.2.1 State Tourism Functional Plan

The State Tourism Functional Plan is prepared and maintained by the Tourism Branch of the State Department of Business and Economic Development (DBED). The overall theme of the Plan is, "the achievement of a visitor industry that constitutes a major component of steady growth for Hawaii's economy." The Plan identifies major issues and problem areas, and sets forth policies and actions "to insure against unplanned growth which could be damaging to the visitor industry and to the quality of life and well-being of the people of Hawaii". The Plan addresses the following functional areas of the visitor industry: tourism promotion, physical development, employment and career development and community relations.

The objectives, policies and implementing actions of the Tourism Functional Plan provide guidelines for a successful visitor industry development in Hawaii. The proposed Sheraton Makaha Resort expansion is intended to bring Makaha's resort facilities up to the level of a self-contained destination resort in an area of Oahu of interest to visitors.

3.3 STATE LAND USE LAW

All lands in the State have been classified in one of four land use districts, Urban, Rural, Agricultural, and Conservation, by the State Land Use Commission, pursuant to Chapter 205 HRS. The entire site is designated Urban and therefore a State Land Use Boundary Amendment is not required.

3.4 GENERAL PLAN OF THE CITY AND COUNTY OF HONOLULU

The General Plan for the City and County of Honolulu (adopted 1977) was amended by the City Council in 1987. The Plan is a statement of the long-range social, economic, environmental and design objectives for the general welfare and prosperity of the people of Oahu. A discussion of the relevant objectives and policies of the General Plan follows:

- o Population Objectives and Policies. The major thrust in this section is to manage the growth of the island's population in a manner that promotes the ideals of social, economic and environmental harmony. A major policy of the General Plan is to manage physical growth and development in rural areas such as Waianae so that an undesirable spreading of development is prevented and the rural areas' proportion of the islandwide resident population remains unchanged (Policy C 3).

Comment: By the year 2000 (the earliest expected completion date for all of the proposed resort condominiums), the resort condominiums are anticipated to add 270 residents to the Waianae population. The Department of General Planning estimates that in 2000, the Waianae population will be approximately 38,237 or an increase of 3,475 more residents than the estimated Waianae population in 1989 (34,762). The residents associated with the resort condominiums, then, represents 7.7 percent of the estimated increase in population. The proposed Sheraton Makaha Resort expansion is not expected to significantly impact the residential population of Waianae.

- o Economic Activity Objectives and Policies. Relevant objectives and policies of the General Plan with respect to economic activities include:

Objective A: "To promote employment opportunities that will enable all the people of Oahu to attain a decent standard of living."

Objective B: "To maintain the viability of Oahu's visitor industry."

Objective B, Policy 6: "Permit the development of secondary resort areas in West Beach, Kahuku, Makaha, and Laie."

Objective B, Policy 7: "Manage the development of secondary resort areas in a manner which respects existing lifestyles and the natural environment, and avoids substantial increases in the cost of providing public services in the area."

Comment: The expanded facilities of the Sheraton Makaha Resort is expected to create a variety of employment opportunities for island residents. A critical issue which is addressed by the project is the decline of Oahu's share of the visitor industry. With the advent of direct mainland flights, the neighboring islands are attracting an increasing share of the visitor market. The scenic Waianae Coast, which has offered little in the way of visitor accommodations, has the potential to offer something new on Oahu. Thus, the proposal presents the opportunity to recapture, or at least compete more effectively for Oahu's market share of the visitor industry.

The proposed project has the potential to expand Hawaii's economic base by demonstrating Hawaii's strategic location and cultural connection between the eastern and western worlds. This would improve Hawaii's capacity to attract new businesses and activities, which in turn would provide jobs for Hawaii's people.

The proposed expansion of the Sheraton Makaha Resort is not anticipated to alter existing lifestyles and the natural environment in Makaha Valley, and should not result in a substantial increase in the cost of providing public services in the area.

- o Physical Development and Urban Design. The Physical Development and Urban Design element of the General Plan is closely related to the Population element, with the major thrust being the coordination and sequencing of infrastructural systems to accommodate population objectives. Objective A, Policy 2 states: "Phase the construction of new developments so that they do not require more regional supporting services than are available."

Comment: As shown on the Development Plan Public Facilities Map, there are plans to improve the water supply, sewage treatment facilities and fire protection services.

3.5 WAIANAE DEVELOPMENT COMMON AND SPECIAL PROVISIONS

The City and County's Development Plan (DP) program provides a relatively detailed framework for implementing General Plan objectives and policies on an area-wide basis. A total of eight Development Plan regions have been established on Oahu. The Development Plan Ordinances consist of three elements: Common Provisions, Special Provisions (for each DP area), and Development Plan Maps (Land Use and Public Facilities).

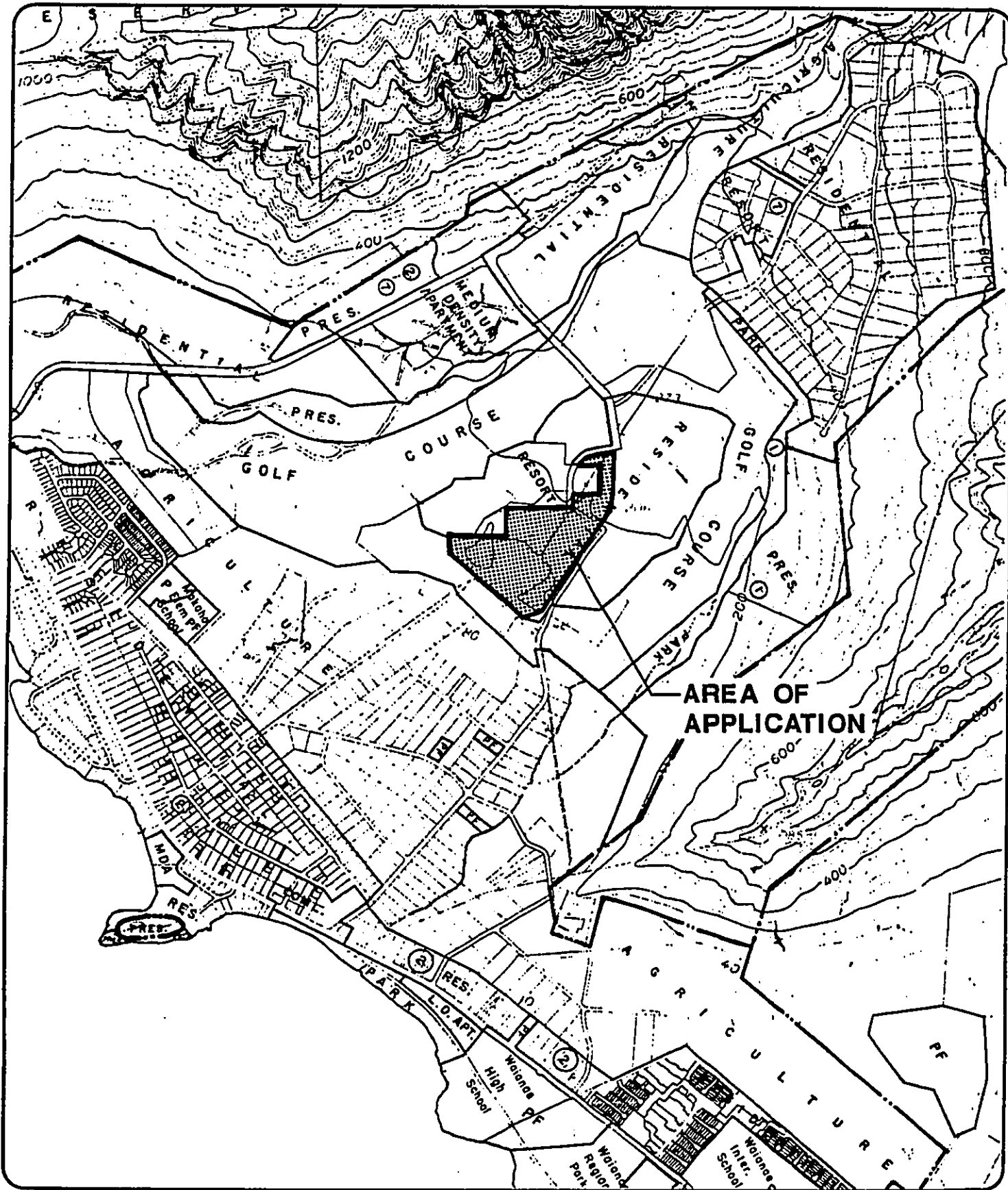
3.5.1 Development Plan Text

Section 3 of the DP Common Provisions describes the various land use categories found within each of the eight planning areas. The resort designation requested for the site is described as follows: "...[R]esort areas provide a full range of facilities and services for visitors. The principal use in resort areas shall be hotels and apartments. Accessory or supporting uses which enhance the viability of the principal use may also be permitted."

The Special Provisions for the Waianae Development Plan includes an area description which states, "Makaha Valley...is the area designated for Residential, Resort and Park (Golf Course) use in the south-central portion of Makaha Valley. It is to continue as a visitor destination area with some modest expansion...Hotels and apartments shall be limited to 1,000 units within the areas designated for Resort use."

3.5.2 Land Use Map

The subject property is designated Residential on the Development Plan Land Use Map (Figure 5).



DP Land Use Map

ANA Hotels Hawaii, Inc.

0 1500 Feet

HELBER, HASTERT & KIMURA PLANNERS
 GROSVENOR CENTER • PFI TOWER • 733 BISHOP STREET • SUITE 2500
 HONOLULU, HAWAII 96813 • TELEPHONE: (808) 545-2055

Figure 5

3.5.3 Public Facilities Map

No existing or planned public facility is indicated in the proposed project area on the Development Plan Public Facilities Map (Figure 6). Programmed within six years, in the Waianae area, are the Waianae Police Station and the construction of Makaha Wells III, IV and VI. A fire station in Waianae Valley is planned for construction in the next six years. Also noted on the Development Plan Public Facilities Map is the State Department of Transportation's planned extension of the four-lane section of Farrington Highway, from Ala Walua to Jade Streets.

3.6 COUNTY ZONING

Under the Land Use Ordinance, the entire area of application is zoned Country. Following the approval of the application for Development Plan amendment, the applicant will request a change in zoning to Resort to accommodate the proposed Sheraton Makaha Resort expansion.

3.7 COASTAL ZONE MANAGEMENT/SPECIAL MANAGEMENT AREA RULES AND REGULATIONS

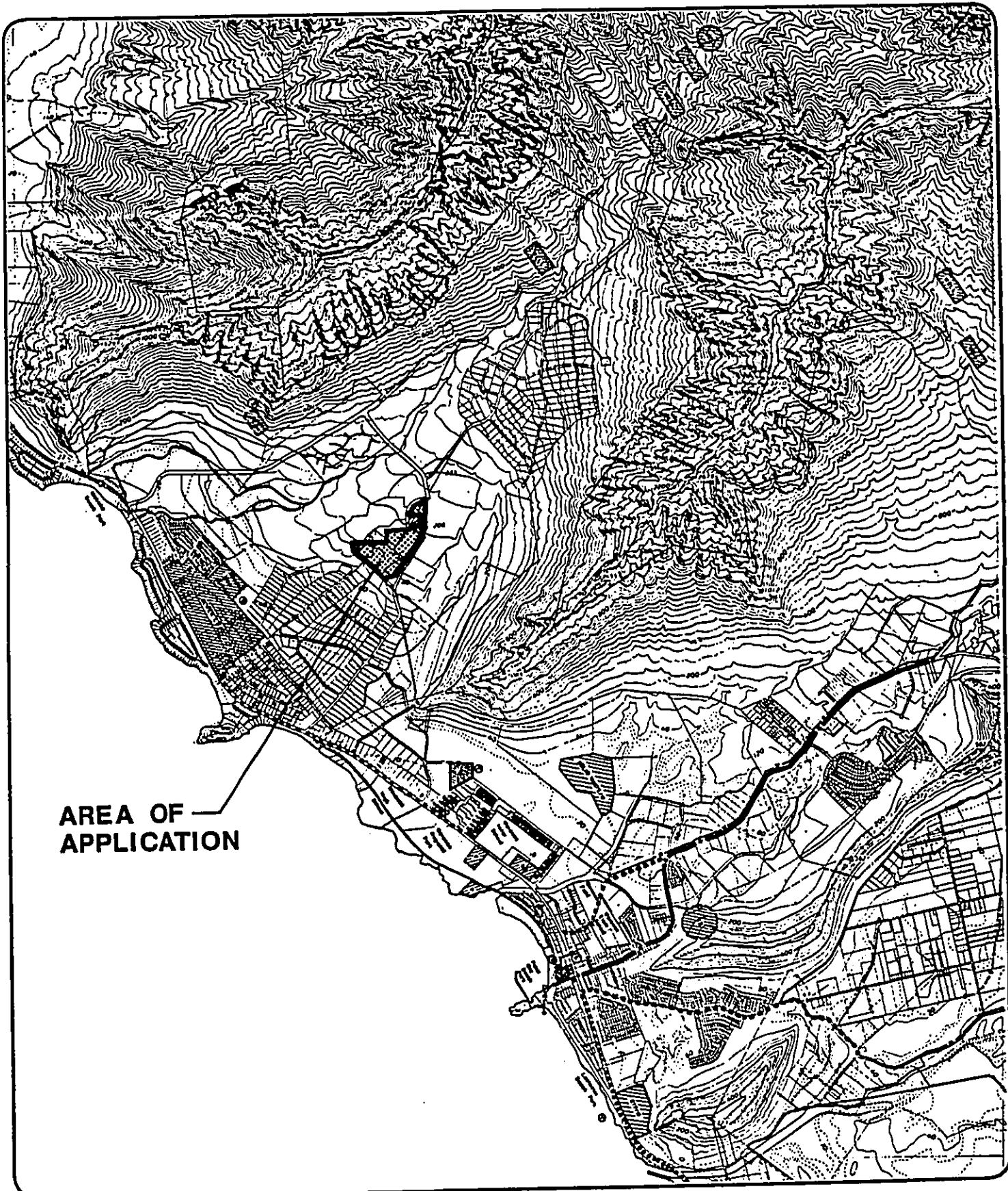
The objectives and policies of the Hawaii Coastal Zone Management (CZM) Program are included in the Shoreline Protection Act of 1975 (Chapter 205A-2, Hawaii Revised Statutes, Part I). All of Oahu lies within the CZM area except for the forest reserve areas. Relevant CZM objectives and policies pertaining to the proposed project are as follows:

"(b)(5)(A) Provide public or private facilities and improvements important to the State's economy in suitable locations."

Comment: The proposed project is an excellent example of private party endeavors which will stimulate the region, county and state economies. Its location is also compatible with the County's General Plan which permits the development of a secondary resort in Makaha. A more in-depth discussion concerning the economic benefits of the proposal are discussed in Chapter V of this Environmental Impact Statement.

"(c)(2)(C) Support state goals for protection, restoration, interpretation, and display of historic resources."

Comment: As noted elsewhere, an archaeological reconnaissance survey and historical land use study of the project site have been conducted.



DP Public Facilities Map

ANA Hotels Hawaii, Inc.



0 3000
Feet

Figure 6

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(c)(3)(D) Encourage those developments which are not coastal dependent to locate in inland areas."

Comment: While resorts in Hawaii have traditionally been coastal dependant, the existing facilities of the Sheraton Makaha Resort and the proposed expansion area are located approximately 4,700 feet from the coastline.

The project site does not lie within the Special Management Area (SMA) and therefore does not require a Special Management Area Use Permit from the City and County of Honolulu.

3.8 ENVIRONMENTAL IMPACT STATEMENTS (CHAPTER 343,HRS)

Section 343-5 (a)(6) HRS notes that the provisions of Chapter 343 apply to "any amendment to existing county general plans where the amendment would result in designations other than agriculture, conservation, or preservation..."

A State Attorney General opinion (Opinion No. 85-30) has broadened the scope of the definition of county general plans to include "...non-county initiated actions which propose amendment or change to a county's planning documents, however denominated, as development plans or otherwise, and which would result in a designation other than agriculture, conservation or preservation." Thus, because the proposed Sheraton Makaha Resort Expansion will require a change in development plan designation from residential to resort, it is subject to the Chapter 343 requirements.

Accordingly, an environmental assessment of the project was prepared and submitted to the Department of General Planning (DGP). On September 30, 1988, DGP informed the applicant that an EIS would be required pursuant to the provisions of Chapter 343.

CHAPTER IV

ASSESSMENT OF EXISTING CONDITIONS AND
PROBABLE IMPACTS: PHYSICAL ENVIRONMENT



ANA HOTELS

This section describes the physical environment in which the project will be situated. After a brief description of the existing conditions, probable impacts (where appropriate) both to and from the proposed action are analyzed. In certain cases, impacts are distinguished as: (1) *Short-term impacts*, usually of short duration and confined primarily to the construction period; (2) *Long-term impacts*, that occur while the development is operational or represent irreversible or irretrievable impacts; or (3) *Cumulative impacts*, resulting from the combined effects associated with the expansion of the Sheraton Makaha Resort and other projects in the region. Where appropriate, measures are proposed to mitigate adverse impacts.

4.1 EXISTING USES AND OWNERSHIP

The area of application is owned by ANA Hotels Hawaii, Inc., the applicant. The property is mostly vacant except for a private sewage treatment plant and maintenance facilities, and two unoccupied wooden residential structures, an unused swimming pool and an abandoned mango orchard. The site is currently designated for residential use on the Waianae Development Plan.

4.1.1 Probable Impacts

The proposed Sheraton Makaha Resort expansion will transform the largely vacant, undeveloped parcel into a heavily landscaped resort setting. Approximately 84 percent of the project area will be in open space, most of it landscaped.

To implement the proposed use, the site would need to be redesignated Resort. Under the existing Development Plan Land Use and zoning designations, Residential and Country, respectively, 26 single family units could be developed. If implemented, the presently allowed 26 single family units will be replaced with approximately 70± hotel rooms (including 50 spa units) and 120± resort condominiums.

4.2 SURROUNDING LAND USES

4.2.1 Existing Land Uses

The Development Plan Special Provisions for Waianae provides the following description of the region: "The Waianae Development Plan covers the arid coastal fringe from the Ewa-Waianae boundary, north of the Kahe Power Plant, to Kaena Point, and is enclosed by the Leeward slopes of the Waianae mountain range. It is the driest of all Oahu regions, with good beaches and other ocean-oriented recreational resources. Small farms and scattered residences surround the four principal communities: Nanakuli, Maili, Waianae, and Makaha. These rural communities are linked by Waianae's main arterial, Farrington Highway, from which dramatic views of the Leeward Coast and rugged Waianae mountain range

may be seen." A brief description of the existing major surrounding land uses in Makaha Valley is provided below.

Sheraton Makaha Resort and Country Club. The existing facilities include a 200-room low-rise hotel, tennis courts and an 18-hole championship golf course (Makaha Resort West Golf Course) and golf clubhouse.

Makaha East Golf Course. A portion of this 18-hole championship golf course owned by Nitto Hawaii, Co., Ltd. delineates the southwestern boundary of the subject property. The clubhouse for this golf course recently underwent significant renovations.

Lower Makaha. There are approximately 100 one-acre agricultural lots in the lower portion of Makaha Valley, between the Makaha East Golf Course and Farrington Highway. Makaha Valley Road which is the main access to the project site from Farrington Highway passes through the lower Makaha area.

Makaha Valley Plantation. These 687-unit, low-rise condominiums are located north of the existing Sheraton Makaha Resort across the Makaha Resort West Golf Course and Makaha Stream.

Makaha Valley Towers. This visually prominent development consists of 536 units in a mid-rise apartment complex at the base of Puu Keeau.

Mauna Olu Subdivision. This subdivision is located mauka of the Sheraton Makaha Resort and has been planned to be a gated community of 94 1-acre (minimum) lots. While 90 percent of the lots have been sold, there has been little construction activity to date.

4.2.2 Proposed Developments

Three projects are known to have been proposed in Makaha Valley:

Pacific Basin Conference Resort. Home Properties, Inc. is seeking rezoning for 23.5 acres in Makaha Valley from Country to Resort. The rezoning is required in order to develop a 300-room resort that will be specifically designed for small and large business meetings.

Retirement Community. Makaha Valley, Inc. is proposing the development of a retirement community on 3 parcels: 53.531 acres (535 units, given 10 units per acre), 19.645 acres (196 units) and 84.044 acres (840 units).

Nitto Hawaii. Nitto Hawaii is proposing the development of 150 townhouses, most with golf course frontage, on approximately 70 acres across Makaha Valley Road from the proposed Sheraton Makaha Resort expansion area.

4.2.3 Probable Impacts

No adverse impacts of the project on immediately surrounding land uses, such as the existing Sheraton Makaha Resort and Country Club and the proposed Nitto Hawaii project are expected because of the buffer provided by the Makaha Resort West Golf Course and Makaha Valley Road. The proposed Sheraton Makaha Resort

expansion will play a key role in improving the viability of Makaha as a secondary resort area as allowed in the County General Plan.

4.3 CLIMATE

The climate of the project area is constant and relatively dry, with temperatures ranging from the low 60's (degrees, Fahrenheit) to the low 80's in the winter, to the high 60's to the mid-80's in the summer. Approximately two-thirds of the Waianae region including the project site receives an annual average rainfall of between 20 to 30 inches. Only above a valley elevation of 400 feet does the rainfall gradient increase to produce a maximum annual average of approximately 100 inches. During the winter months, tropical storms occasionally buffet the area, bringing with them heavy showers. These showers account for much of the rain which falls in the Waianae area. Winds are generally from the northeast, however, on many days a sea breeze rather than trade wind flow is dominant along the Waianae Coast. Starting in the late afternoon, air from the sea moves inland, then drifts back to the sea at night.

4.4 GEOLOGY, PHYSIOGRAPHY AND TOPOGRAPHY

The remnants of two shield volcanoes form the island of Oahu. The western part of the island is the eroded Waianae volcano and the eroded Koolau volcano comprises the eastern part of the island. Makaha is located in an area mapped as the Waianae Volcanic Series. This series consists of three members, lava flows associated with the Waianae volcano. The subject property is underlain by alluvial deposits. Below this is basalt of the middle member of the Waianae volcanic series.

The project area is located in Makaha Valley at an elevation of approximately 125 to 240 feet above sea level, with slopes averaging about 5 percent.

4.4.1 Probable Impacts

Since the site has been extensively graded, natural topographic features have long since disappeared and impacts should be minimal.

4.5 SOILS AND AGRICULTURAL POTENTIAL

4.5.1 Existing Conditions

Soils have been identified in terms of four classification systems: 1) the United States Department of Agriculture, Soil Conservation Service (SCS) system; 2) the University of Hawaii's Land Study Bureau (LSB) system; 3) the Agricultural Lands of Importance in the State of Hawaii (ALISH) system; and, 4) the proposed State of Hawaii's Land Evaluation and Site Assessment (LESA) system.

Soil Conservation Service. The SCS method has an eight class capability system, rating the soils I through VIII with I representing the highest capability and VIII the lowest. Approximately 60 percent of the property is given a rating of VII

(nonirrigated). The remaining 40 percent of the soils on-site is given a rating of II if irrigated, and IV if nonirrigated.

Land Study Bureau. The LSB Detailed Land Classification system ranks soils in five overall productivity categories, ranging from the best, "A", to worst "E". Factors in this ranking include machine tillability, stoniness, texture, clay properties, drainage, rainfall, elevation, and slope. The Land Study Bureau classified the soils on site as "Urban", with no productivity rating.

ALISH. The ALISH map has identified the site as "Urban", which is land of no statewide or local importance for agricultural use.

LESA. The Hawaii State Legislature in 1983 established LESA to formulate a system which would identify and recommend for legislative adoption "important agricultural lands" (IALs) based on a classification system developed by the Commission. Specifically, the Commission was to evaluate and recommend a set of agricultural production goals for the State including an assessment of economic feasibility and the identification of specific locational and land area requirements to attain this objective. The entire composite score for project area has been determined to be 52. Generally, good soils are rated 65 and above.

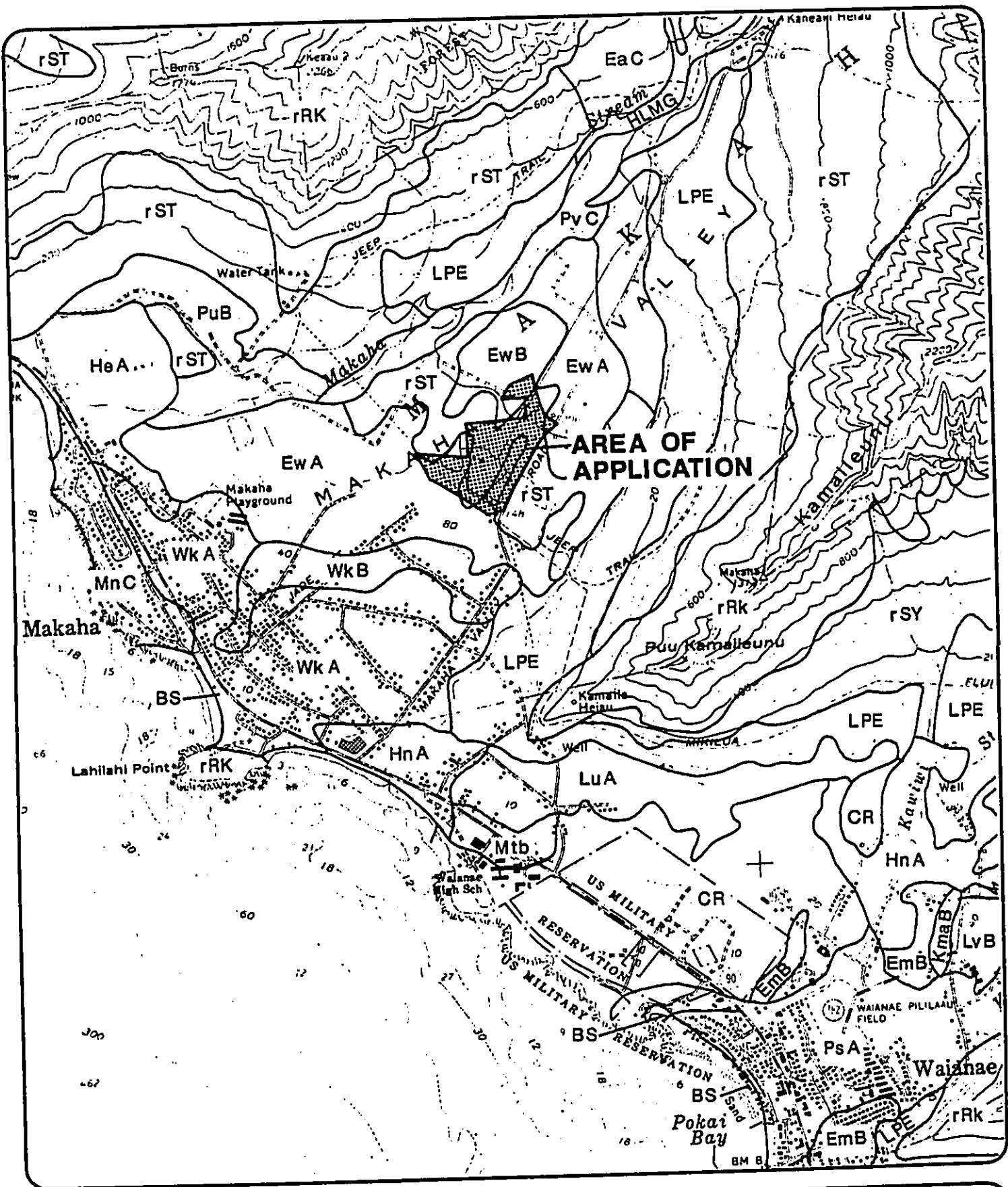
The soil types within the area of application have been identified using the SCS soils maps (Figure 7). Characteristics of each soil type identified in Figure 7 is described below.

EwA & EwB. Ewa stony silty clay, 0 to 2 and 2 to 6 percent slopes. This soil consists of well-drained soils in basins and on alluvial fans. In a representative profile, stones in the surface layer interfere with tillage, but not enough to make intertilled crops impracticable. The sub-soil, about 42 inches thick, is dark reddish-brown and dark-red silty clay loam that has subangular blocky structure. The substratum is coral limestone, sand, or gravelly alluvium. The soil is neutral in the surface layer and subsoil. Permeability is moderate. Runoff is slow, and the erosion hazard is slight. The SCS rating for this soil type is II when irrigated and IV non-irrigated.

rST Stony land. This soil occurs in valleys and on side slopes of drainageways. It consists of a mass of boulders and stones deposited by water and gravity. The slope ranges from 5 to 40 percent. Elevations range from nearly sea level to 500 feet. The annual rainfall amounts to 18 to 60 inches. Stony land is geographically associated with Ewa soils. Stones and boulders cover approximately 15 to 90 percent of the surface. The soil among the stones consists of silty clay loam that is similar to Ewa soils. In most places there is enough soil among the stones to provide a foothold for plants. The SCS rating for this soil type does not include an irrigation option. Its non-irrigated rating is VII.

4.5.2 Probable Impacts and Mitigative Measures

Due to the low agricultural potential of the soils on the subject property, the impact of the project on soils is limited to erosion. Clearing and grubbing activities during construction will temporarily disturb the soil retention values of



Soil Conservation Service
Soil Types
 ANA Hotels Hawaii, Inc.



0 2000
 Feet

Figure 7

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the existing vegetation, and expose the soils to erosional forces. The impact of construction activities can be mitigated by conforming to strict erosion control measures, particularly those specified in the State Department of Health's Water Quality Standards, Chapter 37-A, Public Health Regulations, 1968; and the SCS's Erosion and Sediment Control Guide for Hawaii, 1968. Primary fugitive dust control methods include wetting down exposed soil areas with water or suitable chemicals. Other control measures include good housekeeping on the jobsite and pavement or landscaping of bare soil areas as quickly as possible. The proposed landscaping of the resort expansion area will assume the soil retention value of any existing vegetation removed.

4.6 HYDROLOGY

The major well system in the area is the Makaha Wells located approximately 1.8 miles northeast of the project site. Presently under construction, at full operation these wells will produce 4 million gallons per day (MGD).

The following descriptions of groundwater resources and surface drainage conditions were obtained from the Revised Environmental Impact Statement for Makaha Wells prepared by Environment Impact Study Corp., 1984.

4.6.1 Groundwater

There are no large extensive aquifers within the Ewa-Waianae District, but numerous small ones that are often hydraulically connected to each other. Aquifers are composed either of the lower and middle basalt members, or of sedimentary materials. High level basal aquifers in which the water table lies far above sea level occur in the mid and upper reaches of the valleys, while modified basal aquifers underlie the lower sectors.

In the marginal dike zone the aquifers, termed high level dike aquifers, can be moderately productive. High level dike aquifers are so named because they are created by fresh water being contained between volcanic dikes. This high level water stands about 950 feet above sea level in the vicinity of the project area.

This type of aquifer occurs at the heads of Waianae and Makaha Valleys and in the lateral ridges between valleys. In general, this water is probably not floating on salt water like a basal lens, but is simply held up by the denser intrusive rock beneath.

Below the poorly developed basal lenses in the lower valleys is a transition zone of brackish water. Because of its generally poor quality, it is used only for agricultural purposes.

Below the brackish water is a salt water aquifer, which extends to an unknown depth below sea level. Toward the coast, the fresh water in the marginal dike aquifer may be contaminated with brackish water or salt water that has encroached between the compartments of the dikes.

Water can be obtained from the fresh water by sinking wells into it, or developing shafts and tunnels. However, the amount of water pumped from the wells must be

regulated so that it does not exceed the fresh water recharge of the aquifer. For if it does, the aquifer would be depleted and, if near the coast, salt water would intrude into the potable aquifer.

The most efficient wells in the District are those in the marginal dike-basal aquifers, though their pumpage rates must be kept small to avoid sea water intrusion. Less efficient but potentially more productive of fresh water are wells in the high level marginal dike zone.

In Makaha Valley, the marginal dike-basal aquifers extend nearly two miles into the mid valley. High level marginal dike aquifers occur in the mid and upper portions of the valley. The Makaha Wells are located in such an aquifer. There is no evidence of either dike complex or caldera rocks within Makaha Valley.

4.6.2 Surface Drainage

Makaha Stream is the main drainage within the vicinity of the project site. Located approximately 150 feet east of the Makaha Wells, it is an intermittent stream in the lower reaches flowing after periods of heavy rainfall. The headwaters of the stream are perennial, receiving their flow from discharge of high level groundwater and from drainage of Mt. Kaala.

The U.S. Geological Survey (USGS) maintains a gaging and water quality station on Makaha Stream at an elevation of 939 feet. It measures flow from a 2.31 square-mile drainage area. The annual average daily flow for an 18-year period (water years 1959-1977) was 1.92 cubic feet/per second (cfs). For water year 1977 the mean daily flow was 0.92 cfs. It should be noted, however, that the mean flow is skewed upward by heavy storm flows. The median flow is approximately 0.50 cfs (0.32 mgd) and the most commonly occurring daily flow, or modal flow, is about 0.11 cfs (0.07 mgd).

There are no diversions mauka of the USGS gage; however, the Glover Tunnel captures a base flow of about 0.7 mgd that under natural conditions would seep into the stream.

Total storm discharge within the District to the sea is no more than 5 to 10 percent of the total rainfall and takes place only during floods. The stream water not lost to the sea or diverted for domestic and agricultural use infiltrates into the valley sediments to recharge sedimentary aquifers in the mid and lower portions of the valleys.

According to the Federal Emergency Management Agency's Flood Insurance Rate Maps, the makai half of the subject property is located in an area determined to be outside of the 500-year flood plain. The mauka half of the project site is located within an area of undetermined but possible flood hazard.

4.6.3 Probable Impact

4.6.3.1 Groundwater

As noted in Section 6.3.2, water for the project will be provided from existing allocations to ANA Hotels Hawaii, Inc. and from Board of Water Supply sources (with the appropriate government approvals).

4.6.3.2 Surface Drainage

The runoff quantities and ditch/culvert hydraulics will be prepared and submitted to the appropriate State and County agencies for approval when detailed grading and construction plans are undertaken.

4.7 FLORA AND FAUNA

A biological survey of the area of application (Kenneth M. Nagata, October 1988) was conducted on September 11 and 18, 1988. Nearly all of the project site is dominated by buffelgrass (*Cenchrus ciliaris*). The full Biological Survey is attached as Appendix B and is summarized below.

4.7.1 Flora

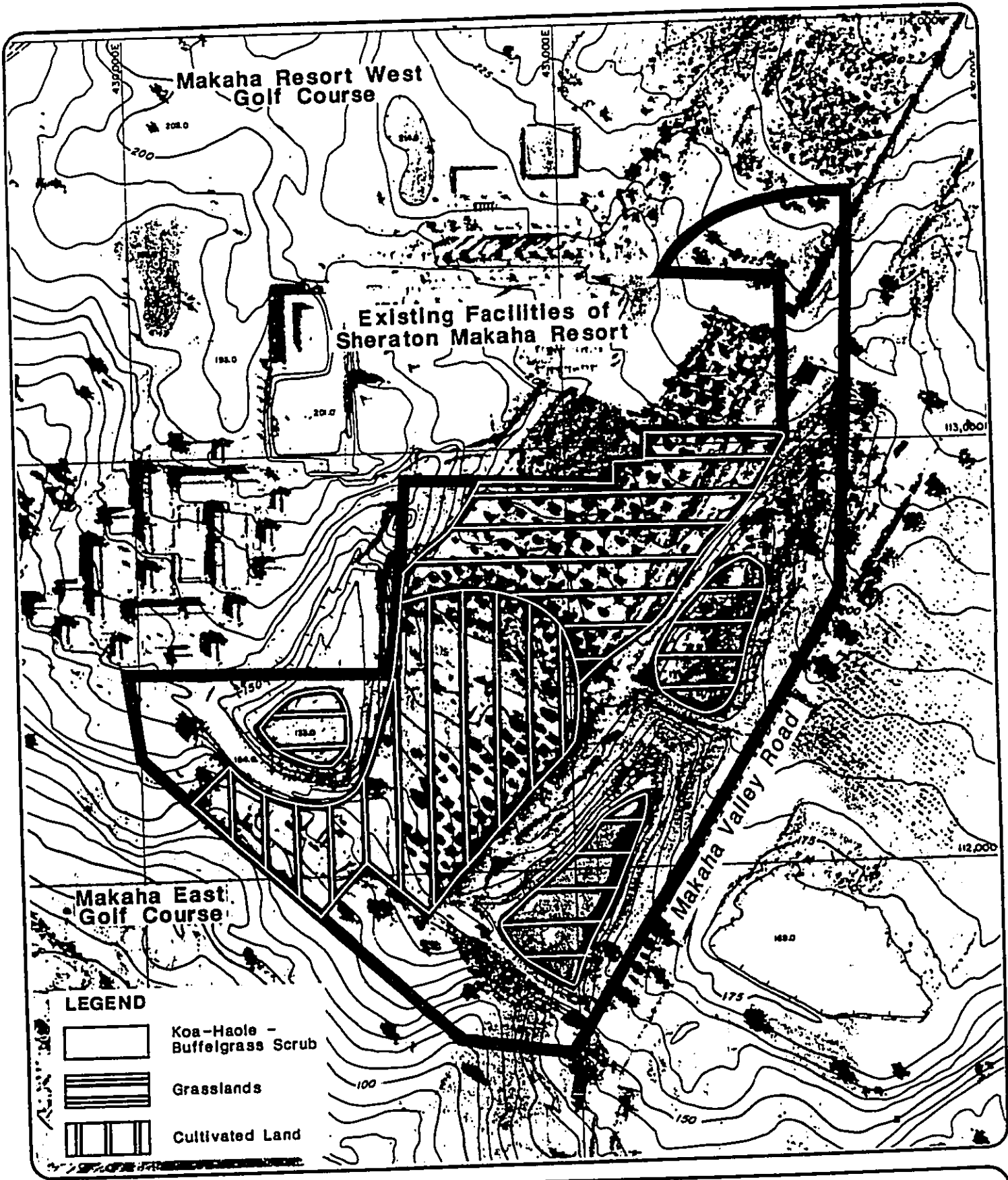
4.7.1.1 Description of Vegetation Types

On 11 and 18 September 1988 a walk-through survey was conducted to determine the floristic composition of the project site. The vegetation was found to consist of grasslands, scrub, and cultivated lands composed almost entirely of alien (introduced) species. Due in part to the extremely arid conditions at the time of the survey and to the nearly complete commination of buffelgrass in the herb layer, relatively few species were recorded from the site. In the grasslands and scrub only 55 species were present. In the cultivated area, however, where the plants are at least occasionally irrigated, 65 species were recorded. The three vegetation types are described below (Figure 8):

Koa-Haole - Buffelgrass Scrub (S) This vegetation type is characterized by stands of koa-haole 5-15 feet tall and a dense herb layer of buffel grass with scattered emerging kiawe 25-30 feet tall. In most areas the koa-haole is widely scattered and stunted but in ravines where moisture is more readily available it forms dense thickets up to 25 feet in height. In these ravines kiawe approaches heights of up to 40 feet. Typically buffelgrass 3-4 feet tall provides 100 percent cover in the herb layer. Guinea grass is occasional in the herb layer and is most common in ravines.

Ornamental trees such as Indian rubber tree, Benjamin tree, Guiana chestnut, pink tecoma and golden shower are found near Makaha Valley Road. These are remnants of the landscaping around several houses which were razed some years ago.

Grasslands (G) Grasslands occupy a significant portion of the site. They are found in the man-made depressions which were once used as reservoirs, and also on



Vegetation Map

ANA Hotels Hawaii, Inc.



0 300
Feet

Figure 8

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a broad, flat area which appears to be another man-made feature. The elongated depression along Makaha Valley Road can be divided into a mauka and a makai portion. The grassland on the floor of the mauka section is dominated by Paragrass 3-4 feet thick with occasional Guinea grass. Castor bean and moon flower vines are encroaching from the makai side but grasses account for nearly 100 percent of the vegetational cover. The grassland in the makai portion, on the other hand, has been successfully invaded by broadleaf herbs and shrubs such as lion's ear, spiny amaranth, cockelbur, and castor bean. These broadleaf species account for approximately 50 percent of the vegetational cover. Here, the dominant grass is buffelgrass. The depression in the west corner of the property is completely dominated by dense Paragrass up to 4 feet thick with occasional Guinea grass along the mauka edge.

A broad, flat area probably the result of grubbing and grading activity many years ago is found in the north central portion of the project site. The grassland here is simply a grassy field which appears to be mowed at least intermittently. Buffelgrass is the dominant species with occasional 'uhaloa, koa-haole, Guinea grass, and virgate mimosa. Vegetational cover which is 100 percent in most of the field becomes rather sparse on the east portion where trash is being bulldozed into the mauka section of the elongated depression. Various ornamental trees and shrubs and remnants of a mango orchard occur on the southwest portion.

Cultivated Land (C) Cultivated Land also comprise a significant portion of the project site. It consists of two well-maintained structures, the lawn and landscaping surrounding them, an adjacent mango orchard and a sewage treatment plant along the south boundary. Among the numerous ornamentals species found here are paper bark, lignum vitae, coconut, octopus tree, Chinese banyan and willow. The extensive lawns consist mostly of Bermuda grass. The mango orchard consist of widely-spaced trees planted in rows. Enough sun reaches the ground level to permit the establishment of lawn under the trees. As in most other cultivated situations, intentional planting and greater availability of water has resulted in an abundance of species. More species are found in the Cultivated Land type areas than in the rest of the project site.

Native Species No native plant communities and only six native species were observed in the project site. Of these, 'uhaloa and koali-awahia are common indigenous species and 'ihi is a common endemic. Only 'uhaloa is found in significant numbers in the property. A single individual of the endemic pua-kala was found in the grassy field. It is a lowland species found on all the main Hawaiian Islands. In addition, two common indigenous ferns, Boston fern and lauae were found in the landscaping in the Cultivated Land areas.

The vegetation of the project site is essentially alien with no floristic or watershed value. Development of the property will in no way be detrimental to the integrity of any native plant community.

4.7.1.2 Rare, Threatened or Endangered Flora Species

No officially listed, proposed or candidate threatened or endangered species were found during the course of the survey.

4.7.2 Fauna

Five common urban and field birds were observed in the site: ricebirds, house sparrows, barred doves, lace-necked doves and the common mynah. Both doves and the ricebirds seemed to be widely dispersed throughout the site but were most abundant in and around the mango orchard. House sparrows were only seen in the Cultivated Land and the mynah were present in the Koa-Haole - Buffelgrass Scrub as well as throughout the Cultivated Land. It is believed that the mango trees of the Cultivated Land provide better nesting opportunities than the few kiawe trees or the deciduous and often sparse koa-haole in the surrounding region. Perhaps more importantly, two water faucets in the orchard are not securely shut and the constant dripping probably provides crucial water supplies to the birds in the vicinity.

Three Pacific golden plovers were observed as probable residents in the lawn in and around the mango orchard. None were seen in the grassy field immediately mauka of the orchard and the importance of these lawns and fields as essential habitat for plovers cannot be immediately ascertained. Lengthy observations in the neighboring golf courses failed to reveal any plovers.

A single barn owl was flushed from the koa-haole thickets between the mauka and makai depressions on the east side of the property. No nest was found despite a careful search.

The only mammal seen was a single feral cat in the mango orchard. The size and extent of the cat population is not known. The arid region does not appear to be prime habitat for cats or any other mammal but the abundance of birds in the orchard does provide an ample food source at least for the carnivores. The Koa-Haole - Buffelgrass Scrub probably provides adequate habitat for field mice and although not observed, these rodents are probably present. The presence of mongoose must also be considered as a possibility.

4.7.2.1 Threatened or Endangered Faunal Species

No threatened or endangered species were observed on the project area during the course of this survey.

4.7.3 Probable Impact and Mitigative Measures

The proposed project is not expected to have a significant impact on the biological communities of the study site as it is a highly disturbed area. While the proposed project will result in the loss of vegetation and some faunal habitat, it is expected to have only a minimum impact on the total island populations of the species involved.

During construction, the applicant will adhere to the requirements of Title 11, Department of Health Administrative Rules, Chapter 26, paragraph 35. No demolition or clearing will occur without ascertaining the presence or absence of rodents. If rodents are present, they shall be eradicated before demolition or clearing is started. After construction is completed, all open areas shall be kept free of harborages.

4.8 NOISE

4.8.1 Existing Noise

Depending on the location within the subject property, noise from wind and vegetation, golfers, and passing vehicles contribute to the sound level. The project site is located approximately 4,000 feet from the major noise source in the area (Farrington Highway). Due to the distance, traffic noise from Farrington Highway is not a factor in the ambient noise levels on the property.

4.8.2 Future Noise

The construction of the project will generate short and long-term noise impacts. The existing and proposed expansion facilities of the Sheraton Makaha Resort itself will be impacted by the future noise environment.

4.8.2.1 Short Term Impacts

Short-term noise impacts are generally related to the initial construction period. The primary source of noise during any construction project can be broken down by activity: 1) clearing, grubbing, grading and other site preparations, 2) excavation and embankment, 3) placing foundations, 4) frame erection, floors and roofs, walls and windows, and 5) finishing work and clean-up. The most obtrusive noise will occur during the first phases of construction because of the use of heavy-duty construction equipment. Earthmoving equipment such as bulldozers (79-96 dB(A)); diesel-powered trucks (74-94 dB(A)) will probably be the loudest equipment used during construction.

Since sound attenuates with distance, the farther away people are from a noise source, the less the sound will affect them. During construction, the guests of the existing facilities of the Sheraton Makaha Resort and the residents of the Jade Street area fronting the Makaha East Golf Course will be the most affected by noise generated during construction, which by law, will be limited to normal, daylight working hours.

4.8.2.1 Long Term Impacts

Long term impacts are associated with the operational phase of the project. Two impacts are identified: the impact of the expanded facilities of the Sheraton Makaha Resort on the noise environment and the impact of the noise environment on the resort facilities.

(1) Impact of the resort facilities on the noise environment

Direct and indirect impacts have been identified: direct impacts relate to noise generated by resort operations; indirect impacts relate to vehicular traffic generated by the resort.

Direct. The proposed resort expansion is, by its nature, discreet and will not be a significant contributor to the noise environment. During the day, activities that may generate noise include: tour buses and vehicles within off-street parking areas; deliveries of goods and services; commercial refuse collection; maintenance

areas; deliveries of goods and services; commercial refuse collection; maintenance work of grounds and facilities; and recreation and entertainment. These activities are usually not long lasting or unfamiliar from ambient noises.

At night, the primary source of outdoor noise at a hotel in Hawaii is the luau show, however, the existing hotel already conducts such a show, and therefore this activity would not represent a significant increase in evening ambient noise levels, unless the number of shows performed weekly were significantly increased.

Indirect. The project is expected to generate vehicular traffic which will contribute to the existing noise environment.

(2) *Impact of the noise environment on the resort facilities.*

The project site is located adjacent to Makaha Valley Road and will therefore be subject to noise generated by vehicular movements. In order to create a peaceful setting within the resort area, extraneous off-site noise (such as that generated from the adjacent roadway) will have to be attenuated through the use of berming and landscaping along the Makaha Valley Road frontage.

4.8.3 Mitigating Measures

Extensive landscaping of the Makaha Valley Road frontage will attenuate noise generated by traffic moving along Makaha Valley Road and reduce roadway noise within the resort.

All development will be designed and constructed to comply with the provisions of Title 11, Administrative Rules Chapter 43, Community Noise Control for Oahu. Noise from stationary equipment such as air conditioners, exhaust fans, pumps and compressors will be attenuated to meet the allowable noise levels.

Activities associated with the construction phase of development will also comply with the provisions of Chapter 43. Traffic noise from heavy vehicles travelling to and from the construction site will be minimized near existing residential areas and will comply with the provisions of Title 11, Administrative Rules Chapter 42, Vehicular Noise Control for Oahu.

4.9 AIR QUALITY

An air quality study of the project is attached as Appendix G (Barry D. Root and Barry D. Neal, March 1989) and summarized below.

4.9.1 Existing Conditions

Natural air pollutant producers, which could affect air quality in the project site, include the ocean (sea spray), plants (aero-allergens), dust, and on occasion, distant volcanic eruptions on the island of Hawaii. Concentrations of air pollutants from these kinds of sources should be fairly uniform for most of the Leeward Oahu coastline. The largest stationary emission source of air pollution is located at Kahe Point.

The principal source of short-term air quality impact will be construction activity. Construction vehicle activity will increase automotive pollutant concentrations along Farrington Highway as well as on Makaha Valley Road in the vicinity of the project area itself. Site preparation and earth moving will create particulate emissions as will building and on-site road construction.

The principal long-term air quality impact associated with the application request will be automotive-related pollutants. By its inherent ability to generate and attract motor vehicle traffic the resort expansion constitutes an "indirect source" of air pollution. Air quality impacts can be expected to occur in the vicinity of the Farrington Highway/Makaha Valley intersection.

In order to evaluate the potential air quality impact of increased traffic from the proposed Sheraton Makaha Expansion, a detailed modeling effort was carried out (Appendix G). Carbon monoxide was selected for modeling because it is both the most stable and the most abundant of the motor vehicle generated pollutants. It is also likely to be the pollutant with the greatest likelihood of violating present AAQS.

In summary, the results of the morning peak hour carbon monoxide modeling of the Makaha Valley Road/Farrington Highway intersection (Appendix G, Table 4) indicate that in 1995, without the proposed project, there will be 6.2 milligrams of carbon monoxide per cubic meter. In the same year, with the project, it is estimated that there will be 6.6 milligrams of carbon monoxide. In comparison, it is estimated that this intersection presently produces 6.7 milligrams of carbon monoxide. The one-hour State of Hawaii Ambient Air Quality Standard (AAQS) for carbon monoxide is 10 milligrams per cubic meter.

Maximum eight hour carbon monoxide concentration was also estimated for the same intersection, with results again not significantly different in 1995, with or without the project, and less than existing conditions and State of Hawaii AAQS for carbon monoxide (Appendix G, Table 5).

The development of the proposed Sheraton Makaha Resort expansion will also result in off-site impacts as a result of: generation of electricity to meet project demand (combustion of fuels resulting in the emission of additional pollutants); and, incineration of project-generated solid waste (should solid wastes be disposed of via incineration or the proposed H-POWER facility).

Residents of the 350 hotel and 150 condominium units proposed for the project will generate an annual demand for electrical energy of about 4.9 million kilowatt hours. In the worst case this demand would be met by burning additional fuel oil in existing power plants, primarily the Kahe Power Plant on the Waianae Coast. This new energy requirement could be reduced significantly by installing solar waters on all new homes and by incorporating solar design features into all construction plans, e.g. use of landscaping to provide afternoon shade to cut down on use of air conditioning and positioning of windows to maximize indoor light without unduly increasing indoor heat.

It is also possible that the new demand can be met by means other than burning fuel oil. In fact, an operating wind farm has been developed on the north shore of

Oahu, and other low-pollution energy generating systems might be developed in coming years. At this writing the planned City and County resource recovery facility (H-POWER) is being constructed at Campbell Industrial Park. The H-POWER facility could be generating electrical energy by the time the initial phases of the Sheraton Resort Expansion are completed. H-POWER will not be air pollution free, however, and even with the use of on-site wet scrubbing and electrostatic precipitation, emissions from this source could be significant. Furthermore, the Hawaiian Electric Company has evidently decided that purchasing power from new coal-fired power plants to be constructed in Campbell Industrial Park would provide the most economical means for meeting future Oahu energy demands. Even with latest technology control devices on these new plants, air pollution emissions in the Campbell Industrial Park are likely to increase with the addition of these new facilities.

Using EPA estimates for emission rates for low sulfur fuel combustion in electrical power plants and assuming that all electrical demands from the new project will be met by burning low sulfur fuel and that all project-related solid waste will be disposed of by incineration in the H-POWER plant yields the annual emission rates listed below.

POLLUTANT	EMISSIONS (Tons/Year)	
	POWER PLANTS	H-POWER
Particulate Matter	1.4	0.3
Sulfur Dioxide	13.4	0.6
Nitrogen Dioxide	17.7	3.0
Carbon Monoxide	0.9	2.7

4.9.3 Mitigative Measures

Short-term construction-related impacts are principally in the form of fugitive dust emissions. Department of Health regulations stipulate control measures that are to be employed to reduce this type of emission. Primary control consists of wetting down loose soil areas, good housekeeping on the job site and the prompt pavement or landscaping of bare soil areas.

Long-term air quality impacts are related to vehicular emissions. The major control measure designed to limit lead emissions is a Federal law that requires the use of unleaded fuel in most new vehicles. As older cars are removed from the vehicle fleet, lead emissions should continue to fall. Federal control regulations also call for increased efficiency in removing carbon monoxide and nitrogen dioxide from vehicle exhausts. By 1995, carbon monoxide emissions from the vehicle fleet then operating are mandated to be little more than half the amounts emitted in 1984.

4.10 SCENIC AND VISUAL RESOURCES

4.10.1 Existing Conditions

The predominant view of the site is from Makaha Valley Road. The majority of the site is covered with vegetation consisting of grasses, brush and kiawe. The sewage treatment plant, and the unoccupied residential structures represent the major man-made visual features of the site.

4.10.2 Probable Impacts

The preliminary master plan provides for extensive landscaping to enhance the aesthetic experience of the guests and to provide necessary sound attenuation and visual separation between the various use areas.

Appropriate landscaping along Makaha Valley Road will screen the low-rise condominiums and health spa, and the 70-foot high hotel addition. Generally the property will change from its present vacant and overgrown appearance to a heavily landscaped development.

4.11 HISTORIC AND ARCHAEOLOGICAL RESOURCES

A preliminary archaeological reconnaissance survey of the project site was conducted during October 1988 (International Archaeological Research Institute, Inc., October 1988). The survey report has been reviewed by the State Department of Land and Natural Resources Historic Sites Section. The survey report is attached as Appendix C and is summarized below.

4.11.1 Existing Conditions

No prehistoric or early historic native Hawaiian cultural remains are known to exist within the project area. However, three late historic reservoirs associated with sugarcane cultivation in Makaha Valley between 1880 and 1946 were recorded. Most of the project area has been extensively modified in recent times. According to the State Historic Sites Section, sufficient information has been gathered (including historic background information), making the reservoir sites "no longer significant".

4.11.2 Probable Impacts

No impacts to archaeological or historical resources are expected as a result of the project. In the event that any previously unidentified sites or remains are encountered during construction and site work phases, work in the immediate area will cease until the State Historic Preservation Officer has been notified and is able to assess the impact and make further recommendations for mitigative actions, if warranted.

CHAPTER V

ASSESSMENT OF EXISTING CONDITIONS AND PROBABLE IMPACTS: SOCIO-ECONOMIC ENVIRONMENT



ANA HOTELS

This Chapter describes the existing socio-economic environment and probable changes due to the implementation of the proposed resort expansion. Major sources of information for this Chapter are drawn from the 1980 Census of Population and Housing, and public reports such as EISs, and agency reports.

5.1 POPULATION

5.1.1 Existing Conditions

The City and County of Honolulu Department of General Planning (1987) estimated that the 1988 population of the Waianae Development Plan Area (coterminus with the boundaries of Waianae Judicial District and the U.S. Census Waianae Division) was approximately 34,491. This constituted approximately 4.0 percent of the island's total estimated population of 841,700 for the same time period.

Presently there is no one residing on the property.

5.1.1.1 Demographic Characteristics

An analysis of selected demographic characteristics of the Waianae population compared to the island of Oahu (Table 3) indicates that the Waianae population is a relatively younger, possibly less transient group with less post high school education. The ethnic composition of the community differs from that of the general population with more Hawaiians and fewer Japanese and Chinese.

**Table 3: SELECTED DEMOGRAPHIC CHARACTERISTICS
(1980)**

	<u>City and County of Honolulu</u>	<u>Waianae Division</u>
Total Population	762,545	31,487
Ethnicity	(percent)	(percent)
Caucasian	33.1	22.8
Japanese	24.9	6.9
Chinese	6.9	1.7
Filipino	12.8	15.5
Hawaiian	10.5	40.0
Other	11.8	13.1

Age		
Less than 5 yr.	7.9	11.8
5 - 17 yr.	24.2	29.0
18 - 64 yr.	60.7	54.1
65 or more yr.	7.2	5.1
Median age	28.1 yr.	22.8
Place of Birth *		
Hawaii	55.1	76.5
Other U.S. **	30.1	15.9
Foreign Country	14.8	7.6
Residence 5 Yrs. Previous * (people aged 5+ yrs.)		
Same house	48.2	53.2
Same island	25.5	33.6
Different island	1.3	1.3
Different state	18.4	18.4
Different country	6.6	6.6
Education * (people aged 25+ yrs.)		
0-8 years only	14.4	19.8
High school only	46.0	60.9
Some Post H.S.	18.3	12.4
College, 4+ yrs.	21.7	6.9

Notes: * Figures based on 15% sample; hence, numbers represent estimate.

** Including persons born in U.S. territories, and persons born abroad or at sea to American parents.

Source: Earthplan. 1987

5.1.2 Waianae Population Projections

The Department of General Planning projects that Waianae's population will increase to 39,350 by the year 2005, an increase of 4,859 people. This projected growth would represent a very slight increase in Waianae's share of the island's population from 4.0 percent to 4.1 percent.

5.1.3 Probable Impacts

The proposed project will require the redesignation of the site from the present Residential classification to Resort resulting in a loss of approximately 26 potential residential units. These dwelling units would house approximately 102 future residents (based on 3.89 persons per household in the Waianae Division, 1980). In contrast, it is expected that the buyers of the condominiums will be "empty nesters" from out-of-state who will occupy their unit during varying times of the year. Given an estimated occupancy rate of 60 percent and 3 occupants per unit, it is anticipated that there will be about 270 residents at any given time.

It is estimated that the average daily visitor population associated with the hotel addition and health spa would be about 466. This estimate assumes a 70 percent average occupancy and 1.9 persons per occupied room on average.

5.2 ECONOMY/EMPLOYMENT

5.2.1 Existing Conditions

A comparison of labor force characteristics of the Waianae D.P. area with that of the island as a whole are indicative of several trends (Table 4). Significantly, a larger portion of the Waianae potential labor force is not in the labor force.

Table 4: LABOR FORCE SIZE AND SELECTED CHARACTERISTICS (1980)

	CITY AND COUNTY OF HONOLULU	WAIANAE D.P. AREA
POTENTIAL LABOR FORCE (aged 16+/-)	574,903	20,062
not in labor force	30.8%	45.9%
armed forces	10.1%	4.2%
civil. labor force	59.1%	49.9%
CIVILIAN LABOR FORCE	339,863	10,008
unemployed	4.6%	7.7%
TOTAL EMPLOYED CIVIL LABOR FORCE	324,113	9,236
OCCUPATION		
service	17.6%	19.7%
manager/professional	24.7%	14.3%
technical, sales & admin.	33.8%	29.7%
farm/fish/forest	1.8%	2.4%
precision, craft, repair	11.3%	16.6%
operators, fabricators, laborers	10.9%	17.3%
INDUSTRY (selected)		
agric., forest, fish, mining	1.7%	2.0%
construction	6.6%	9.8%
manufacturing	7.7%	12.4%
retail trade	20.5%	21.5%
financial, insurance, real estate	8.1%	5.9%
personal, entertain. & rec. svcs.	8.1%	8.7%
health, educ., & professional	18.5%	12.4%
public adminis.	10.9%	11.4%
COMMUTE TO WORK		
45 minutes or more	11.9%	40.6%
mean travel (min.)	22.6 m.	32.8 m.

Notes: All figures based on 15% sample; hence, numbers represent estimates

Source: Earthplan, 1987

The 1980 unemployment levels in the Waianae area were significantly higher than that of the general population (Waianae 7.7% vs. Oahu 4.6%). More recently, according to preliminary estimates from the State Department of Labor and

Industrial Relations (DLIR), the estimated average unemployment rate for January through August 1988 on Oahu and in Waianae was 2.8 and 4.7 percent, respectively.

According to preliminary estimates from the State Department of Labor and Industrial Relations (Table 5), an average of approximately 538 Waianae residents were unemployed in 1988 (January 1988 through August 1988).

Table 5:

WAIANAE DIVISION 1988 ANNUAL AVERAGE UNEMPLOYMENT*

Waianae Census Tracts	Civilian Labor Force	Employed	Unemployed	Unemploy- Rate
96.01	1,761	1,656	105	6.0
96.03	1,880	1,814	66	3.5
96.04	1,246	1,214	32	2.6
97	4,185	3,925	260	6.2
98**	2,290	2,215	75	3.3
Totals	11,362	10,824	538	4.7
Oahu Totals	391,048	380,060	10,988	2.8

* Preliminary Estimates for January-August 1988

** Contains most of Makaha CDP

Source: Preliminary estimates from the Hawaii State Department of Labor and Industrial Relations, unpublished data.

During the public review period for the Draft EIS, the City and County of Honolulu Office of Human Resources noted that the DLIR unemployment estimates may not reflect actual unemployment conditions in Waianae. According to the Office of Human Resources, the Waianae Coast has had a "real" unemployment rate in excess of 20 percent. Based on current population estimates, this means that, conservatively, there are in excess of 10,000 unemployed persons residing on the Waianae Coast. (The reason for the disparity between the figures given by the State Department of Labor and Industrial Relations (DLIR) and the Office of Human Resources estimates is that most of Waianae's unemployed are not registered with DLIR, having either given up or were never registered at all.) The Office of Human Resources estimate is based on a number of factors. For example, the Waianae office of the State Unemployment Service claims that 2,000 persons can be recruited at any given time for any given set of jobs. When jobs are announced for the area, the City's Waianae WORKHAWAII office is inevitably flooded with applicants.

Additionally, there are in excess of 32,000 persons receiving Aid to Families with Dependent Children. It is estimated by public officials on the Waianae Coast that 10,000 to 14,000 are able-bodied, unemployed adults. The West Oahu Committee of Social Providers knows of 1,750 qualified, unemployed adults who have only one or less barriers to immediate employment.

Finally, according to the Office of Human Resources, the Waianae and Nanakuli High Schools are graduating over 1,100 students each year, most of whom must look outside Waianae for employment.

The occupational profiles of the Waianae labor force indicate a larger proportion of blue collar occupations (service, farm, precision, craft, repair, operators, fabricators and laborers, etc.) than the islandwide population. Conversely, there is a smaller proportion of the labor force in white collar occupations (manager/professional, technical, sales and administrative). A significant characteristic of the Waianae population is evidenced by the fact that almost three and-a-half times as many Waianae residents endure a commute time in excess of 45 minutes as that of the rest of the island. According to the Office of Human Resources, the West Oahu Committee and the Honolulu Community Action Program have identified over 700 Waianae residents working in Honolulu, many in the hotel industry, who would quit their jobs to work on the Waianae Coast.

According to the assistant personnel director of the Sheraton Makaha Resort, Maxine Olaguera, presently at least 90 percent of the 269 resort jobs are filled by Leeward Coast residents (from Makaha to Ewa, including Honokai Hale and Makakilo). There are approximately 7 applicants for every person hired; between 1 January 1988 to 16 November 1988 there were 899 applicants and 124 people hired, during the same time period in 1987, there were 784 applicants and 95 hired.

5.2.2 Future Conditions

5.2.2.1 Construction Period Employment.

To derive estimated construction period employment, it was necessary to use the estimated construction cost as a basic starting point. The cost of the hotel addition and health spa is estimated at \$65 million for both on-site and off-site infrastructure improvements, including costs related to traffic, drainage, water, wastewater, roads, electricity, and telephone. It is assumed that roughly half of the total costs represent labor costs (\$32.5 million). An annual construction year of 2,080 hours per person was assumed and applied to the prevailing industry wage rate of \$35 an hour for labor cost (including wages, fringe benefits, overhead and profit) to arrive at an annual construction labor cost of \$72,800 per worker per year. This translates into about 446 person-years or, given the two-year construction time-frame, approximately 223 jobs per year.

The construction of the resort condominiums is estimated to cost \$25 million, to be built in 5 phases of 30 units each. Assuming each phase will cost approximately \$5 million and based on the same assumptions as above regarding percentage of construction costs attributed to labor (\$2.5 million), annual construction labor cost of \$72,800 per worker per year, this results in 34 person-years, or given an 18 month construction time-frame, approximately 23 jobs per year over a total of 7.5 years.

In summary, during the first two years of construction, the project will generate 223 full-time equivalent jobs per year, and approximately 23 full-time equivalent (FTE) jobs over the next 7.5 years. This estimate represents direct on-site construction jobs. The majority of these jobs will be in the building trades, with the remainder in administrative, management, and professional positions. The current statewide construction industry employment multiplier from the State input-output econometric model is 2.5. For every FTE job in the construction industry, another 0.5 indirect jobs and 1.0 induced jobs are created, for a total of 2.5 jobs. Thus about 558 FTE jobs per year would be indirectly created, in addition to the 223 direct jobs, for the first two-years after construction is initiated, and 58 FTE jobs per year would be indirectly generated, in addition to the 23 jobs, for the next 7.5 years. It should be noted that only a fraction of the indirect and induced component of total construction jobs will be absorbed by the Waianae economy.

5.2.2.2 Direct Operational Period Employment

Based on the experience of operating the existing facilities of the Sheraton Makaha Resort, the proposed expansion facilities are expected to generate a total of 272 jobs. The hotel addition is expected to generate 0.5 employees per room or 150 jobs. The resort-related commercial activities is estimated to require 1 employee for every 300 square feet (s.f.) of commercial space or 18 jobs. The health spa is anticipated to require 1 employee for every room or 50 jobs. The expanded tennis facilities will create 4 jobs: 1 head pro, 1 assistant pro, 1 clerk and 1 maintenance. The resort condos will generate 1 job for every three condos or 50 positions.

5.2.2.3 Indirect and Induced Operational Employment

The indirect and induced components of direct operational employment are determined by applying a multiplier to the number of direct jobs estimated above. The Department of Business and Economic Development (DBED) has derived employment multipliers for visitor-related industries (DBED, 1985). According to DBED, each full-time hotel employee supports 0.9 indirect and induced full-time equivalent positions elsewhere in the State (for this project, this would translate to 225 positions). Resort retail positions could support about 0.6 indirect and induced FTE positions for each direct job (or in this case, 11 jobs). It should be noted that this represents a statewide increase in employment attributable to the proposed project.

The project will generate significant public revenues in the form of increased sales taxes, increased income taxes, and increased real property taxes.

5.3 Housing

The proposed expansion of the Sheraton Makaha Resort will indirectly increase the demand for housing in the Waianae area and elsewhere on Oahu due to the creation of new jobs. This section describes the existing and projected housing situation in Waianae and the probable impact of the project on the housing supply.

5.3.1 Existing Conditions

Analysis of selected housing data of the Waianae population compared to the island of Oahu reveals several characteristics (Table 6). The total number of year-round housing units in Waianae increased from 5,633 units in 1970 to 9,528 units in 1980, an increase of 3,895 units. As a percentage of total Oahu year-round housing units, Waianae's proportion increased from 3.2 percent in 1970 to 3.7 percent in 1980. The Department of General Planning has estimated that in 1988 the Waianae Development Plan area will have contained a total of 11,117 housing units, which is equivalent to about 3.9 percent of the total Oahu housing stock (DGP, 1985). Interviews with real estate firms doing business in Waianae reveal that presently, rental vacancy is extremely limited, and rental rates have increased approximately 15 to 20 percent over the last two years.

Table 6: OAHU HOUSING VACANCY RATES*

<u>Survey Area</u>	<u>Survey Date</u>	<u>All Housing Types(%)</u>	<u>Detached Single-Family Units(%)</u>	<u>Attached Single-Family Units(%)</u>	<u>Multi-Family Units%</u>
Oahu	May 86	2.3	0.8	2.4	3.9
	Mar 83	1.3	0.6		2.1
	Mar 82	1.7	1.1		2.2
	Mar 81	1.4	0.5		2.4
	Mar 80	1.3	0.5		2.1
	May 79	1.1	0.3		1.9
	Mar 78	1.5	0.6		2.4
	Apr 77	1.6	0.4		2.9
	Waianae	May 86	7.5	2.0	10.0
Mar 83		8.4	1.8		18.4
Mar 82		9.4	1.9		19.4
Mar 81		2.4	2.4		N/A
Mar 80		3.7	0.9		8.0
May 79		4.8	0.9		11.5
Mar 78		4.6	1.8		10.7
Apr 77		4.9	1.9		12.0

***Notes:**

- 1) Vacancy rates are calculated based on the percent of both new and used housing units vacant.
- 2) Beginning in 1982, the vacancy rate calculations contain new units.
- 3) Surveys were not conducted in 1984, 1985, 1987, or in 1988.

Source: Federal Home Loan Bank of Seattle, Honolulu, Hawaii Housing Vacancy Survey, May 1986

According to Locations, Inc., home prices in Waianae have fluctuated over the years and have increased significantly since 1987:

<u>Year</u>	<u>Average Home Prices</u>
1988	\$152,293
1987	\$111,857
1986	\$135,430
1985	\$101,009
1984	\$90,433
1983	\$92,777

5.3.1.1 Proposed Residential Projects

In addition to the existing housing stock in Waianae, there are proposed developments in the Ewa area that could offer affordable housing opportunities, these include: Kapolei Village, West Loch Estates, Hale Ola and Ewa Gentry.

5.3.2 Probable Impacts and Mitigative Measures

Direct and indirect population impacts have been identified which result from the redesignation of the subject site from residential use to resort use. Residential land use directly supports population growth, thus its withdrawal will have a direct impact on population growth in the Waianae DP area. Resort land uses indirectly impact residential population growth to the extent that resort uses create new jobs, which in turn support new households.

The population impact of construction period employment is expected to be minimal. The industry is well established on the island and experience has shown that the vast majority of construction employment is drawn from the available labor pool.

Operation of the proposed Sheraton Makaha Resort expansion facilities could be expected to result in a small population increase due to the additional employment generated by the project. Most of the jobs that will be created by the resort expansion will be filled by those currently residing in Waianae. There is a substantial potential labor force available in Waianae who are unemployed, underemployed, presently not in the labor force, future high school graduates, mothers with young children, educationally disadvantaged residents (according to the Sheraton Makaha Resort, approximately 55 percent of the current applicants do not meet the minimum qualifications for the positions applied for), and those who are employed but are tired of long commuting times (such as to Waikiki). Specialized skill or experience positions may need to be filled from those employed outside the Waianae area, such as Waikiki, and some of these could be expected to relocate to the Makaha area or be filled by those Waianae residents employed in Waikiki.

Estimates of the impact of the jobs generated by the expansion of the resort on resident population is based on the following assumptions:

- o Assuming that all but 10 percent of the employees (27) for the expanded facilities of the resort will be filled by area residents (presently, approximately 90 percent of those employed at the existing facilities of the Sheraton Makaha Resort reside in the Leeward Coast area (from Makaha to Honokai Hale).
- o In the households of in-migrant (to Waianae) managers, the employee will most likely be the sole wage earner, thus each position will support an average of 3.15 people (the average household size for Oahu in 1980, in contrast to the average household size for Waianae in 1980, 3.89 people, which may be may more reflective of rural/agricultural/country land uses).
- o Not all of the those that will be employed at the resort expansion facilities who live outside of Waianae will desire to relocate to the region, since housing opportunities exist and will increase in Ewa and Central Oahu, and since most of the traffic is headed in the opposite direction. However, in order to present

the most conservative analysis, it will be assumed that 90 percent of the new households (24 of 27) will take up residence in the Leeward region.

It is anticipated, then, that operation-related employment will support population growth of about 76 people in the Waianae area. It is anticipated that nearly all of the projected direct jobs will be filled by established Leeward Oahu residents, most of which will be living in the Waianae region. However, it is also expected that some employees who will in-migrate from other areas of Oahu may wish to move closer to their place of employment, thus creating a market for the planned housing projects in Leeward Oahu, including Ewa (in turn these employees will be vacating housing that would then become part of the islandwide supply of available housing).

To mitigate the impact of operational employment-generated demand for housing, the Sheraton Makaha Resort will continue its current activities that link residents of Waianae with employment at the resort, these include: abiding by its union contract, which calls for hiring preference to be given (when all other qualifications are equal) to residents of Leeward Oahu; utilizing the City and County of Honolulu Office of Human Resources' WORKHAWAII program; the "Adopt A School" program at Nanakuli and Waianae high schools; interaction with Alu Like; on-the-job training for new hires; elective supplemental training for new hires through the American Hotel Association; and mandatory in-house refresher and skills upgrade programs for all employees.

WORKHAWAII has a branch office stationed at the Waianae Satellite City Hall to conduct outreach and marketing specifically for this community. WORKHAWAII staff have established a strong network with employer associations, education and social service agencies, hospitals, day care centers, and other community based organizations to provide comprehensive employment training and related services to program participants. From July, 1987 to November, 1988, WORKHAWAII has trained 1,065 Waianae adults and youth. One hundred twenty-nine (129) participants have obtained permanent jobs through direct hire or on-the-job training with employers. Specifically, Sheraton Makaha has hired 14 out of 15 individuals referred for on-the-job training.

CHAPTER VI

ASSESSMENT OF EXISTING CONDITIONS AND
PROBABLE IMPACTS: PUBLIC FACILITIES AND SERVICES



ANA HOTELS

This chapter describes the existing conditions of public facilities, utilities and services in the proposed development's service area and the relationship of these systems to the proposed development. Public facilities are those systems which are provided, staffed, and maintained by the government to serve the public health, safety and welfare. They include roadways, schools, fire and police protection, and refuse disposal. Public utilities are distributed services, such as electricity, water, wastewater, and communications, that are provided either by a public agency directly or by a publicly regulated utility. Project related impacts are discussed primarily in terms of anticipated requirements generated by the development. Mitigation measures are preliminary proposals for how that demand may be satisfied.

Information for this section is principally derived from technical reports prepared for the project: Proposed Sheraton Makaha Resort Expansion Impact on Utilities and Services prepared by Hida, Okamoto & Associates, Inc., November, 1988 (Appendix A); and, Traffic Assessment Sheraton Makaha Resort Expansion prepared by Parsons Brinckerhoff Quade and Douglas, Inc., September 27, 1988 (Appendix D).

6.1 TRAFFIC

A traffic assessment report has been prepared for the project (Parsons Brinckerhoff Quade & Douglas, Inc., September 27, 1988). The report is reproduced as Appendix D and is summarized below:

6.1.1 Existing Facilities

Access to the project area will be from Farrington Highway through Makaha Valley Road. Farrington Highway is a two-lane highway which borders the southwest edge of Makaha Valley. The posted speed limit is 35 miles per hour except in the commercial area near Makaha Valley Road where the speed limit is 25 miles per hour.

Access to the Sheraton Makaha Resort is via Makaha Valley Road along the southern (Honolulu) side of the valley. Makaha Valley Road is two lanes wide and connects to Farrington Highway at an unsignalized T-intersection.

Makaha Valley Road is in a 60-foot right-of-way. At the Farrington Highway intersection, curbs and sidewalks have been installed adjacent to commercial developments. A separate lane is provided for right turns from northbound Farrington Highway to Makaha Valley Road. Makaha Valley Road is two lanes wide and an unpaved area exists between the travel lanes and the shopping center on the north side. The stop-controlled approach to Farrington Highway is a single lane shared by left and right turn traffic. Makaha Valley Road continues into the valley as a two-lane roadway, 24 feet wide, without curbs, and with unpaved shoulders. Driveways from the abutting residential properties connect to Makaha Valley Road.

Approximately one mile into the valley, a sign identifies the area as the Makaha Resort. Actually it is the makai boundary of the Makaha East Golf Course. Between this "entry feature" and the Sheraton Makaha Resort parking lot (vicinity of Ala Holo Loop), the Makaha Valley Road is narrow, varying in width from 17 to 22 feet and includes a sharp turn and golf cart path crossing. Ala Holo Loop and Huipu Drive are wide, curbed private roadways.

Traffic count data were obtained from the City and County of Honolulu Department of Transportation Services. Counts taken at the intersections of Farrington Highway/Makaha Valley Road and Makaha Valley Road/Lahaina Street in February 1988 were used to develop the traffic assignments shown on Figure 9. Analysis of traffic count data taken in February 1988 indicates that generally, existing traffic volumes in the area are relatively low with good level of service (Level of Service A, with "A" describing conditions of little or no delays and "F" describing a condition where demand volume exceeds capacity) during the morning and afternoon peak hours at the intersections of Farrington Highway/Makaha Valley Road and at Makaha Valley Road/Lahaina Street. The exception is Level of Service E conditions for Makaha Valley Road traffic at Farrington Highway during the morning peak hour.

Existing traffic volumes were also estimated by the traffic engineers and compared with the traffic count data. It was found that the calculated volumes (3,894 vehicles per day [VPD]) is greater than the field counts (2,530 VPD).

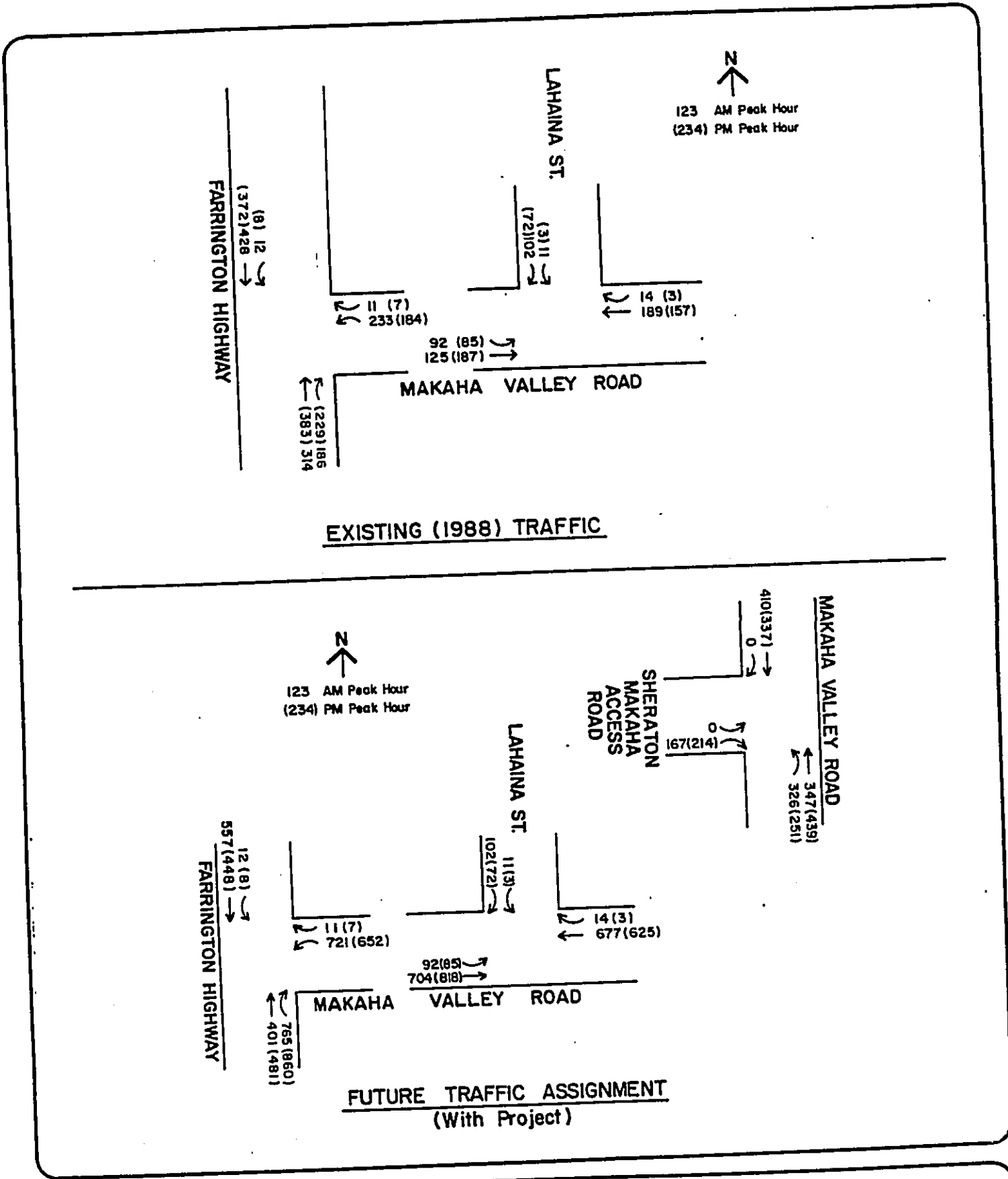
6.1.2 Probable Impacts

Future traffic volumes from the proposed project, existing developments, and known proposed projects were estimated (using the same methodology used to estimate existing traffic volumes), resulting in the future traffic assignment shown in Figure 9. The proposed master plan for the Sheraton Makaha Resort expansion includes a realignment of the Makaha Valley Road. Project traffic volumes at the new Makaha Valley Road/Sheraton Makaha Access Road are also included in Figure 9.

The future traffic assignment was analyzed and it was determined that the intersections of Makaha Valley Road/Lahaina Street and Makaha Valley Road/Sheraton Makaha Access Road would operate at under capacity conditions without signalization during the morning and afternoon peak hours. The analysis also indicated that over capacity conditions would result at the intersections of Farrington Highway and Makaha Valley Road without signalization.

The intersection of Farrington Highway and Makaha Valley Road was then evaluated as a signalized intersection (the State Department of Transportation will have to review and approve all plans for the roadway improvements at the Farrington Highway/Makaha Valley Road intersection). It was determined that the Farrington Highway/Makaha Valley Road intersection would operate at Level of Service C during the morning peak hour and Level of B during the afternoon peak hours if a separate right turn lane and a separate left turn lane are provided for northbound and southbound Farrington Highway traffic, respectively.

Full development of Makaha Valley will result in increased traffic on Farrington Highway. Two-way volumes south of Makaha Valley Road would increase to about 2,400 vehicles per hour in both the morning and afternoon peak hours. Poor operating conditions would result on the two-lane Farrington Highway with these volumes. However, the State of Hawaii Department of Transportation has plans to



**Existing and Future
Traffic Assignments**
ANA Hotels Hawaii, Inc.



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Figure 9

extend the four lane section on Farrington Highway north to Jade Street from Walua Street, a distance of less than a mile. Current plans call for construction to begin in 1994.

6.1.3 Mitigative Measures

To mitigate the impact of future traffic in Makaha Valley (including those generated by the proposed project), the following improvements to a 2-lane configuration for Makaha Valley Road have been generally agreed upon as an interim measure by the City and County of Honolulu Department of Transportation Services (DTS):

- o Installation of a traffic light at the intersection of Makaha Valley Road and Farrington Highway (subject to State Department of Transportation approval);
- o Curb to curb pavement of Makaha Valley Road from Farrington Highway to Lahaina Street;
- o Installation of turning pockets at those intersections deemed necessary by DTS;
- o Realignment of the "kink" in the roadway near the entrance to the Sheraton Makaha Resort;
- o Road surface improvements; and,
- o Retention of street right-of-way to allow future widening as required.

The ultimate roadway alignment will be designed in accordance with applicable City standards. All developers in Makaha Valley will participate in future road widening and improvement cost.

Plans will be submitted for any work done within the State highway rights-of-ways for the Highways Division's review and approval.

No costs incurred for roadway improvements within the State's Farrington Highway right-of-way attributed to proposed developments in Makaha Valley will be borne by the State. These costs will be shared by the developers of proposed projects in the valley.

Widening of Farrington Highway to four lanes, which is planned by the State Department of Transportation, will accommodate the projected increase in highway traffic.

The siting of new access roadways into the proposed project will be coordinated with siting of local roads and/or driveways proposed for the Nitto Hawaii project, which will be located opposite the realigned Makaha Valley Road. The creation of cross intersections will be considered; alternatively, adequate offsets should be provided to minimize conflicts between turning movements.

6.2 PUBLIC TRANSPORTATION

6.2.1 Existing Conditions

Existing public transit service to the vicinity is provided by the City's The Bus system, with Bus Route No. 51 between Honolulu and Makaha passing along Farrington Highway and ending at Makaha Beach. A transfer onto Bus Route No. 75 from Bus Route No. 51 is required to reach the Sheraton Makaha Resort, which is one of the two end points for Bus Route No. 75.

6.2.2 Future Conditions

The City's The Bus system is an island-wide public transit system which allows flexible operations. The proposed project is not expected to rely upon the public transit system to provide transportation for its guests; it is expected that visitors will arrive in private or rental automobiles, tour vans, or charter buses. Employees, however, may travel to work on the City's public bus system.

The flexibility of the bus system allows for the assignment of additional buses, if available, to meet new demands. Request for additional bus service will be evaluated by the City at the appropriate time.

6.3 WATER SUPPLY

6.3.1 Existing Conditions

The Board of Water Supply's (BWS) 525 system, which services the existing facilities of the Sheraton Makaha Resort, includes a 16-inch main along Kili Drive from a 2.0 million gallon (MG) reservoir to Farrington Highway. This main is connected to a 16-inch main that runs along Huipu Drive and a 12-inch main along Ala Holo Loop.

6.3.2 Future Conditions

Potable water demand for the proposed Sheraton Makaha Resort expansion is estimated to be 175,000 gallons per day (GPD) at 350 GPD per resort unit. The total future landscaping irrigation demand is estimated to be 176,400 GPD. The proposed development is likely to be served by the BWS's 525 system. The existing reservoir for the 525 system will be adequate until the total, cumulative max-day demand of actual developments in Makaha Valley reaches 2.0 million gallons per day (MGD).

In addition, the existing 16-inch main along Huipu Drive will be extended to the southern boundary of the project site and additional 12-inch mains will be constructed within the development to service the expanded resort facilities.

Construction of the necessary transmission/distribution system will be at the applicant's expense. The applicant, at the appropriate time, will also pay the assessment charge for water facilities at the necessary storage facilities. All facilities will be designed to BWS's standards and are intended to be dedicated to the BWS upon completion. Maintenance of the system will be paid for through BWS's charges.

The BWS is presently constructing wells in upper Makaha Valley that will produce an additional 4.0 MGD of water beyond what is presently being produced (completion

and operation is expected in late 1989). According to BWS, 125,000 GPD of water is being reserved for the applicant, ANA Hotels Hawaii, Inc. upon completion and operation of the Makaha Valley Wells. Requests for the quantity of water exceeding the 125,000 GPD allotment will conform to BWS current water commitment policy, i.e. the availability of BWS water will be determined when building permits are submitted for BWS review and approval. Water System Facilities Charges for source transmission and daily storage shall apply to the amount exceeding 125,000 GPD.

6.4 WASTEWATER TREATMENT AND DISPOSAL

6.4.1 Existing Facilities

The Waianae Sewage Treatment Plant (STP) serves the urbanized areas between Nanakuli and Makaha, including the apartment complexes on Kili Drive, near the Sheraton Makaha, and the existing Mauna Olu subdivision sewage system. Presently, the wastewater generated by the existing facilities of the Sheraton Makaha Resort is transmitted to and treated at the Waianae Sewage Treatment Plant.

6.4.2 Future Conditions

The average daily wastewater expected to be generated by the proposed development is estimated to be 62,600 gallons per day (gpd). All of the wastewater generated by the Sheraton Makaha Resort (existing and proposed) would flow into the public collection system for eventual treatment at the Waianae Sewage Treatment Plant (STP).

6.4.3 Probable Impacts

The City Department of Public Works, Division of Wastewater Management, has made a formal determination that the existing sewer line on Jade Street is adequate to accommodate the proposed flows. A complete sewer capacity analysis must be completed when the applicant submits the required project design information to the Division of Wastewater Management.

6.5 STORM WATER DRAINAGE

6.5.1 Existing Conditions

The project site is located on a plateau between two intermittent stream beds, Makaha Stream to the west and a minor dry stream to the east of the Makaha East Golf Course. The site contains a number of drainage ways through which stormwater runoff from areas inside and outside of the property boundary eventually reach the abandoned earthen reservoir. The major part of the site proposed for development currently is drained by means of sheet flow. Under normal conditions, runoff from drainage ways accumulates in the lower portions of the area proposed for development. These low areas (abandoned earthen reservoirs) serve as natural retention basins and water that has accumulated in these low areas percolates into the ground or evaporates. Earthen berms along the lower portion of the project site prevent stormwater runoff from discharging into Makaha East Golf Course and the properties of lower Makaha.

6.5.2 Proposed Facilities

Development of the project will include a drainage system built to County standards which will accommodate the existing drainage requirements of the site as well as provide for any increase in runoff due to the addition of improvements which will change the permeability of the surface in some areas. The drainage will be discharged into the Makaha Resort West Golf Course and Makaha Stream through Easement 156, in accordance with a drainage plan for Makaha Valley filed with the City and County of Honolulu in 1979.

While a specific drainage plan has not been adopted for the development at this level of planning, it is anticipated that maintaining levels of discharge into Makaha Stream at current levels will be accomplished primarily by providing areas for flood water retention on the existing golf course. At the appropriate stage in the development process, a drainage report will be submitted to the City and County of Honolulu Department of Public Works, Division of Engineering, Drainage Section for review and approval.

6.5.3 Probable Impacts and Mitigating Measures

Anticipated impacts include short term construction related impacts such as noise, dust, traffic disruption and air pollution due to use of diesel equipment. Long term impacts should be an improvement in the drainage throughout the project area, a lessening of particulate matter discharged into the stream during periods of stormwater runoff, and the visual impact of altered topography due to drainage improvements.

Drainage improvements will be developed to County standards to ensure that adequate and appropriate improvements are made. Construction activities will comply with the Department of Health noise requirements as well as the City and County of Honolulu grading ordinances which will feature protective measures to mitigate dust and erosion.

Visual impacts of the proposed drainage improvements will be subject to the overall design criteria for the proposed Sheraton Makaha Resort. These design criteria are expected to include landscaping requirements, setbacks as well as material and texturing requirements which can be used to mitigate changes in visual impacts.

6.6 SOLID WASTE DISPOSAL

6.6.1 Existing Conditions

Presently, solid waste generated within the project site is not collected by the City and County of Honolulu, Department of Public Works, Refuse Division. Solid waste generated on the property is disposed of by a private refuse collection agency.

6.6.2 Proposed Facilities

It is anticipated that a full development the activities within the project site will generate a de facto population of 736, who will each generate approximately 2.32 to 4 pounds of refuse each day, for a maximum of about 1.5 tons of solid waste each day. Solid waste will be collected by private collection companies and disposed at public or private landfills.

6.6.3 Probable Impacts and Mitigating Measures

The proposed activities within the project site will place additional demand on County waste disposal facilities. It is expected that State and County revenues derived from the completed resort facilities will be sufficient to finance the resort's fair share of the cost for major capital improvements such as solid waste disposal facilities, and to provide the same level of per-unit services. The County has a solid waste transfer station in Waianae. Solid waste collected at this transfer station will be hauled to a sanitary landfill site for disposal or to a proposed refuse-to-energy plant.

6.7 ELECTRIC AND TELEPHONE SERVICES

6.7.1 Existing Conditions

Power and telephone service to the site is currently supplied by an overhead line along Makaha Valley Road and an underground system along Huipu Drive. Power to these lines is supplied by the Makaha Substation which has limited available capacity to serve the subject expansion.

6.7.2 Proposed Facilities

Electrical and telephone infrastructure will have to be upgraded to serve the development. The assumed average daily power requirement is estimated to be approximately 2,500 KVA.

6.7.3 Probable Impacts and Mitigating Measures

The existing electrical system may have to be upgraded to accommodate the new development. The developer will work closely with Hawaiian Electric Company in order to find an appropriate on-site location for a substation as well as to ensure that timely service can be provided. The electrical system within the development will be built to County standards. Utility lines will be underground to mitigate any visual impacts.

Indirect air quality impacts are expected to result from new demands for electrical energy. This impact is most likely to occur in the vicinity of Kahe Point where increased levels of particulates and sulfur dioxide can be expected. The increased demand of 2,500 KVA is minimal in relation to the overall island demand for electricity and therefore the overall impact from the proposed project is relatively minor. It is expected that the design and construction of the proposed resort expansion will incorporate energy saving designs and devices in order to reduce operating costs.

The developer will maintain contact with Hawaiian Telephone Company to assure necessary service levels.

6.6.3 Probable Impacts and Mitigating Measures

The proposed activities within the project site will place additional demand on County waste disposal facilities. It is expected that State and County revenues derived from the completed resort facilities will be sufficient to finance the resort's fair share of the cost for major capital improvements such as solid waste disposal facilities, and to provide the same level of per-unit services. The County has a solid waste transfer station in Waianae. Solid waste collected at this transfer station will be hauled to a sanitary landfill site for disposal or to a proposed refuse-to-energy plant.

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6.7.2 Proposed Facilities

Electrical and telephone infrastructure will have to be upgraded to serve the development. The assumed average daily power requirement is estimated to be approximately 2,500 KVA.

6.7.3 Probable Impacts and Mitigating Measures

The existing electrical system may have to be upgraded to accommodate the new development. The developer will work closely with Hawaiian Electric Company in order to find an appropriate on-site location for a substation as well as to ensure that timely service can be provided. The electrical system within the development will be built to County standards. Utility lines will be underground to mitigate any visual impacts.

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The developer will maintain contact with Hawaiian Telephone Company to assure necessary service levels.

6.8 FIRE PROTECTION AND SAFETY

6.8.1 Existing Conditions

Existing fire protection consists of an engine company and a 1,500 gallon tanker from the Waianae Fire Station, with six on-duty personnel. Secondary service is available from engine companies at Nanakuli and Makakilo and a ladder company from Waipahu. According to the City and County of Honolulu Fire Department, fire protection is considered adequate.

A City and County of Honolulu Police Sub-Station is located in Waianae.

6.8.2 Probable Impacts and Mitigative Measures

There will be an occasional and unavoidable demand for fire protection and police services. With the expansion of the Sheraton Makaha Resort, the number of visitors using area beaches will rise and may lead to an increase in property crimes. Additional manpower would be required to accommodate these police service requests. The Fire Department has determined that there will be no adverse impact to existing or planned Fire Department facilities or services. It is expected that the Sheraton Makaha Resort will increase its security personnel to provide on-site service for most minor problems. Buildings and other facilities within the resort expansion area will be designed with adequate attention to the principles of environmental security (from crimes against property and persons) and fire safety. For example, adequate lighting will be installed in areas which require visitors to walk from one building or location to another. As part of the proposed water transmission system, lines with adequate fire flow capacity and fire hydrants will be installed within the structures and roadways of the subject property. Access for emergency vehicles and new construction shall conform to fire and building codes and standards.

The cumulative increase in traffic generated by this and other projects in Makaha Valley and in Waianae is expected to generate additional calls for service during the morning and afternoon peak hours. During the construction phases of the project, safety signs and barricades will be installed at appropriate locations to assist passing motorists. The hiring of special duty officers may also minimize traffic problems during the initial stages of construction. The installation of a traffic light at the intersection of Makaha Valley Road and Farrington Highway and the installation of turning lanes at those intersections deemed necessary by the City and County of Honolulu Department of Transportation Services should mitigate some of the expected traffic congestion and over-capacity conditions at the above mentioned intersection and the demand for service calls.

6.9 SCHOOLS

6.9.1 Existing Conditions

Presently, there are no school-aged children on the subject property.

6.9.2 Probable Impacts

According to the State Department of Education's (DOE) review of the environmental assessment for the proposed project, the resort expansion will have negligible impact on DOE area schools.

CHAPTER VII

ALTERNATIVES TO THE PROPOSED ACTION



ANA HOTELS

Chapter 200 of Title 11, Environmental Impact Statement Rules (11-200-17 (f)) requires a discussion of "any known alternatives... which could feasibly attain the objectives of the action." The rules further specify that the alternatives be explored and evaluated in light of enhancement to environmental quality or the avoidance or reduction of adverse environmental effects.

The EIS rules concerning a "rigorous exploration and objective evaluation" of feasible alternatives apply equally to public and private actions. The benefits of public actions are measured by their contribution to the public good. The benefits of a private action are measured by the expectation of future returns, compensation for risk, and a reasonable profit.

As noted elsewhere in this report, the project site lies in Makaha where the development of a secondary resort (to Waikiki) is allowed in the Oahu General Plan. The current Development Plan designations allow for residential development. Thus, the current market value of the site reflects the General and Development Plan land use designations tempered by the need to seek further discretionary land uses approvals by the Honolulu City Council (Change of Zone).

7.1 NO-ACTION ALTERNATIVE

The no action alternative would preserve the existing situation on the property for the present time. The mostly vacant site would remain largely underutilized. The advantage of this alternative is that no further expenditure of resources by the developer would be required.

The disadvantage of the no action alternative is that it would represent a loss in return in the investment made in acquiring the property and will not provide needed facilities to keep the Sheraton Makaha Resort competitive.

7.2 POSTPONEMENT OF ACTION

This alternative considers the postponement of action pending further study. Delays due to postponing the project could add additional carrying costs to the applicant. It should be noted that the expansion of the Sheraton Makaha Resort involves risk. Time, labor, land and capital must be assembled in an orchestrated manner to produce the desired results. Undue delays or postponements could hinder the applicant's ability to turn the proposed action into an operating reality.

Added carrying costs associated with postponement need to be analyzed in relation to the added benefit/detriment to the applicant resulting from further study in order to evaluate the feasibility of this alternative. Added benefits from project postponement are ostensibly limited to extending the period that the subject

property is used for open space. Increased detriment incurred by postponing action include added financial risk and loss of project momentum. In summary, postponement of the action will result in undue costs to the applicant which may well make the proposed action infeasible to implement.

7.3 RESIDENTIAL DEVELOPMENT

As noted above, the site is currently zoned Country, which has a maximum density of one unit per acre. Given the proximity to the existing facilities of the Sheraton Makaha Resort, homes developed on the subject property would have to be compatible with resort use. Adding the attendant costs of providing on-site residential infrastructure, feasible residential uses would be limited to high priced single-family housing. However, mauka of the Sheraton Makaha Resort is the Mauna Olu Subdivision, which offers large lots (1 to 1.3 acres) with better views, and are available for between \$250,00 to \$280,000.

The benefits of residential development of the site are that it would represent a smaller commitment of groundwater resources, would require less expenditure in wastewater transmission and treatment facilities, and would have less adverse impact on transportation facilities. However, residential development of the property would not improve the viability of the Sheraton Makaha Resort or generate the attendant employment and economic benefits.

7.4 GOLF COURSE USE

This alternative would involve using the 35.709-acre parcel to expand the existing Makaha West Golf Course. The advantages of using the property for golf course use is that it would be compatible with surrounding land uses and provide open space.

The disadvantage of this alternative is that ANA Hotels Hawaii, Inc. acquired the property based on Country zoning and golf course use would result in a low return for the investment made. In addition, 36+ acres is insufficient for nine holes of golf and the area of application is separated from ANA Hotels Hawaii, Inc.'s Makaha Resort West Golf Course by an 8.475 parcel. Even if the Resort-zoned 8.475-acre parcel is used, the combined total of 44.184 acres is insufficient for a nine-hole golf course.

7.5 CONCLUSION

A number of alternatives were analyzed for the present site: no-action, postponement of action, residential development, and golf course use.

As noted, a fundamental criterion for a feasible action by a public company is that the action must ultimately result in the expectation of future returns for shareholders. The postponement of action, residential development and golf course uses explored above are projected to yield returns far short of those anticipated by the proposed action.

In conclusion, the applicant has evaluated alternative proposals and finds that the proposed expansion of the Sheraton Makaha Resort in a timely manner represents the most feasible use of the site.

CHAPTER VIII

IRREVERSIBLE AND IRRETRIEVABLE
COMMITMENTS OF RESOURCES
AND
RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES
OF THE ENVIRONMENT AND MAINTENANCE AND
ENHANCEMENT OF LONG-TERM PRODUCTIVITY



ANA HOTELS

This Chapter summarizes information presented elsewhere in this report in terms of two requirements of the Environmental Impact Statement Rules. Applicants are required to discuss: 1) the irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented; and, 2) the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity. These statements are discussed below.

8.1 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Chapter 200 of Title 11, Environmental Impact Statement Rules (11-200-17 (k)) requires the "identification of unavoidable impacts and the extent to which the action makes use of non-renewable resources during phases of the action, or irreversibly curtails the range of potential uses of the environment..."

The construction and long-term operation of the expanded facilities of the Sheraton Makaha Resort will permanently and irretrievably commit money, time and physical resources. The proposed urban uses will displace the open space provided by the vacant portion of the property (although the proposed action will maintain a major portion of the site in landscaped open space). Development of the proposed action will foreclose alternative land uses, such as housing (as per the City and County of Honolulu's Country zoning). Other unavoidable impacts include increased traffic and increased demand on groundwater resources and regional infrastructure (transportation and wastewater).

The loss of these resources should be evaluated in light of public policy objectives of allowing a secondary resort in Makaha (City and County of Honolulu General Plan).

8.2 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Chapter 200 of Title 11, Environmental Impact Statement Rules (11-200-17 (j)) requires a brief discussion of the "extent to which the proposed action involves tradeoffs between short-term losses and long-term losses or vice-versa, and a discussion of the extent to which the proposed action forecloses future options, narrows the range of beneficial uses of the environment, or poses long-term risks to health or safety..."

Short-term tradeoffs related to the proposed action are generally associated with the urbanization process. The project area consists of mostly vacant land, productive only in its ability to provide open space and its potential for alternative future uses. The proposed action will commit the site to a particular urban use

(resort) thereby "narrowing the range of [potential] beneficial uses" and possibly foreclosing future options. (It should be noted that an analysis has been conducted to determine potential alternative uses of the site [Chapter VII]. After analyzing a range of potentially feasible uses, none were found to return yields comparable to the proposed action). The construction and operational phases of development will involve greater environmental impacts than are currently generated by the site (i.e., increased water demand, wastewater, and traffic). The open space currently afforded by the site will be altered and enhanced by the use of extensive landscaping. The preliminary design for the entire Sheraton Makaha Resort (upon completion) shows a total building lot coverage of approximately 16 percent (not included in this calculation are paved surfaces such as roadways, parking lots, tennis courts, pools and pool decks, etc.). The rest of the site (approximately 84 percent) will remain in mostly landscaped open space.

The long-term tradeoffs discussed here are inherently positive and far out-weigh the short-term losses considered above. In addition, the proposed action poses no long-term risks to health or safety.

CHAPTER IX

PARTICIPANTS IN THE CONSULTATION PROCESS AND COMMENTS
RECEIVED DURING PREPARATION OF THE DRAFT EIS



ANA HOTELS

This chapter presents information on who participated in the preparation of the Draft EIS, who was consulted during the preparation of the Draft EIS, and all comments received and responses sent relative to the preparation of the Draft EIS.

9.1 PARTICIPANTS IN THE EIS PREPARATION PROCESS

This report was prepared for ANA Hotels Hawaii, Inc. by Helber, Hastert, and Kimura, Planners. The following list identifies individuals and organizations who were involved in the preparation of the report and their respective contributions.

Helber, Hastert, and Kimura, Planners

Mark H. Hastert, AICP	Principal-in-charge and Project Manager
Vincent R. Shigekuni	Project Planner and Principal Author

Subconsultants

Chaney Brooks & Company (Market Analysis)
Hida, Okamoto & Associates, Inc. (Civil Engineering)
International Archaeological Research Institute, Inc. (Archaeology)
Kenneth M. Nagata (Flora and Fauna)
Parsons Brinckerhoff Quade and Douglas (Traffic)
Wimberly Allison Tong and Goo (Architecture)

9.2 CONSULTED PARTIES AND COMMENTS RECEIVED DURING THE PREPARATION OF THE DRAFT EIS

By letter dated September 30, 1988, the Department of General Planning (Accepting Agency) determined that the proposed Sheraton Makaha Resort expansion would require the preparation of an environmental impact statement pursuant to Chapter 343, HRS. The Environmental Impact Statement Preparation Notice (EISPN) for the project was published in the October 23, 1988 issue of the QEOC Bulletin which initiated a thirty-day public consultation period ending on November 22, 1988. In addition to the notice published in the QEOC Bulletin, a more detailed EISPN was mailed directly to the 37 agencies and organizations listed below. The list contains parties believed to have an interest in the project or who requested consulted party status and includes all adjacent landowners, lessees and relevant community associations.

By January 3, 1989, a total of 25 agencies or individuals responded in writing. The agencies and organizations which responded are identified by an asterisk (*) and their respective comments are reproduced in this Chapter.

Federal Agencies

- * Department of Agriculture, Soil Conservation Service
- * Department of the Army, U.S. Army Engineer District, Honolulu
- * Department of the Interior, Fish and Wildlife Service
- * Department of the Interior, Geological Survey, Water Resources Division

State Agencies

- * Department of Accounting and General Services
- * Department of Agriculture
- Department of Business and Economic Development
 - * Housing Finance and Development Corporation
- * Department of Defense
- * Department of Education
- * Department of Hawaiian Home Lands
- Department of Health
- * Department of Land and Natural Resources
- * Department of Transportation
- * Land Use Commission
- Office of Environmental Quality Control
- * Office of State Planning
- University of Hawaii
 - Environmental Center
 - Water Resources Research Center

County Agencies

- * Board of Water Supply
- * Building Department
- Department of General Planning
- * Department of Housing and Community Development
- * Department of Land Utilization
- * Department of Parks and Recreation
- * Department of Public Works
- * Department of Transportation Services
- * Fire Department
- * Office of Human Resources
- * Police Department

Public Utilities

- Hawaiian Electric Company, Inc.
- * Hawaiian Telephone Company

Private and Community Organizations

- * Charles Armstrong
- John DeSoto, City Councilman
- HonFed Bank
- Makaha Valley, Inc.
- Nitto Hawaii Co., Ltd.
- Waianae Neighborhood Board No. 24

The following pages contain a copy of the Agency Determination and comments received during the consultation period.

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
450 SOUTH KING STREET
HONOLULU, HAWAII 96813



DONALD A. CLEGG
Chief Planning Officer
ELMIE CONNELL
Deputy Chief Planning Officer

RH/DGP 9/88-3357
89/W-1

September 30, 1988

Tyrone T. Kusao, Inc.
1188 Bishop Street, Suite 2507
Honolulu, Hawaii 96813

Dear Mr. Kusao:

Waianae Development Plan Application
from Residential to Resort use,
Makaha Valley, Tax Map Key 8-4-02: 54

This is to inform you that your request to amend the
Waianae Development Plan Land Use Map will be processed in the
1989 Annual Amendment Review.

In accordance with the Rules and Regulations for Processing
Development Plan amendments it has been determined that an
Environmental Impact Statement (EIS) will be required. This
department must accept the Final EIS by May 15, 1989 to
continue processing the DP amendment.

Please note that acceptance of this request for processing
does not imply any approvals for the project by the City.
Recommendations on all development plan amendments processed by
the department in the 1989 Annual Amendment Review will be made
by the Chief Planning Officer on July 1, 1989.

If there are any questions regarding this amendment, please
contact Randy Hara of my staff at 523-4483.

Sincerely,

Donald A. Clegg
DONALD A. CLEGG
Chief Planning Officer

DAC:js

cc: OEQC

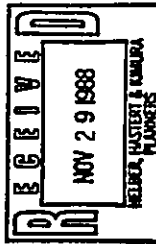


DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
Bldg. 250
FT. SHAFTER, HAWAII 96855-5440

REPLY TO
ATTENTION OF:

November 28, 1988

Planning Branch



Mr. Vincent R. Shigekuni
Helber, Hastert & Kimura, Planners
733 Bishop Street, Suite 2598
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Thank you for the opportunity to review the Environmental Impact Statement Preparation Notice (EISP) for the proposed Sheraton Makaha Resort Expansion at Waianae, Oahu, Hawaii. The following comments are offered:

- a. Based on information provided in the EISP, the proposed project appears to infringe upon two reservoirs on the seaward (makai) side of the property. A Department of the Army permit would be required to place any fill in these reservoirs or in adjacent streams. Please contact Operations Branch (telephone 438-9258) for permit requirements.
- b. The flood hazard information presented in the EISP (page 28, section V.E.5.b.) is accurate.

Sincerely,

C. Fung
Kisuk Chéung
Chief, Engineering Division



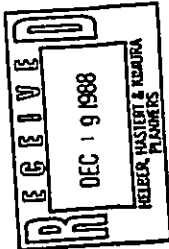
DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96855-5440

December 16, 1988

REPLY TO
ATTENTION OF:

Operations Branch

SUBJECT: Makaha Resort Wetland Determination



Mr. Vincent Shigekuni
Helber, Hastert & Kimura Planners
Grosvenor Center
PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Please disregard Corps of Engineers letter dated November 28, 1988 from Planning Branch regarding subject wetlands and project. Letter from this Branch dated September 2, 1988 is still valid. A Department of the Army permit is not required for your project activities near and around the drainageways and stormwater retention basins. You are advised to check with the City and County to insure that you do not aggravate any flooding conditions in the area.

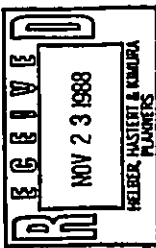
Sincerely,

Stanley J. Arakaki
Stanley T. Arakaki
Chief, Operations Branch
Construction-Operations Division



United States Department of the Interior
FISH AND WILDLIFE SERVICE
 PACIFIC ISLANDS OFFICE
 P.O. BOX 50167
 HONOLULU, HAWAII 96850

ES
 Room 6307
 NOV 21 1988



Mr. Vincent R. Shigekuni
 Helber, Hastert & Kimura, Planners
 Grosvenor Center
 733 Bishop Street, Suite 2590
 Honolulu, Hawaii 96813

Re: Environmental Impact Statement Preparation Notice, Sheraton
 Makeaha Resort Expansion, Waianae, Oahu, HI

Dear Mr. Shigekuni:

We have reviewed the referenced document of November 9, 1988, and
 have no comments to offer at this time.

We appreciate the opportunity to comment.

IX-6

Sincerely yours,

Ernest Kosaka
 Ernest Kosaka
 Field Office Supervisor
 Environmental Services

HELBER
 HASTERT
 & KIMURA
 Planners
HH&K

Grosvenor
 Center

PR

Tower

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Mark H.

HASTERT

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Cherry T.

KIMURA

Assistant

Nancy L.

HISHIKAWA

ALLA

Thomas A.

FRIS

ALLA

Kathleen

YOUNG

ALLA

December 12, 1988

Mr. Ernest Kosaka
 Field Office Supervisor
 Environmental Services
 United States Department of the Interior
 Fish and Wildlife Service
 Pacific Islands Office
 P.O. Box 50167
 Honolulu, Hawaii 96850

Dear Mr. Kosaka:

Subject: Environmental Impact Statement Preparation Notice
 Sheraton Makeaha Resort Expansion
 Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 21
 November 1988. Your letter will be reproduced in the Draft Environmental
 Impact Statement in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert
 Mark H. Hastert
 Managing Principal

MHH:cs

cc: Ty Kusao
 Wendall Brooks
 Vince Shigekuni



United States Department of the Interior

GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

November 17, 1988

Helber, Mastert & Kumura, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813
Attn: Vincent R. Shigeokuni, Project Planner

Dear Mr. Shigeokuni:

Subject: Environmental Impact Statement Notice (EISPN)
Sheraton Makaha Resort Expansion, Waianae,
Oahu, Hawaii

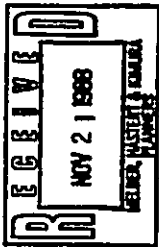
The subject EISPN has been reviewed by the staff of the U.S. Geological Survey with focus on the subheadings: Water, Wastewater, and Drainage under Public Services. We found nothing that we needed to comment on in these subheadings. We also have no comments on the remainder of the EISPN.

Thank you for giving us the opportunity to review the subject EISPN.

Sincerely,

William Meyer
William Meyer
District Chief

HELBERT
MASTERT
& KUMURA
Planners
HELBERT



Geoscientist
Center

PH

733

Bishop

Street

2590

Honolulu

Hawaii

96813

Telephone

808

843-2065

Fax

834-48

HELBERT

MASTERT

in

PH

846-2060

Planners

LARRY

HELBERT

ALLA

MARK H.

MASTERT

ALCH

WALTER T.

KUMURA

Planners

HELBERT

MASTERT

ALCH

THOMAS A.

FEE

ALCH

KATH M.

YOUNG

ALLA

December 12, 1988

Mr. William Meyer
District Chief
United States Department of the Interior
Geological Survey
Water Resources Division
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

Dear Mr. Meyer:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 17 November 1988. Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Mastert

Mark H. Mastert
Managing Principal

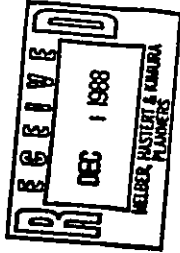
MHI:ics

cc: Ty Kusao
Wendall Brooks
Vince Shigeokuni



STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 115, HONOLULU, HAWAII 96810

MUSSEL B. MAGATA
COMPTROLLER
DEN ETIHAU
HAWAII CONTRACTOR
LETTER NO. (P)2035.8



NOV 28 1988

Helber, Hastert & Kimura, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attention: Mr. Vincent Shigekuni

Gentlemen:

Subject: Environmental Impact Statement
Preparation Notice for Sheraton
Makaha Resort Expansion

We have reviewed the subject document and have no
comments to offer.

Very truly yours,

Teuane Tomiaga
TEUANE TOMIAGA
State Public Works Engineer

SM:jk

December 15, 1988

Mr. Teuane Tomiaga
State Public Works Engineer
State of Hawaii
Department of Accounting and General Services
Division of Public Works
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Tomiaga:
Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 28
November 1988. Your letter will be reproduced in the Draft Environmental
Impact Statement in its entirety.

Thanks again for your letter.

Sincerely,

Mark H. Hastert
Mark H. Hastert
Managing Principal

MHH:cs
cc: Ty Kusao
Wendell Brooks
Vince Shigekuni

HELBER
HASTERT
& KIMURA
PLANNERS
H-H-B-K
Honolulu
733 Bishop Street
Suite 2590
Honolulu, Hawaii 96813
Telephone: 808-534-3000
FAX: 808-534-3000
TELETYPE: 808-534-3000
COLUMBIA UNIVERSITY
FRANKLIN
INSTITUTION
HAWAIIAN
LARRY E. HELBER
ALISA
MARK H. HASTERT
ALISA
GUYAN T. KIMURA
MUSSEL B. MAGATA
ALISA
DEN ETIHAU
ALISA
KIMBERLY M. YOUNG
ALISA

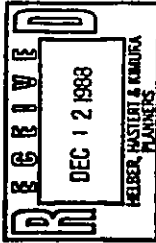
JOHN WAINHEE
GOVERNOR



YUKIO KITAGAWA
CHAIRPERSON, BOARD OF AGRICULTURE
SUZAMIE D. PETERSON
DEPUTY TO THE CHAIRPERSON

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814-2512
November 30, 1988

Mailing Address:
P. O. Box 22159
Honolulu, Hawaii 96822-0159



Helber, Hastert & Kimura
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attention: Mr. Vincent R. Shigekuni, Project Planner

Gentlemen:

Subject: Environmental Impact Statement Preparation Notice

(EISPN)
Sheraton Makaha Resort Expansion
ANA Hotels Hawaii, Inc.
THK: 8-4-02:54
Waianae, Oahu
Area: 35.709 acres

The Department of Agriculture has reviewed the subject EISPN and has no comments to offer.

Please note the change in administration.

Thank you for the opportunity to comment.

Sincerely,

Yukio Kitagawa
YUKIO KITAGAWA
Chairperson, Board of Agriculture

cc: OEQC



December 15, 1988

Mr. Yukio Kitagawa
Chairperson, Board of Agriculture
State of Hawaii
Department of Agriculture
P.O. Box 22159
Honolulu, Hawaii 96822-0159

Dear Mr. Kitagawa:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 30 November 1988. Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thanks again for your letter.

Sincerely,

Mark H. Hastert

Mark H. Hastert
Managing Principal

MHH:ics

cc: Ty Kusso
Wendell Brooks
Vince Shigekuni

HELBER
HASTERT
&
KIMURA
PLANNERS

H-H-K

Governor
Center

PH

733

Bishop

Street

Suite

2590

Honolulu

Hawaii

96813

Telephone

(808)

545-3006

Fax

(808)

634-488

HELBER,
HASTERT &
KIMURA

PLANNERS

PO Box

22159

Honolulu

Hawaii

96822-0159

Attention

Mr. Kitagawa

Chairperson

Board of Agriculture

State of Hawaii

Department of Agriculture

P.O. Box 22159

Honolulu, Hawaii

96822-0159

THK: 8-4-02:54

Waianae, Oahu

Area: 35.709 acres

The Department of Agriculture has reviewed the subject EISPN and has no comments to offer.

Please note the change in administration.

Thank you for the opportunity to comment.

Sincerely,

Yukio Kitagawa

YUKIO KITAGAWA

Chairperson, Board of Agriculture

State of Hawaii

Department of Agriculture

P.O. Box 22159

Honolulu, Hawaii

96822-0159

THK: 8-4-02:54

Waianae, Oahu

Area: 35.709 acres

The Department of Agriculture has reviewed the subject EISPN and has no comments to offer.

Please note the change in administration.

Thank you for the opportunity to comment.

Sincerely,

Yukio Kitagawa

YUKIO KITAGAWA

Chairperson, Board of Agriculture

State of Hawaii

Department of Agriculture

P.O. Box 22159

Honolulu, Hawaii

96822-0159

THK: 8-4-02:54

Waianae, Oahu

Area: 35.709 acres

The Department of Agriculture has reviewed the subject EISPN and has no comments to offer.

Please note the change in administration.

Thank you for the opportunity to comment.

Sincerely,

Yukio Kitagawa



STATE OF HAWAII

DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT
HOUSING FINANCE AND DEVELOPMENT CORPORATION

P. O. BOX 2000
HONOLULU, HAWAII 96813

JOSEPH K. CONANT
EXECUTIVE DIRECTOR

IN REPLY REFER
TO:

88:PLNG/1731B JT

November 22, 1988

Helber, Hastert & Kimura, Planners
Attn: Mr. Vincent R. Shigekuni
Grosvenor Center, PFI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Re: Environmental Impact Statement
Preparation Notice (EISP/N) for the
Proposed Makaha Resort Expansion

We have reviewed the subject EISP/N and offer the following comments:

It is estimated that the operation of the proposed resort expansion will create 272 direct, full-time equivalent jobs. It is further projected that most of the direct employees currently reside in Waianae and therefore, the project's impact to affordable housing is minimal.

We believe that the EIS should quantify the potential employee base in the Waianae area, as well as include a discussion on actions to link Waianae residents to jobs in the proposed resort expansion. The EIS should also include a discussion on affordable housing opportunities available in Waianae to accommodate in-migrants or Oahu residents who relocate to the area as a result of the proposed project.

Thank you for the opportunity to comment.

Sincerely,

Joseph K. Conant
JOSEPH K. CONANT
Executive Director

cc: Department of Business and Economic Development

January 4, 1989

Mr. Joseph K. Conant
Executive Director
Housing Finance and Development Corporation
State of Hawaii
Department of Business and Economic Development
P.O. Box 29360
Honolulu, Hawaii 96820-1760

Dear Mr. Conant:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 22 November 1988 (your reference number 88: PLNG/1731B JT). We offer the following responses to your comments:

1. The Draft Environmental Impact Statement (DEIS) will include a description of the potential employee base in the Waianae area.
2. The DEIS will include a discussion on actions to link Leeward Oahu residents to jobs generated by the proposed resort expansion.
3. As discussed with your staff, the DEIS will include a description of affordable housing opportunities in Waianae in terms of vacancy, rental rates and sales prices for housing in Waianae.

Thanks again for your comment.

Sincerely,

Mark H. Hastert
Mark H. Hastert
Managing Principal

MHIH:cs

cc: Ty Kusao
Wendall Brooks
Vince Shigekuni

HELBER
HASTERT
& KIMURA
PLANNERS

H H B K

Grosvenor
Center

PFI
Tower

733
Bishop
Street

SUITE
2590

HONOLULU
HAWAII
96813

Telephone
808/545-3065

Telex
8311488

FACSIMILE
808/545-3000

Persons
LARRY E.
HELBER
AIAA

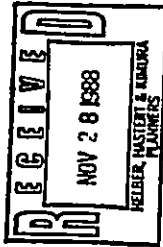
MARK H.
HASTERT
AICP

CHARLES T.
KIMURA

Address
Nancy J.
KISHIMOTO
AICP

Thomas A.
FEE
AICP

Mark M.
YOUNG
AIAA





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

Engineering Office

NOV 15 1988

Helber, Hastert & Kimura, Planners
 733 Bishop Street, Suite 2590
 Honolulu, HI 96813
 Attention: Vincent Shigekuni

Dear Mr. Shigekuni:

Environmental Impact Statement Preparation Notice (EISP/N)
 Sheraton Makaha Resort Expansion
 Waianae, Oahu, Hawaii
 TRK: 8-4-02:54

Thank you for providing us the opportunity to review the subject project.

We have no comments to offer at this time regarding this project.

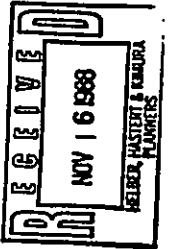
Sincerely,

Jerry M. Matsuda
 Jerry M. Matsuda
 Major, Hawaii Air
 National Guard
 Contr & Engr Officer

Enclosure

cc: Tyrone T. Kusao w/o encl
 Randy Hara, Department of General Planning w/o encl

ALEXIS T. LUM
 MAJOR GENERAL
 ATTESA NAKAZUMI
 COLONEL
 SENIOR ADJUTANT GENERAL



HELBERT
 HASTERT
 & KIMURA
 PLANNERS
HH&K

Government
 Center
 P.O.
 Box
 733
 Bishop
 Street
 Suite
 2590
 Honolulu
 Hawaii
 96813
 Telephone
 (808) 845-2066
 Telex
 634444
 HHHKLUW
 Honolulu
 (808) 845-2066
 Fax
 (808) 845-2060

President
 JERRY M. MATSUDA
 ALIA
 Mark H. HASTERT
 ALICP
 Oliver T. KIMURA
 Associate
 Nancy L. HARRIS
 ALICP
 Thomas A. FEE
 ALICP
 Kevin M. YOUNG
 ALIA

December 12, 1988

Major Jerry M. Matsuda
 Hawaii Air National Guard
 Contract & Engineer Officer
 State of Hawaii
 Department of Defense
 Office of the Adjutant General
 3949 Diamond Head Road
 Honolulu, Hawaii 96816-4495

Dear Major Matsuda:

Subject: Environmental Impact Statement Preparation Notice
 Sheraton Makaha Resort Expansion
 Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 15 November 1988. Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert
 Mark H. Hastert
 Managing Principal

MHH:ics

cc: Ty Kusso
 Wendall Brooks
 Vince Shigekuni

JOHN WAIKES
Governor



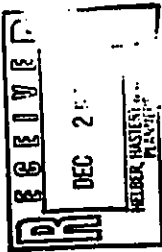
STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2288
HONOLULU, HAWAII 96810

November 21, 1988

CHARLES T. TOGUCHI
Superintendent

HELBERT
HASTERT
& KAMUWA
Partners
HH&K

OFFICE OF THE SUPERINTENDENT



Mr. Vincent R. Shigekuni
Project Planner
HH&K
Grosvenor Center
PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

SUBJECT: Sheraton Makaha Resort Expansion EISPN
THK: 8-4-02:54

Our review of your proposed development indicates that it will have negligible impact on our area schools.

Thank you for the opportunity to comment.

Sincerely,

Charles T. Toguchi
Charles T. Toguchi
Superintendent

CTT:jl

cc E. Imai, OBS
E. Hakano, Leeward Dist.

December 15, 1988

Mr. Charles T. Toguchi
Superintendent
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Dear Mr. Toguchi:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianac, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 21 November 1988. Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thanks again for your letter.

Sincerely,

Mark H. Hastert
Mark H. Hastert
Managing Principal

MHI:ics

cc Ty Kuszo
Wendell Brooks
Vince Shigekuni

Grosvenor Center
PRI Tower
733 Bishop Street
Suite 2590
Honolulu, Hawaii 96813
Telephone: (808) 545-5055
Telex: 834488 HH&K LUW
Facsimile: (808) 545-5050
Principal: Larry E. Helbert
AELA
Mark H. Hastert
AELC
Charles T. Toguchi
AELC
Assistant: Nancy L. Hoshikawa
AELC
Thomas A. Imai
AELC
Kevin M. Young
AELA

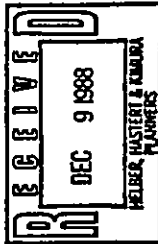
AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

JOHN WAHIEZ
GOVERNOR
STATE OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96808

ILLIMA A. PIIANAI
CHAIRMAN
HAWAIIAN HOMES COMMISSION



November 29, 1988

Mr. Vincent Shigekuni
Helber, Haster & Kimura, Planners
733 Bishop Street, Suite 2590
Honolulu Hawaii 96813

Dear Mr. Shigekuni:

Thank you for the opportunity to comment on the Preparation Notice for an Environmental Impact Statement in support of a Waianae Development amendment request to change the designation of 36 acres adjacent to the existing Sheraton Makaha Resort from residential to resort, for resort expansion.

The project will not have direct impacts on Hawaiian Home Lands on the Waianae coast. The Department of Hawaiian Home Lands has no comments at this time. We look forward to your analysis of potential economic development benefit for the Waianae Coast.

Sincerely,
Ilina Piianaia
Ilina A. Piianaia, Chairman
Hawaiian Homes Commission

IAP:CI:eh

January 4, 1989

Ms. Ilina A. Piianaia
Chairman
Hawaiian Homes Commission
State of Hawaii
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawaii 96805

Dear Ms. Piianaia:
Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 29 November 1988. As suggested, the Draft Environmental Impact Statement will include a description of the potential economic impact of the project on the Waianae Coast, especially in terms of jobs to be created during the construction and operation of the resort, including indirect and induced employment.

Thanks again for your letter.

Sincerely,

Mark H. Haster

Mark H. Haster
Managing Principal

MHH:cs

cc: Ty Kusao
Wendell Brooks
Vince Shigekuni

HELBER
HASTER
& KIMURA
Planners

H-H&K

Conference
Center

PH

733

Bishop

Street

Suite

2590

Honolulu

Hawaii

96813

Telephone

(808)

545-5065

Fax

634-4888

H-H&K/UM

Postoffice

Box

845-3060

Postoffice

Box

HELBER

ALLA

Mark H.

HASTER

ALLA

Charm T.

RAMURA

Associate

Henry L.

NEBESAWA

ALLA

Thomas A.

FEI

ALLA

Kevin M.

YOUNG

ALLA

JOHN BAINBRIDGE
Commissioner of Public Works



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 411
HONOLULU, HAWAII 96809

RECEIVED
DEC 16 1988
HELBER, HASTERT & KIMURA
PLANNERS

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

HELBER
HASTERT
KIMURA
PLANNERS

EDUCATION DEVELOPMENT
PROGRAM
ADULT RESOURCES
CONSULTATION AND ATTITUDE
CONSTRUCTION AND
REINFORCEMENT ENFORCEMENT
CONTRACTS
LAND MANAGEMENT
STATE PLANS
WATER AND LAND DEVELOPMENT

DOC. NO.: 4783E
FILE NO.: 89-275

DEC 15 1988

Mr. Vincent Shigekuni
Project Planner
Helber, Hastert and Kimura, Planners
Grosvener Center
PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN)
Sheraton Makaha Resort Expansion, Waianae, Oahu, Hawaii
THK: 8-4-02: 54

Thank you for giving our Department the opportunity to comment on this matter. We have reviewed the materials you submitted and have the following comments.

Our Department's Historic Sites Section notes that on page 20, E.4., Historic and Archaeological Resources, the statement is made that according to our Historic Sites office, there are no known archaeological sites in the area of application. In the EIS, this section should also include the statement that an archaeological survey was carried out, and three historic reservoirs were recorded. Sufficient information has been gathered, including the historic background information. These sites are therefore "no longer significant".

In addition to including this statement in the Environmental Impacts Section, the archaeological report should be appended to the EIS.

Please feel free to call me or Roy Schaefer of our Office of Conservation and Environmental Affairs, at 548-7837, if you have any questions.

Very truly yours,

WILLIAM W. PATY

December 19, 1988

Mr. William W. Paty
Chairperson
Board of Land and Natural Resources
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Paty:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 15 November 1988 (your DOC. NO. 4873E; FILE NO. 89-275).

Thank you also for the information provided in your letter. This information will be incorporated into the Draft Environmental Impact Statement (DEIS) and your letter and the archaeological report will be reproduced in the DEIS in their entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert
Managing Principal
MHHCs

cc: Ty Kusso
Wendell Brooks
Vince Shigekuni

HELBER
HASTERT
KIMURA
PLANNERS

H-H-B-K

Grosvener
Center
PRI
Tower
733
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Facsimile
548-2065
443-2065
President
Larry E.
Helber
AUSA
Mark H.
Hastert
AUSA
Glen T.
Kimura
President
Nancy L.
Heber-Kawa
AUSA
Thomas A.
Fitz
AUSA
Kevin M.
Young
AUSA

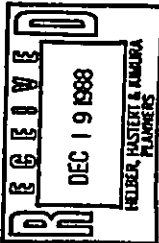
JOHN WAIKES
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
165 FERRIS STREET
HONOLULU, HAWAII 96813
DEC 15 1988

EDWARD Y. HIRATA
DIRECTOR
DEPUTY DIRECTORS
JOHN K. LORSLA
RONALD N. MARIANO
DIAN T. KOCH
JEANNE E. SCHULTZ

IN REPLY REFER TO:
HMV-PS
2.4156



Mr. Vincent R. Shigekuni
Project Planner
Helber, Hastett & Kimura, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

EIS Preparation Notice and Development Plan Amendment
Request for Sheraton Makaha Resort Expansion
Maianae, Oahu, Hawaii, TMK: 8-4-02: 54

We have the following comments regarding the proposed Sheraton Makaha Resort Expansion:

IX-15

1. We need to review and approve a Traffic Impact Analysis Report (TIAR) which should:
 - a. Include an assessment of the impacts of the proposed development on Farrington Highway.
 - b. Reflect vehicular movements generated by other planned developments in the area.
 - c. Evaluate weekday as well as weekend peak period conditions.
 - d. Include mitigation measures required to alleviate traffic congestion and to improve safety and traffic operations where applicable.
2. We will have to review and approve all plans for the roadway improvements at Farrington Highway/Makaha Valley Road intersection.

Mr. Vincent R. Shigekuni
Page 2

HMV-PS 2.4156

3. The developer should prepare a drainage assessment report and submit it to us for review and approval.
 4. The developer shall be responsible for all costs incurred for roadway improvements within our highway rights-of-way.
- Thank you for this opportunity to provide our comments.

Very truly yours,

Edward Y. Hirata
Director of Transportation

December 20, 1988

Mr. Edward Y. Hirata
Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

HELPER
MASTERT
KAMURA
PARRIS
HHSK

Dear Mr. Hirata:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 15 December 1988 (your reference number HWY-PS 2-4156). We offer the following responses to your comment:

1. The Traffic Assessment for the proposed project will be appended to the Draft Environmental Impact Statement (DEIS), a copy of which will be distributed to your agency by the Office of Environmental Quality Control.
2. The DEIS will note that your agency "will have to review and approve all plans for the roadway improvements at Farrington Highway/Makaha Valley Road intersection".
3. As discussed with one of your staff, the DEIS will include a description of anticipated drainage impacts including: siltation and erosion during construction and the Flood Insurance Rate Map designation for the property.
4. It is understood that no costs incurred for roadway improvements within the State's Farrington Highway right-of-way attributed to proposed developments in Makaha Valley will be borne by the State. These costs will be shared by the developers of proposed projects in the valley.

Thanks again for your letter.

Sincerely,

Mark H. Mastert
Mark H. Mastert
Managing Principal

MHH:ics

cc: Ty Kusao
Wendell Brooks
Vince Shigekuni

Director
 Center
 P-11
 Room
 733
 Bldg
 Street
 Bldg
 2580
 Honolulu
 Hawaii
 96813
 Telephone
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 545-5055
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 (808)
 545-5050
 President
 LARRY E.
 MASTERT
 AUSA
 Mark H.
 MASTERT
 AUSA
 Chairman
 T.
 KAMURA
 Associate
 Nancy J.
 MASTERT
 AUSA
 Thomas A.
 FEE
 AUCP
 Kenneth
 MASTERT
 AUSA

STATE OF HAWAII
DEPARTMENT OF BUSINESS
AND ECONOMIC DEVELOPMENT



LAND USE COMMISSION

Room 104, 616 Federal Building, 335 Merchant Street
Honolulu, Hawaii 96813 Telephone: 548-4611

JOHN ALOKE
Governor
RICHARD L. KUP
Chairman
LAWRENCE F. OAHU
Vice Chairman

COMMISSION MEMBERS:

Shirley B. Hagan
Terrell P. Hutchins
Allen S. Jaffe
Robert T. Jones
Frederick P. Williams
Tara S. Lee
Allen S. Lee

ESTHER UEDA
Executive Officer

November 22, 1988

Mr. Vincent R. Shigekuni
Project Planner
Helber Hastert & Kimura
Grosvonor Center
Suite 2590, PRI Tower
733 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: EISPN for the Proposed Sheraton Makaha Resort
Expansion, Waianae, Oahu, TMK: 8-4-02:54

This is to acknowledge receipt of your November 8, 1988
letter indicating the Land Use Commission being added to the
list of consulted agencies for the subject EISPN.

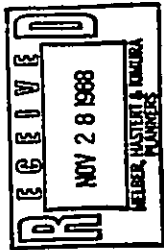
Based on our review of the EISPN, we find the proposed
resort expansion lies within the State Urban District. We have
no other comments at this time.

Thank you for your assistance in this matter.

Sincerely,

ESTHER UEDA
Executive Officer

EU:to



December 15, 1988

Ms. Esther Ueda
Executive Officer
Land Use Commission
State of Hawaii
Department of Business and Economic Development
335 Merchant Street, Room 104
Honolulu, Hawaii 96813

Dear Ms. Ueda:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 22
November 1988. Your letter will be reproduced in the Draft Environmental
Impact Statement in its entirety.

Thanks again for your letter.

Sincerely,

Mark H. Hastert
Managing Principal

MHH:cs

cc: Ty Kuzo
Wendell Brooks
Vince Shigekuni

HELBER
HASTER &
KIMURA
HAWAII

H H K

Owner

Chair

Tower

252

Shoop

Street

Suite

2590

Honolulu

Hawaii

96813

Telephone

808-548-4611

845-3066

Fax

808-548-4611

H H K U W

Franklin

Street

2408

San

Francisco

94102

President

ESTHER UEDA

Executive Officer

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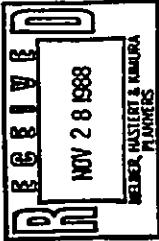
OFFICE OF STATE PLANNING

Office of the Governor

1507 CAPITOL HONOLULU, HAWAII 96813 TELEPHONE: (808) 548-5073

Ref. No. P-8938

November 22, 1988



Helber, Hastert & Kimura, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attention: Mr. Vincent Shigetani
Gentlemen:

Subject: Environmental Impact Statement Preparation Notice
for Sheraton Makaha Resort Expansion, Waianae, Oahu

We have reviewed the subject proposal and do not have any comments to offer at this time. Thank you for the opportunity to review this EISRN.

Sincerely,

Harold S. Masumoto
Harold S. Masumoto
Director

December 15, 1988

Mr. Harold S. Masumoto
Director
Office of State Planning
State Capitol
Honolulu, Hawaii 96813

Dear Mr. Masumoto:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 22 November 1988. Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thanks again for your letter.

Sincerely,

Mark H. Hastert
Mark H. Hastert
Managing Principal

MHH:cs

cc: Ty Kutao
Wendell Brooks
Vince Shigetani

HELBER
HASTERT
& KIMURA
PLANNERS

H-H-K

Comment

Card

File

733

Bishop

Street

2590

Honolulu

Hawaii

96813

Telephone

808

548-5065

Telex

83428

H-H-K-L-U-M

Facsimile

808

548-8060

Principal

Mark H.

HELBER

ALLA

Mark H.

HASTERT

ALLA

Owner

Oliver T.

KIMURA

Assistant

Nancy J.

WATSON

ALLA

Thomas A.

PEL

ALLA

Michael

YOUNG

ALLA

BOARD OF WATER SUPPLY

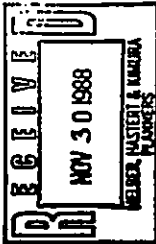
CITY AND COUNTY OF HONOLULU
600 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813



FRANK E. FASL, Mayor
DONNA B. GOHL, Chairman
JOHN L. TSAI, Vice Chairman
STEPHEN DANAHY, At Large, O.S.F.
EDWARD Y. HIRATA
ALFRED J. THEISE
ERNEST A. WATAH
MAURICE H. YAMASATO
KAZU HAYASHIDA
Manager and Chief Engineer

November 23, 1988

Mr. Vincent R. Shigekuni
Helber, Hastert & Kimura
Grosvenor Center
PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813



Dear Mr. Shigekuni:

Subject: Your Letter Dated November 9, 1988 Regarding
Environmental Impact Statement Preparation Notice
(EISP/N) for Sheraton Makaha Resort Expansion,
Maianae, Oahu, Hawaii, THK: 8-4-02: 54

IX-19

We have the following comments on the proposed project:

1. Currently, 125,000 gallons per day (gpd) of water is being reserved for ANA Hotels Hawaii, Inc. from Makaha Valley, Inc.'s water allotment. This allotment will not be available until our Makaha wells project is completed and placed in operation in late 1989.
2. Requests for quantities exceeding the 125,000 gpd allotment shall conform to our current water commitment policy. The availability of water will be determined when building permits are submitted for our review and approval. Water System Facilities Charges for source-transmission and daily storage shall apply to the amount exceeding 125,000 gpd.

If you have any questions, please contact Lawrence Whang at 527-6138.

Very truly yours,

Kazu Hayashida
KAZU HAYASHIDA
Manager and Chief Engineer

December 15, 1988

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 23 November 1988.

Thank you also for the information provided in your letter. This information will be incorporated into the Draft Environmental Impact Statement (DEIS) and your letter will be reproduced in the DEIS in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert

Mark H. Hastert
Managing Principal

MHH:ics

cc: Ty Kusao
Wendell Brooks
Vince Shigekuni

HELBEL
HASTERT
& KIMURA
Engineers

H-H&K

Overseas
Center

PR Tower

733

Bishop

Street

Suite

2590

Honolulu

Hawaii

96813

Telephone

808-

544-2008

Telex

63-4488

H-H&K (U)

Facsimile

808-

545-2060

Personnel

Lawrence

E. Helber

ASLA

Mark H.

Hastert

ALCA

Oliver T.

Kusao

Personnel

Wendell

Brooks

ALCA

Thomas A.

Shigekuni

ALCA

Mark H.

Young

ASLA

BUILDING DEPARTMENT
CITY AND COUNTY OF HONOLULU
 HONOLULU MUNICIPAL BUILDING
 540 SOUTH KING STREET
 HONOLULU, HAWAII 96813



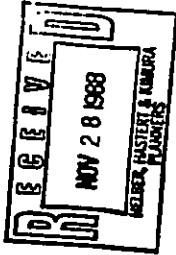
FRANK F. PARI
 MAYOR

HERBERT K. MURAOKA
 Director and Building Superintendent

PB 88-1031

November 23, 1988

Mr. Vincent R. Shigekuni
 Helber, Hastert & Kimura, Planners
 733 Bishop Street, Suite 2590
 Honolulu, Hawaii 96813



Dear Mr. Shigekuni:

Subject: EIS Preparation Notice
 Sheraton Makaha Resort Expansion
 THK: 8-4-02154

We have no comments on the proposed Sheraton Makaha Resort Expansion project.

Thank you for the opportunity to review the EIS Preparation Notice.

Very truly yours,

Herbert K. Muraoka

HERBERT K. MURAOKA
 Director and Building Superintendent

cc: J. Harada

December 15, 1988

Mr. Herbert K. Muraoka
 Director and Building Superintendent
 Building Department
 City and County of Honolulu
 Honolulu Municipal Building
 650 South King Street
 Honolulu, Hawaii 96813

Dear Mr. Muraoka:

Subject: Environmental Impact Statement Preparation Notice
 Sheraton Makaha Resort Expansion
 Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 23 November 1988. Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thanks again for your letter.

Sincerely,

Mark H. Hastert

Mark H. Hastert
 Managing Principal

MHH:ics

cc: Ty Kusao
 Wendell Brooks
 Vince Shigekuni

HERBERT K. MURAOKA
 Director and Building Superintendent
 Building Department
 City and County of Honolulu
 Honolulu Municipal Building
 650 South King Street
 Honolulu, Hawaii 96813

Operator
 Center

FBI
 Tower

733
 Bishop
 Street

Suite
 2590

Honolulu
 Hawaii

96813

Telephone
 808

843-3066

Telex
 631148

HHKKLUW

Facsimile
 808

843-3060

President
 Larry E.

HERBERT

ALLA

Mark H.

HASTERT

ALLA

Charm I.

KIMURA

Assistant

Nancy L.

HOSOGAWA

ALLA

Thomas A.

FEEL

ALLA

Kevin M.

YOUNG

ALLA

**DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU**

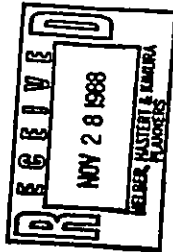
850 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: 933-3181



FRANK P. JAIN
DIRECTOR

MADE MOON
DIRECTOR
MICHAEL H. SCARFONE
DEPUTY DIRECTOR

November 23, 1988



Helber, Hastert and Kimura, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attention: Vincent Shigekuni

Gentlemen:

Subject: Environmental Impact Statement Preparation Notice (EISPH)
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii
Tax Map Key: 8-4-2: 54

We appreciate the opportunity to review the EISPH for the proposed development Plan amendment for the Sheraton Makaha Resort expansion. The Department has no comments to offer at this time. We recommend, however, that the market study supporting the resort expansion, a reference to which was made on Page 9 of the EISPH, be included in the forthcoming EIS.

Thank you for the opportunity to comment.

Sincerely,

for Mike Moon
for MIKE MOON
Director

HELBERT
HASTERT
& KIMURA
Planners
H-H&K

Owner
Center
FPH
Tower
733
Bishop
Street
Suite
2590
Honolulu,
Hawaii
96813
Telephone
808
545-3055
FAX
808
545-3055
FIDELITY
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FIDELITY
FIDELITY

Project
LARRY E.
HELBERT
AUSA

MARK H.
HASTERT
AUSA

GLENN T.
KIMURA
AUSA

ANDREW
MARKY I.
HELBERT
AUSA

THOMAS A.
FEE
AUSA

FRANK M.
KIMURA
AUSA

December 15, 1988

Mr. Mike Moon
Director
Department of Housing and Community Development
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Moon:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 23 November 1988.

As recommended, a market study supporting the proposed resort expansion will be included in the forthcoming Draft Environmental Impact Statement (DEIS).

Your letter will be reproduced in the DEIS in its entirety.

Thanks again for your comments.

Sincerely,

for Mark Hastert

Mark H. Hastert
Managing Principal

MHH:cs

cc: Ty Kusao
Wendell Brooks
Vince Shigekuni

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

140 SOUTH KING STREET
HONOLULU, HAWAII 96813 • PHONE 533-4432



FRANK G. PAUL
MAYOR

JOHN P. WHALEN
DIRECTOR
DEPARTMENT OF LAND UTILIZATION
DEPUTY DIRECTOR

LUII/88-7734 (RF)

November 25, 1988

Mr. Vincent R. Shigekuni
Project Planner
Helbert Hastert & Kimura
Grosvenor Center
PRI Tower
733 Bishop Street
Suite 2590
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Environmental Impact Statement
Preparation Notice (EISFN)
Sheraton Makaha Resort Expansion
Waiānae, Oahu, Hawaii
Tax Map Key 8-4-02: 5

The EIS should address land use compatibility of the resort proposal with other existing and proposed developments in the vicinity, as well as cumulative impacts on water resources and public infrastructure.

Thank you for the opportunity to comment.

Very truly yours,

John P. Whalen
JOHN P. WHALEN
Director of Land Utilization

JPW:s1
0245N

cc: DGP

December 15, 1988

Mr. John P. Whalen
Director of Land Utilization
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waiānae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 25 November 1988 (your reference number LUII/88-7734 (RF)).

As suggested, the Draft Environmental Impact Statement (DEIS) will address land use compatibility of the resort proposal with other existing and proposed developments in the vicinity, as well as cumulative impacts on water resources and public infrastructure.

Your letter will be reproduced in the DEIS in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert
Mark H. Hastert
Managing Principal

MHH:cs

cc: Ty Kusao
Wendell Brooks
Vince Shigekuni

HELBERT
HASTERT
& KIMURA
PLANNERS

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KIMURA

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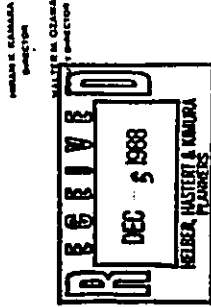
HELBERT
HASTERT &
KIMURA

HELBERT
HASTERT &
KIMURA

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
 650 SOUTH KING STREET
 HONOLULU, HAWAII 96813



November 30, 1988



Mr. Vincent R. Shigekuni
 Project Planner
 Helber, Hastert & Kimura Planners
 Grosvenor Center, PBI Tower
 733 Bishop Street, Suite 2590
 Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Environmental Impact Statement Preparation Notice
 Sheraton Makaha Resort Expansion - Maianae
 Tax Map Key 8-4-02: 54

We have reviewed the Environmental Impact Statement Preparation Notice (EISPN) for the expansion of the Sheraton Makaha Resort and Country Club in Maianae and offer the following comments.

We have no objection to the request for an amendment to the Maianae Development Plan to change lands adjacent to the existing Sheraton Makaha resort from Residential to Resort designation.

The existing and proposed addition of recreational areas and facilities in the resort complex will be adequate to serve the expanded resort needs.

Thank you for the opportunity to review the EISPN.

Sincerely,

Hiram K. Kawaka
 HIRAM K. KAWAKA, Director

HKK:e1

December 15, 1988

Mr. Walter M. Ozawa
 Director
 Department of Parks and Recreation
 City and County of Honolulu
 650 South King Street
 Honolulu, Hawaii 96813

Dear Mr. Ozawa:

Subject: Environmental Impact Statement Preparation Notice
 Sheraton Makaha Resort Expansion
 Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 30 November 1988. Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert

Mark H. Hastert
 Managing Principal

MHH:ics

cc: Ty Kusao
 Wendell Brooks
 Vince Shigekuni

HELBER
 HASTERT
 &
 KIMURA
 PLANNERS
HH&K
 Director
 Walter M. Ozawa
 PBI
 Suite 2590
 Bishop Street
 Honolulu
 Hawaii
 96813
 Telephone
 808-538-8000
 Telex
 534888
 FAKKLUW
 Facsimile
 808-538-8000
 Mary E.
 Peterson
 AUSA
 Mark H.
 Hastert
 AUSA
 Glenn T.
 Kimura
 AUSA
 Thomas
 F. Lee
 AUSA
 Mark M.
 Young
 AUSA

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

630 SOUTH KING STREET
HONOLULU, HAWAII 96813



PAULINE F. FASH
CLERK

ALFRED J. THIEDE
DIRECTOR AND CHIEF ENGINEER
In reply refer to:
PRO 88-327(449)

HELBER
HAERTERT
HAWAIIAN
PLANNERS
HEHBK

November 23, 1988

Mr. Vincent R. Shigekuni
Project Planner
Helber, Haertert & Kimura, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

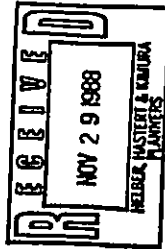
Subject: EIS Preparation Notice (EISPN)
Sheraton Makaha Resort Expansion
Waiānāe, Oahu (TRK: 8-9-02:54)

We have reviewed the subject EISPN and have the following comments:

1. A drainage report should be submitted to our Drainage Section, Division of Engineering, for review and approval.
2. The adequacy of the sewer collection system cannot be determined until we know the status of the proposed Kamale Village which was originally planned for the site.

Very truly yours,

Alfred J. Thiede
ALFRED J. THIEDE
Director and Chief Engineer



Generator
Center
FPH
Towers
733
Bishop
Street
Suite
2590
Honolulu
Hawaii
96813
Telephone
808-545-3000
545-3005

Tellex
834468
HEHBKUM
Honolulu
96813
545-3000

Principal
Larry E.
HELBER
ALBA

Mark H.
HAERTERT
ALBA

Cheryl
KIMURA
ALBA

Associate
Nancy L.
MORIMOTO
ALBA

Thomas A.
FEE
ALBA

Kenneth
YOUNG
ALBA

December 19, 1988

Mr. Alfred J. Thiede
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
630 South King Street
Honolulu, Hawaii 96813

Dear Mr. Thiede:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waiānāe, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 23 November 1988 (your reference number PRO 88-327 (449)). We offer the following responses to your comments:

1. As suggested, a drainage report will be submitted to the Drainage Section, Division of Engineering, for review and approval.
2. While there was an earlier proposal to develop the Kamale Village project on the subject property before it was sold to ANA Hotels Hawaii, Inc. (the current owner, developer and applicant), the proposed expansion of the Sheraton Makaha Resort supercedes the earlier proposal. Thus, no portion of the subject property will be used for the previously proposed project.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Haertert
Mark H. Haertert
Managing Principal

MHH:cs

cc: Ty Kusao
Wendell Brooks
Vince Shigekuni

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
 HONOLULU MUNICIPAL BUILDING
 650 SOUTH KING STREET
 HONOLULU, HAWAII 96813

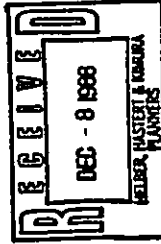


FRANK C. FARSI
 DIRECTOR

JOHN E. HIRATA
 DIRECTOR
 JOSEPH M. MAGALDI, JR.
 DEPUTY DIRECTOR

TE-7460
 PLL-1354

December 6, 1988



Helber, Hastert & Kimura, Planners
 733 Bishop Street
 Grosvenor Center
 PRI Tower
 Suite 2590
 Honolulu, Hawaii 96813

Attention: Mr. Vincent R. Shigekuni
 Project Planner

Gentlemen:

Subject: Sheraton Makaha Resort Expansion
 Environmental Impact Statement Preparation Notice
 Development Plan Amendment
 TMK: 8-4-02: 54

This is in response to your letter dated November 9, 1988 requesting our comments on the subject project.

Makaha Valley Road should be improved along the entire length from Huiipu Drive to Farrington Highway, as required, for a right-of-way of 60 feet to support the planned developments in Makaha Valley. These improvements should be completed prior to the approval of any future planned development.

If there are any questions, please contact Kenneth Hirata of my staff at 527-5031.

Sincerely,

JOSEPH M. MAGALDI, JR.
 Deputy Director

January 4, 1989

Mr. Joseph M. Magaldi, Jr.
 Director
 Department of Transportation Services
 City and County of Honolulu
 Honolulu Municipal Building
 650 South King Street
 Honolulu, Hawaii 96813

Dear Mr. Magaldi:

Subject: Environmental Impact Statement Preparation Notice
 Sheraton Makaha Resort Expansion
 Wainane, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 6 December 1988 (your reference number TE-7460 PL 1.1354). In regard to your concerns, we understand that the agent for the Waianae Development Plan Land Use Amendment application for the project (DGP reference number 89/W-1), Tyrone T. Kusso, Inc., met with DTS staff on 8 December 1988. We further understand that after the meeting your agency is satisfied with the two lane configuration for Makaha Valley Road, provided that the following improvements are made:

1. Installation of a traffic light at the intersection of Makaha Valley Road and Farrington Highway with certain intersection improvement.
2. Curb to curb pavement of Makaha Valley Road from Farrington Highway to Lahaina Street.
3. Installation of turning pockets at those intersections deemed necessary by your agency.
4. Realignment of the "kink" in the roadway near the entrance to the Sheraton Makaha Resort.
5. Road surface improvements.

HELBER
 HASTERT
 & KIMURA
 PLANNERS



Grosvenor
 Center
 PRI
 Tower

733
 Bishop
 Street

Suite
 2590

Honolulu
 Hawaii

96813

Telephone
 (808)
 527-5031

Telex
 834448
 H-H-K-UW

Facsimile
 (808)
 527-5030

Proprietors
 LARRY E.
 HELBER
 ALLAN

MARK H.
 HASTERT
 ALLAN

OWEN T.
 KIMURA

Partners
 MARY L.
 HIRATA
 ALLAN

THOMAS A.
 FEE
 ALLAN

KEVIN M.
 YOUNG
 ALLAN

6. Retention of street right-of-way wide enough for future widening as need dictates.

Thanks again for your comments.

Sincerely,

Mark H. Hastert

Mark H. Hastert
Managing Principal

MHH:z

cc: Ty Kusao
Wendell Brooks
Vince Shigekuni

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1419 S. KEMETIANA STREET, ROOM 300
HONOLULU, HAWAII 96814



FRANK F. YABE
1419

FRANK K. KAHOOHANOHANO
FIRE CHIEF
LIONEL S. CIMARA
DEPUTY FIRE CHIEF

HELBER
HASTERT
& KIMURA
PLANNERS
HH&K

November 22, 1988

Mr. Vincent R. Shigekuni
Project Planner
Helber, Hastert & Kimura, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

SUBJECT: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii, TMK 8-4-02:54

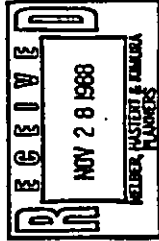
We have reviewed the subject material provided and have no objections to the proposed zone change amendment. Existing fire protection consists of an engine company and a 1500 gallon tanker from the Waianae Fire Station, with six on-duty personnel. Secondary service is available from engine companies at Manakuli and Makakilo and a ladder company from Waipahu. Fire protection is considered adequate.

Should you have any questions, please contact Battalion Chief Kenneth Word of our Administrative Services Bureau at 943-3838.

Very truly yours,

Frank K. Kahooohanoho
FRANK K. KAHOOHANOHANO
Fire Chief

FXX/KAH:lm



Deputy Chief
FBI
733
Bishop
Street
Suite
2590
Honolulu
Hawaii
96813
Telephone
943-3838
943-3066
Telex
634468
HH&K UN
Facsimile
943-3060
Personnel
LARRY E.
HELBER
ALLA
MARC H.
HASTERT
ALICE
Charm T.
KIMURA
Marilyn L.
MORIKAWA
ALICE
Thomas A.
FEE
ALICE
Kevin M.
YOUNG
ALICE

December 15, 1988

Mr. Frank K. Kahooohanoho
Fire Chief
Fire Department
City and County of Honolulu
1455 South Beretania Street, Room 305
Honolulu, Hawaii 96814

Dear Chief Kahooohanoho:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 22 November 1988.

Thank you also for the information provided on existing fire protection services available to the area. This information will be included in the Draft Environmental Impact Statement (DEIS) and your letter will be reproduced in the DEIS in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert

Mark H. Hastert
Managing Principal

MHH:cs

cc: Ty Kusao
Wendell Brooks
Vince Shigekuni

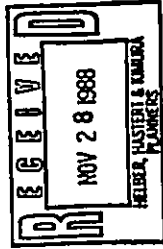
OFFICE OF HUMAN RESOURCES
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING, 6TH FLOOR
 650 SOUTH KING STREET
 HONOLULU, HAWAII 96813 • PHONE 537-4311



FRANK P. FAH
 MAYOR

MARIA VICTORIA R. BUNYE
 DIRECTOR
 VICTOR D. DUALLENDO, JR.
 DEPUTY DIRECTOR



November 23, 1988

Mr. Vincent R. Shigekuni, Project Manager
 Helber, Haster and Kimura, Planners
 Grosvenor Center
 PRI Tower
 733 Bishop Street
 Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

The Office of Human Resources has reviewed your application for Development Plan Amendment and Environmental Assessment for the Sheraton Makaha Resort expansion. We offer the following comments:

1. You state on page 16, that "the majority of the 272 direct jobs would probably be filled by Waianae residents. This would constitute a significant benefit in light of the persistent shortage of job opportunities in Waianae...Lack of jobs is a major concern in Waianae." In this light, we request that the developer make a firm commitment to fill at least seventy-five percent (75%) of the jobs with Waianae residents, with special focus on low-income persons or welfare recipients.
2. We recommend that hotel rooms, the conference facility, health spa and the tennis and commercial facilities be constructed in accordance to ANSI Standard 117-1986 so that they are accessible to, and usable by, disabled persons. This office will be available for assistance.

Thank you for the opportunity to comment on this matter.

Very truly yours,

Maria Victoria R. Bunye
 MARIA VICTORIA R. BUNYE, Director
 Office of Human Resources

MVRB:kt

December 15, 1988

Ms. Maria Victoria R. Bunye
 Director
 Office of Human Resources
 City and County of Honolulu
 Honolulu Municipal Building, 6th Floor
 650 South King Street
 Honolulu, Hawaii 96813

Dear Ms. Bunye:

Subject: Environmental Impact Statement Preparation Notice
 Sheraton Makaha Resort Expansion
 Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 23 November 1988. We offer the following responses to your comments:

1. While the developer agrees that it will be highly desirable for nearly all of the estimated 272 new direct long-term jobs (to operate the expanded facilities of the Sheraton Makaha Resort expansion) to be filled by Waianae residents, it would be difficult for the developer to "make a firm commitment to fill at least seventy-five percent (75%) of the jobs with Waianae residents". Of the total number of unemployed in Waianae, there may not be 204 (75% of 272 new jobs) full-time equivalent (FTE) unemployed that are interested or have the necessary minimum skills to fill the 204 FTE positions.
2. We have relied your recommendation to the developer that the proposed resort expansion facilities be constructed in accordance to ANSI Standard 117-1986 so that they are accessible to, and usable by, disabled persons. At the very minimum, all new facilities will be designed and constructed to observe the 1985 Uniform Building Code (as amended), which, incorporates many of the standards found in ANSI Standard 117-1986.

Your letter will be reproduced in the DEIS in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert

Mark H. Hastert
 Managing Principal

MHH:cs

cc: Ty Kusao
 Wendell Brooks
 Vince Shigekuni

HELBER
 HASTER
 & KIMURA
 PLANNERS

Grosvenor
 Center

PRI
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 Bishop
 Street

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 2500

Honolulu
 Hawaii

96813

Telephone
 537-4311

Telex
 544-3046

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 634488

Facsimile
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Program
 Manager

LEWIS
 H. HASTERT

ALBA

MARK H.
 HASTERT

ALBA

CHARLES
 YOUNG

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POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

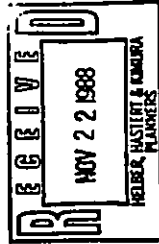
1455 SOUTH PIKE TANIKA STREET
HONOLULU, HAWAII 96814 - 441-1001 (HAWAII) 942-3111

FRANK F. ZARI
MAYOR



DOUGLAS G. GIBB
CHIEF
HARRIS PEREIRA
DEPUTY CHIEF

OUR REFERENCE SS-1C



November 18, 1988

Vincent R. Shigekuni, Project Planner
Helber, Hastert & Kimura, Planners
PRI Tower
733 Bishop Street Suite 2590
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Environmental Impact Statement Preparation Notice
(EISP/N), Sheraton Makaha Resort Expansion,
Waianae, Oahu, Hawaii, TMK: 8-4-02:54

We have reviewed the above EISP/N and offer the following
comments.

Due to the expansion of the facility, we can expect calls for
service to increase. We encourage you to increase security
measures to avoid the escalation of crime-related problems.
Additional lighting in locations which require visitors to walk
from one building or location to another will help to maximize
safety.

During the construction phases of the project, we also
recommend that safety signs and barricades be installed to
assist passing motorists. The hiring of special-duty officers
may also minimize traffic problems during the initial stages of
construction.

Sincerely,
DOUGLAS G. GIBB
Chief of Police

By *Ronald Souza*
RONALD SOUZA
Assistant Chief of Police
Support Services Bureau

December 12, 1988

Mr. Ronald Souza
Assistant Chief of Police
Support Services Bureau
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, Hawaii 96814

Dear Mr. Souza:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 18
November 1988. (Your reference number SS-1C).

The Draft Environmental Impact Statement (DEIS) will note that, with the
expansion of the resort facilities, there will be an unavoidable and occasional
increase in demand for security services. The expansion facilities will be
designed and operated to avoid the escalation of crime-related problems. To
that end, lighting of public spaces and landscaping will be designed to
maximize security along with aesthetic considerations. The Sheraton Makaha
Resort will expand its security staff to service the expanded facilities.

During the construction phases of the project, safety signs and barricades
will be installed at appropriate locations to assist passing motorists. Also, as
required, special-duty officers will be hired to minimize traffic problems
during the initial stages of construction.

Your letter will be reproduced in the DEIS in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert
Mark H. Hastert
Managing Principal

MHH:cs

cc: Ty Kusao
Wendall Brooks
Vince Shigekuni

HELBERT
HASTERT
& KIMURA
Planners



Gregory
Carter

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Tower

713
Bishop
Street

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Honolulu,
Hawaii

96813

Telephone
808/942-3005

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834468

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& KIMURA

Planners

808/942-3005

Planners

Larry E.
Helber

ASLA

Mark H.
Hastert

ASLA

Cherry L.
Kimura

ASLA

Associates

Nancy L.
Morioka

ASLA

Thomas A.
Fie

ASLA

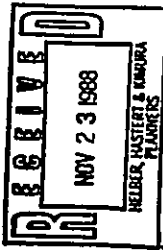
Kathy M.
Young

ASLA

GTE Hawaiian Tel

PC Box 2200
Honolulu, Hawaii, 96811
Telephone (808) 546-4511

November 18, 1988



Helber, Hastert & Kimura, Planners
733 Bishop Street Suite 2590
Honolulu HI 96813

Attention: Mr. Vincent R. Shigeckuni

Dear Mr. Shigeckuni:

Environmental Impact Statement Preparation Notice (EISPN)
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

We have reviewed the Environmental Impact Statement Preparation Notice dated November 9, 1988 for the Sheraton Makaha Resort expansion and have no objections to the project. However, to ensure the availability of the required telecommunication services, a construction schedule is required as soon as it becomes available.

If you have any question, please call me at 834-6221.

Sincerely,

Walter M. Matsumoto
Oahu Engineering and
Construction Manager

LX/SS/st(063)

December 12, 1988

Mr. Walter M. Matsumoto
Oahu Environmental and Construction Manager
GTE Hawaiian Tel
P.O. Box 2200
Honolulu, Hawaii 96841

Dear Mr. Matsumoto:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 18 November 1988.

As suggested in your letter, a construction schedule will be submitted to your office as soon as it becomes available.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert
Managing Principal

MHH:cs

cc: Ty Kusao
Wendall Brooks
Vince Shigeckuni

HELBER
HASTERT
& KIMURA
Planners

H-H&K

Greener
Center

PR

Tower

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Hawaii

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546-4511

Fax

834-6221

H-H&K

Planners

808

546-4511

Project

LEWIS

HELBER

ALLA

Mark H.

HASTERT

ALKA

Cheryl T.

KIMURA

Assistant

Mary L.

HISHIKAWA

ALKA

Thomas A.

FILE

ALKA

Kevin M.

YOUNG

ALKA

November 11, 1988

Helber, Eastert & Kimura, Planners
733 Bishop Street, Suite 2890
Honolulu, HI 96813

Attention: Vincent Shigeokuni

Re: Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waiānae, Oahu, Hawaii
TMK: 8-4-02:84

Dear Mr. Shigeokuni:

I have studied the Application for Development Plan Amendment and Environmental Assessment prepared by your company and I agree with its findings. It seems to be very complete and well done.

The development proposal is well within the 1000 room resort use limit already set for Makaha Valley.

This development will provide 272 direct full-time positions. These local jobs are needed; thus eliminating a long bus commute. For many, this now means standing two hours going to work and standing two hours returning home from work. In other words, twelve hours work for eight hours pay. The additional millions of dollars of payroll will have a very positive spin-off effect on our neighborhood. Our City and County and State Governments will benefit from annual real estate taxes collected on a ninety million long term private investment. Also the room tax and sales tax collected will be additional big dollars our government can use for our people. And to think we can get all of this without having to accept a polluting smoke stack industry.

This development is not only mauka of Farrington Highway, but one and one-half miles mauka of our coveted beaches. It will be in an existing resort area, bounded by Makaha Valley Road and two golf courses already in place. It will displace no one. No farmland is involved; it will

make use of under-utilized land that gives us very little now.

Board of Water Supply will have eight wells in Makaha Valley capable of supplying 8,000,000 GPD which they plan to produce only one-half of the capacity, or 4,000,000 GPD. Of this 4,000,000 GPD the Makaha Resort expansion will need 178,000 GPD, or less than 4 1/2% of Makaha Valley's water production.

Another side benefit for the community is we will get a needed larger volume of waste water added to the in-place long line leading to the disposal plant. This will help eliminate the inefficiencies and smell we now experience because of an oversized line without enough waste water volume to keep the solids moving.

For many years now, AMA has proven to be a good neighbor. AMA is sincerely dedicated to a long term relationship and needs this expansion approval to be competitive. It is my opinion our community should support this project whole-heartedly. Any unnecessary approval delays will add additional costs to AMA and will only delay the present and long term benefits our people are sure to receive.

The minimal adverse impact is far out weighed by the very positive benefits our people will receive in local job opportunities and taxes collected for our use.

I urge a speedy adoption.

Yours truly,

Charles Armstrong

Charles Armstrong
84-770 Kili Dr., #1939/40
Waiānae, HI 96792

December 12, 1988

Mr. Charles Armstrong
84-770 Kili Drive, #1939/40
Waiānānā, Hawaii 96792

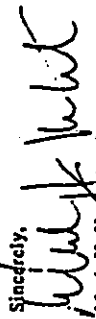
Dear Mr. Armstrong:

Subject: Environmental Impact Statement Preparation Notice
Sheraton Makaha Resort Expansion
Waiānānā, Oahu, Hawaii

Thank you for your review of the above document and your thoughtful and extensive letter dated 11 November 1988. Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thanks again for your comments.

Sincerely,



Mark H. Haedert
Managing Principal

MHIH:cs

cc: Ty Kusao
Wendall Brooks
Mollie Ludwick
Vince Shigetani

HELMER
HUSTERT
& KOMURA
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Principal

Larry E.

HELMER

ALLA

Mark H.

HUSTERT

ALLA

Oliver T.

KOMURA

Associate

Nancy J.

HEHKKAWA

ALLA

Thomas A.

FEE

ALLA

Kevin M.

YOUNG

ALLA

CHAPTER X

REFERENCES



Chaney Brooks & Company. Demand Assessment for Sheraton Makaha Resort and Country Club Expansion. Prepared for ANA Hawaii Hotels, Inc. December 1988.

Earthplan. Social Impact Assessment Prepared for the Environmental Impact Statement of the Proposed Pacific Basin Conference Resort in Makaha, Oahu, Hawaii. February 1987.

Environment Impact Study Corporation. Revised Environmental Impact Statement, Makaha Wells, Board of Water Supply, City and County of Honolulu. April 1984.

Environmental Communications, Inc. Final Environmental Impact Statement for the Proposed Pacific Basin Conference Resort, Makaha Valley, Oahu, Hawaii. Prepared for Home Properties, Inc. Honolulu. April 1987.

Hawaii, State of, Department of Health. "Title 11, Administrative Rules, Chapter 59, Ambient Air Quality Standards". (n.d.).

_____. "Title 11, Administrative Rules, Chapter 343, Environmental Impact Statement Rules. December 1985.

_____. "Title 11, Administrative Rules, Chapter 60, Air Pollution Control". (n.d.).

_____. "Title 11, Administrative Rules, Chapter 43, Community Noise Control for Oahu". November 6, 1981.

_____. "Title 11, Administrative Rules, Chapter 42, Vehicular Noise Control for Oahu". October 27, 1981.

Hawaii, State of, Department of Planning and Economic Development. The State of Hawaii Data Book. Honolulu. 1987.

_____. The Economic Impact of Tourism in Hawaii 1970 to 1980. Research Report 1983-2. Honolulu. April 1983.

_____. Title 15. Administrative Rules, Chapter 15. "Hawaii Land Use Commission Rules." October 1986.

Hawaii, State of, Land Evaluation and Site Assessment Commission. A Report on the State of Hawaii Land Evaluation and Site Assessment System. Honolulu. February 1986.

Helber, Hastert & Kimura, Planners. Application for Development Plan Amendment and Environmental Assessment, Sheraton Makaha Resort Expansion, Waianae, Oahu. For submittal to the Honolulu Department of General Planning (Reference No. 89/W-1). Prepared for ANA Hotels Hawaii, Inc. Honolulu. September 1988.

Hida, Okamoto & Associates, Inc. Proposed Sheraton Makaha Resort Expansion Impact on Utilities and Services. Prepared for Helber, Hastert & Kimura Planners, Honolulu. November 1988.

International Archaeological Research Institute, Inc. Archaeological Reconnaissance of a Proposed Resort Expansion in Makaha Valley, Leeward Oahu. Prepared for Helber, Hastert & Kimura Planners. Honolulu. October 1988.

Nagata, Kenneth M. Biological Survey Makaha Resort Expansion. Prepared for Helber, Hastert and Kimura Planners, Honolulu: October 5, 1988.

Parsons Brinckerhoff Quade & Douglas, Inc. Traffic Assessment Sheraton Makaha Resort Expansion. Prepared for Helber, Hastert & Kimura Planners. Honolulu. September 27, 1988.

Root, Barry D. and Barry D. Neal. Air Quality Study for the Proposed Sheraton Makaha Resort Expansion. Prepared for Helber, Hastert and Kimura, Planners. Honolulu. March 1989.

United States, Department of Agriculture Soil Conservation Service. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. Washington D.C. August 1972.

University of Hawaii, Land Study Bureau. Detailed Land Classification - Island of Oahu. Honolulu. December 1972.

CHAPTER XI

COMMENTS AND RESPONSES RECEIVED
DURING THE PREPARATION OF THE
FINAL EIS



ANA HOTELS

Sixty (60) copies of the Sheraton Makaha Resort Expansion Draft Environmental Impact Statement (DEIS) were officially received by the Office of Environmental Quality Control (OEQC) on 5 January 1989. Notice of the DEIS was published in the 8 January 1989 issue of the OEQC Bulletin (pps. XI-3 to 4) and 57 copies of the report were distributed to public agencies, organizations and libraries (pps. XI-4 to 5). Copies of the DEIS (including an original, signed copy) were delivered to the accepting agency, the City and County of Honolulu Department of General Planning. Copies of the DEIS were sent to the following libraries: the State Department of Business and Economic Development Library; the State Archives; the Honolulu Star-Bulletin; the Honolulu Advertiser; the Sun Press; the Municipal Reference and Records Center; the University of Hawaii Hamilton Library, Hawaiian Collection; the Legislative Reference Bureau; the State Main Library; the Kaimuki, Kaneohe, Pearl City, Hilo, Wailuku, and Lihue Regional Libraries; the Ewa Beach Community-School Library; the Waianae Library; and the Waipahu Library.

As of 2 March 1989, a total of 26 written comments had been received. The agencies and organizations which responded are identified below. All comments were responded to, and both comments and responses are reprinted on the following pages (starting on XI-6). At the request of one reviewer, an air quality study was prepared. The Air Quality Study for the Proposed Sheraton Makaha Resort Expansion, prepared by Barry D. Root and Barry D. Neal is attached to the Final Environmental Impact Statement as Appendix G.

Federal Agencies

Department of Agriculture, Soil Conservation Service
Department of Army, U.S. Army Engineer District, Honolulu
Department of the Interior, Fish and Wildlife Service
Department of the Navy

State Agencies

Department of Accounting and General Services
Department of Agriculture
Department of Business and Economic Development
 Energy Division
 Housing Finance and Development Corporation
Department of Defense
Department of Health
Department of Land and Natural Resources
Department of Transportation
University of Hawaii at Manoa
 Environmental Center

County Agencies

Board of Water Supply
Building Department
Department of General Planning
Department of Housing and Community Development
Department of Land Utilization
Department of Parks and Recreation
Department of Public Works
* Department of Transportation Services
Fire Department
Office of Human Resources
Police Department

Public Utilities

Hawaiian Electric Company, Inc.

Other Agencies and Organizations

American Lung Association



OEQC BULLETIN

JOHN WAIHEE
GOVERNOR

Marvin T. Miura, Ph.D.
DIRECTOR

OFFICE OF ENVIRONMENTAL QUALITY CONTROL
Volume VI
January 8, 1989
No. 1

REGISTER OF CHAPTER 343, HRS DOCUMENTS

All Chapter 343, HRS documents submitted for publication in the OEQC Bulletin must be addressed to the Office of Environmental Quality Control, 465 South King Street, Room 104, Honolulu, Hawaii 96813. Documents addressed otherwise will not be considered for publication.

NEGATIVE DECLARATIONS

The following are Negative Declarations or determinations made by proposing or approving agencies that certain proposed actions will not have significant effects on the environment and therefore do not require EISs (EIS Rules 11-200-11). Publication in the Bulletin of a Negative Declaration initiates a 60-day period during which litigation measures may be instituted. Copies are available at 25 cents per page upon request to the Office. Parties wishing to comment may submit written comments to the agency responsible for the determination (indicated in project title). The Office would appreciate a copy of your comments.

HAWAII

HONUA HAWAII CULTURAL CENTER, Honua Hawaii Cultural Center/Dept. of Land & Natural Resources (TKK: 2-4-4:131 & 132)

The applicant is Honua Hawaii

include development of land on Sand Island as well as approximately 97,000 sq. ft. of submerged lands off the adjacent shoreline. The submerged lands of the proposed project site are within the State Conservation District and therefore require a CMP. The land portion of the proposed project site is within the State Urban District.

AETI or a designated developer proposes to develop a cable ship terminal facility for repair and storage of transoceanic submarine telecommunications cables. This action is required to accommodate new Pacific region high capacity digital fiber-optic submarine cable systems scheduled for installation beginning in 1988. The terminal is planned to provide a dedicated berthing facility for the cable ship CHARLES L. BROWN, now docked at Pier 2C on the east side of Honolulu Harbor. Additionally, the facility will be used for storage of spare cable and accessories, and the periodic training of repair personnel.

SEWER TUNNEL RELIEF INCREMENT 5, Dept. of Public Works, City & County of Honolulu (TKK: 3-2:03-06, 37-39 and 3-3:02-12)

The proposed project involves the installation of a lining within the existing sewer tunnel which extends along Keolu Street from the former Malale Drive-in Theater site to its western terminus at Palolo Avenue, a distance of approximately 6,050 feet. The purpose of the proposed project is to provide for the continued maintenance of public health and welfare by protecting the existing sewer line from corrosion.

The cost for rehabilitation using the lining system is estimated at \$4.55 million (in 1988 dollars). To preclude premature failure of the

existing sewer tunnel, the lining will be installed within 15 years.

DRAFT ENVIRONMENTAL IMPACT STATEMENTS

EISs listed in this section are available for review at the following public depositories: Office of Environmental Quality Control; Legislative Reference Bureau; Municipal Reference and Records Center (Oahu EISs); Hamilton Library; State Main Library and the Kaimuki, Kanohe, Pearl City, Hilo, Wailuku and Lihue Regional Libraries. Statements are also available at State Branch Libraries that are in proximity to the site of a proposed action (indicated by project description).

Comments on the following EISs should be sent to: 1) the accepting authority; and 2) the proposing agency. Please note the deadline date for submitting written comments on the EIS.

OAHU

SHERATON MAKAHA RESORT EXPANSION, AMA Hotels Hawaii, Inc./Dept. of General Planning, City & County of Honolulu (TKK: 8-4-02:54)

The applicant requests an amendment to the Waianae Development Plan from residential land use to resort during the 1989 Development Plan annual amendment review. AMA Hotels Hawaii owns the 200 room Sheraton Makaha Resort and Country Club located on 26.413 acres. In December 1987, AMA Hotels Hawaii, Inc. acquired two additional parcels adjacent to the Sheraton Makaha Resort. One parcel is 8.475 acres, vacant and designated for resort use. The other property that was acquired is 35,709 acres, mostly vacant and designated for

DISTRIBUTION LIST

() E.A. () APPLICANT ACTION () AGENCY ACTION
 () EIS (X) APPLICANT ACTION () AGENCY ACTION

Title: Sheraton Makaha Resort Expansion
 Location: Between the Sheraton Makaha Resort & Makaha Valley Road
 Proposing Agency/Applicant: AHA Hotels Hawaii, Inc.
 Accepting Authority/Approving Agency: City & County of Honolulu, Dept. of General Planning
 Deadline for Comments: February 22, 1989
 Date Sent/By: January 8, 1989

STATE AGENCIES NO. COPIES REMARKS

STATE AGENCIES	NO. COPIES	REMARKS
OEQC	1	
Dept. of Agriculture	1	
Dept. of Accounting and General Services	1	
Dept. of Defense	1	
Dept. of Education (a)	1	
Dept. of Hawaiian Home Lands (a)	1	
Dept. of Health	1	
Dept. of Land and Natural Resources	3	
DLNR State Historic Preservation Officer	1	
Dept. of Business and Economic Development	1	
DBED Library	1	
Housing Finance & Development Corporation	1	
Dept. of Transportation	3	
State Archives	1	
State Energy Office	1	
UNIVERSITY OF HAWAII		
Environmental Center	1	
Marine Programs (a)	1	
Water Resources Research Center	1	
FEDERAL		
Army-DAFE (Facilities Eng.-USASCH)	1	
Environmental Protection Agency (a)	1	
Navy	1	
Soil Conservation Service	1	
U.S. Army Corps of Engineers	1	
U.S. Coast Guard	1	
U.S. Fish and Wildlife Service	1	
U.S. Geological Survey (a)	1	
Library Copy: 3		
Total Received: 60		
Total Distributed: 57		
File Copy:		

Copy of Distribution List Sent to: AHA Hotels Hawaii, Inc.
 Date: January 8, 1989
 PO Box 896
 Kalaheo, Hawaii 96792

(a) Copy desired only if project involves the agency's responsibilities.

The Dept. of Housing & Community Development is proposing to acquire six privately owned lots and to consolidate these lots with City-owned property to create a superblock in downtown Honolulu. The consolidated site of 5.06 acres would then be leased to a private entity for the development of a large mixed-use complex. Development of the site includes relocation of current tenants, demolition of existing structures, design and construction of the mixed-use complex (including landscaping) and operation of the new facilities.

Although construction of the new complex is expected to begin as early as October 1990, the phasing and timing of the work have not yet been determined. Costs for the proposed project have been prepared by the City based on the general components of the proposed project and are estimated at approximately \$150,000,000.

The site is bounded by So. Beretania, Fort, Kukui, and Queen Emma Streets and includes the public parking lot now called Block J, privately owned parcels and Kamalii Park.

The potential floor space based on the maximum allowable floor area ratio is 1.65 million sq. feet. Preliminary tower massing alternatives, in accordance with allowable development standards and zoning regulations, suggest that three towers might be appropriate for the project site. Separate towers for office space, residential units and a hotel, each with integrated commercial uses, would result in the following configurations:

Office Tower	28 floors
Hotel/Office Tower	32 floors
Residential Tower	41 floors

The proposed project would have a

residential use. AHA Hotels Hawaii, Inc. also owns another 25.2 acres in Makaha Valley which is occupied by the 18-hole Makaha Resort West Golf Course. AHA Hotels Hawaii, Inc. proposes to expand the facilities of the Sheraton Makaha Resort on the newly acquired 4.4 acres. The proposed Master Plan for the Sheraton Makaha Resort includes 300 additional hotel rooms, 150 new resort condominiums, a new conference facility, additional tennis facilities, 5,500 sq. ft. of resort-related retail space and a new 50-unit health spa.

The project will commence immediately upon obtaining the necessary governmental approvals and the 300-room hotel addition and 50-unit health spa will be completed approximately 2 years after commencement. The first 30 condominium units will be completed approximately 18 months after opening of the hotel and approximately 30 condominiums will be built and available for occupancy every 18 months thereafter, depending on market conditions. Total construction costs have been estimated at about \$90 million in 1988 dollars.

Contact: Vincent Shigetani
 Helber, Hastert & Kimura
 Planners
 733 Bishop St.
 Suite 2590
 Honolulu, Hawaii 96813

This EIS is also available for review at the State Main, Ewa Beach Community School, Waianae & Waipahu libraries.

Deadline: February 22, 1989

PACIFIC NATIONS CENTER, Dept. of Housing & Community Development/Dept. of Land Utilization, City & County of Honolulu (TKH:2-1-917,8.9.11,18,27,37,39,56)

NEWS MEDIA	NO. COPIES	REMARKS
Honolulu Star-Bulletin	1	
Honolulu Advertiser	1	
Sun Press	1	
Hawaii Tribune Herald (b)**		
West Hawaii Today - Kona (b)**		
The Garden Island Newspaper - Kauai (b)**		
Maui News (b)**		
Ka Moikoi (b)**		
CITY AND COUNTY OF HONOLULU (b)**		
Board of Water Supply	1	
Building Dept.	1	
Dept. of Housing and Community Development	1	
Dept. of General Planning	1	
Dept. of Land Utilization	1	
Dept. of Parks and Recreation	1	
Dept. of Public Works	1	
Dept. of Transportation Services	1	
Fire Dept.	1	
Municipal Reference and Records Center (Oahu only)	1	
Police Dept.	1	
COUNTY OF HAWAII (b)**		
Planning Dept.	1	
Dept. of Parks and Recreation	1	
Dept. of Public Works	1	
Dept. of Research and Development	1	
Dept. of Water Supply	1	
University of Hawaii - Hilo Campus Library	1	
COUNTY OF MAUI (b)**		
Planning Dept.	1	
Dept. of Parks and Recreation	1	
Dept. of Public Works	1	
Dept. of Water Supply	1	
Economic Development Agency	1	
Maui Community College Library	1	
COUNTY OF KAUAI (b)**		
Planning Dept.	1	
Dept. of Public Works	1	
Dept. of Water Supply	1	
Kauai Community College Library	1	
NON-GOVERNMENTAL AGENCIES		
American Lung Association	1	
Hawaiian Electric Company	1	
Office of Hawaiian Affairs	1	
LIBRARIES		
U.H. Hamilton Library, Hawaiian Collection	1	
Legislative Reference Bureau	1	

(b)** Copy desired only if project is in respective county.

LIBRARIES	NO. COPIES	REMARKS
State Main Library	1	
REGIONALS:		
Kaimuki Regional Library	1	
Kaneohe Regional Library	1	
Pearl City Regional Library	1	
Hilo Regional Library	1	
Waipahu Regional Library	1	
Uluu Regional Library	1	
OAHU:		
Aiea Library	1	
Xina Haina Library	1	
Ewa Beach Community-School Library	1	
Hawai Kai Library	1	
Kahuku Community-School Library	1	
Kaliua Library	1	
Kalihi-Palama Library	1	
Liliha Library	1	
Manoa Library	1	
McCully-Moiliili Library	1	
Millen Library	1	
Wahiawa Library	1	
Waiailua Library	1	
Walaeo Library	1	
Waikiki-Kapahulu Library	1	
Waimanalo Community-School Library	1	
Waipahu Library	1	
HAWAII		
Bond Memorial (Kohala) Library	1	
Holuafoa Library	1	
Honohe Library	1	
Kaliua-Kona Library	1	
Kesau Community-School Library	1	
Kealahou Library	1	
Laupahoehoe Community-School Library	1	
Mountain View Community-School Library	1	
Pahala Community-School Library	1	
Paho Community-School Library	1	
Thelma Parker Memorial Library/Waimea Area Library	1	
MAUI		
Kahului Library	1	
Lahaina Library	1	
Makawao Library	1	
MOLOKAI		
Molokai Library	1	
LANAI		
Lanai Community-School Library	1	
KAUAI		
Hanalei Library	1	
Kapaia Library	1	
Koloa Community-School Library	1	
Waimea Library	1	

UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION SERVICE
P. O. BOX 50004
HONOLULU, HAWAII
96850

088 2/19 660

'89 FEB 17 1:18

February 15, 1989

GENERIC LAWYING
C & S HONOLULU

Mr. Donald Clegg, Director
Department of General Planning
City and County of Honolulu
650 S. King Street
Honolulu, HI 96813

Dear Mr. Clegg:

Subject: Draft Environmental Impact Statement (DEIS) -
Sheraton Makaha Resort Expansion, Makaha Valley, HI

We have no comments to offer at this time, however, we would appreciate the
opportunity to review the final EIS.

Sincerely,

Wm H Mann
WARREN M. LEE
State Conservationist

cc: Office of Environmental Quality Control, 465 S. King Street, Rm. 104,
Honolulu, HI 96813
AMA Hotels Hawaii, Inc., P.O. Box 896, Waianae, HI 96792

HELENA
HASTERT
& MIURA
Partners

H-H-K

Governor

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845-3060

February 24, 1989

Mr. Warren M. Lee
State Conservationist
United States Department of Agriculture
Soil Conservation Service
P.O. Box 50004
Honolulu, Hawaii 96850

Dear Mr. Lee:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter of 15
February 1989. Your letter will be reproduced in the Final Environmental
Impact Statement in its entirety. As requested, a copy of the Final
Environmental Impact Statement will be sent to you for your review.

Sincerely,

Mark H. Hastert

Mark H. Hastert
Managing Principal

MHI:iva

cc: Donald Clegg
Randy Hara
Marvin Miura
Ty Kuzo
Wendell Brooks
Millie Ludwick
Vincent Shigekuni



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT. SHAFTER, HAWAII 96838-5440

February 17, 1989

REPLY TO:
ATTENTION OF:
Planning Branch

DEP 2/18/89 613

RECEIVED

'09 FEB 22 PM 3:14

HONOLULU

Mr. Donald A. Clegg
Department of General Planning
City and County of Honolulu
659 South King Street
Honolulu, Hawaii 96814

Dear Mr. Clegg:

Thank you for the opportunity to review the Draft Environmental Impact Statement (DEIS) for Sheraton Makaha Resort Expansion, Waianae, Oahu, Hawaii. Our previous comments in response to the EIS Preparation Notice (letter dated December 14, 1988) have been incorporated into the DEIS. Also, the determination by Operations Branch that a Department of the Army permit is not required for the project has been included in the DEIS as Appendix F. We have no additional comments.

Sincerely,

Mark H. Haster
Mark H. Haster
Chief, Engineering Division

Copies furnished:

Dr. Marvin Miura
Office of Environmental Quality Control
465 South King Street, Room 194
Honolulu, Hawaii 96813

ANA Hotels Hawaii, Inc.
P.O. Box 896
Waianae, Hawaii 96792

HASTER
HASTER
MIURA

HHRK

Operator

Chief

FR

Tower

T33

Edoop

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Hawaii

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845-2065

Telex

834468

HHRKUH

Facsimile

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845-2060

Personnel

LETTER

HASTER

MIURA

MARK H.

HASTER

AICP

THOMAS A.

FEE

AICP

KEVIN M.

YOUNG

MIURA

February 27, 1989

Mr. Kisuk Cheung
Chief, Engineering Division
Planning Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Building 230
Ft. Shafter, Hawaii 96838-5440

Dear Mr. Cheung:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter of 17 February 1989. Your letter will be reproduced in the Final Environmental Impact Statement in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Haster

Mark H. Haster
Managing Principal

MHH:vs

cc: Donald Clegg

Randy Hara

Marvin Miura

Ty Kusao

Wendell Brooks

Millie Ludwick

Vincent Shigekuni



United States Department of the Interior
FISH AND WILDLIFE SERVICE
 PACIFIC ISLANDS OFFICE
 P.O. BOX 50167
 HONOLULU, HAWAII 96850

ES
 Room 6307

JAN 10 1989

Dr. Marvin T. Miura
 Office of Environmental Quality Control
 465 South King Street, Room 104
 Honolulu, Hawaii 96813

Re: Draft Environmental Impact Statement for the Sheraton Makaha
 Resort Expansion

Dear Dr. Miura:

We have reviewed the referenced material dated January 1989, and have no comments to offer at this time. Please do not hesitate to call on us if we may be of further assistance.

We appreciate the opportunity to comment.

Sincerely yours,

Ernest Kosaka
 Ernest Kosaka
 Field Office Supervisor
 Environmental Services

cc: Dept. of General Planning
 ANA Hotels Hawaii, Inc.

HELMER
 HASTERT
 & KUMURA
 Planners



Overseas
 Center

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February 22, 1989

Mr. Ernest Kosaka
 Field Office Supervisor
 Environmental Services
 United States Department of the Interior
 Fish and Wildlife Service
 Pacific Islands Office
 P.O. Box 50167
 Honolulu, Hawaii 96850

Dear Mr. Kosaka:

Subject: Draft Environmental Impact Statement
 Sheraton Makaha Resort Expansion
 Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 10 January 1989. Your letter will be reproduced in its entirety in the Final Environmental Impact Statement.

Sincerely,

M. H. Hastic

Mark H. Hastic
 Managing Principal

Milittus

cc: Marvin Miura
 Donald Clegg
 Randy Hara
 Ty Kusao
 Wendell Brooks
 Millie Ludwick
 Vincent Shigekuni



DEPARTMENT OF THE NAVY
 COMMANDER
 NAVAL BASE PEARL HARBOR
 BOX 110
 PEARL HARBOR, HAWAII 96860-5020

IN REPLY REFER TO

5090 (95B)
 Ser 032/108
 10 Jan 1989

Department of General Planning
 City & County of Honolulu
 650 S. King St.
 Honolulu, HI 96813

Gentlemen:

SHERATON MAKAHA RESORT EXPANSION

The Draft Environmental Impact Statement (DEIS) for Sheraton Makaha Resort Expansion TMK: 8-4-02:54 has been reviewed, and we have no comments to offer. Since we have no further use for the DEIS, it is being returned to the Office of Environmental Quality Control.

Thank you for the opportunity to review the draft.

XI-9

Sincerely,

W.K. Liu

W K LIU
 Assistant Base Civil Engineer
 In Charge of
 P-2 Commander

Copy to:
 ✓ ANA Hotels Hawaii, Inc.
 P.O. Box 896
 Waiānae, HI 96792

OEOC (w/DEIS)
 455 S. King St., Rm 104
 Honolulu, HI 96813

HELLEN
 HASTERT
 & KUMURA
 Planners

H-H&K

Commander

PH

Tower

Z35

Dirprop

Street

Edin

Z380

Honolulu

Hawaii

96813

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545-2060

Telex

834448

H-H&K:UH

Facsimile

808

545-2060

President

Larry E

HELBER

ALLA

Mark H

HASTERT

AUCP

Glenn I

KUMURA

Assistant

Nancy I

HESKAWA

AUCP

Thomas A

FEE

AUCP

Keith M

YOUNG

ALLA

February 22, 1989

Mr. W.K. Liu
 Assistant Base Civil Engineer
 Department of the Navy
 Commander
 Naval Base Pearl Harbor
 Box 110
 Pearl Harbor, Hawaii 96860-5020

Dear Mr. Liu:

Subject: Draft Environmental Impact Statement
 Sheraton Makaha Resort Expansion
 Waiānae, Oahu, Hawaii

Thank you for your review of the above document and your letter (your reference number 5090 (95B), Ser 032/108) dated 10 January 1989. Your letter will be reproduced in the Final Environmental Impact Statement in its entirety.

Sincerely,

W.K. Liu

Mark H. Hastert
 Managing Principal

MHH:vs

cc: Donald Clegg
 Randy Hara
 Marvin Miura
 Ty Kusao
 Wendell Brooks
 Millie Ludwick
 Vincent Shigekuni



STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 115, HONOLULU, HAWAII 96810

JAN 12 1989

City and County of Honolulu
Department of General Planning
650 South King Street
Honolulu, Hawaii 96813

Office of Environmental
Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

Gentlemen:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion

We have reviewed the subject document and have no
comments to offer.

Very truly yours,

Teuane Tominaga
TEUANE TOMINAGA
State Public Works Engineer

SH:jk
cc: ANA Hotels Hawaii, Inc.

RUSSELL S. MADATA
Honolulu
SAM KITAHARA
Honolulu
LETTER NO. (P) 1013.9

HELBER
HARTERT
& KUMURA
Parrish
HH&K

Governor
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HH&KLUW
Honolulu
96813
Facsimile
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President
LEWIS
HELBER
ALLA
Mark H.
HARTERT
ALIC
Cheryl
KUMURA
Assistant
Mary L.
KUMURA
ALIC
Thomas A.
FEE
ALIC
Kathleen
KUMURA
ALIC

February 22, 1989

Mr. Teuane Tominaga
State Public Works Engineer
State of Hawaii
Department of Accounting and General Services
Division of Public Works
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Tominaga:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter (your
reference number [P]1013.9) dated 12 January 1989. Your letter will be
reproduced in the Final Environmental Impact Statement in its entirety.

Sincerely,

Mark H. Hartert

Mark H. Hartert
Managing Principal

MHH:vs

cc: Donald Clegg
Randy Hara
Marvin Miura
Ty Kusao
Wendell Brooks
Miltie Ludwick
Vincent Shigekuni



JOHN WAIHEE
GOVERNOR

YUKIO KITAGAWA
CHAIRPERSON, BOARD OF AGRICULTURE
SUZANNE D. PETERSON
DEPUTY TO THE CHAIRPERSON

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
2428 So. King Street
Honolulu, Hawaii 96814-2512
February 21, 1989

MAILING ADDRESS:
P. O. Box 22159
Honolulu, Hawaii 96822-0159

HELNER
HASTERT
& KUMURA
PLANNERS
HHR&K

February 27, 1989
Mr. Yukio Kitagawa
Chairperson, Board of Agriculture
State of Hawaii
Department of Agriculture
P.O. Box 22159
Honolulu, Hawaii 96822-0159
Dear Mr. Kitagawa:

Mr. Donald Clegg, Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waiannae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 21 February 1989. Your letter will be reproduced in the Final Environmental Impact Statement in its entirety.

Subject: Draft Environmental Impact Statement (DEIS)
Sheraton Makaha Resort Expansion
ANA Hotels Hawaii, Inc.
TKR: 8-4-02: 54
Area: 35.709 acres

Sincerely,
Mark H. Hastert
Mark H. Hastert
Managing Principal

The Department of Agriculture has reviewed the subject DEIS and has no comments to offer.

Thank you for the opportunity to comment.
Sincerely,

Yukio Kitagawa
YUKIO KITAGAWA
Chairperson, Board of Agriculture

cc: OEQC
ANA Hotels Hawaii, Inc.

- Director: Helner, Hastert & Kumura
- Office: 2428 So. King Street, Honolulu, HI 96814-2512
- Phone: (808) 545-2065
- Telefax: (808) 545-2065
- Facsimile: (808) 545-2060
- Personnel: Larry E. Helner, Aella
- Mark H. Hastert, AICP
- Cherry T. Kumura
- Associates: Nancy L. Hoshikawa, AICP; Thomas A. Fee, AICP; Keith M. Young, AICP



DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT

100 SOUTH KING STREET, SUITE 110, HONOLULU, HAWAII 96813

2-611 1-1-1
JOHN WARD
DIRECTOR
ROGER A. YOUNG
DEPUTY DIRECTOR
BARBARA KIM BULLOCK
DEPUTY DIRECTOR
LISLE S. MAZURAKA
DEPUTY DIRECTOR

January 11, 1989

City and County of Honolulu
Department of General Planning
650 South King Street
Honolulu, Hawaii 96813

Dear Sir:

Subject: Draft Environmental Impact Statement for the Sheraton Makaha Resort, THK: 8-4-02:54

Thank you for the opportunity to review the Draft EIS. We have no comments to offer at this time.

Sincerely,

Tom O'Brien
for MAURICE H. KAYA
Energy Program Administrator

MHK/hk

cc: AHA Hotels Hawaii, Inc.

HELPER
HASTERT
& KUMURA
Planners

HH&K

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President
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HELPER
A.A.L.A.

Mark H.
HASTERT
A.U.C.P.

Oliver T.
KUMURA

Assistant
Nancy L.
MORIMOTO
A.U.C.P.

Thomas A.
FEE
A.U.C.P.

Kevin M.
YOUNG
A.A.L.A.

February 22, 1989

Mr. Maurice H. Kaya
Energy Program Administrator
State of Hawaii
Department of Business and
Economic Development
Energy Division
335 Merchant Street, Room 110
Honolulu, Hawaii 96813

Dear Mr. Kaya:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waimanac, Oahu, Hawaii

Thank you for your review of the above document and your letter dated
11 January 1989. Your letter will be reproduced in the Final Environmental
Impact Statement in its entirety.

Sincerely,

Mark H. Hastert

Mark H. Hastert
Managing Principal

MHH:vs

cc: Donald Clegg
Randy Hara
Ty Kusso
Wendell Brooks
Millie Ludwick
Vince Shigekuni

66P 2/8955



JOHN WARD
DIRECTOR

6: 2:46

JOSEPH K. CONANT
EXECUTIVE DIRECTOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT
GENERAL OFFICE
C & C HOUSING FINANCE AND DEVELOPMENT CORPORATION
P. O. BOX 2000
HONOLULU, HAWAII 96819-0200

89:PLNG/4208 JT

February 6, 1989

MEMORANDUM

TO: Dr. Marvin T. Miura, Director
Office of Environmental Quality
Control

FROM: Joseph K. Conant

SUBJECT: Draft Environmental Impact Statement (EIS), for the
Proposed Sheraton Makaha Resort Expansion

XI-13

We have reviewed the subject EIS and offer the following comments.

It appears that affordable housing opportunities in the Waianae Development Plan area are limited. The EIS points out that rental vacancy rates are low; rental rates have increased between 15 to 20 percent over the last two years; and, average home resale prices have increased significantly since 1987.

While the housing impact appears to be minimal (with an estimated 24 new households taking up residence in Waianae as a result of the project), we believe that efforts should be made to ensure that new employees are adequately housed.

The EIS lists several proposed residential projects in the Eva area that will add to the housing stock. We note, however, that Gentry Eva has replaced Pearl Meadows, and that the development of Eva Marina has been delayed because of foreclosure. Additionally, we believe that the residential component of Ko Olina will not be affordably priced.

There are, however, other proposed developments in the Eva area that could offer affordable housing opportunities. They are the HFDC's Kapolei Village, the City's West Loch Estates, and Eva Gentry.

Dr. Marvin T. Miura
February 6, 1989
Page 2

We are pleased to learn of the existence of programs that link Waianae residents with employment at the Sheraton Makaha Resort. We agree that the continuation of these employment programs could mitigate the project's impact on housing in Waianae.

Thank you for the opportunity to comment.

JOSEPH K. CONANT
Executive Director

cc: City and County of Honolulu,
Department of General Planning

ANA Hotels Hawaii, Inc.

HELMER
MASTERT
KAMUPA
Partners
H-H&K

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Principal

HELMER

ALLA

Mark H.

MASTERT

ALLA

Queen T.

KAMUPA

Assistant

Nancy L.

MSH:AWA

ALLA

Thomas A.

FEE

ALLA

Kenneth

YOUNG

ALLA

February 17, 1989

Mr. Joseph K. Conant
Executive Director

State of Hawaii
Department of Business and Economic Development
Housing and Finance Development Corporation
P.O. Box 29360
Honolulu, Hawaii 96820-1760

Dear Mr. Conant:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waiānā, Oahu, Hawaii

Thank you for your review of the above document and your memorandum addressed to Dr. Marvin T. Miura, dated 6 February 1989. We appreciate the information provided on proposed developments in the Ewa area that could offer affordable housing opportunities. Section 5.3 HOUSING of the Final Environmental Impact Statement (FEIS) will incorporate this information.

Your letter will be reproduced in the FEIS in its entirety.

Thanks again for your comment.

Sincerely,

John H. Helmer

Mark H. Helmer
Managing Principal

MHH:vs

cc: Marvin Miura

Donald Cicch

Randy Hara

Ty Kusao

Wendell Brooks

Millie Ludwick

Vincent Shigekuni

DEF 1/89 111



STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD, HONOLULU, HAWAII 96813

JUL 12 1989

ALLEN T. LUM
Major General
Adjutant General
Honolulu, Hawaii
3949

HELNER
HASTERT
& KIMURA
Partners
HH&K

Engineering Office

City & County of Honolulu
Dept. of General Planning
650 S. King St.
Honolulu, Hawaii 96813

Office of Environmental Quality Control
465 S. King St., Rm. 104
Honolulu, Hawaii 96813

Dear Gentlemen:

Sheraton Makaha Resort Expansion
TRK: 8-4-02:54

Thank you for providing us the opportunity to review the subject project.

We have no comments to offer at this time regarding this project.

Sincerely,

Jerry M. Matsuda
Jerry M. Matsuda
Major, Hawaii Air
National Guard
Contr & Engr Officer

Enclosures

cc: ANA Hotels Hawaii, Inc.

February 22, 1989

Major Jerry M. Matsuda
Hawaii Air National Guard
Contr & Engr Officer
State of Hawaii
Department of Defense
Office of the Adjutant General
Engineering Office
3949 Diamond Head Road
Honolulu, Hawaii 96816-4495

Dear Major Matsuda:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter dated 12 January 1989. Your letter will be reproduced in the Final Environmental Impact Statement in its entirety.

Sincerely,

Mark H. Hastert
Mark H. Hastert
Managing Principal

MHH:vs

cc: Donald Clegg
Randy Hara
Marvin Miura
Ty Kusao
Wendell Brooks
Millie Ludwick
Vince Shigckuni

288 387 639

RECEIVED

JUNE WARDEN
DIRECTOR OF HEALTH

'89 FEB 16 11.32

GENERAL PLANNING
C & C HONOLULU



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 209
HONOLULU, HAWAII 96801

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

IN REPLY, PLEASE REFER TO
EPHSD

HELBERT
HASTERT
& KALUHA
Partners
HH&K

Greenwood
Center
P.O.
Box
733
Bercop
Street
Suite
2040
Honolulu
Hawaii
96813
Telephone
(808)
545-2055
Telex
83448
HH&KUH
Honolulu
96801
545-2000

To: Mr. Donald A. Clegg, Chief Planning Officer
Department of General Planning, City & County of Honolulu

From: Deputy Director for Environmental Health

Subject: Draft Environmental Impact Statement (DEIS) for Sheraton Makaha
Resort Expansion, Waiānae, Oahu, Hawaii, Tax Map Key B-4-02: 54

Thank you for allowing us to review and comment on the subject DEIS. The
resort does have rodent problems so it is imperative that all requirements of Title
11, Chapter 26, paragraph 35 (Rodents; demolishing of structure and clearing of
sites and vacant lots) be adhered to.

Bruce S. Anderson
BRUCE S. ANDERSON, Ph.D.

February 24, 1989

Mr. Bruce S. Anderson, Ph.D.
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Anderson:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waiānae, Oahu, Hawaii

Thank you for your review of the above document and the information on
vector control provided in your memorandum to Mr. Donald Clegg of 10
February 1989 (your reference number EPHSD). The applicant, ANA Hotels
Hawaii, Inc., has been informed of Title 11, Chapter 26, paragraph 35,
Department of Health Administrative Rules, and will adhere to all of its
requirements.

Your letter will be reproduced in the Final Environmental Impact Statement
in its entirety.

Thanks again for your letter.

Sincerely,
Mark H. Hastert

Mark H. Hastert
Managing Principal

MHH:ivs

cc: Donald Clegg
Randy Hara
Ty Kuroo
Wendell Brooks
Millie Ludwick
Vincent Shigetkuni

JOHN WILKIE
Chairman of Board



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 671
HONOLULU, HAWAII 96809

WILLIAM W. PATY, CHAIRPERSON
Board of Land and Natural Resources

MEMBERS
LEWIS G. LINDGREN
MARIAN YAGOUNO
RUSSELL N. FUJIMOTO
APPROPRIATE DEVELOPMENT
PROGRAMS
CONSERVATION AND
ENVIRONMENTAL AFFAIRS
CONSTRUCTION AND
ARCHAEOLOGICAL RESEARCH
PLANNING AND DESIGN
LAND MANAGEMENT
SITE PLANS
HISTORIC AND LAND DEVELOPMENT

DOC. NO.: 5101E
FILE NO.: 89-365

FEB 15 1989

The Honorable John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Whalen:

SUBJECT: Draft EIS - Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii, THK: 8-4-02: 54

Thank you for giving our Department the opportunity to comment on this matter. We have reviewed the materials you submitted and have the following comments.

Our Department's Historic Sites Section indicates that an archaeological investigation has been completed for this project. Three historic sites were recorded, and this recording gathered reasonable and adequate amounts of their significant information, making them "no longer significant." The project will therefore have "no effect" on significant historic sites.

Please feel free to call me or Roy Schaefer of our Office of Conservation and Environmental Affairs, at 548-7837, if you have any questions.

Very truly yours,
William W. Paty
WILLIAM W. PATY

cc: ANA Hotels Hawaii, Inc.

HELENE
HASTERT
& KUMURA
Partners
HH&K

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Glen Y.
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Nancy L.
Mishanawa
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Thomas A.
Patterson
AUCP
Kevin M.
Young
ALLA

February 22, 1989

Mr. William W. Paty
Chairperson
Board of Land and Natural Resources
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Paty:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your memorandum dated 15 February 1989 (DOC. NO. 5102E; FILE NO. 89-365).

We appreciate the information provided in your letter. This information will be incorporated into the Final Environmental Impact Statement (FEIS) and your letter and the archaeological report will be reproduced in the FEIS in their entirety.

Thanks again for your comments.

Sincerely,
Mark H. Hastert
Mark H. Hastert
Managing Principal

MHH:vs
cc: Marvin Miura
Donald Clegg
Randy Hara
Ty Kuisao
Wendell Brooks
Millee Ludwick
Vincent Shigekuni

JOHN HANKEE
COUNCILOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION

100 PRINCEWELL STREET
HONOLULU, HAWAII 96813

89 FEB 23 AM 51 FEB 22 1989

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

Marvin T. Miura, Ph.D.
Director
Office of Environmental Quality
Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

Dear Dr. Miura:

Draft EIS for Sheraton Makaha Resort
and Valley Road, Waianae, Oahu
THK: 8-4-02: 54

XI-18

EDWARD Y. HIFATA
DIRECTOR

DEPUTY DIRECTOR
JOHN K. LOHMAN
RONALD N. HIRANO
DAVID T. MOCH
JAMES K. SCHULTZ

IN REPLY REFER TO
HWY-PS
2.5093

Marvin T. Miura, Ph.D.
Page 2
February 22, 1989

HWY-PS 2.5093

3. The traffic assessment also assumes that Farrington Highway is a four lane facility. The widening, however, is scheduled for completion in late 1995. Recommendations for interim traffic mitigation measures should also be submitted as part of the revised assessment.

4. Developer shall submit plans to our Highways Division for approval on work done within State highway rights-of-way. All costs involved for above work shall be borne by the developer.

Thank you for this opportunity to provide comments.

Very truly yours,

Edward Y. Hifata
Director of Transportation

We have reviewed the EIS and offer the following comments:

1. The Traffic Assessment (Appendix D) should:
 - a. Evaluate weekday as well as weekend peak traffic periods.
 - b. Vehicle trips generated by the proposed project and other developments in the area should be superimposed on conditions anticipated for the target year of development, i.e. the volumes on Farrington Highway should be forecasted to the target year.
2. Recommendations based on a revised traffic assessment should be submitted for our review. It should include the computations to determine the length requirements of the turning lanes, and level of service analysis for intersections with Farrington Highway.

HELBERT
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& ASSOCIATES
PLANNERS



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Thomas A.

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Kenneth

YOUNG

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March 3, 1989

Mr. Edward Y. Hirata
Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document. We have received your letter to Mr. Marvin Miura dated 22 February 1989 (your reference number HWY-PS, 23093) and offer the following responses to your comments.

1. The Traffic Assessment for the Environmental Impact Statement (Appendix D) evaluated conditions on weekday morning and afternoon peak hours. While daily traffic volumes on weekends may be higher than weekdays due to recreational traffic, the traffic demand is spread over a longer period of time; the critical traffic period is expected to be during the weekday peak periods. All other known development in Makaha Valley has been considered in the forecast of future traffic demands (see Table I and page 7 of the Traffic Assessment).
2. The Traffic Assessment has identified that traffic signals and separate turning lanes should be provided at the Farrington Highway/Makaha Valley Road intersection; the specific lengths of these lanes should be determined with the design of the traffic signal. The findings of the level of service analyses for the intersections affected by the proposed project are presented in Table 4 of the Traffic Assessment. Computations of the level of service analysis for the intersection of Farrington Highway and Makaha Valley Road will be submitted to your Planning Branch under separate cover by the traffic consultant, Parsons Brinckerhoff Quade & Douglas, Inc.
3. The traffic assignment for future conditions with the project assumed that all other development proposed in Makaha Valley would be completed and in full use. While this condition is not expected prior to 1995, the Traffic Assessment identified the potential capacity problem for a future case without the widening of Farrington Highway. The design of the traffic signal at the Makaha Valley Road intersection will include appropriate measures to interface with Farrington Highway, whether it be two or four lanes wide.

Mr. Edward Y. Hirata
March 3, 1989
Page 2

4. Plans will be submitted for any work done within the State highway rights-of-ways for the Highways Division's review and approval. All costs involved for the above work shall be borne by the developers in Makaha Valley.

Your letter will be reproduced in the Final Environmental Impact Statement in its entirety.

Thanks again for your letter.

Sincerely,

Mark H. Hastert
Managing Principal

MHH:ys

- cc: Marvin Miura
- Donald Clegg
- Randy Hara
- Ty Kusio
- Wendell Brooks
- Millic Ludwick
- Julian Ng
- Vincent Shigekuni

DKP 2/28-72



University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7261

February 22, 1989
RE:0519

Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Sir:

Draft Environmental Impact Statement
Makaha Sheraton Resort Expansion
Waianae, Oahu

The above referenced document proposes to expand the existing facilities of the Sheraton Makaha Resort in Waianae, Oahu. The proposal considers a 35.709-acre site adjacent to the existing facilities of the Sheraton Makaha Resort and Makaha Valley Road. This review was conducted with the assistance of Luciano Minerbi, Urban and Regional Planning; Sheila Conant, General Sciences; P. Blon Griffin, Anthropology; Edwin Murabayashi, Water Resources Research Center; and C. Anna Ulaszewski, Environmental Center.

In general, this seems to be a well developed document; however, several areas of concern have been noted by our reviewers for further consideration in the Final Environmental Impact Statement (EIS):

Housing

According to this document, page I-1, the Applicant has applied to the City and County of Honolulu Department of General Planning for an amendment to the Waianae Development Plan (DP) which would redesignate the 36-acre project area from the present Residential (DP) designation to Resort DP designation. In Chapter VI, Alternatives to the Proposed Action, the "Residential Development" alternative is evaluated. Line 2 of this section states: "Given the proximity to the existing facilities of the Sheraton Makaha Resort, homes developed on the subject property would have to be compatible with resort use." Further, "...feasible residential uses would be limited to high priced single-family housing." What is the rationale for these statements: why do the homes have to be compatible with resort use and why must they be single-family houses?

AN EQUAL OPPORTUNITY EMPLOYER

Department of
General Planning

-2-

February 22, 1989

Also, a comparison was made to the Mauna Olu Subdivision which offers large lots (1 to 1.3 acres) with better views and are available for between \$250,000 to \$280,000. Following this logic, if low and medium density residential condominiums are built on the project site, wouldn't the price be more reasonable than those of Mauna Olu Subdivision? We believe these questions should be answered and this alternative more fully developed.

According to page V-6, the demand for housing in the Waianae area and elsewhere on Oahu will be increased because of new jobs. In order to mitigate the impact of operational employment-generated demand for housing [in Waianae], the Sheraton Makaha Resort will continue its current activities that link residents of Waianae with employment at the resort... (page V-9). Some concern has been expressed by our reviewers concerning the effectiveness of these activities. How will the housing situation in Waianae be impacted if the training programs are not effective and a large percentage of the work force must come from outside the community?

Wastewater Treatment and Disposal

According to page VI-6, paragraph 6.4.1, "The treated effluent is used for irrigating the Makaha Resort West Golf Course". To the best of our knowledge, treated effluent is not presently used for irrigating the golf course.

Flora and Fauna

We agree that no threatened or endangered faunal species or officially listed, proposed or candidate threatened or endangered flora species will be affected by this project. We appreciate the inclusion of "proposed or candidate" species.

Thank you for the opportunity to comment on this document. We hope our comments will be helpful in preparing the Final Environmental Impact Statement.

Yours truly,

John Harrison
Environmental Coordinator

cc: OEQC
ANA Hotels Hawaii, Inc.
L. Stephen Lau
Edwin Murabayashi
Luciano Minerbi
Sheila Conant
P. Blon Griffin
C. Anna Ulaszewski

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Thomas A.
LEE
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Kevin M.
YOUNG
ALEX

March 2, 1989

Mr. John Harrison
Environmental Coordinator
University of Hawaii at Manoa
Environmental Center
Crawford 317, 2550 Campus Road
Honolulu, Hawaii 96822

Dear Mr. Harrison:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document. We have reviewed your letter to the Department of General Planning dated 22 February 1989 (your reference number RE-0319) and offer the following responses to your comments:

Housing

- Section 7.3 RESIDENTIAL DEVELOPMENT of the Final Environmental Impact Statement (FEIS) will include an assumption that was made but was unstated in the Draft Environmental Impact Statement (DEIS), that is the current zoning for the area of application is Country, which has maximum density of one unit per acre. This is the rationale for assuming single-family housing.
- Another assumption that was made is that the applicant acquired the subject property in December 1987 (as noted in Section 1.4 DEVELOPMENT CONCEPT of the DEIS) because the current resort property lacks the critical mass to provide the facilities and services necessary to develop a self-contained resort (as stated in Section 2.5 of the DEIS). The applicant did not buy the property to build homes that would be incompatible with the Sheraton Makaha Resort.
- We agree that low and medium density condominiums built on the subject property would be more reasonable than the lots on the Mauna Olu subdivision. The preliminary master plan proposes approximately 120 resort condominium units on the area of application.

Mr. John Harrison
March 2, 1989
Page 2

4. We concur that if the current training programs are not effective and a large percentage of the work force must come from outside the community, there would be a significant demand for affordable housing. It should be noted that there are a number of factors that should mitigate this potential impact on housing: the existing training programs (at least 90 percent of the existing resort jobs are filled by Leeward Coast residents); and the proposed developments in the Ewa area that could offer affordable housing opportunities. While the above mitigative factors were described in the DEIS, the DEIS understated the Waianae potential labor force because only information from the State Department of Labor and Industrial Relations (DLIR) was provided.

Subsequent to the filing of the DEIS, we have learned from the City and County of Honolulu Office of Human Resources that the Waianae Coast has had a "real" unemployment rate in excess of 20 percent, which is equivalent to approximately 10,000 unemployed persons residing on the Waianae Coast. Apparently the reason for the disparity between the figures given by the DLIR and the Office of Human Resources estimates is that most of Waianae's unemployed are not registered with DLIR, having either given up or were never registered at all. In addition, the West Oahu Committee and the Honolulu Community Action Program have identified over 700 Waianae residents working in Honolulu, many in the hotel industry, who would quit their jobs to work on the Waianae Coast. Section 5.2 ECONOMY/EMPLOYMENT of the FEIS will incorporate the information provided by the Office of Human Resources. It appears, then, that there is a significant potential labor force within Waianae that is available before needing to hire from outside the community.

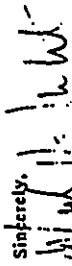
Wastewater Treatment and Disposal

We appreciate the information provided. We contacted the manager of maintenance of the Makaha Resort West Golf Course, Tim Ayau, and learned that treated effluent from the private sewage treatment plant is not being used for irrigating the golf course. We also learned that the Sheraton Makaha Resort sewer collection system connection to the City and County of Honolulu's sewer line at the end of Jade Street has been completed and the private sewage treatment plant on the area of application has been shut down. Section 6.4 WASTEWATER TREATMENT AND DISPOSAL will be revised accordingly.

Your letter will be reproduced in the Final Environmental Impact Statement in its entirety.

Mr. John Harrison
March 2, 1989
Page 3

Thanks again for your comments.

Sincerely,


Mark H. Hastert
Managing Principal

MHH:ms

cc: Donald Clegg
Randy Hara
Ty Kasso
Wendell Brooks
Millic Ludwick
Vincent Shigekuni

268 787 641

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



'89 FEB 16 PM 1:22

FEBRUARY 10, 1989
GENERAL PLANNING
C & C HONOLULU

FRANK F. FAS, Mayor
DORIS B. GORDON, Chairman
SHERI M. DAVENPORT, Chairman
SHERI DAVENPORT, CHIEF OF STAFF
SHERI CALLED
EDWARD Y. ITOYAMA
ERNEST A. WAIJUN
LAURICE H. YAMASATO
KAZU HAYASHIDA
Manager and Chief Engineer

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HASTERT
& YOUNG
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TO: DONALD A. CLEGG, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING
FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY
SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR
SHERATON MAKAHA RESORT EXPANSION, TRK: 8-4-02: 54

Handwritten initials

We have the following comments on the proposed project:

1. In the first sentence of Section 6.3.1, "Water Supply-Existing Conditions," it should be noted that our 16-inch main is along Killi Drive instead of along Makaha Valley Road.
2. Our previous comments which are included in Section IX-19 are still valid and applicable to the project.

If you have any questions, please contact Lawrence Whang at 527-6138.

cc: ANA Hotels Hawaii, Inc.

XI-23

February 27, 1989

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Hayashida:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document. We have reviewed your memorandum to Mr. Donald Clegg of 10 February 1989 and offer the following responses:

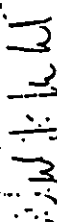
1. We appreciate the information provided on the existing water transmission system. The first sentence of Section 6.3.1 of the Final Environmental Impact Statement (FEIS) will incorporate the following correction: "...includes a 16-inch main along Killi Drive..."
2. Section 6.3.2 of the FEIS will include the following statement: "The BWS is presently constructing wells in upper Makaha Valley that will produce an additional 4.0 MGD of water beyond what is presently being produced (completion and operation is expected in late 1989). According to BWS, 125,000 GPD of water is being reserved for the applicant, ANA Hotels Hawaii, Inc. upon completion and operation of the Makaha Valley Wells. Requests for the quantity of water exceeding the 125,000 GPD allotment (or 50,000 GPD) will conform to the BWS current water commitment policy, i.e. the availability of BWS water to meet the 50,000 GPD demand will be determined when building permits are submitted for BWS review and approval. Water System Facilities Charges for source-transmission and daily storage shall apply to the amount exceeding 125,000 GPD."

Your letter will be reproduced in the FEIS in its entirety.

Mr. Kazu Hayashida
February 24, 1989
Page 2

Thanks again for your comments.

Sincerely,



Mark H. Hastert
Managing Principal

MHH:vs

cc: Donald Clegg
Randy Hara
Ty Kusao
Wendell Brooks
Mitte Ludwick
Vincent Shigekuni

761 899 88

BUILDING DEPARTMENT
CITY AND COUNTY OF HONOLULU
 HONOLULU MUNICIPAL BUILDING
 550 SOUTH KING STREET
 HONOLULU, HAWAII 96813

'89 JAN 25 2:33



GENERAL PLANNING
 C & C HUBBARD

HERBERT K. MURAOKA
 DIRECTOR AND BUILDING SUPERINTENDENT

PB 89-67

January 24, 1989

MEMO TO: DONALD CLEGG, CHIEF PLANNING OFFICER
 DEPARTMENT OF GENERAL PLANNING

FROM: HERBERT K. MURAOKA
 DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)
 SHERATON MAKAHA RESORT EXPANSION
 WAIANAEA, OAHU, HAWAII (TRK: 8-4-02:54)

We have reviewed the draft EIS for the proposed Sheraton Makaha Resort Expansion project and have no comments.

Thank you for the opportunity to review the document.

Herbert K. Muraoka

HERBERT K. MURAOKA
 Director and Building Superintendent

cc: ANA Hotels Hawaii, Inc.
 J. Harada

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 HASTERT
 & OALUA
 ARCHITECTS

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 Keith M.
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 ARLA

February 22, 1989

Mr. Herbert K. Muraoka
 Director and Building Superintendent
 Building Department
 City and County of Honolulu
 Honolulu Municipal Building
 650 South King Street
 Honolulu, Hawaii 96813

Dear Mr. Muraoka:

Subject: Draft Environmental Impact Statement
 Sheraton Makaha Resort Expansion
 Waianae, Oahu, Hawaii

Thank you for your review of the above document and your memorandum (your reference number PB 89-67) dated 24 January 1989. Your memorandum will be reproduced in the Final Environmental Impact Statement in its entirety.

Sincerely,

Mark H. Hastert

Mark H. Hastert
 Managing Principal

MHH:vs

cc: Donald Clegg
 Randy Hara
 Ty Kusso
 Wendell Brooks
 Millie Ludwick
 Vincent Shigekuni

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK P. PARI
MAYOR

DONALD A. CLEGG
CHIEF PLANNING OFFICER
GISEL COMBELL
DEPUTY CHIEF PLANNING OFFICER

RH/DGP 1/89-21

February 9, 1989

Mr. Vincent Shigekune
Helber, Hastert & Kimura Planners
Grosvenor Center, PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Mr. Shigekune:

Draft Environmental Impact Statement (EIS)
Sheraton Makaha Resort Expansion

We offer the following comments on the subject Draft EIS.

Will the expanded resort require off-site support facilities? If so, please indicate what is needed, the location, the amount of land and the approvals needed to provide these facilities.

For your information re. Section 3.5.3, pg. III-11, the Waianae Refuse Convenience Center has been deleted from the DP Public Facilities Map, and amendments are being processed to delete the Waianae STP/Modification and Makaha Well V.

In Section 5.3.2, page V-9, the Draft EIS indicated the current activities of the Sheraton Makaha Resort to link Waianae residents with the job opportunities at the resort. You may wish to add the City's Office of Human Resources which, through the WORK HAWAII program, conducts employment training and provides employment placement services for economically disadvantaged residents.

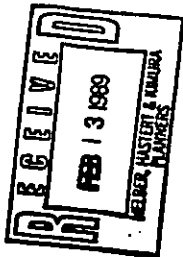
Mr. Vincent Shigekune
Helber, Hastert & Kimura Planners
Page 2
February 9, 1989

Discussion regarding traffic mitigative measures, Section 6.1.3, page VI-4, should indicate that these improvements relate to a 2-lane configuration for Makaha Valley Road, clarify who is responsible for providing these improvements and whether Makaha Valley Road will remain a private roadway.

Sincerely,

Donald Clegg
DONALD A. CLEGG
Chief Planning Officer

DAC:js



HELMER
HALBERT
& KIMURA
Planners

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MESHAWA
AICP

Thomas A.
FEE
AICP

Kath M.
YOUNG
ASLA

February 27, 1989

Mr. Donald A. Clegg
Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Clegg:


Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank for your review of the above document and your letter dated 9 February 1989 (your reference number RH/DGP 1/89-21). We offer the following responses to your comments:

1. Other than the off-site infrastructure improvements described in Chapter VI of the Draft Environmental Impact Statement (DEIS), no other off-site support facilities are required or proposed.
2. We appreciate the information provided on the status of various facilities noted on the Waianae Development Plan Public Facilities Map. Appropriate corrections will be made to Section 3.5.3 of the Final Environmental Impact Statement (FEIS).
3. As suggested, Section 5.3.2 of the FEIS will be revised to include utilization of the City and County of Honolulu Office of Human Resources WORK HAWAII PROGRAM as one of the Sheraton Makaha Resort's current activities that link residents of Waianae with employment at the resort.
4. As recommended, Section 6.1.3 of the FEIS will be revised to indicate that mitigative measures relate to a 2-lane configuration for Makaha Valley Road.
5. Presently, a written agreement specifying the parties that will be responsible for the improvements to Makaha Valley Road has not been finalized; therefore, this information will not be available for the FEIS. Likewise, it is not known at this time whether Makaha Valley Road will remain a private roadway. As discussed with one of your staff, this will be identified as an unresolved issue in the FEIS, however, we will continue our efforts in finalizing the agreement.

Mr. Donald A. Clegg
February 27, 1989
Page 2

Your letter will be reproduced in the FEIS in its entirety.
Thanks again for your comments.

Sincerely,

Mark H. Haustert
Managing Principal
MHH:vs

cc: Ty Kusao
Wendell Brooks
Millic Ludwick
Vincent Shigekuni

267 197 196

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

630 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 833-4427



FRANK P. FARR
MAYOR

MAURICE SCARFONE
DIRECTOR
MICHAEL N. SCARFONE
DEPUTY DIRECTOR

January 17, 1989

RECEIVED
09 10 26 31 33:52

Mr. Donald Clegg, Chief Planning Officer
City and County of Honolulu
Department of General Planning
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Mr. Clegg:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for the opportunity to review and comment on the EIS for the Sheraton Makaha Resort Expansion. We understand the proposed project will indirectly increase the demand for housing in the Waianae area and elsewhere on Oahu due to the creation of new jobs (Chapter 5.3). However, no mention is made on how it will fill the need to meet affordable housing in Waianae.

The Department of Housing and Community Development has been requesting that ten (10) percent of all residential units be set aside for low- and moderate-income households, or an acceptable in-kind substitute be provided for all development plan amendments involving residential uses. This policy has up to now only affected residential projects, however, all developments requesting rezoning actions would be subject to some kind of requirement under a Bill for a Community Benefit Assessment Ordinance currently before the City Council. Therefore, the proposed project could be affected by the change in policy. The Department will inform the developer of any requirements should the Community Benefit Assessment bill be enacted.

Thank you for the opportunity to provide these comments.

Sincerely,
Michael N. Scarfone
MICHAEL N. SCARFONE
Director

ANA Hotels Hawaii, Inc.
P. O. Box 896
Waianae, Hawaii 96792

February 17, 1989

Mr. Michael N. Scarfone
Director
Department of Housing and Community Development
City and County of Honolulu
630 South King Street
Honolulu, Hawaii 96813

Dear Mr. Scarfone:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter addressed to Mr. Donald Clegg, dated 17 January 1989. We offer the following responses to your comments:

1. The proposed project will indirectly increase the demand for housing in the Waianae area and elsewhere on Oahu due to the creation of new jobs, and it is estimated that around 24 households will take up residence in the Leeward region. While we are not aware of any new affordable housing projects in Waianae, there are proposed developments in the Ewa area that could offer affordable housing opportunities, these include: West Loch Estates, Kapolei Village and Ewa Center. This information will be provided in Section 5.3 HOUSING, of the Final Environmental Impact Statement (FEIS).
2. Thank you for the information provided on the DHCD affordable housing policy affecting residential projects and the bill for a Community Benefit Assessment Ordinance currently before the City Council. ANA Hotels Hawaii, Inc. would greatly appreciate being informed of any requirements should the Community Benefit Assessment bill be enacted.

Your letter will be reproduced in the FEIS in its entirety.

Thanks again for your comments.

Sincerely,
M. N. Scarfone

Mark H. Hastert
Managing Principal

MHH:ivs

cc: Donald Clegg
Randy Hara
Ty Kusao
Wendell Brooks
Millie Ludwick
Vincent Shigekuni

HELENER HASTERT & KAMUKA PARTNERS
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DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
410 SOUTH KING STREET
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PAULINE P. FAO
MAIL ROOM

JOHN P. WHALEN
DIRECTOR
DEPARTMENT OF LAND UTILIZATION
DEPUTY DIRECTOR

HELMER
HAUSTERT
ALMA
PARTNERS
HERB

March 2, 1989

Mr. John P. Whalen
Director of Land Utilization
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

MEMORANDUM

TO: DONALD CLEGG, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: JOHN P. WHALEN, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR
SHERATON MAKAHA RESORT EXPANSION, MAKAHA, OAHU
TAX MAP KEY: 9-4-02:54

FEB 26 1989

We have reviewed the above named DEIS and offer the following questions and comments:

1. Treated effluent, currently used for golf course irrigation will no longer be available once the private sewage treatment plant is closed. What is the project's demand for irrigation water? Continued irrigation with treated effluent should be considered.
2. The proposed traffic mitigation measures suggested for Makaha Valley Road are considered to be interim measures. All developers in Makaha Valley are expected to participate in future road widening and improvement costs.

Thank you for the opportunity to comment. If you have any questions, please contact Ardis Shaw-Kim of our staff at 523-4648.

John P. Whalen
JOHN P. WHALEN
Director of Land Utilization

JPW:SI
0231N

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianac, Oahu, Hawaii

Dear Mr. Whalen:

Thank you for your review of the above document. We have reviewed your memorandum to Mr. Donald Clegg dated 28 February 1989 and offer the following responses to your comments:

1. The total future landscaping irrigation demand is estimated to be 176,400 gallons per day. According to the Board of Water Supply (BWS), requests for water must conform to BWS's current water commitment policy, i.e., the availability of BWS water to meet future demand will be determined when building permits are submitted for BWS review and approval.
Subsequent to the filing of the Draft Environmental Impact Statement, we have learned that the Sheraton Makaha Resort sewer collection system connection to the City and County of Honolulu's sewer line at the end of Jade Street has been completed and the private sewage treatment plant on the area of application has been shut down. Due to visas available from the site of the private sewage treatment plant, the preliminary master plan locates a restaurant in this area. The existing facilities of the private sewage treatment plant will be removed to make room for the restaurant. Therefore, while the suggestion to irrigate with treated effluent would improve water efficiency, it is not an available option from a land efficiency/value standpoint.
2. Section 6.1 TRAFFIC of the Final Environmental Impact Statement will state that the proposed traffic mitigation measures suggested for Makaha Valley Road are considered to be interim measures and all developers in Makaha Valley will participate in future road widening and improvement costs.

Your letter will be reproduced in the FEIS in its entirety.

Mr. John P. Whalen
March 2, 1989
Page 2

Thanks again for your comments.

Sincerely,
M.H.H.

Mark H. Hastert
Managing Principal

MHH:vs

- cc: Donald Clegg
Randy Hara
Ty Kuzo
Wendell Brooks
Millie Ludwick
Vincent Shigekuni

REP '89 2/5

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
840 SOUTH KING STREET
HONOLULU, HAWAII 96813

'89 JAN 25 3:34



FRANKY PARK
DIRECTOR

WALTER M. OZAWA
DIRECTOR

HELMER
HAUSTERT
& KUMUHA
Partners
HH&K

January 24, 1989

TO: DONALD A. CLEGG, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING
FROM: WALTER M. OZAWA, DIRECTOR
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT
SHERATON MAKAHA RESORT EXPANSION - MAIANAE
TAX MAP KEY B-4-02: 54

We have reviewed the Environmental Impact Statement for the proposed Sheraton Makaha Resort Expansion in Maianae and offer the following comments.

The recreational needs of the proposed project have been addressed in the EIS. Recreational areas and facilities are being provided within the project site to serve the expanded resort needs.

Thank you for the opportunity to comment on the EIS.

Walter M. Ozawa
WALTER M. OZAWA, Director

WMO:el

February 22, 1989

Mr. Walter M. Ozawa
Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Ozawa:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Wainana, Oahu, Hawaii

Thank you for your review of the above document and your memorandum dated 24 January 1989. Your memorandum will be reproduced in the Final Environmental Impact Statement in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert
Mark H. Hastert
Managing Principal

MHH:vs

cc: Donald Clegg
Randy Hara
Ty Kusao
Wendell Brooks
Miltie Ludwick
Vincent Shigekuni

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DAF 1187 171

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
630 SOUTH KING STREET
HONOLULU, HAWAII 96813



RECEIVED
FEBRUARY 23 1989
DEPT. OF
GENERAL PLANNING
C & C HONOLULU

SAM CALLEJO
DIRECTOR AND CHIEF ENGINEER
In reply refer to:
ENV 89-10(449)

January 19, 1989

MEMORANDUM

TO: DONALD A. CLEGG, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: SAM CALLEJO, DIRECTOR AND CHIEF ENGINEER

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT
SHERATON MAKAHA RESORT EXPANSION
(TMK: 8-4-02: 54)

We have reviewed the subject Draft EIS and have the following comments:

1. We have no objections to the proposed expansion of the resort.
2. The existing sewer line on Jade Street is adequate to accommodate the proposed flows.
3. Will all streets constructed or improved within this project be under private jurisdiction?

Sam Callejo
SAM CALLEJO
Director and Chief Engineer

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&
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KATHY M.
YOUNG
ALLA

February 23, 1989

Mr. Sam Callejo
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
630 South King Street
Honolulu, Hawaii 96813

Dear Mr. Callejo:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your memorandum dated 19 January 1989 (your reference number ENV 89-10(449)). We appreciate the information provided on the capacity of the existing sewer line on Jade Street. In response to your question regarding roadways within the project boundaries, all will be privately constructed and maintained, and thus, no governmental funds are expected for construction or maintenance of the internal roadways.

Your letter will be reproduced in the Final Environmental Impact Statement in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert

Mark H. Hastert
Managing Principal

NHH:vs

cc: Donald Clegg
Randy Hara
Ty Kusao
Wendell Brooks
Millec Ludwick
Vincent Shigekuni

D6-769-50

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
830 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK FASI
MAILER

JOSEPH M. MAGALDI, JR.
ACTING DIRECTOR

TE-72
PLI.1422

January 23, 1989

Helber Hastert & Kimura
Grosvenor Center
PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attention: Mr. Mark Hastert
Gentlemen:

Subject: Makaha Valley Road
EIS Preparation Notice

This is in response to your letter of January 4, 1989 requesting confirmation of items discussed with my staff at a meeting held on December 8, 1988.

We find Items 1-5 generally represents the department's position. Item 6, however, should be elaborated to state that the responsibility for the future road widening should be clearly assessed and secured in writing to avoid complications.

Sincerely,

JOSEPH M. MAGALDI, JR.

cc: Department of Land Utilization

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
830 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK FASI
MAILER

JOSEPH M. MAGALDI, JR.
ACTING DIRECTOR

TE-158
PLI.1423

February 7, 1989

MEMORANDUM

TO: DONALD A. CLEGG, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: JOSEPH M. MAGALDI, JR., ACTING DIRECTOR

SUBJECT: SHERATON MAKAHA RESORT EXPANSION, EIS
TRK: 8-4-02: 54

This is in response to the Office of Environmental Quality Control's letter requesting comments regarding the subject EIS.

We have generally agreed that the two lane configuration with the listed mitigating measures are acceptable only as an interim measure. The ultimate roadway alignment should be designed in accordance with City standards, as applicable.

We recommend that a written document between all affected parties agreeing that all future road widening costs and improvements shall be borne by the developers of Makaha Valley.

JOSEPH M. MAGALDI, JR.

February 22, 1989

Mr. Joseph M. Magaldi, Jr.
Acting Director
Department of Transportation Services
City and County of Honolulu
Honolulu Municipal Building
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Magaldi:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Wainane, Oahu, Hawaii

Thank you for your review of the above document and your letter of 23 January 1989 (your reference number TE-72, P.L.I.1422). We have also reviewed your memorandum to Mr. Donald A. Clegg dated 7 February 1989 (your reference number TE-158, P.L.I.1423). We offer the following responses to your comments:

1. The Final Environmental Impact Statement (FEIS) will note that the ultimate Makaha Valley Road alignment will be designed in accordance with applicable City standards.
2. ANA Hotels Hawaii, Inc. has been informed of your recommendation that a written agreement be prepared that states that all future road widening costs and improvements shall be borne by the developers of Makaha Valley.

Your memorandum will be reproduced in the Final Environmental Impact Statement in its entirety.

Thanks again for your comments.

Sincerely,

Mark H. Hastert

Mark H. Hastert
Managing Principal

MHH:vs

cc: Donald Clegg
Randy Hara
Ty Kusao
Wendell Brooks
Millie Ludwick
Vincent Shigekuni

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Thomas A.
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Kevin M.
YOUNG
ALEX

W 7/89 0783
D 607/89-5

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1455 S. BERETANIA STREET, ROOM 305
HONOLULU, HAWAII 96814



FRANK P. FARI
CHIEF

FRANK K. KAHOOHANOHANO
FIRE CHIEF
LIONEL E. CANAZA
DEPUTY FIRE CHIEF

HELNER
HASTERT
& KUMURA
PLANNERS
HHS&K

February 8, 1989

'89 FEB 9 AM 8 U
HONOLULU

TO: DONALD A. CLEGG, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING
FROM: FRANK K. KAHOOHANOHANO, FIRE CHIEF
SUBJECT: EIS--SHERATON MAKAHA RESORT EXPANSION
INR: 8-4-02:54

We have reviewed the subject material provided and foresee no adverse impact in Fire Department facilities or services, planned or now provided. Existing fire protection is considered adequate.

Access for emergency vehicles and new construction shall conform to fire and building codes and standards. We have no additional comments at this time.

Should you have any questions, please contact Battalion Chief Kenneth Word of our Administrative Services Bureau at 943-3838.

Frank K. Kahooohanoho
FRANK K. KAHOOHANOHANO
Fire Chief

HA:ny
EIS draft returned to OEQC
Copy to: AMA Hotels Hawaii, Inc.
P. O. Box 896
Waianae, Hawaii 96792

February 22, 1989
Mr. Frank K. Kahooohanoho
Fire Chief
Fire Department
1455 S. Beretania Street, Room 305
Honolulu, Hawaii 96814
Dear Mr. Kahooohanoho:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and the information provided in your memorandum dated 8 February 1989. Section 6.8 FIRE PROTECTION AND SAFETY of the Final Environmental Impact Statement (FEIS) will note that access for emergency vehicles and new construction shall conform to fire and building codes and standards. In addition, your memorandum will be reproduced in the FEIS in its entirety.

Thanks again for your comments.

Sincerely,
Mark H. Hastert

Mark H. Hastert
Managing Principal
MHH:vs

cc: Donald Clegg
Randy Hara
Ty Kusao
Wendell Brooks
Millie Ludwick
Vincent Shigekuni

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OFFICE OF HUMAN RESOURCES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING, 6TH FLOOR
80 SOUTH KING STREET
HONOLULU HAWAII 96813



FRANK F. FASU
DIRECTOR

MARIA VICTORIA R. NUNTE
DIRECTOR

VICTOR B. GUILLEMINO, JR.
DEPUTY DIRECTOR

January 3, 1989

Mr. Mark H. Hastert
Managing Principal
Helbert, Hastert and Kimura
Grosvenor Center, P.O. Box 2590
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Mr. Hastert:

Thank you for your letter of December 15, 1988 concerning the EIS Preparation Notice for the Sheraton Makaha Resort Expansion. You noted that "Of the total number of unemployed in Waianae, there may not be 204 (75% of 272 new jobs) full-time equivalent (FTE) unemployed that are interested or have the necessary minimum skills to fill the 204 FTE positions."

First, concerning the unemployed, the Waianae Coast has had a "real" unemployment rate in excess of twenty percent (20%). Based on current population estimates, this means that, conservatively, there are in excess of ten thousand (10,000) unemployed persons residing on the Waianae Coast. (The reason for the disparity between the figures you were given in July by the State Department of Labor and Industrial Relations and our estimates is that most of Waianae's unemployed are not registered with DLIR, having either given up or were never registered at all.) This estimate is based on a number of factors. For example, the Waianae office of the State Employment Service claims that 2,000 persons can be recruited at any given time for any given set of jobs. When jobs are announced for the area, the City's Waianae WORKHAWAII office is inevitably flooded with applicants.

Additionally, there are in excess of 32,000 persons receiving Aid to Families with Dependent Children. It is estimated by public officials on the Waianae Coast that 10,000 to 14,000 are able-bodied, unemployed adults. The West Oahu Committee of Social Providers knows of 1,750 qualified, unemployed adults who have only one or less barriers to immediate employment. The Committee and the Honolulu Community Action Program have identified over seven hundred (700) Waianae residents working

Letter to: Mr. Mark H. Hastert
January 3, 1989
Page Two

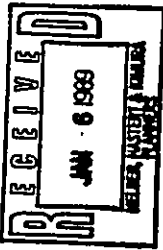
in Honolulu, many in the hotel industry, who would quit their jobs to work on the Waianae Coast. Finally, the two Waianae Coast High Schools are graduating over 1,100 students each year, most of whom must look outside Waianae for jobs.

Since it is clear that most of Waianae's unemployed are not registered with the State Employment Service, it is logical to assume that there are several times more potential available employees than the number of jobs projected for the Sheraton Makaha expansion.

Second, for discussion purposes, I suggest a definition and identification of the "minimum skills" to accompany an inventory of new jobs which will be created. The City's WORKHAWAII program administered by this Office can assist the developer in formulating a recruitment and training plan for the unemployed residents of Waianae who need training. We conclude that more than the necessary unemployed are there, and that the Office of Human Resources can recruit, train and place at least the seventy-five percent (75%); or 204 persons. We recommend that a recruitment and hiring plan be developed for long-term FTE positions detailing the number of jobs by category and their minimum requirements.

WORKHAWAII has a branch office stationed at the Waianae Satellite City Hall to conduct outreach and marketing specifically for this community. WORKHAWAII staff have established a strong network with employer associations, education and social service agencies, hospitals, day care centers, and other community based organizations to provide comprehensive employment training and related services to our program participants. From July, 1987 to November, 1988, WORKHAWAII has trained 1,065 Waianae adults and youth. One hundred twenty-nine (129) participants have obtained permanent jobs through direct hire or on-the-job training with employers. Specifically, Sheraton Makaha has hired fourteen (14) out of fifteen (15) individuals referred for on-the-job training. Patricia Teruya is featured in WORKHAWAII's Annual Report for her promotion to dining room manager subsequent to her training. Employers associated with WORKHAWAII include companies such as Hawaii Orchid Nursery, International In-Flight Catering, Luaualei Community Federal Credit Union, 7-11 Stores and R&H Machinery, Inc.


Given this opportunity for public-private initiative, I am optimistic that finding two hundred four (204) trained and capable individuals from among Waianae residents does not pose a major problem to the developer.



Letter to: Mr. Mark H. Hastert
January 3, 1989
Page Three

I suggest that we discuss this matter further as soon as possible. I can be reached at 527-5311.

Very truly yours,


Director
Office of Human Resources

HELENA
HASTERT
& KIMURA
Partners
HEH&K

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Thomas A.
FEE
AUCP

Kath M.
YOUNG
ABLA

March 2, 1989

Ms. Maria Victoria R. Bunye
Director
Office of Human Resources
City and County of Honolulu
Honolulu Municipal Building, 6th Floor
650 South King Street
Honolulu, Hawaii 96813

Dear Ms. Bunye:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your letter dated 3 January 1989. We greatly appreciate your agency's description of the existing employment situation on the Waianae Coast. Section 5.2 ECONOMY/EMPLOYMENT of the Final Environmental Impact Statement (FEIS) will incorporate the information provided. In addition, Section 5.3 HOUSING of the FEIS will include a brief description of the WORKHAWAII program. As per your conversation with one of our staff on 11 January 1989, we have let ANA Hotels Hawaii, Inc. know of your agency's offer and willingness to assist in formulating a recruitment and training plan for the unemployed residents of Waianae.

Your letter will be reproduced in the FEIS in its entirety.

Thanks again for your comments.

Sincerely,



Mark H. Hastert
Managing Principal

MHH:vs

cc: Donald Clegg
Randy Hara
Ty Kuszo
Wendell Brooks
Millie Ludwick
Vincent Shigckuni

16 P 2/89-55

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1455 SOUTH BERETANIA STREET
 HONOLULU, HAWAII 96814

FRANK P. GASH
 MAYOR

'89 FEB 5 PM 2 00
 HELMUT G. GIBB
 CHIEF OF POLICE
 DEPUTY CHIEF



OUR REFERENCE SS-LX

February 8, 1989

TO: DONALD A. CLEGG, CHIEF PLANNING OFFICER
 DEPARTMENT OF GENERAL PLANNING

FROM: DOUGLAS G. GIBB, CHIEF OF POLICE
 HONOLULU POLICE DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE SHERATON MAKAHA RESORT
 EXPANSION, WAIANAE, OAHU, HAWAII. TAX MAP KEY: 8-A-021-54

We have reviewed the referenced draft EIS and offer the following comments.

As the resort expansion develops, we can expect the increase in resident and visitor population on the Waianae Coast to have an impact on calls for service in the area. Additional manpower would be required to accommodate these service requests.

Traffic would be another important aspect affected by the development. We can expect traffic congestion and over-capacity conditions on the main thoroughfares along with additional calls for service during the morning and afternoon peak hours. Signalization and lane extensions at locations indicated in the report should mitigate some of these anticipated problems.

Also, with the hotel expansion, the number of tourists visiting the beaches will rise and may lead to an increase in property crimes in the area.

Thank you for the opportunity to provide comments.

DOUGLAS G. GIBB
 Chief of Police

By *[Signature]*
 JAMES FENIA
 Acting Assistant Chief of Police
 Support Services Bureau

cc: Office of Environmental Quality Control
 ANA Hotels Hawaii, Inc.

XI-38

HELMUT
 GIBB
 CHIEF OF POLICE

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 FEE
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Assistant
 KEVIN M.
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 ASLA

February 24, 1989

Mr. Douglas G. Gibb
 Chief of Police
 Police Department
 City and County of Honolulu
 1455 South Beretania Street
 Honolulu, Hawaii 96814

Dear Mr. Gibb:

Subject: Draft Environmental Impact Statement
 Sheraton Makaha Resort Expansion
 Waianae, Oahu, Hawaii

Thank you for your review of the above document. We have reviewed your memorandum to Mr. Donald Clegg (your reference number SS-LK) dated 8 February 1989 and offer the following responses to your comments:

1. Section 6.8, FIRE PROTECTION AND SAFETY, of the Final Environmental Impact Statement (FEIS) will note that as the resort expansion develops, there will be an occasional and unavoidable demand for police services in the area. The FEIS will also state that additional manpower would be required to accommodate these police service requests.
2. The impact of the project on traffic and proposed mitigative measures will be discussed in section 6.1 TRAFFIC of the FEIS. Section 6.8 of the FEIS will note that the cumulative increase in traffic generated by this and other projects in Makaha Valley and in Waianae is expected to generate additional calls for service during the morning and afternoon peak hours. This section will also note that the installation of a traffic light at the intersection of Makaha Valley Road and Farrington Highway and the installation of turning lanes at those intersections deemed necessary by the City and County of Honolulu Department of Transportation Services should mitigate some of the expected traffic congestion and over-capacity conditions at the above mentioned intersection and the demand for service calls.
3. Section 6.8 of the FEIS will note that with the expansion of the Sheraton Makaha Resort, the number of visitors using area beaches will rise and may lead to an increase in property crimes.

Your letter will be reproduced in the FEIS in its entirety.

Mr. Douglas C. Gibb
February 24, 1989
Page 2

Thanks again for your comment.

Sincerely,

WHL:lw

Mark H. Haster
Managing Principal

MHH:ws

cc: Donald Clegg
Randy Hara
Marvin Miura
Ty Kusco
Wendell Brooks
Mille Ludwick
Vincent Shigekuni

RECEIVED

ENV 2-1
JA/G

FEB 14 4:01

RECORDED
INDEXED
FEBRUARY 9, 1989



William A. Bonnet
Manager
Environmental Department

City & County of Honolulu
Department of General Planning
650 South King Street
Honolulu, HI 96813

Dear Sir:

Subject: Draft Environmental Impact Statement for Sheraton Makaha
Resort Expansion Waianae, Oahu, Hawaii

We have reviewed the above subject and have the following comments:

1. The proposed realignment of the existing access road and the proposed waterline in the development is in close proximity to HECO's overhead lines, as a result the following notes shall be included as part of the final construction drawings:
 - a. The Contractor shall exercise extreme caution when the construction crosses or is in the proximity of our lines and is to maintain 13'-0" clearance for his equipment while working close to and/or under the overhead facilities.
 - b. The Contractor is to comply with directions of the State of Hawaii Occupational Safety and Health Law (DOSH).
 - c. When excavation is adjacent to or under existing HECO structures or facilities, the Contractor is responsible for property sheeting and bracing the excavation and stabilizing the existing ground to render it safe and secure from possible slides, cave-ins and settlement, and for properly supporting existing structures and facilities with beams, struts or underpinning to fully protect it from damage.
 - d. Should it become necessary, any work required to relocate HECO facilities shall be done by HECO. The Contractor shall be responsible for all costs and coordination.

XI-40

City & County of Honolulu
February 9, 1989
Page 2

e. The Contractor shall be liable for any damages to HECO's facilities. The Contractor shall report any damages to HECO's facilities to the HECO Trouble Dispatch at phone 543-7874.

2. There are no transmission circuits in the expansion area, but HECO does have an overhead/underground distribution system servicing the existing facility as shown on the attached Distribution Circuiting drawing (see Enclosure 1). There may be conflicts with the underground lines, but HECO won't know the extent until more detailed development drawings are available.

Sincerely,

Enclosure

cc: ANA Hotels Hawaii, Inc.
P.O. Box 896
Waianae, HI 96792

An HEI Company

HELBERT
HASTERT
KAMURA
Partners
HH&K

Commerce
Center
PFI
Tower
723
Broadway
Street
Suite
2500
Honolulu
Hawaii
96813
Telephone
(808)
545-3065
Telex
634468
HH&K LU
Facsimile
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Principals

Larry E.
HELBERT
ALLA
Mark H.
HASTERT
ALCP
Charles T.
KAMURA
Associates
Henry J.
MORIMAWA
ALCP
Thomas A.
FEE
ALCP
Kevin M.
YOUNG
ALLA

February 24, 1989

Mr. William A. Bonnet
Manager
Environmental Department
Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840-0001

Dear Mr. Bonnet:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document. We have reviewed your letter to the City and County of Honolulu Department of General Planning dated 9 February 1989 (your reference number ENV 2-1, JA/G) and offer the following responses to your comments:

1. We appreciate the information provided on construction considerations given the proximity of HECO's overhead lines. This information was forwarded to Hida, Okamoto & Associates, Inc, the consulting civil engineer during the Environmental Impact Statement process. It is understood that the details that you provided shall be included as part of the final construction drawings. Due to the fact that the project is in the preliminary planning stage, these construction drawings notes will not be incorporated into the main text of the Final Environmental Impact Statement (FEIS). However, this letter will be reproduced in the FEIS in its entirety.
2. Thank you also for the Distribution Circuiting drawing showing the overhead/underground distribution system. We appreciate your concerns regarding conflicts with underground lines in the area. Please be assured that the consulting civil engineer will coordinate with Hawaiian Electric Company, Inc. during the construction drawing phase.

Mr. William A. Bonnet
February 24, 1989
Page 2

Thanks again for your comments.

Sincerely,

W. H. Hastert

Mark H. Hastert
Managing Principal
MH:ivs

cc: Donald Clegg
Randy Hara
Ty Kusao
Wendell Brooks
Millie Ludwick
Vincent Shigetani

DBP 2/17 682
245 North Kukui Street, Honolulu, Hawaii 96817, Telephone (808) 537-5966

AMERICAN LUNG ASSOCIATION of Hawaii
The Christmas Seal People

RECEIVED
FEB 22 1989

Mr. Donald Clegg
Director
Department of General Planning
650 South King Street
Honolulu, Hawaii 96813

February 22, 1989

Subject: Draft Environmental Impact Statement for the
Proposed Sheraton Makaha Resort Expansion

We have reviewed the subject EIS with particular attention to those portions addressing air quality. In this instance, there appeared to be only one very cursory discussion of air quality found on pages IV-13 and IV-14.

Given the magnitude of the proposed project (300 hotel rooms, 150 condominium units, conference facility, tennis facilities, spa, and retail space), we find the failure to quantify the air quality impact a serious omission. The project will generate additional traffic on Farrington Highway with its concomitant emissions and will contribute to additional emissions as the result of electrical generation and solid waste disposal. While these were all mentioned, no effort was made to do any sort of analysis of the impacts.

In summary, it appears that the air quality impacts of the proposed project remain unknown denying decision-makers the very information they need to make "informed" decisions. We respectfully urge that you not accept this EIS until these omissions are corrected so that the public and decision-makers are fully aware of the project's impact.

Yours truly,
James W. Morrow
James W. Morrow
Director
Environmental Health

JWH:ct
L8904

Christmas Seals Fight TB, Asthma, Emphysema, Air Pollution

March 3, 1989

Mr. James W. Morrow
Director
Environmental Health
American Lung Association of Hawaii
245 North Kukui Street
Honolulu, Hawaii 96817

Dear Mr. Morrow:

Subject: Draft Environmental Impact Statement
Sheraton Makaha Resort Expansion
Waianae, Oahu, Hawaii

Thank you for your review of the above document and your letter to Mr. Donald Clegg dated 22 February 1989. As suggested, a quantitative air quality study of the project was conducted by Messrs. Barry D. Root and Barry D. Neal. A copy of the report is attached for your review.

In summary, the results of the morning peak hour carbon monoxide modeling of the Makaha Valley Road/Farrington Highway intersection indicate that in 1995, without the proposed project, there will be 6.2 milligrams of carbon monoxide per cubic meter. In the same year, with the project, it is estimated that there will be 6.6 milligrams of carbon monoxide. In comparison, it is estimated that this intersection presently produces 6.7 milligrams of carbon monoxide. The one-hour State of Hawaii Ambient Air Quality Standard (AAQS) for carbon monoxide is 10 milligrams per cubic meter.

Maximum eight hour carbon monoxide concentration was also estimated for the same intersection, with results again not significantly different in 1995, with or without the project, and less than existing conditions and State of Hawaii AAQS for carbon monoxide.

As requested, annual emissions of air pollutants to meet the demands of the Sheraton Makaha Resort Expansion for electrical energy and solid waste disposal was also estimated.

Your letter will be reproduced in the Final Environmental Impact Statement in its entirety.

HELBERT
HAUSTERT
& KUMURA
PLANNERS
HH&K

Overseas
Center
P.O.
Box
723
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Suite
2500
Honolulu
Hawaii
96813
Telephone
(808)
545-2065

Telex
637448
HH&KLUW
Facsimile
645-2000

President
LARRY E.
HELBERT
AIAA

MANAGER
MARK H.
HAUSTERT
AIAA

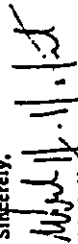
Client
GLEN Y.
KUMURA

Associates
Nancy L.
MORIKAWA
AIAA
Thomas A.
PETERSON
AIAA
Kevin M.
YOUNG
AIAA

Mr. James W. Morrow
March 3, 1989
Page 2

Thanks again for your comments.

Sincerely,


Mark H. Haeger
Managing Principal

MHH:vs

cc: Donald Cless
Randy Hara
Marvin Miura
Ty Kusso
Wendell Brooks
Mitte Ludwick
Vincent Shigekuni

APPENDICES



ANA HOTELS

APPENDIX A

IMPACT ON UTILITIES AND SERVICES
Hida, Okamoto & Associates, Inc.

November 1988



ANA HOTELS

PROPOSED SHERATON MAKAHA RESORT EXPANSION
Waianae, Oahu, Hawaii
IMPACT ON UTILITIES AND SERVICES

Prepared for
HELBER, HASTERT & KIMURA, PLANNERS

By
HIDA, OKAMOTO & ASSOCIATES, INC.
2600 South King Street, Suite 207
Honolulu, Hawaii 96826

November 1988

SEWAGE DISPOSAL

Existing Conditions

Presently, the wastewater generated by the existing facilities of the Sheraton Makaha Resort is treated by a private sewage treatment plant located in the application area. The treated effluent is used for irrigating the Makaha Resort West Golf Course.

Proposed Action

The average daily wastewater expected to be generated by the proposed development is estimated to be approximately 62,600 gallons per day (gpd). It is proposed that a sewer line be constructed from the subject property across the Makaha East Golf Course to the municipal sewer line at the end of Jade Street. All of the wastewater generated by the Sheraton Makaha Resort (existing and proposed) would flow into the public collection system for eventual treatment at the Waianae Sewage Treatment Plant (STP). The existing private sewage treatment plant would then be shut down. (Exhibit 1)

Impact and Mitigating Measures

The Waianae Sewage Treatment Plant (STP) serves the urbanized areas between Nanakuli and Makaha, including the apartment complexes on Kili Drive, near the Sheraton Makaha, and the existing Mauna Olu subdivision sewage system. The City Department of Public Works, Division of Waste-water Management, has determined that the recently completed expansion of the Waianae STP will have adequate capacity to treat the additional wastewater that will be generated by the proposed project. However, a complete sewer capacity analysis must be done when the applicant submits the required project design information to the Division.



Huipu Drive

Mouno Olu

NITTO HAWAII CO., LTD.
TMK: 8-4-02:7

MAKAHA WEST GOLF COURSE

EXISTING FACILITIES OF
SHERATON MAKAHA RESORT

MAKAHA VALLEY INC.
TMK: 8-4-02:70

MAKAHA EAST GOLF COURSE

MAKAHA EAST GOLF COURSE

Makaha Valley Road

Proposed 8" Sewer

Jade St.

Existing C&C 8" Sewer

SEWER SYSTEM
ANA Hotels Hawaii, Inc.

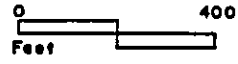


EXHIBIT 1
HIDA, OKAMOTO & ASSOCIATES, INC.
CONSULTING ENGINEERS
HONOLULU, HAWAII

ACCESS

Existing Conditions

Makaha Valley Road is a two way, 24 foot wide two-lane roadway. Shoulders are unpaved without curbs, gutters or sidewalks. The road right-of-way width is 60 foot wide. The road connects to the commercial area of the lower Makaha subdivision to the south with Huipu Drive to the north. Makaha Valley Road meets the Farrington Highway at an unsignalized T-intersection approximately one mile south of the project site.

Between the resort entrance and the Sheraton Makaha parking lot (vicinity of Ala Holo Loop), the road is narrow, varying in width from 17 to 22 feet and includes a sharp turn near the entrance to the existing Makaha East Golf Course. A golf cart path crosses the road near the resort entrance. Ala Holo Loop and Huipu Drive are wide, curbed private roadways. (Exhibit 2)

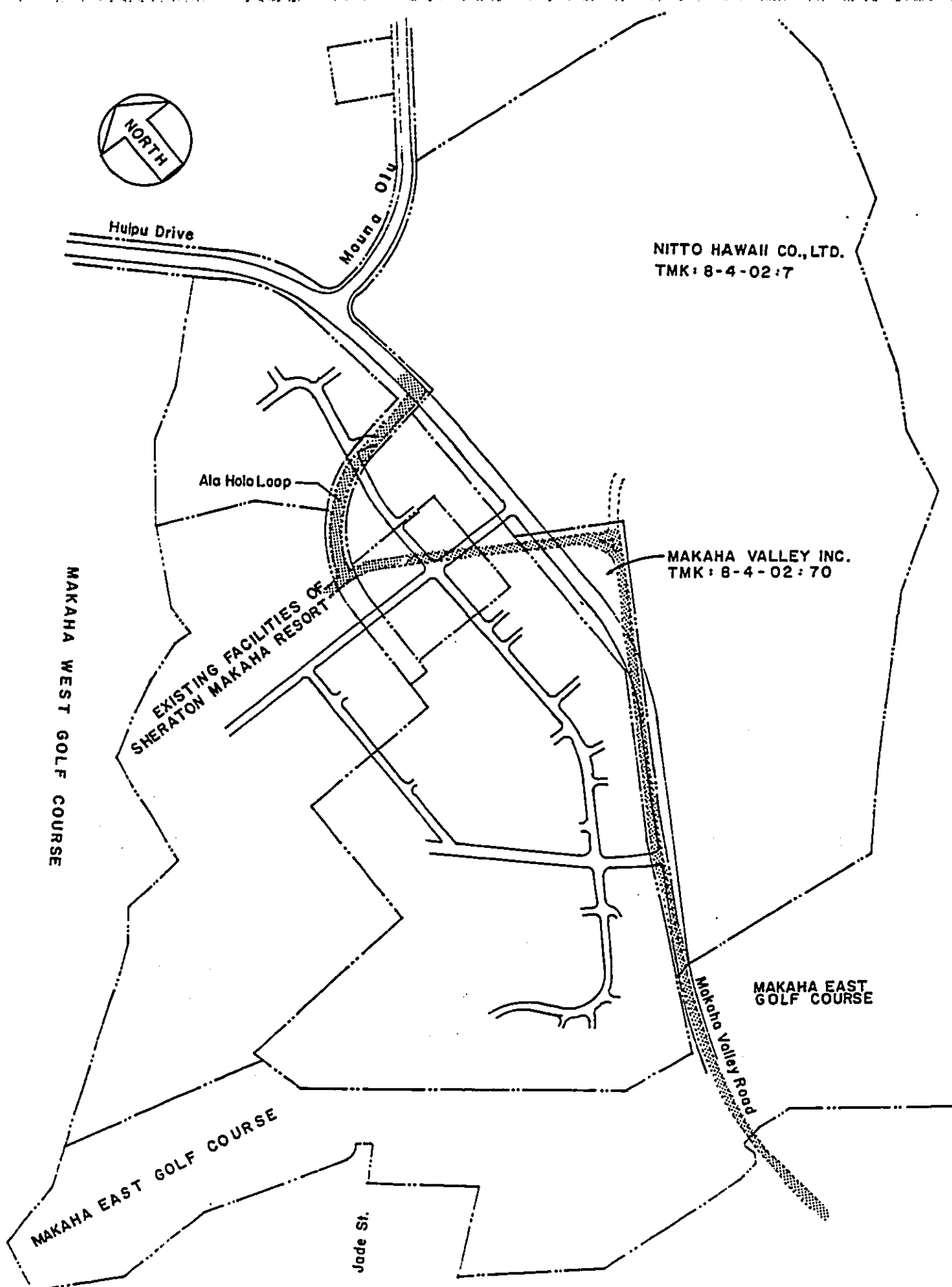
Proposed Action

Makaha Valley, Inc., Nitto Hawaii Co., Ltd. and ANA Hotels Hawaii, Inc. have agreed to realign the portion of Makaha Valley Road abutting the subject properties in order to provide a smooth connection with Huipu Drive. The realignment of Makaha Valley Road and relocation of its connection to Sheraton Makaha Resort and the proposed development, are integral parts of the residential developments of Makaha East Golf Course. In addition, improvements are proposed at the intersection of Makaha Valley Road and Farrington Highway. (Exhibit 3)

Traffic signals, which are already warranted by peak hour volumes, would provide adequate capacity. Widening of each approach to allow separate turning lanes would allow for efficient operation of the traffic signals. Widening of Farrington Highway to four lanes, which is planned by the State Department of Transportation, will accommodate the projected increase in highway traffic.

Impact and Mitigating Measures

Separate lanes for right and left turn movements exiting from the proposed site will minimize delays. A separate left turn lane for storage and deceleration along Makaha Valley Road provides for northbound traffic to turn left into the site and allows turning traffic to leave the through lane, thereby not delaying other northbound traffic.



EXISTING MAKAHA VALLEY ROAD
ANA Hotels Hawaii, Inc.

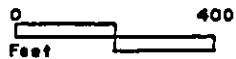
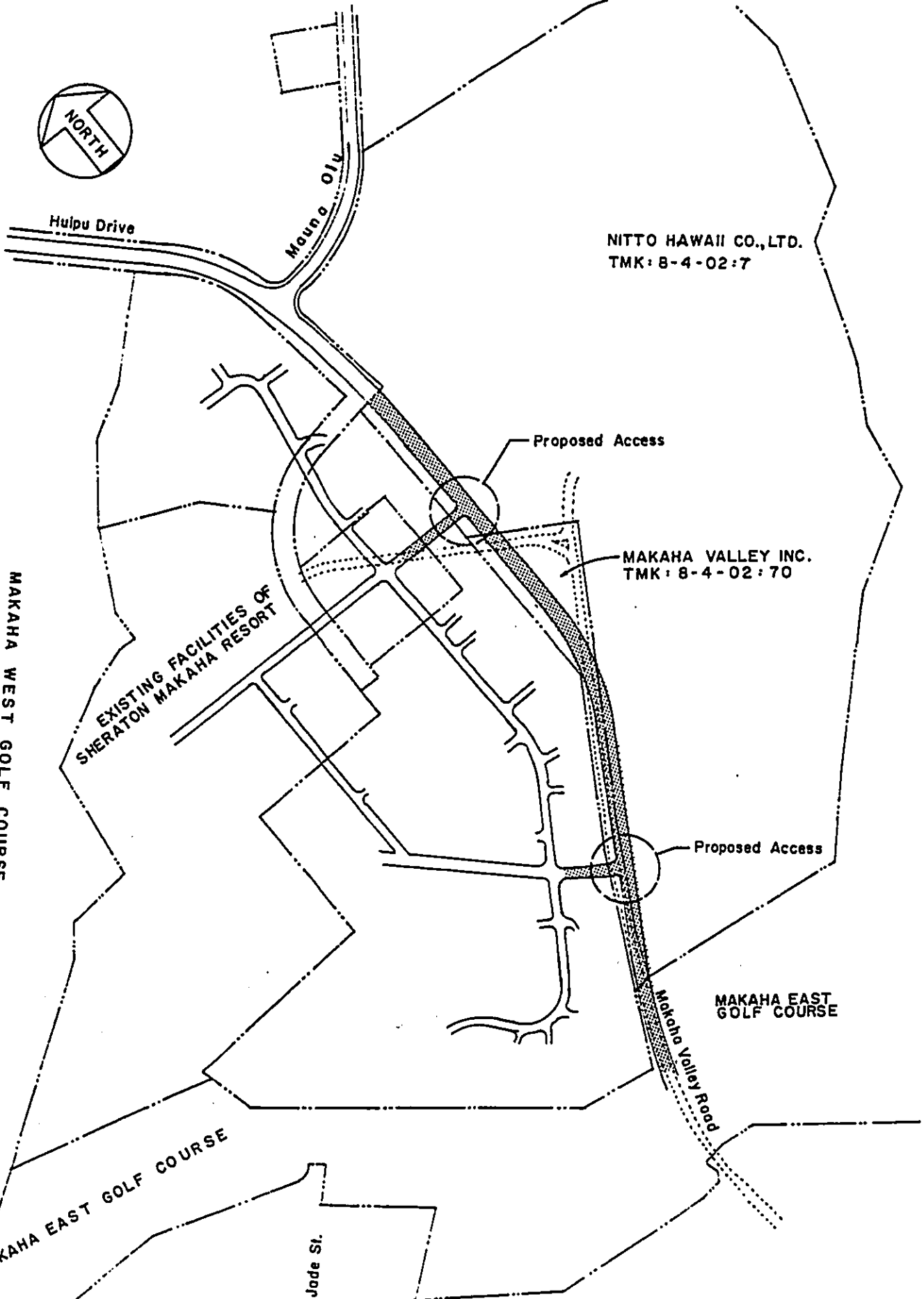


EXHIBIT 2
HIDA, OKAMOTO & ASSOCIATES, INC.
CONSULTING ENGINEERS
HONOLULU, HAWAII



NITTO HAWAII CO., LTD.
TMK: 8-4-02:7

MAKAHA VALLEY INC.
TMK: 8-4-02:70

MAKAHA WEST GOLF COURSE

EXISTING FACILITIES OF
SHERATON MAKAHA RESORT

Proposed Access

MAKAHA EAST
GOLF COURSE

Makaha Valley Road

MAKAHA EAST GOLF COURSE

Jade St.

IMPROVED MAKAHA VALLEY ROAD
AND NEW ACCESS

ANA Hotels Hawaii, Inc.

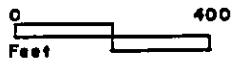


EXHIBIT 3

HIDA, OKAMOTO & ASSOCIATES, INC.
CONSULTING ENGINEERS
HONOLULU, HAWAII

DRAINAGE

Existing Conditions

The project site is located on a plateau between two intermittent stream beds, Makaha Stream to the west and a minor dry stream to the east of the Makaha East Golf Course. The site contains a number of drainage ways through which stormwater runoff from areas inside and outside of the property boundary eventually reach the abandoned earthen reservoir. The major part of the site proposed for development, currently is drained by means of sheet flow. Under normal conditions, runoff from drainage ways accumulates in the lower portions of the area proposed for development. These low areas (abandoned earthen reservoir) serve as natural retention basins and water that has accumulated in these low areas percolates into the ground or evaporates. Earthen berms along the lower portion of the project site prevents stormwater runoff from discharging into Makaha East Golf Course and the properties of lower Makaha. (Exhibits 4 and 5)

Proposed Action

Development of the project will include a drainage system built to City and County standards which will accommodate the existing drainage requirements of the site as well as provide for any increase in runoff due to the addition of improvements which will change the permeability of the surface in some areas. The drainage will be discharged into the Sheraton Makaha Golf Course and Makaha Stream through Easement 156, in accordance with a drainage plan for Makaha Valley filed with the City and County in 1979. (Exhibits 6 and 7)

While a specific drainage plan has not been adopted for the development at this level of planning, it is anticipated that maintaining levels of discharge into Makaha Stream at current levels will be accomplished primarily by providing areas for flood water retention on the existing golf course.

Impact and Mitigating Measures

Anticipated impacts include short term construction related impacts such as noise, dust, traffic disruption and air pollution due to use of diesel equipment. Long term impacts should be an improvement in the drainage throughout the project area, a lessening of particulate matter discharged into the stream during periods of stormwater runoff, and the visual impact of altered topography due to drainage improvements.

Drainage improvements will be developed to City and County standards to ensure that adequate and appropriate improvements are made. Impact from short term construction activities will comply with the Department of Health Noise requirements as well as the City and County Grading Ordinances which will feature protective measures to mitigate dust and erosion.

Visual impacts of the proposed drainage improvements will be subject to the overall design criteria for the proposed recreational/ resort community. These design criteria are expected to include landscaping requirements, setbacks as well as material and texturing requirements which can be used to mitigate changes in visual impacts.



Hupu Drive

Moana Olu

NITTO HAWAII CO., LTD.
TMK: 8-4-02:7

MAKAHA WEST GOLF COURSE

EXISTING FACILITIES OF
SHERATON MAKAHA RESORT

(A)

(B)

(C)

(D)

MAKAHA EAST GOLF COURSE

MAKAHA EAST GOLF COURSE

Makaha Valley Road

EXISTING DRAINAGE BASIN AREAS
ANA Hotels Hawaii, Inc.

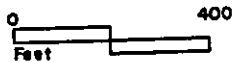


EXHIBIT 4
HIDA, OKAMOTO & ASSOCIATES, INC.
CONSULTING ENGINEERS
HONOLULU, HAWAII

EXHIBIT 5
EXISTING STORM RUNOFF QUANTITIES

<u>DRAINAGE BASIN</u>	<u>AREA (ACRES)</u>	<u>RUNOFF (CFS) Q (10)</u>
A	7.1	5.6
B	31.7	29.2
C	12.9	7.7
D	<u>15.7</u>	<u>10.1</u>
TOTAL	67.4	52.6

NOTES:

1. Reference: Storm Drainage Standards - Department of Public Works,
City and County of Honolulu, March 1986
2. Q (10): 10-year storm runoff

EXHIBIT 5



Huipu Drive

Moung Olu

NITTO HAWAII CO., LTD.
TMK: 8-4-02:7

MAKAHA WEST GOLF COURSE

EXISTING FACILITIES OF
SHERATON MAKAHA RESORT

MAKAHA VALLEY INC.
TMK: 8-4-02:70

MAKAHA EAST GOLF COURSE

Proposed Drain Line

Makaha Valley Road

Existing Drainage Easement

Jade St.

MAKAHA EAST GOLF COURSE

DRAINAGE SYSTEM (ON-SITE)
ANA Hotels Hawaii, Inc.

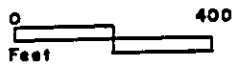
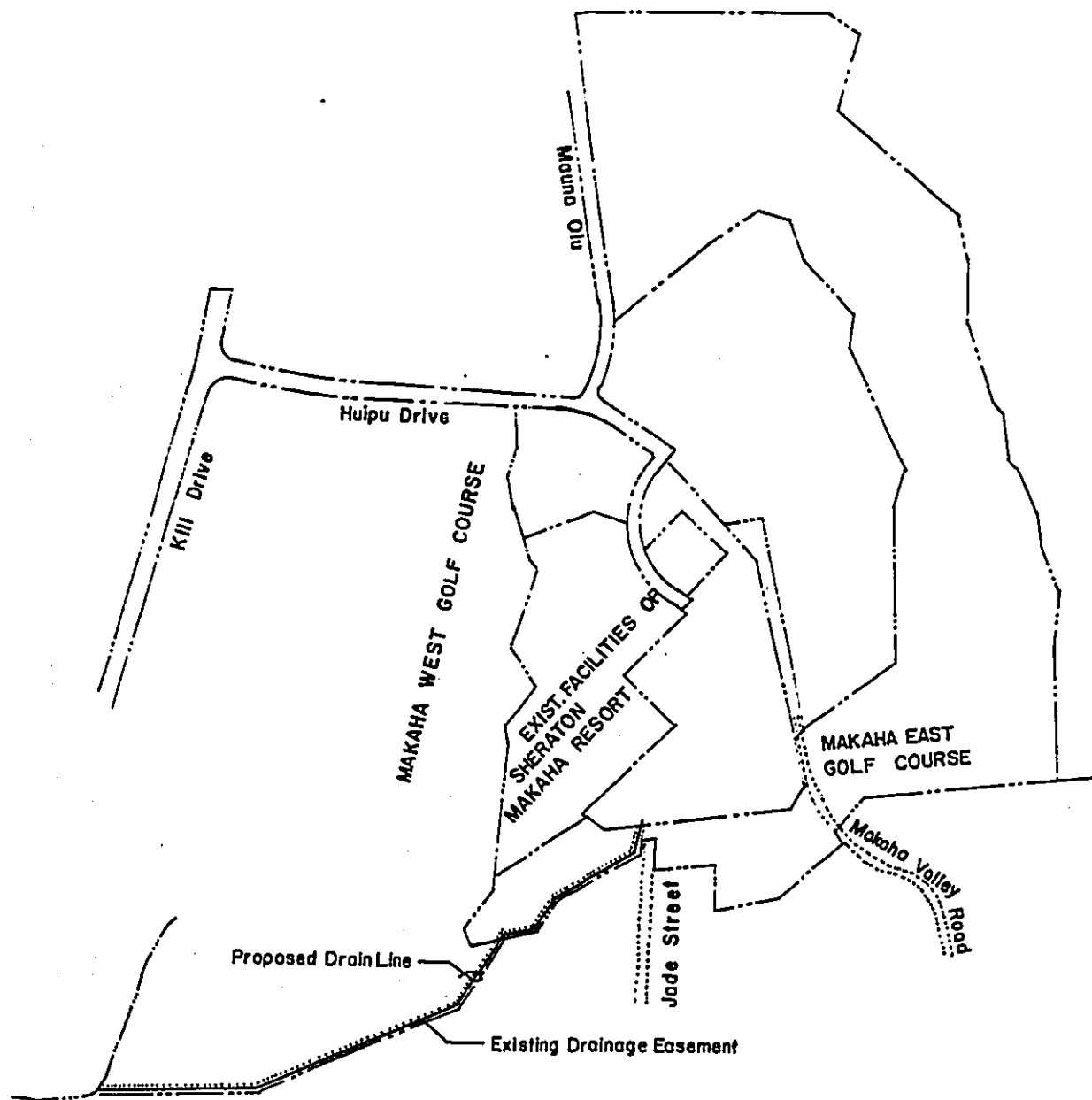


EXHIBIT 6
HIDA, OKAMOTO & ASSOCIATES, INC.
CONSULTING ENGINEERS
HONOLULU, HAWAII



DRAINAGE SYSTEM (OFF-SITE)
ANA Hotels Hawaii, Inc.

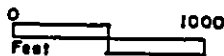


EXHIBIT 7
HIDA, OKAMOTO & ASSOCIATES, INC.
CONSULTING ENGINEERS
HONOLULU, HAWAII

WATER RESOURCES AND WATER USAGE

Existing Conditions

The Honolulu Board of Water Supply (BWS) currently provides potable and irrigation water for the existing facilities of the resort, including the golf course, from two water resources. The water sources are comprised of water from the Glover Tunnel and a deep well (Makaha Well No. 277-102). Water from Glover Tunnel is used for the irrigation of the two golf courses in Makaha Valley. Water from Well No. 277-102 is committed to the existing projects in the valley.

Proposed Action

The total water demand for the ultimate development within the project site is estimated to be 175,000 GPD (350 GPD/resort unit). The difference between the water commitment of 125,000 GPD from the previous landowner which was part of 350,000 GPD water commitment by the BWS and estimated water usage of approximately 175,000 GPD will need to come from the BWS wells now under development.

Impact and Mitigating Measures

A substantial sustainable yield of potable fresh water in Waianae ground water basin remains to be developed. One of these unexploited groundwater resources is the Makaha Valley. The BWS is in the process of developing a series of upper level wells in Makaha Valley. Each of the wells will have a design capacity of 1.0 MGD. These wells will provide approximately 4.0 MGD of additional water to the Waianae area. Long-range BWS plans also include the possible development of an additional 2.0 MGD of groundwater resources in Waianae Valley. The initial phase of the Makaha well project is scheduled for completion in late 1989.

WATER DISTRIBUTION

Existing Conditions

The Board of Water Supply's (BWS) distribution system, which services the existing Sheraton Makaha and Country Club within the Makaha Valley, includes a 16-inch main from a 2.0 million gallon (mg) reservoir to Farrington Highway. This main is connected to a 16-inch main that runs along Huipu Drive and a 12-inch main along Ala Holo Loop. (Exhibit 8)

Proposed Action

Water demand for the proposed Sheraton Makaha Resort Expansion is estimated to be 175,000 GPD (350 GPD/ resort unit). The proposed development is likely to be served by the BWS's 525 system. The existing reservoir for the 525 system will be adequate until the total, cumulative max-day demand of actual developments at the Makaha Valley reaches 2.0 mgd.

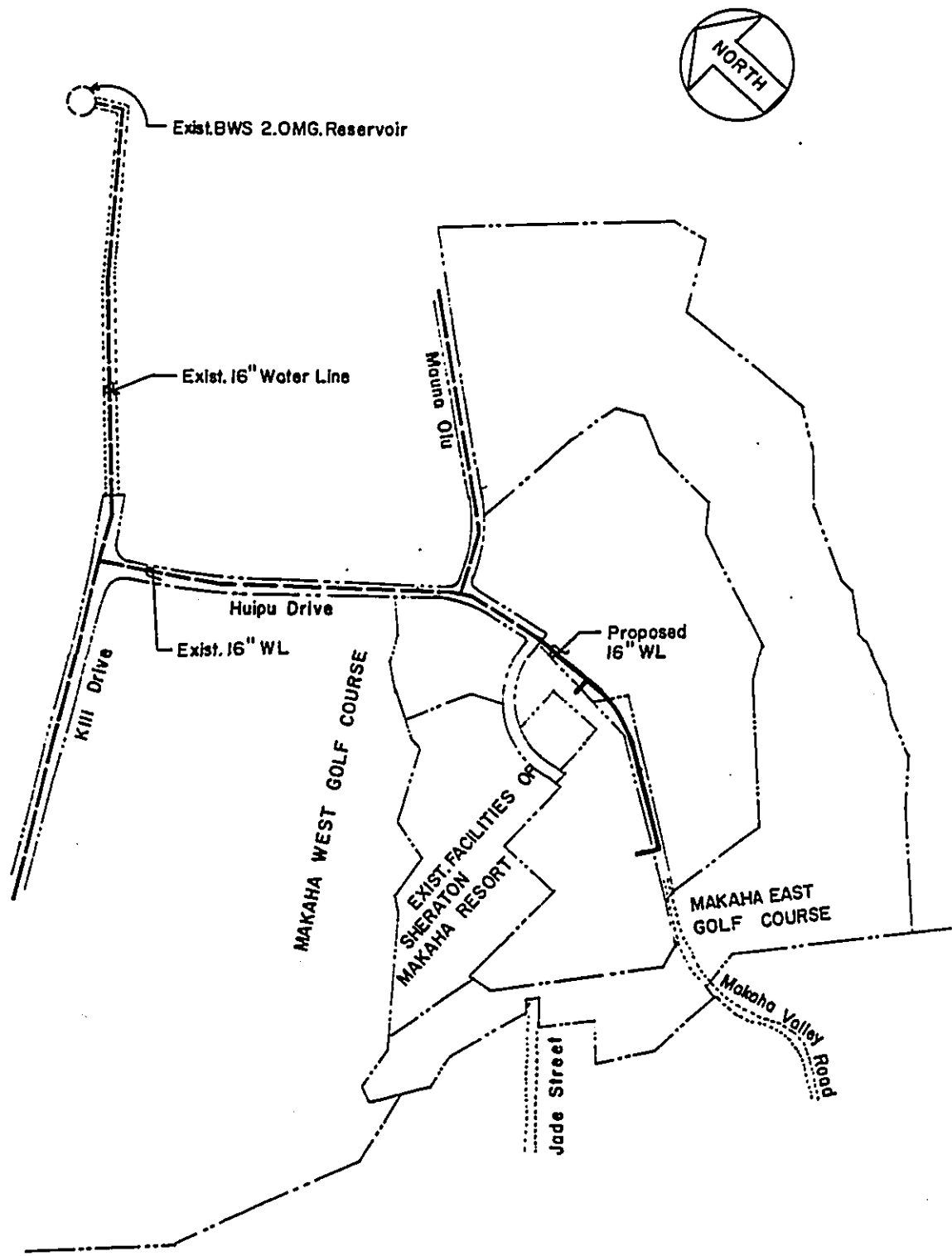
In addition, the existing 16-inch main along Huipu Drive will be extended to the southern boundary of the project site and additional 12-inch mains will be constructed looping within the development to service the expanded resort facilities. (Exhibit 9)

Construction of the necessary transmission/ distribution system will be at the applicant's expense. The applicant will also pay the assessment charge for water facilities at the necessary storage facilities. All facilities will be designed to BWS's standards and is intended to be dedicated to the BWS upon completion. Maintenance of the system will be paid for through the collection of BWS's charges.

A specific water master plan has not been adopted for the development at this level of planning, however, a water master plan for the expansion project is to be submitted to the BWS for review and approval. (This will be complied with the engineering consultants Hida, Okamoto & Associates, Inc.)

Impact and Mitigating Measures

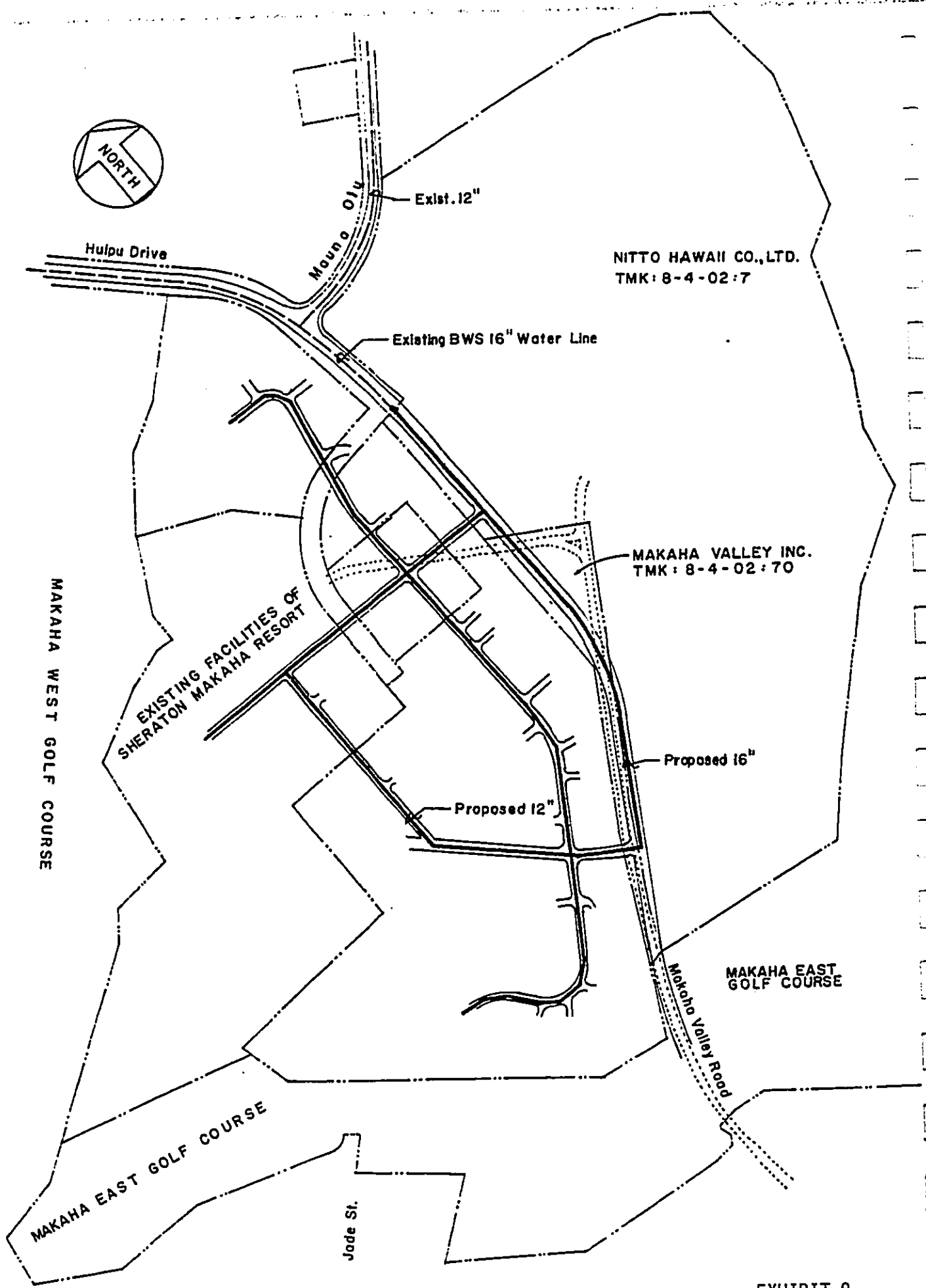
Water distribution improvements will be developed to BWS's standards to ensure that adequate and compatible improvements are made. The anticipated impact from short term construction activities will comply with the State Department of Health Noise requirements as well as the City and County Grading Ordinances which will feature protective measures to mitigate dust and erosion.



EXISTING WATER SYSTEM
 ANA Hotels Hawaii, Inc.



EXHIBIT 8
HIDA, OKAMOTO & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 HONOLULU, HAWAII



WATER DISTRIBUTION SYSTEM
ANA Hotels Hawaii, Inc.

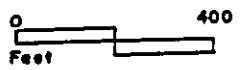


EXHIBIT 9
HIDA, OKAMOTO & ASSOCIATES, INC.
CONSULTING ENGINEERS
HONOLULU, HAWAII

SOLID WASTE

Existing Conditions

Presently, solid waste generated within the project site is not collected by the City and County of Honolulu, Department of Public Works, Refuse Division. Solid waste generated on the property is disposed of by a private refuse collection agency.

Proposed Action

It is anticipated that at full development the activities within the project site will generate a de facto population of 736, who will each generate approximately 2.32 to 4 pounds of refuse each day, for a total of 1.5 tons of solid waste each day. Solid waste will be collected by private collection companies and disposed at public or private landfills.

Impact and Mitigating Measures

The proposed activities within the project site will place additional demand on County waste disposal facilities. It is expected that State and County revenues derived from the completed resort facilities will be sufficient to finance the resort's fair share of the cost for major capital improvements such as solid waste disposal facilities, and to provide the same level of per-unit services. The County has future plans to construct a solid waste transfer station. Solid waste collected at this transfer station will be hauled either to a sanitary landfill site for disposal or to a proposed refuse-to-energy plant.

ELECTRIC AND TELEPHONE SERVICES

Existing Conditions

Power and telephone service to the site is currently supplied by an overhead line along Makaha Valley Road and an underground system along Huipu Drive. Power to these lines is supplied by the Makaha Substation which has limited available capacity to serve the subject expansion.

Proposed Action

Electrical and telephone infrastructure will have to be upgraded to serve the development. The assumed average daily power requirement is estimated to be approximately 2,500 KVA.

Impact and Mitigating Measures

The existing electrical system may have to be upgraded to accommodate the new development.

The developer will work closely with HECO in order to find an appropriate on-site location for a substation as well as to ensure that timely service can be provided.

No other mitigating measures are necessary since the electric company has indicated that adequate service can be provided.

The electrical system within the development will be built to County standard. Utility lines will be underground to mitigate any visual impacts.

The developer will maintain contact with Hawaiian Telephone Company to assure necessary service levels.

APPENDIX B

BIOLOGICAL SURVEY
Kenneth M. Nagata

October 1988



ANA HOTELS

BIOLOGICAL SURVEY
MAKAHA RESORT EXPANSION, OAHU

Prepared for: Helber, Hastert & Kimura

By: Kenneth M. Nagata

Date: 5 October 1988

INTRODUCTION

The project site occupies approximately 35 acres in Makaha Valley, Waianae District, Oahu. It is defined by golf courses on the north and south, the Sheraton Makaha Resort complex on the west and Makaha Valley Road on the east.

The vegetation in the lower portion of the valley has been described as one of arid dryland shrub consisting mainly of klu (Acacia farnesiana), koa-haole (Leucaena leucocephala) and 'ilima (Sida fallax) with trees along the coastal fringe (Ripperton & Hosaka, 1942). Kiawe (Prosopis pallida), the dominant tree, is especially abundant along the coast and wherever water is readily available. The herb layer is generally sparse and consists of annual species such as bristly foxtail (Setaria verticillata), swollen fingergrass (Chloris inflata) and feather fingergrass (C. virgata). Towards the middle and upper portions of the valley where rainfall is more abundant shrubs and herbs become increasingly prominent. Lantana (Lantana camara) and koa-haole often form dense stands and species such as 'uhaloa (Waltheria americana), false mallow (Malvastrum coromandelianum) and cockelbur (Xanthium saccharatum) are common.

FLORA

On 11 and 18 September 1988 a walk-through survey was conducted to determine the floristic composition of the project site. The vegetation was found to consist of grasslands, scrub, and cultivated lands composed almost entirely of alien (introduced) species. Due in part to the extremely arid conditions at the time of the survey and to the nearly complete dominance of buffelgrass (Cenchrus ciliaris) in the herb layer, relatively few species were recorded from the site. In the grasslands and scrub only 55 species were present. In the cultivated area, however, where the plants are at least occasionally irrigated, 65 species were recorded. The three vegetation types

are described below.

Koa-Haole - Buffelgrass Scrub (S)

This vegetation type is characterized by stands of koa-haole 5-15 feet tall and a dense herb layer of buffelgrass with scattered emergent kiawe 25-30 feet tall. In most areas the koa-haole is widely scattered and stunted but in ravines where moisture is more readily available it forms dense thickets up to 25 feet in height. In these ravines kiawe approaches heights of up to 40 feet. Typically buffelgrass 3-4 feet tall provides 100% cover in the herb layer. Guinea grass is occasional in the herb layer and is most common in ravines. 'Uhaloa and klu are also occasional in this community.

Ornamental trees such as Indian rubber tree (Ficus elastica), Benjamin tree (F. benjamina), Guiana chestnut (Pachira aquatica), pink tecoma (Tabebuia pentaphylla) and golden shower (Cassia fistula) are found near Makaha Valley Road. These are remnants of the landscaping around several houses which were razed some years ago.

Grasslands (G)

Grasslands occupy a significant portion of the site. They are found in the man-made depressions which were once used as reservoirs, and also on a broad, flat area which appears to be another man-made feature. The elongated depression along Makaha Valley Road can be divided into a mauka and a makai portion. The grassland on the floor of the mauka section is dominated by Paragrass (Brachiaria mutica) 3-4 feet thick with occasional Guinea grass. Castor bean (Ricinus communis) and moon flower vines (Ipomoea alba) are encroaching from the makai side but grasses account for nearly 100% of the vegetational cover. The grassland in the makai portion, on the other hand, has been successfully invaded by broadleaf herbs and shrubs such as lion's ear (Leonotis nepetaefolia), spiny amaranth (Amaranthus spinosus), cockelbur, and castor bean. These broadleaf species account for approximately 50% of the

vegetational cover. Here, the dominant grass is buffelgrass. The depression in the west corner of the property is completely dominated by dense Paragrass up to 4 feet thick with occasional Guinea grass along the mauka edge.

A broad, flat area probably the result of grubbing and grading activity many years ago is found in the north central portion of the project site. The grassland here is simply a grassy field which appears to be mowed at least intermittently. Buffelgrass is the dominant species with occasional 'uhaloa, koa-haole, Guinea grass, and virgate mimosa (Desmanthus virgatus). Vegetational cover which is 100% in most of the field becomes rather sparse on the east portion where trash is being bulldozed into the mauka section of the elongated depression. Various ornamental trees and shrubs and remnants of a mango (Mangifera indica) orchard occur on the southwest portion.

Cultivated Land (C)

Cultivated Land also comprise a significant portion of the project site. It consists of two well-maintained structures, the lawn and landscaping surrounding them, an adjacent mango orchard and a sewage treatment plant along the south boundary. Among the numerous ornamentas species found here are paper bark (Melaleuca leucadendra), lignum vitae (Guaiacum officinale), coconut (Cocos nucifera), octopus tree (Brassaia actinophylla), Chinese banyan (Ficus microcarpa) and willow (Salix babylonica). The extensive lawns consist mostly of Bermuda grass (Cynodon dactylon). The mango orchard consist of widely-spaced trees planted in rows. Enough sun reaches ground level to permit the establishment of lawn under the trees. As in most other cultivated situations, intentional planting and greater availability of water has resulted in an abundance of species. More species are found in the Cultivated Land than in the rest of the project site.

Native Species

No native plant communities and only six native species were observed in the project site. Of these, 'uhaloa and koali-awahia (Ipomoea congesta) are common indigenous species and 'ihi (Portulaca cyanosperma) is a common endemic. Only 'uhaloa is found in significant numbers in the property. A single individual of the endemic pua-kala (Argemone glauca) was found in the grassy field. It is a lowland species found on all the main Hawaiian Islands. In addition, two common indigenous ferns, Boston fern (Nephrolepis exaltata) and lauae (Microsorium scolopendrium) were found in the landscaping in the Cultivated Land.

Limitations of the Survey

Conditions were extremely dry at the time of the survey. Much of the grasses and herbaceous species were completely dried, many of the koa-haole shrubs were defoliated and many of the ornamental trees were exhibiting severe water stress. It is probable that the rainy season may produce a number of annual species presently absent from the site but they are not expected to significantly alter the character of the vegetational communities.

Summary

The vegetation of the project site is essentially alien with no floristic or watershed value. Development of the property will in no way be detrimental to the integrity of any native plant community.

FAUNA

In conjunction with the botanical survey, a cursory survey of birds and mammals was undertaken. This merely involved a walk-through survey with occasional listening stations. No attempt was made to quantify data. Several bird nests were observed but none were investigated.

Birds

Five common urban and field birds were observed in the site: ricebirds (Lonchura punctulata), house sparrows (Passer domesticus), barred doves (Geopelia striata striata), lace-necked doves (Streptopelia chinensis chinensis) and the common mynah (Acridotheres tristis tristis). Both doves and the ricebirds seemed to be widely dispersed throughout the site but were most abundant in and around the mango orchard. House sparrows were only seen in the Cultivated Land and the mynah were present in the Koa-Haole - Buffelgrass Scrub as well as throughout the Cultivated Land. It is believed that the mango trees of the Cultivated Land provide better nesting opportunities than the few kiawe trees or the deciduous and often sparse koa-haole in the surrounding region. Perhaps more importantly, two water faucets in the orchard are not securely shut and the constant dripping probably provides crucial water supplies to the birds in the vicinity.

Three Pacific golden plovers (Pluvialis dominica fulva) were observed as probable residents in the lawn in and around the mango orchard. None were seen in the grassy field immediately mauka of the orchard and the importance of these lawns and fields as essential habitat for plovers cannot be immediately ascertained. Lengthy observations in the neighboring golf courses failed to reveal any plovers.

A single barn owl was flushed from the koa-haole thickets between the mauka and makai depressions on the east side of the property. No nest was found despite a careful search.

Mammals

The only mammal seen was a single feral cat (Felis catus) in the mango orchard. The size and extent of the cat population is not known. The arid region does not appear to be prime habitat for cats or any other mammal but

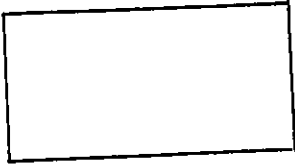
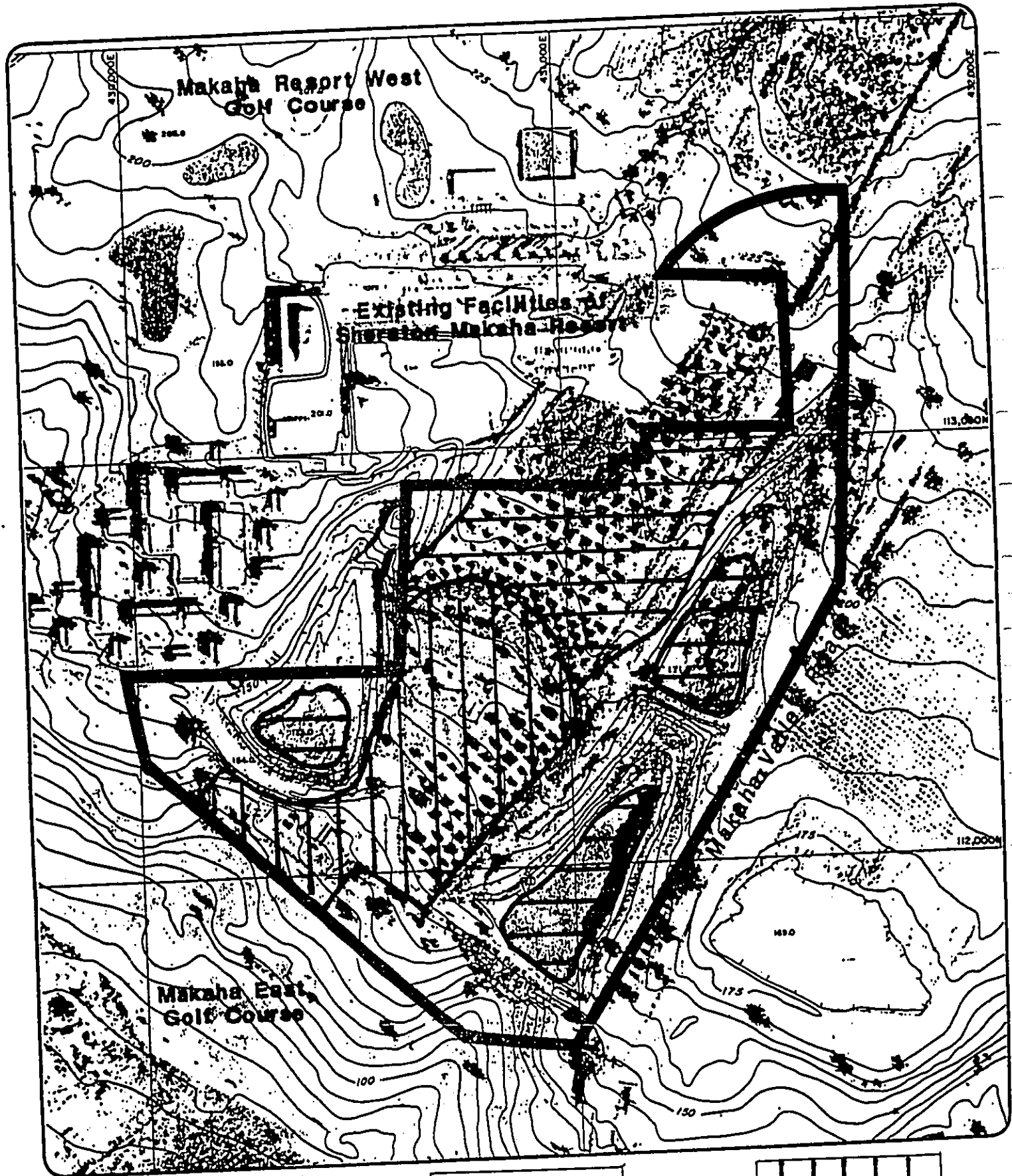
the abundance of birds in the orchard does provide an ample food source at least for the carnivores. The Koa-Haole - Buffelgrass Scrub probably provides adequate habitat for field mice (Mus musculus domesticus) and although not observed, these rodents are probably present. The presence of mongoose (Herpestes auropunctatus) must also be considered as a possibility.

Summary

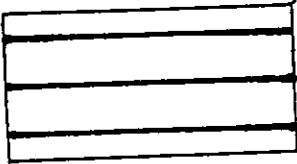
The Pacific golden plover, which is actually a migratory species, was the only animal in the project site that can be considered native. Development of the property will eliminate the present habitat for at least three individuals. It is possible, however, that they will utilize the golf courses as alternative habitat.

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Pteridophytes (unpublished ms.)



Koa-Haole - Buffelgrass
Scrub



Grasslands



Cultivated Land

PLANT SPECIES CHECKLIST

Families are arranged alphabetically in three groups - Pteridophytes, Monocotyledones and Dicotyledones. Genera and species are arranged alphabetically within each family. Taxonomy of the pteridophytes follow that of Wagner & Wagner's unpublished checklist (1987). Taxonomy, common names and the status of most of the other plants follow that of St. John (1973). Additional information regarding the status of certain species was obtained from Handy & Handy (1972) and Nagata (1983). The abundance determinations are relative and are dependent of the judgement of the investigator. The relative abundance of plants found in the Cultivated Land (C) is thought to be inconsequential and thus an "x" indicates merely the presence of the species.

EXPLANATION OF SYMBOLS

Species Status:

- E - Endemic to the Hawaiian Islands, ie. occurring naturally nowhere else in the world.
- I - Indigenous, ie. native to the Hawaiian Islands but also occurring naturally elsewhere.
- X - Exotic, ie. plants introduced after the Western discovery of the islands.
- P - Polynesian introductions; plants introduced before the Western discovery of the islands.

Relative Abundance Ratings:

- A - ABUNDANT, generally the major or dominant species in a given area.
- C - COMMON, generally distributed throughout a given area in large numbers.
- O - OCCASIONAL, generally distributed through a major portion of a given area, but in small numbers.
- U - UNCOMMON, observed uncommonly but more than 10 times in a given area.
- R - RARE, observed 2 to 10 times in a given area.

Vegetation Types:

- S - Koa-Haole - Buffelgrass Scrub
- G - Grasslands
- C - Cultivated Land

CHECK LIST OF PLANTS

SCIENTIFIC NAME	COMMON NAME	STATUS FR*	FR*	S	G	C	RELATIVE ABUNDANCE
PTERIDOPHYTES							
DAVALLIACEAE							
Nephrolepis exaltata (L.) Schott	Boston fern	I		-	-	X	
POLYPODIACEAE							
Microsorium scolopendrium (Burm.) Copel.	Lauae	I		-	-	X	
ANGIOSPERMS							
MONOCOTYLEDONES							
AMARYLLIDACEAE							
Pancratium littorale Jacq.	Spider lily	X		-	-	X	
CYPERACEAE							
Cyperus atrovirens L.	Ambrosia plant	X		-	-	X	
C. gracilis R. Br.	McGoy Grass	X		-	-	X	
C. rotundus L.	HUE GRASS	X		-	-	X	
GRAMINEAE							
Andropogon parvulus (L.) Willd.		X		-	-	X	
Brachiaria mutica (Forst.) Stapf	Paragrass	X		-	0	-	
Cenchrus ciliaris L.	Kuffelgrass	X		A	A	-	
Chloris radiata (L.) Sw.	Radiate fingergrass	X		-	-	X	
Cynodon dactylon (L.) Pers.	Bermuda grass	X		-	-	X	
Digitaria adscendens (HBK.) Beauv.	Henry's crabgrass	X		-	-	X	
Eragrostis tenella (L.) Beauv. ex R. & S.	Japanese lovegrass	X		-	U	-	
Panicum maximum Jacq.	Guinea grass	X		0	0	-	
Paspalum conjugatum Berg.	Hilo grass	X		-	-	X	
Rynchosyrum repens (Willd.) C.E. Hubb.	Natal reedtop	X		-	-	X	
Zoysia tenuifolia Willd. ex Trin.	Japanese lawngrass	X		-	-	X	
IRIDACEAE							
Dietsa bicolor Lindl.		X		-	-	X	
LILIACEAE							
Sonchivicia trifasciata Prain	Swasting hemp	X		X	-	-	
RUSACEAE							
Strelitzia reginae Banks	Bird of paradise	X		-	-	X	
ORCHIDACEAE							
Dendrobium x		X		-	-	X	
PALMAE							
Chrysalidocarpus lutescens (Roxb.) H. Wendl.	Areca	X		-	-	X	
Coccothrinax L.	Coconut	P		-	-	X	
Phoenix roebelinii O'Brien	Dwarf date palm	X		-	-	X	
Veitchia merrillii (Bucc.) H.E. Moore	Hanila palm	X		-	-	X	

* Categories not applicable

CHECK LIST OF PLANTS

SCIENTIFIC NAME	COMMON NAME	STATUS PR*	FR*	S	G	C	RELATIVE ABUNDANCE
DICTYLEDONES							
ALIZOACEAE							
<i>Mesembryanthemum</i> sp.	Ice plant	X		-	-	X	
AMARANTHACEAE							
<i>Alternanthera repens</i> (L.) Ktze.	Khaki weed	X		-	-	X	
<i>Amaranthus spinosus</i> L.	Spiny amaranth	X		U	U	-	
AMARANTHACEAE							
<i>Hemiphaea indica</i> L.	Mango	X		U	R	X	
<i>Schinus molle</i> (L.) Raddi	Christmas berry	X		-	-	X	
APOCYNACEAE							
<i>Ervatamia divaricata</i> (L.) Burkill	Crape jasmine	X		-	-	X	
<i>Nerium oleander</i> L.	Oleander	X		-	-	X	
<i>Plumeria rubra</i> L.	Plumeria	X		R	U	X	
<i>Thevetia peruviana</i> (Pers.) K. Schum.	Sea-still-tree	X		R	R	X	
ABALICEAE							
<i>Brassia actinophylla</i> Endl.	Octopus tree	X		-	-	X	
BIGNONIACEAE							
<i>Spathodea campanulata</i> Beauv.	African tulip tree	X		R	-	X	
<i>Tabebuia donnell-smithii</i> Rose	Gold tree	X		-	-	X	
<i>T. pentaphylla</i> (L.) Hensl.	Pink tecoma	X		R	-	X	
BOMBACACEAE							
<i>Pachira aquatica</i> Aubl.	Guiana chestnut	X		R	-	-	
BORAGINACEAE							
<i>Cordia subcordata</i> Lam.	Kou	P		R	-	-	
CARICACEAE							
<i>Carica papaya</i> L.	Papaya	X		-	-	X	
CHENOPODIACEAE							
<i>Atriplex semibaccata</i> R. Br.	Australian salt bush	X		-	-	X	
COMPOSITAS							
<i>Calypocarpus vialis</i> Less.		X		-	-	X	
<i>Emilia javanica</i> (Burma. f.) C.B. Robins.	Red pus-leaf	X		-	-	X	
<i>Lactuca serriola</i> L.		X		R	-	-	
<i>Pluchea odorata</i> (L.) Cass.	Pluchea	X		U	-	-	
<i>Sonchus oleraceus</i> L.	Sea thistle	X		-	-	X	
<i>Tridax procumbens</i> L.	Coat buttons	X		U	-	X	
<i>Verbesina encelioides</i> (Cav.) B. & H. ex Gray	Golden crown-beard	X		U	-	-	
<i>Xanthium saccharatum</i> Vahl.	Cocklebur	X		U	U	-	

* Categories not applicable

CHECK LIST OF PLANTS

SCIENTIFIC NAME	COMMON NAME	STATUS FR*	FB*	S	G	C	RELATIVE ABUNDANCE
CONVOLVULACEAE							
<i>Ipomoea alba</i> L.	Hoop flower	X		R	U	-	
<i>I. congesta</i> R. Br.	Koali-nyahia	X		R	-	-	
CUCURBITACEAE							
<i>Momordica charantia</i> var. <i>drayl</i> Grantz	Peria	X		R	-	-	
EUPHORBACEAE							
<i>Alouites moluccana</i> (L.) Willd.	Kukud	F		R	-	-	
<i>Euphorbia glomerata</i> (Millsp.) L.C. Wheeler	Prostrate spurge	X		R	-	X	
<i>E. prostrata</i> Ait.	Phyllanthus weed	X		-	-	X	
<i>Phyllanthus debilis</i> Klein ex Willd.	Castor bean	X		U	U	-	
<i>Ricinus communis</i> L.		X					
LABIATAE							
<i>Leonotis nepetifolia</i> (L.) Ait.	Lion's ear	X		R	U	-	
<i>Ocimum gratissimum</i> L.		X		R	-	-	
LEGUMINOSAE							
<i>Acacia farnesiana</i> (L.) Willd.	Klu	X		U	-	X	
<i>Cassia bicapsularis</i> L.		X		R	-	-	
<i>C. fiscula</i> L.	Golden shower	X		R	-	-	
<i>Crotalaria mucronata</i> Darv.		X		U	U	-	
<i>Delonix regia</i> (Boj.) Raf.	Royal poinciana	X		-	-	X	
<i>Desmanthus virgatus</i> (L.) Willd.	Virgate mimosa	X		U	U	-	
<i>Pesmodium canum</i> (Swal.) Schinz & Thell.	Spanish clover	X		U	-	X	
<i>Indigofera suffruticosa</i> Mill.	Indigo	F		U	-	X	
<i>Laesena leucocephala</i> (Lam.) deWit	Koa-hole	X		C	O	X	
<i>Phaseolus lathyroides</i> L.	Cow pea	X		R	-	-	
<i>Prosopis pallida</i> (Humb. & Bonpl. ex Willd.) HBK.	Kieve	X		O	-	-	
<i>Sesamea saman</i> (Jacq.) Merr.	Monkeypod	X		R	R	X	
LYTHRACEAE							
<i>Lagerstroemia indica</i> L.	Grape myrtle	X		-	-	X	
MALPIGHIACEAE							
<i>Halpighia coccigera</i> L.	Singapore holly	X		-	-	X	
HALVACEAE							
<i>Abutilon grandifolium</i> (Willd.) Sweet	Hairy abutilon	X		-	-	X	
<i>Hibiscus</i> x	Hybrid hibiscus	X		-	-	X	
<i>Malvastrum coromandelianum</i> (L.) Garcke	False mallow	X		U	U	X	
<i>Sida spinosa</i> L.	Prickly sida	X		-	R	-	
MORACEAE							
<i>Ficus benjamina</i> L.	Benjamin tree	X		R	-	-	
<i>F. elastica</i> Roxb. ex Hornem.	Indian rubber tree	X		R	-	-	
<i>F. lyrata</i> Warb.		X		R	-	-	
<i>F. microcarpa</i> L. f.	Chinese banyan	X		R	-	X	

* Categories not applicable

CHECK LIST OF PLANTS

SCIENTIFIC NAME	COMMON NAME	STATUS PR*	PH*	S	G	C	RELATIVE ABUNDANCE
MORINGACEAE							
<i>Moringa oleifera</i> Lam.	Horseradish tree	X					
MYRTACEAE							
<i>Eucalyptus</i> sp.	Eucalyptus	X					
<i>Melaleuca leucadendra</i> (Strickm.) L.	Paper bark	X					
<i>Peucedanum guajava</i> L.	Guava	X					
NYCTAGINACEAE							
<i>Boerhavia coccinea</i> Mill.		X					
<i>Bougainvillea spectabilis</i> Willd.	Bougainvillea	X					
PAPAVERACEAE							
<i>Argemone glauca</i> Pope	Pua-kala	X					
PASSIFLORACEAE							
<i>Passiflora foetida</i> L.	Scarlet-fruited passionflower	X					
PITTOSPORACEAE							
<i>Pittosporum tobira</i> (Thunb.) Ait. f.		X					
POLYGONACEAE							
<i>Antigonon leptopus</i> H. & A.	Horican creeper	X					
PORTULACACEAE							
<i>Portulaca cyanoderma</i> Ebel	'Ihi	X					
RUBIACEAE							
<i>Cardenia rasimilis</i> DC.	Iiata	X					
RUTACEAE							
<i>Citrus standis</i> (L.) Osbeck	Pumelo	X					
<i>C. sp.</i>		X					
<i>Murraya paniculata</i> (L.) Jack	Rock orange	X					
SALICACEAE							
<i>Salix babylonica</i> L.	Weeping willow	X					
SAPINDACEAE							
<i>Litchi chinensis</i> Sonn.	Litchi	X					
SOLANACEAE							
<i>Lycopersicon pimpinellifolium</i>	Currant tomato	X					

* Categories not applicable

ANIMAL SPECIES CHECKLIST

Families are arranged alphabetically and the genera and species are arranged alphabetically within each family. Taxonomy of the birds follow that of Berger (1972) and the mammals follow that of Tomich (1969). Only presence is recorded in each vegetation type.

EXPLANATION OF SYMBOLS

Species Status:

- M - Migratory species; species of birds that spend their non-breeding season in the Hawaiian Islands.
- X - Exotic, ie. animals introduced after the Western discovery of the islands.

Vegetation Types:

- S - Koa-Haole - Buffelgrass Scrub
- G - Grasslands
- C - Cultivated Land

ANIMAL SPECIES CHECKLIST

SCIENTIFIC NAME	COMMON NAME	STATUS PR	PH	RELATIVE ABUNDANCE		
				S	G	C
BIRDS						
CHARADRIIDAE						
<i>Pluvialis dominica fulva</i>	Pacific golden plover	H		-	-	X
COLUMBIDAE						
<i>Copelia striata striata</i>	Barred dove	X		X	X	X
<i>Streptopelia chinensis chinensis</i>	Lace-necked dove	X		X	X	X
PLOCEIDAE						
<i>Lonchura punctulata</i>	Ricebird	X		X	X	X
<i>Passer domesticus</i>	House sparrow	X		-	-	X
STURIDAE						
<i>Acridothera tristis tristis</i>	Common mynah	X		X	-	X
MAMMALS						
FELIDAE						
<i>Felis catus</i>	Cat	X		-	-	X

* Categories not applicable

APPENDIX C

ARCHAEOLOGICAL RECONNAISSANCE

International Archaeological
Research Institute, Inc.

October 1988



ANA HOTELS

ARCHAEOLOGICAL RECONNAISSANCE
OF A PROPOSED RESORT EXPANSION IN
MAKAHA VALLEY, LEEWARD O'AHU

by

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INTRODUCTION

ANA Hotels Hawaii, Inc., proposes to expand their existing resort/condominium facility in Makaha Valley on the leeward coast of O'ahu. This new development incorporates an approximately 35.7 acre parcel (TMK: 8-4-02:25; Fig. 1) located in the lower central portion of the valley. The parcel consists largely of a historically modified stream channel. As part of an environmental assessment, International Archaeological Research Institute, Inc., undertook an archaeological reconnaissance to determine if potentially significant cultural/historical remains were present in the area to be developed.

Field investigations, consisting of systematic pedestrian sweeps across the entire property, were conducted on 6 October 1988 by the author with Michael Kaschko, M.A. This was preceded by a brief archival search for maps and other relevant documents to aid fieldwork. An extensive literature produced by the Makaha Valley Historical Project during the late 1960s and early 1970s was also consulted (Green 1969, 1970, 1980; Ladd and Yen 1972; Ladd 1973). The results of this investigation are presented in the following report.

DESCRIPTION OF THE PROJECT AREA

The lower Makaha Valley is a broad, moderately sloping, alluviated basin, 3.3 km across the front. It extends 2.7 km back from the coast, after which point the valley floor rises steadily and rapidly. Two major streams transect this basin to the sea. Makaha Stream, the primary drainage for the upper and lower valleys, crosses on the north. To the south, 'Eku Stream drains the south half of the lower valley. The terrain between 'Eku and Makaha Streams, including the project area, is moderately dissected by a series of parallel erosional gullies. The larger of two gullies defines the southeast perimeter of the project area and a smaller gully forms a portion of the northwest side (Fig. 2).

Makaha Valley lies in the leeward shadow of the Wai'anae Mountains. Because of this location, combined with the distance of the mountains from the sea, the already diminished rainfall--a compound effect due to the fact that the entire Wai'anae range is in the shadow of the Ko'olau range--decreases markedly from the upper to lower valleys. As a result, although rainfall in upper Makaha was apparently sufficient to keep at least Makaha Stream flowing over most of its length before the commercial development of the valley's water sources, conditions in lower Makaha were comparatively dry unless irrigated from above. Controlling water

for irrigation has been an important limiting factor in both the prehistoric and historic agricultural use of lower Makaha Valley (Barrere 1970; Green 1980).

Virtually the entire project area is heavily modified due to recent resort/condominium developments, as well as earlier commercial agricultural activities (this is discussed further below). The area between the two gullies has been graded several times over; even the gullies themselves were altered. Presumably the latter is the result of commercial plantation agriculture since 1880. In consequence, the vegetation in the project area consists entirely of exotic plants which, considering the dryness of the area, are chiefly xerophytic species. Not counting landscaping plants found outside the gullies, a partial checklist includes California grass (*Brachiaria mutica* [Forsk.] Stapf.), among others; kiawe (*Prosopis pallida* [Humb. & Bonpl. ex Willd.] HBK.); koa haole (*Leucaena leucocephala* [Lam.] de Wit); Christmas berry (*Schinus terebinthifolius* Raddi); and Lantana (*Lantana camara* L.). In addition, sedges and the woody shrub, sour bush (*Pluchea* sp.) are found in protected, and somewhat moister, areas of the gully bottoms.

PREVIOUS ARCHAEOLOGY

Makaha Valley is one of the most intensively studied, and possibly the most extensively published, archaeological regions on the island of O'ahu. For two years, between 1968 and 1970, the Makaha Valley Historical Project conducted archaeological surveys and excavations covering very nearly the entire valley. Only lands previously under sugarcane cultivation and urbanized areas in the seaward portion of the lower valley were excluded. Altogether, this work resulted in the publication of four interim field reports (Green 1969, 1970; Ladd and Yen 1972; Ladd 1973) and an interpretive summary (Green 1980).

Figure 3 illustrates the seaward limit of the Makaha Valley Historical Project relative to the present study area. As early as 1884, sugarcane occupied nearly the whole central portion of the valley seaward of the Makaha Valley Historical Project area (Jackson 1884). Excepting the present study, and some limited work on Mauna Lahilahi on the coast (Kennedy 1986; Komori 1987), there have been no archaeological field investigations seaward of this boundary to date. This, in part, stems from the presumption that decades of commercial agriculture and other activities of similar magnitude have destroyed all traces of previous occupations in these disturbed areas. The potential research value of artifacts or landscapes associated with 19th century agro-commercial developments in Hawai'i aside, recent findings (Davis 1988a, 1988b) suggest that this presumption needs to be reconsidered.

FIELD OBSERVATIONS

To begin with, no prehistoric or early historic native Hawaiian cultural remains were observed within the project area. There were, however, several late historic features associated with sugarcane cultivation in Makaha Valley between 1880 and 1946. These features include three reservoirs retained behind earthen dams, an irrigation ditch with sections of stonework, and an old elevated roadway, possibly a former railroad bed.

All three reservoirs were natural erosion channels modified by throwing earthworks across the channels, impounding irrigation water for the fields below. Specifics concerning these and other features found in the project area follow below.

Dam and Reservoir 1 (Figures 2, 4, and 5; Photo 1)

Reservoir 1 is approximately 150 m long by 75 m wide and 6 m in depth at the dam. The dam is an earthen-core structure with mortar and stone facing on the upstream side; the downstream face is unprotected earth. Originally, the dam measured approximately 75 m long; 6 m and 27 m wide, respectively, top and bottom; and 8-9 m high. However, the dam has been breached. Now about 20 m from the center of the dam are missing. Subsequent erosion has since gouged a plunge pool nearly 4 m deep. Leading to the left (facing downstream), into and apparently at one time going through that corner of the dam, was what seemed to be a sealed tunnel, or low-level spillway (Photo 2). The outflow of this feature, or its function, is not known.

Dam and Reservoir 2 (Figures 2 and 4; Photo 3)

Reservoir 2 is approximately 170 m long by 100 m wide and 8 m in depth at the dam. The dam is an earthen-core structure with mortar and stone facing on both sides. An unlined spillway, approximately 1 m wide, leads to the right (facing downstream); an unpaved road also crosses the dam. The dam is 145 m long, overall, including the spillway. It stands 10-11 m high downstream, and measures 6 m wide across the top and 45 m wide at the bottom.

Dam and Reservoir 3 (Figure 2; Photo 4)

Reservoir 3 is approximately 165 m long by 120 m wide and 6 m in depth at the dam. The dam is an earthen-core structure with

mortar and stone facing on the downstream side; the upstream side is unprotected earth. Unlike the other two dams, which are built straight across the gully, Dam 3 is curved outward to the downstream side. Similar to Reservoir 2, a spillway extends off to the right (facing downstream) of the Dam 3. Including the spillway, the dam is 120 m long. It stands 7-8 m high downstream, and it measures about 15 m across the top and 40 m wide at its base.

Irrigation Ditch and Associated Stonework (Figure 4)

The largely unlined irrigation ditch was traced over approximately 180 m. It averaged 1 m wide and 50 cm deep. Stonework was found in two places. First was a juncture where the ditch split to either send the water into Reservoir 2, or on down into lower fields (Photo 5).

The second area of stonework area was in "low ground" where a mortarless stone wall, 8 m x 2 m x 1 m high, was built apparently to shunt water across the low spot (Photo 6).

Elevated Road or Railroad Bed (Figure 4)

This feature was defined simply as a straight, elevated, berm approximately 105 m long by approximately 2 m wide. The sense of elevation was illusory, created by what was probably the remnants of an irrigation ditch along one side of the berm, and the erosional channel containing Reservoirs 1 and 2 on the other side of the berm.

DISCUSSION: A BRIEF HISTORY OF SUGAR IN MAKAHA

All of the features found in the project area are believed to be related to the cultivation of sugarcane. The first sugar cane to be planted on a commercial scale in Makaha was in 1880 and continued until 1946 (Barrere 1970:9-10). To place the above described features in their proper context, the following summary outlines the growth of sugar cultivation in Makaha Valley.

1880. John Ross leases "150 ac. in Makaha on that portion thereof lying makai of the house lot or homestead and being the southern portion of said land with the privilege of taking and cultivating 150 ac. more..." (Abstract, 1932-1934, I:52-53). The homestead, shown an 1884 map by G.E.G. Jackson, is that belonging to the Holt family (Figure 3).

Also in 1880, C.R. Bishop, J.W. Pfluger, P. Isenberg, A.J. Cartwright, J.L. Richardson, and H.A. Widemann, petition for a charter of incorporation as the Waianae Company to conduct the business of sugar cultivation and production (ibid.:55-57).

1882. John Ross assigns his Makaha Valley lease to Asa Hastings and Michael Lewis (ibid.:54), operating as A. Hastings and Company (Barrere 1970:9). Later that year, Lewis assigns his share of the lease to F.W. Macfarlane (Abstract, 1932-1934, I:62).

1883. To increase the yield from their fields in the drier lower valley, A. Hastings and Company blocked the 'auwai watering private native land claims (kuleana) to divert water to irrigate their sugar fields down valley. This action resulted in a landmark court decision--in 1884--that established water rights for all kuleana holders in Hawai'i which continue to this day, and of which LCA 9862 is the last independent kuleana in Makaha Valley (Figure 3, location from Mann 1932) attesting to this historic fact (Barrere 1970:8-9).

Later that year, A. Hastings and F.W. Macfarlane assign their Makaha Valley lease to Henry R. Macfarlane (Abstract, 1932-1934, I:64).

1884. Henry R. Macfarlane assigns the Makaha Valley lease to G.W. Macfarlane and Company (ibid.:63), operating under the name Makaha Sugar Plantation (Barrere 1970:9).

Around this same time, G.E.G. Jackson surveys the Wai'anae coast. The resulting map (Jackson 1884) shows the two sections of sugar cultivation, two laborer's camps bordering the inland end of the lower fields, and a railroad spur connecting Makaha Valley with Wai'anae (see Figure 3). The reservoirs apparently have not yet been built, however, as they are not shown on Jackson's map.

Of interest regarding the camps on Jackson's map, Barrere notes that "the G.W. Macfarlane and Company (Makaha Sugar Plantation) employed Portuguese laborers" (Barrere 1970:13).

1885. G.W. Macfarlane and Company sell their Makaha lease to J.D. Spreckles and Brothers (Abstract, 1932-1934, I:69).

1898. The Oahu Railway and Land Company (OR&L) extends their mainline trackage along the coast from Wai'anae to Waialua (ibid.:121).

1902. The Hawaii Territorial Survey publishes a map of O'ahu. This map is detailed enough to show not only the OR&L mainline, but also the Holt family homestead in Makaha Valley. However, tracks that Jackson showed running into Makaha in 1884 are no longer shown on the 1902 or later maps.

1908-1909. The Waianae Company assumes control of the Makaha Sugar Plantation's holdings and expands its own operations into Makaha Valley, including the input of irrigation water from Wai'anae (Barrere 1970:9).

1917. Based on ground surveys conducted between 1909 and 1913, the U.S. Geological Survey publishes a detailed topographic map of O'ahu. This shows the 'auwai that figured in the above cited water-rights case. It taps Makaha Stream immediately downstream of Kaneaki Heiau, winds between the Holt homestead and LCA 9862, and then runs straight down into Reservoir 1. Given the way it generally follows the natural contour of the land along its upper course and the prehistoric and early historic archaeological sites associated with it (Green 1980), the upper course of this 'auwai clearly predates sugar cultivation in Makaha Valley. However, below the Holt homestead the ditch runs straight downslope cutting across the natural contours. This suggests (a) the lower course of the ditch is possibly a later extension of the original 'auwai, and (b) what was interpreted to have been modifications to an otherwise natural erosion channel could, in fact, have been totally artificial.

1922. Apparently based on the same ground surveys as the above U.S.G.S. map, the War Department publishes "fire control" maps for O'ahu. Considering the intended purpose of these maps, their surprisingly low accuracy of scale limits their utility. Nevertheless, the quadrant sheet for Makaha shows both Reservoirs 1 and 2 in place,

1929. Using new ground surveys from 1928 and 1929, the U.S.G.S. and the War Department jointly issue a new topographic series for O'ahu. Reservoir 3 is now in place and a new ditch and flume are shown running directly down to Reservoir 1.

1931. American Factors, Limited (later Amfac, Inc.), buys out the Waianae Company plantation, which it continues to operate.

1946. American Factors, Limited, sells the plantation to Capital Investment Company and the commercial cultivation of sugarcane in Makaha Valley comes to an end.

The limitations of the current evidence in terms of dating the features found in the project area is rather apparent in the foregoing. For the most part, little more can be put forward with confidence than a "no-later-than" date. Thus, while it is not possible to say precisely just how early the reservoirs were built, it can be said that Reservoirs 1 and 2 were most likely built by World War I. Earthen dams form all three reservoirs. Given the similarity of form in Dams 1 and 2--straight, compared to Dam 3 which is curved, Reservoirs 1 and 2 were probably also built within a short time of each other.

It seems logical that when A. Hastings and Company tried to block the main 'auwai, they would have already had irrigation ditches in place before they began diverting water. Whether any of the ditches were also intended to supply a reservoir is not known, but it is unlikely. While there is no empirical basis for this statement, the size and construction of the dams, as well as the volume of impoundment, does not seem consistent with the kind of small ground breaking ventures that these 1880s undertakings apparently were. Instead, these reservoirs are more consistent with the better established operations that had access to material and technological resources, especially after the turn of the century.

From this perspective, Reservoirs 1 and 2 were probably not built until after the Waianae Company had assumed direct control of the Makaha plantation (i.e, after 1909). Reservoir 3, it appears, was built after Reservoirs 1 and 2, but before 1929.

RECOMMENDATIONS

Given the lack of evidence for the possible presence of buried prehistoric or historical cultural deposits within the project area, further fieldwork is not recommended. The existing field data are considered sufficient to meet the concern for adequate documentation and preservation of potentially significant historical information contained in the recorded features. Additional measures for mitigation of expected adverse impacts to these features, therefore, are not necessary. Because the features have minimal cultural, artistic, or educational value, in situ preservation is not recommended.

As a point of information that could have bearing on any future developments that may occur seaward of the existing Makaha East Golf Course, Jackson's 1884 map showed two laborer's camps adjacent to the sugarcane fields. The camps were located just seaward of the existing golf course, between Jade Street and Makaha Valley Road. Although that area has been disturbed by developments over the past decades, it is certainly possible that buried remnants of the camps have survived and may be recovered for study, and possibly public exhibition. The whole question regarding the importation of foreign labor in the 19th century to work on Hawaiian sugar and pineapple plantations is a subject having both serious scholarly research interest and a more general social/cultural interest. An example of the latter is the recent centenary celebrating Japanese arrival in Hawai'i. It is therefore suggested that any expansion or other activities seaward of the Makaha East Golf Course (a) consider the possibility that such cultural/historical remains may still be present and (b) consult with the State Historic Preservation Office for proper guidance.

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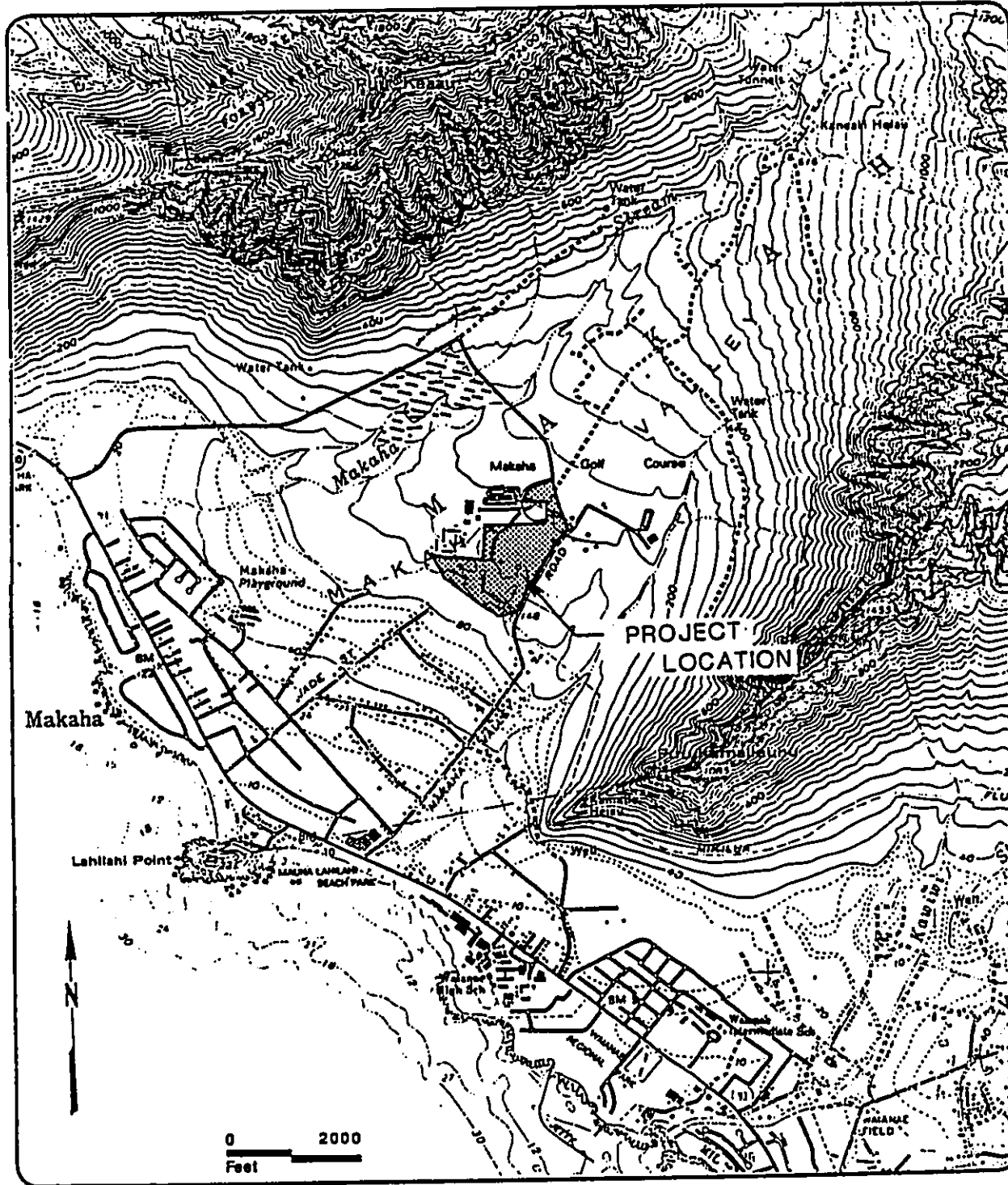


FIGURE 1. Locator map of Makaha Valley showing the proposed ANA Hotels expansion in the central lower valley.

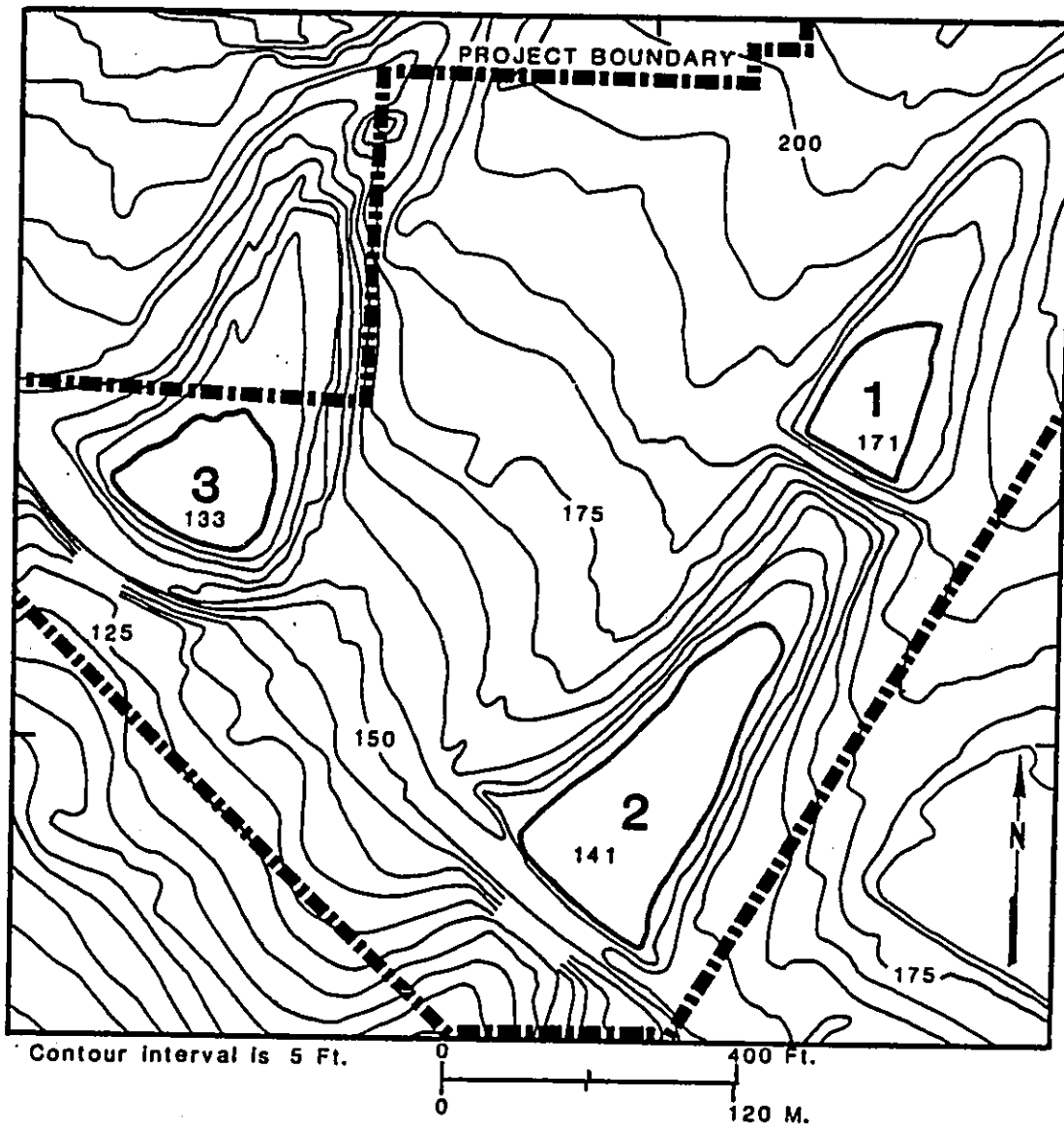


FIGURE 2. Topographic detail of the project area showing Reservoirs 1, 2, and 3, the main features of the area.

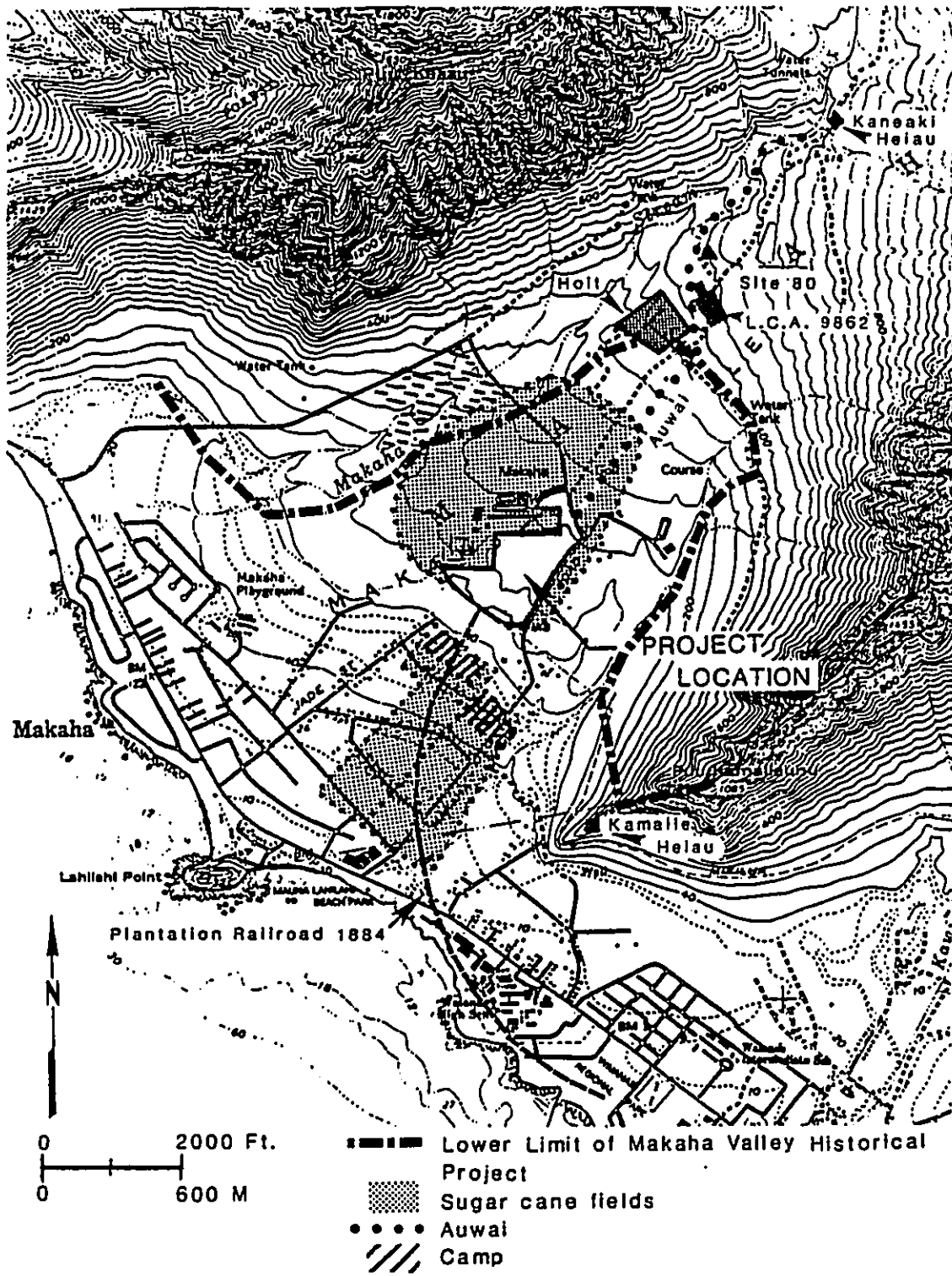


FIGURE 3. Map of Makaha Valley showing historic-period and other cultural features referred to in the report.

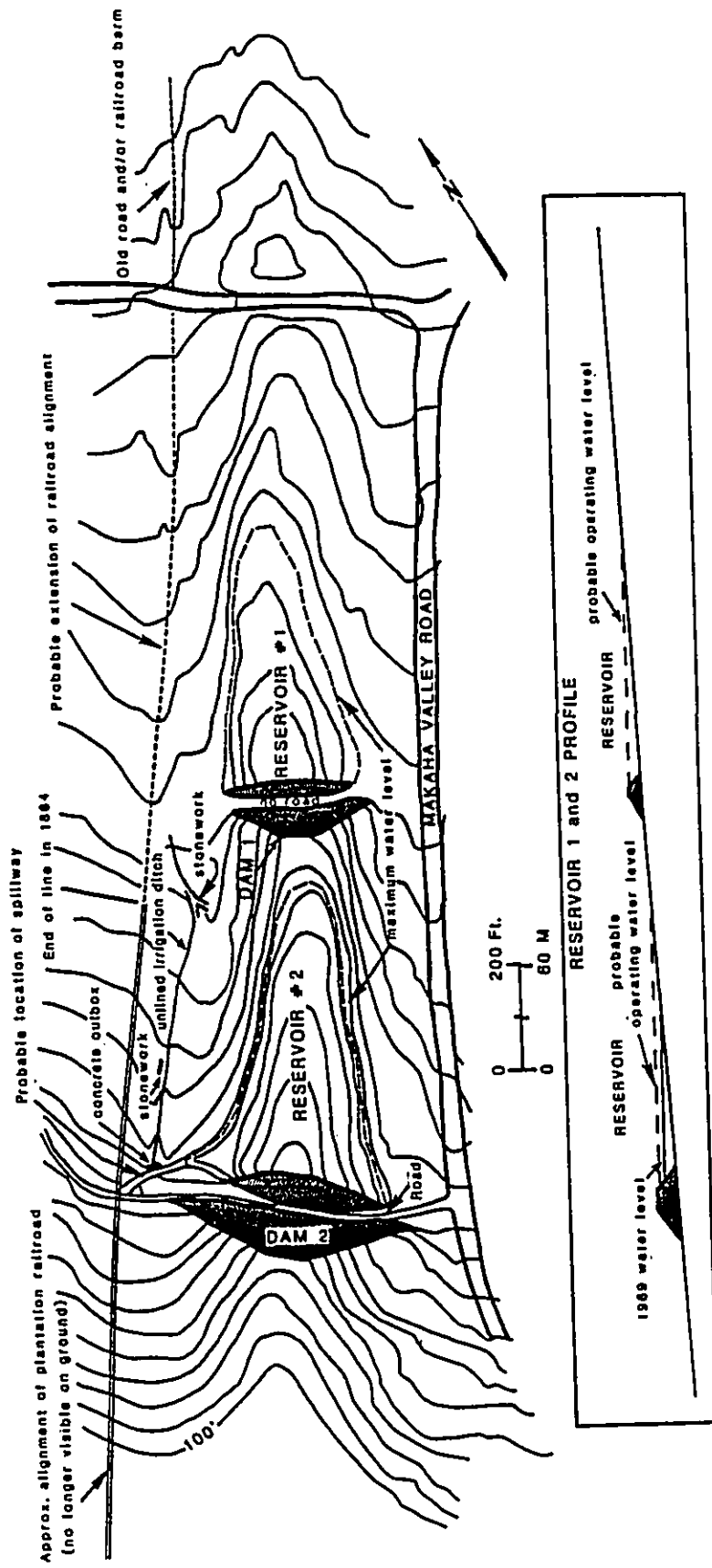


FIGURE 4. Topographic detail of Reservoirs 1 and 2 showing the irrigation ditch and the elevated roadway or railroad bed. The probable relationship between these features and the 1880s railroad is from Jackson's map of 1884.

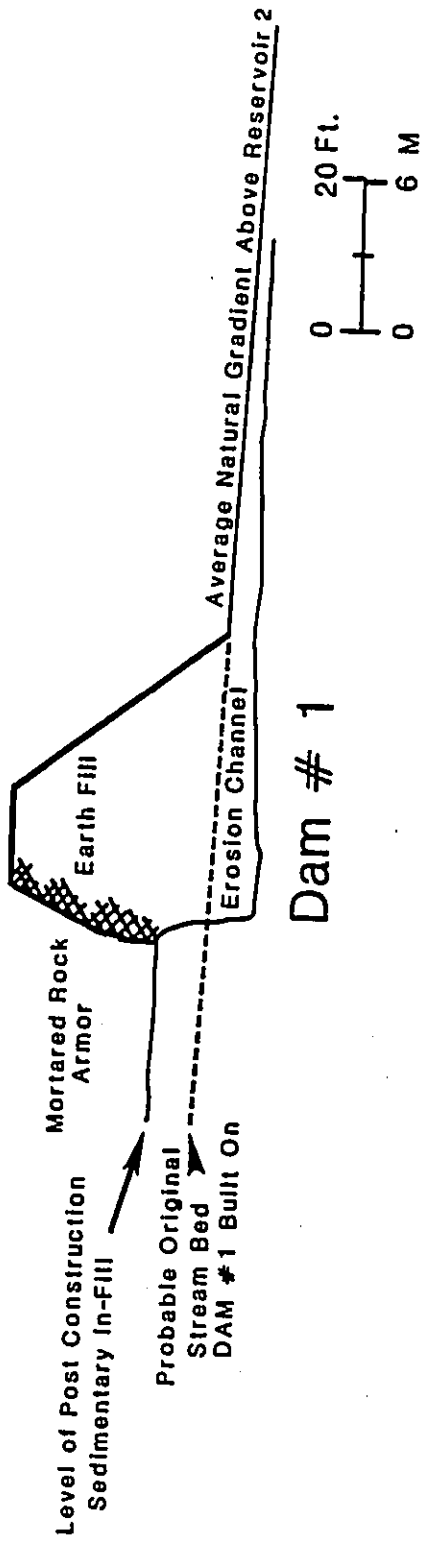


FIGURE 5. Cross section of Dam 1 showing the difference in batter between the stone-armored upstream face and the unprotected earthen downstream face; also shown is an approximation of the sedimentary infilling behind the dam.



PHOTO 1. Reservoir 1 showing upstream side of Dam 1. Note the mortared masonry breastwork which ultimately failed, leaving a 20 meter gap in the dam.



PHOTO 2. Reservoir 1 showing what appears to be a sealed tunnel at the south end of the dam. View downstream to southwest.



PHOTO 3. Reservoir 2 showing upstream side of Dam 2.



PHOTO 4. Reservoir 3; side view facing south showing batter of downstream side of Dam 3 and mortared masonry breastwork.



PHOTO 5. Mortared stonework lining both sides of irrigation canal leading to old sugarcane fields along north side of Reservoir 2.



PHOTO 6. Dry masonry stonework lining irrigation ditch near Reservoir 2.

APPENDIX D

TRAFFIC ASSESSMENT
Parsons Brinckerhoff Quade
and Douglas, Inc.

September 1988



ANA HOTELS

TRAFFIC ASSESSMENT
SHERATON MAKAHA RESORT EXPANSION
September 27, 1988

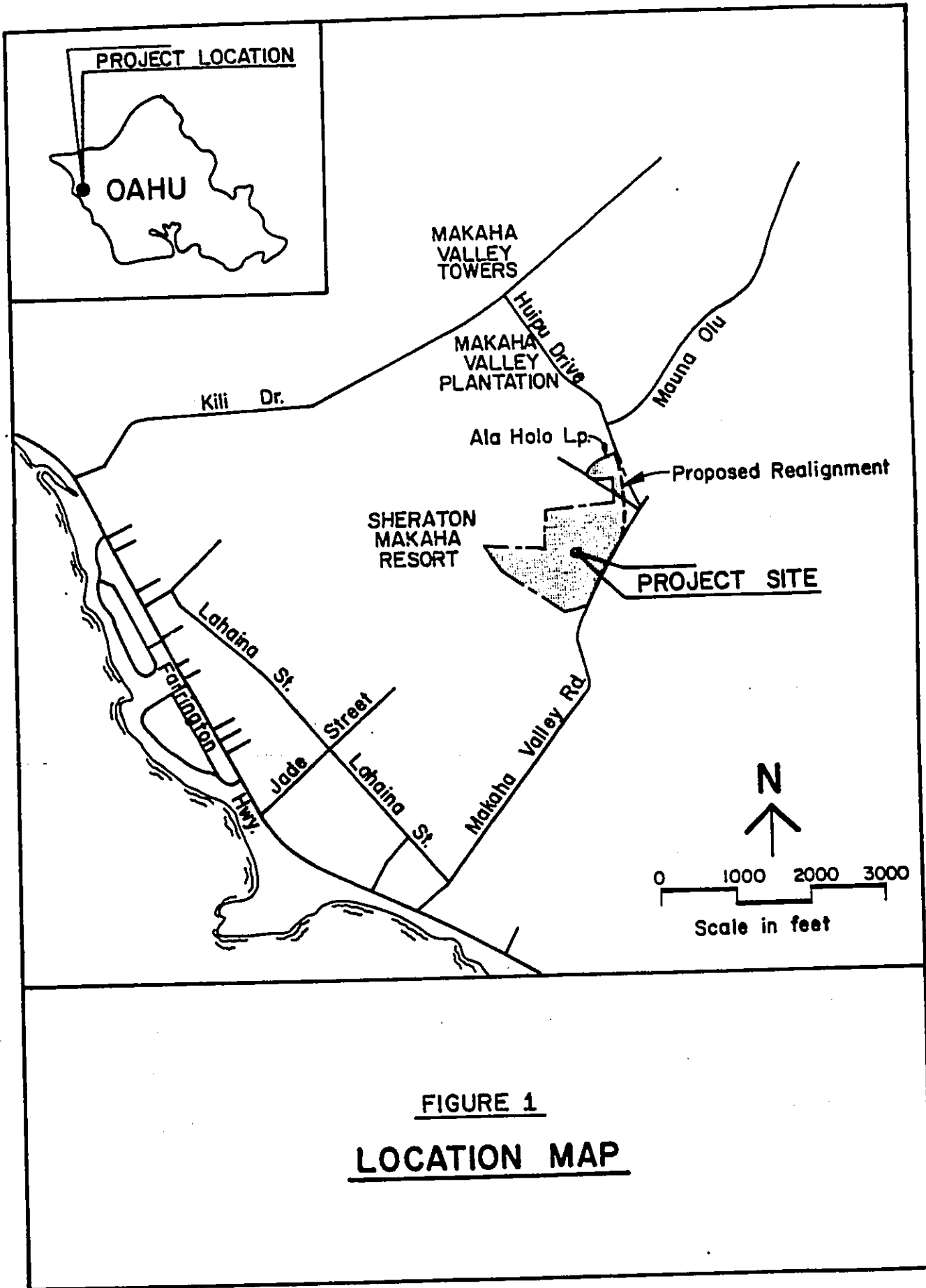
INTRODUCTION

ANA Hotels Hawaii, Inc. has proposed to expand the facilities at the Sheraton Makaha Resort in Makaha Valley on the Island of Oahu. The existing resort has 200 hotel rooms. With the expansion, a total of 500 rooms would be constructed including 300 hotel rooms, 50 spa units, and 150 condominium units.

Access to the project will be from Farrington Highway through Makaha Valley Road and private streets within the Makaha Resort. This report estimates the traffic generated by the Sheraton Makaha Resort and identifies future traffic conditions in Makaha Valley, considering all traffic generated by known proposed development in the valley.

EXISTING CONDITIONS

The project site is located south of the Makaha Valley Plantation condominium, between Makaha Valley Road and Kili Drive (Figure 1). The existing developments in the valley include the Sheraton Makaha Resort, the Makaha Valley Plantation and Makaha Valley Towers condominiums, and the Lower Makaha residential subdivision.



Roadway System

Farrington Highway is a two-lane highway which borders the southwest edge of the valley. Posted speed limit is 35 miles per hour, except in the commercial area near Makaha Valley Road where the speed is 25 miles per hour. Access to the Sheraton Makaha Resort is via Makaha Valley Road along the southern (Honolulu) side of the valley. Makaha Valley Road is two lanes wide and connects to Farrington Highway at an unsignalized T-intersection. The lower Makaha subdivision is served by several streets which connect to Farrington Highway or Makaha Valley Road.

Makaha Valley Road is in a 60-foot right-of-way. At the Farrington Highway intersection, curbs and sidewalks have been installed adjacent to commercial developments. A separate lane is provided for right turns from northbound Farrington Highway to Makaha Valley Road. Makaha Valley Road, however, is only two lanes wide and an unpaved area exists between the travel lanes and the shopping center on the north side. The stop-controlled approach to Farrington Highway is a single lane shared by left and right turn traffic. Makaha Valley Road continues into the valley as a two-lane roadway, 24 feet wide, without curbs, and with unpaved shoulders. Driveways from the abutting residential properties connect to Makaha Valley Road.

Approximately one mile into the valley, the road enters the Makaha resort. Between the entrance to the resort and the Sheraton Makaha parking lot (vicinity of Ala Holo Loop), the road is narrow, varying in width from 17 to 22 feet and includes a sharp turn near the entrance to the existing East golf course. A golf cart path crosses the road near the resort entrance. Ala Holo Loop and Huipu Drive are wide, curbed private roadways.

Traffic Conditions

Traffic count data were obtained from the City and County of Honolulu Department of Transportation Services. Counts taken at the intersections of Farrington Highway/Makaha Valley Road and Makaha Valley Road/Lahaina Street in February 1988 were used to develop traffic assignments shown in Figure 2. Analysis of the two T-intersections (Highway Capacity Manual¹ unsignalized intersection analysis) resulted in generally good conditions. The exception is Level of Service E conditions (reserve capacity of 28 passenger cars per hour) for Makaha Valley Road traffic at Farrington Highway during the morning peak hour; existing volumes meet the peak hour warrant (#11) of the Manual on Uniform Traffic Control Devices.²

TRAFFIC ESTIMATES

Traffic volumes for existing and future conditions were estimated using trip rates from Trip Generation³ (4th Edition), an informational report published by the Institute of Transportation Engineers. Trip rates for hotel, residential, and retirement community land uses were selected to estimate existing traffic and based on the expected future uses in the valley (Table 1). The existing and future traffic generated by golf courses would be related to other uses and are not expected to add to the total traffic.

Existing Traffic

Existing volumes were estimated using the trip generation rates and compared with the traffic count data. The traffic generated by the Sheraton Makaha Hotel was estimated for a 50% occupancy. Vehicles generated by the Makaha Valley Plantation

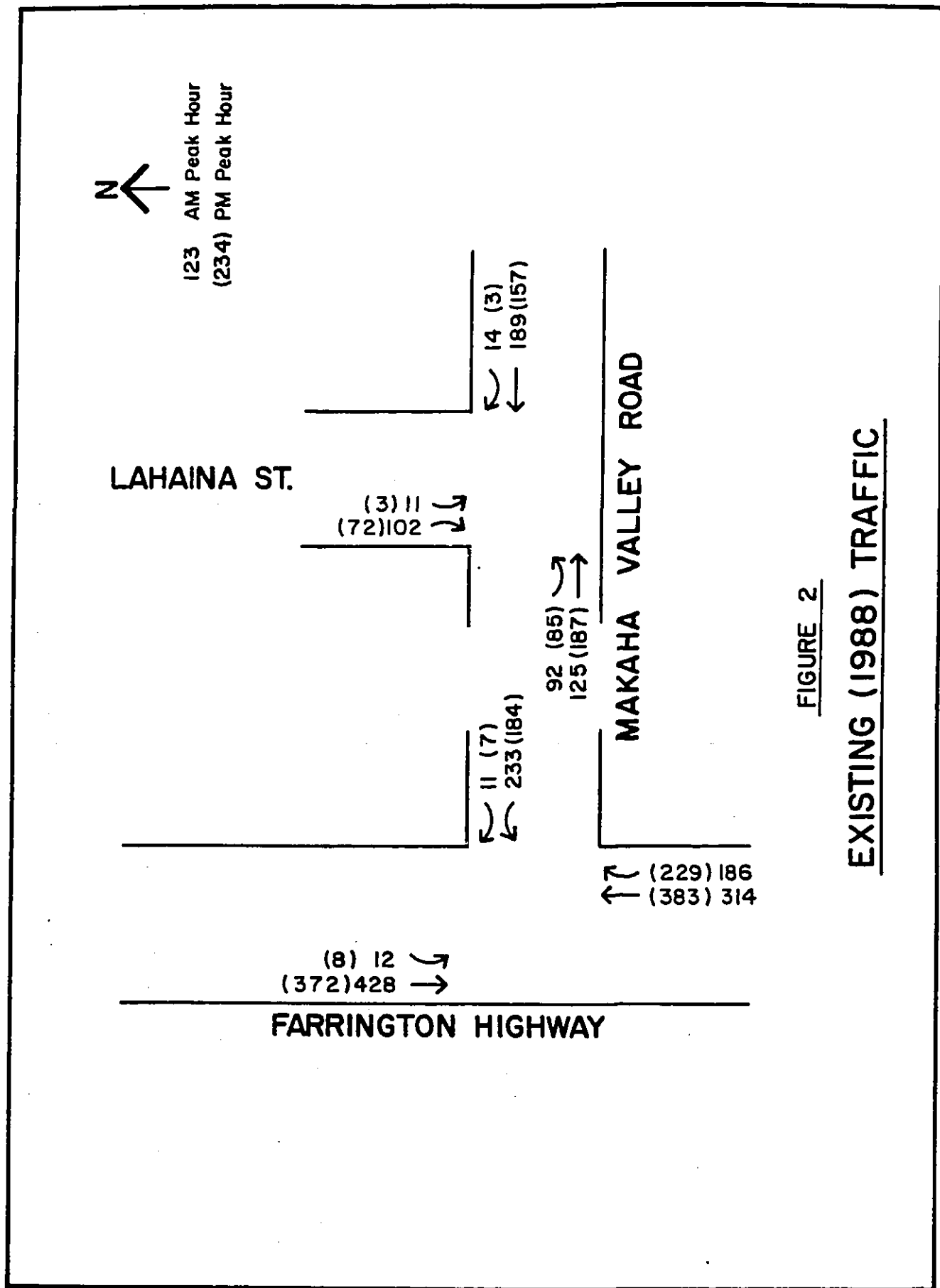


FIGURE 2
 EXISTING (1988) TRAFFIC

TABLE 1

TRAFFIC GENERATION RATES

TRIP GENERATOR	LAND USE	UNIT	DAILY		AM PEAK HOUR		PM PEAK HOUR	
			TRIP ENDS	ATTRACTIONS	PRODUCTIONS	ATTRACTIONS	PRODUCTIONS	ATTRACTIONS
Sheraton Makaha Resort	Hotel	Rooms	8.704	0.465	0.239	0.359	0.305	0.372
Nitto Hawaii	Residential	D.U.*	10.062	0.204	0.550	0.633	0.372	0.372
Pacific Basin Conference Resort	Hotel	Rooms	8.704	0.465	0.239	0.359	0.305	0.372
Mauna Olu Subdivision	Residential	D.U.	10.062	0.204	0.550	0.633	0.372	0.372
Makaha Valley Plantation	Retirement Community	D.U.	3.300	0.160	0.240	0.224	0.176	0.176
Makaha Valley Towers	Retirement Community	D.U.	3.300	0.160	0.240	0.224	0.176	0.176
Retirement Community (parcel #1, 53.531 acres)	Retirement Community	D.U.	3.300	0.160	0.240	0.224	0.176	0.176
Retirement Community (parcel #2, 19.645 acres)	Retirement Community	D.U.	3.300	0.160	0.240	0.224	0.176	0.176
Retirement Community (parcel #3, 84.044 acres)	Retirement Community	D.U.	3.300	0.160	0.240	0.224	0.176	0.176
Lower Makaha	Residential	D.U.	10.062	0.204	0.550	0.633	0.372	0.372

* NOTE: D.U. = Dwelling Unit

and Makaha Valley Towers were assumed to split 50-50 between Makaha Valley Road and Kili Drive. As shown in Table 2, the calculated volumes are higher than the field counts.

Future Traffic

The Department of Land Utilization was contacted to determine the projects proposed in Makaha Valley. Seven new projects, including the Sheraton Makaha Resort, expansion were identified. Traffic volumes generated by the new projects were determined by applying trip generation rates in the same manner as with the existing conditions (Table 3), resulting in the future traffic assignment shown in Figure 3. The proposed master plan for the Sheraton Makaha Resort includes a realignment of Makaha Valley Road (Figure 4). The purpose of the realignment would be to eliminate the sharp turns at the existing Makaha Valley Road/Sheraton Makaha Access Road, Sheraton Makaha Access Road/Ala Holo Loop, and Ala Holo Loop/Huipu Drive intersections. Projected traffic volumes at the new Makaha Valley Road/Sheraton Makaha Access Road intersection that would be formed by the realignment of Makaha Valley Road are also included in Figure 3.

TABLE 2
EXISTING

TRAFFIC GENERATION

TRIP GENERATOR	TOTAL UNITS	% OF UNITS CONTRIBUTING TO TRAFFIC	DAILY (VPD*)	AM PEAK HOUR (VPH*)		PM PEAK HOUR (VPH*)	
				ENTER	EXIT	ENTER	EXIT
<u>ON MAKAHA VALLEY ROAD</u>							
Sheraton Makaha Resort	200 Rooms	50 %	870	47	24	36	31
Makaha Valley Plantation	687 Units	50 %	1,134	55	82	77	60
Makaha Valley Towers	536 Units	50 %	884	43	64	60	47
Lower Makaha	100 Lots	100 %	1,006	20	55	63	37
TOTAL CALCULATED			3,894	165	225	236	175
FIELD COUNT			2,530	136	203	190	160

* NOTES
VPD = vehicles per day
VPH = vehicles per hour

TABLE 3

TRAFFIC GENERATION

AT THE FULL DEVELOPMENT OF MAKAHA VALLEY

ON MAKAHA VALLEY ROAD

<u>TRIP GENERATOR</u>	<u>TOTAL UNITS</u>	<u>% OF UNITS CONTRIBUTING TO TRAFFIC</u>	<u>DAILY (VPD*)</u>	<u>AM PEAK HOUR (VPH*)</u>		<u>PM PEAK HOUR (VPH*)</u>	
				<u>ENTER</u>	<u>EXIT</u>	<u>ENTER</u>	<u>EXIT</u>
Sheraton Makaha Resort	700 Rooms	100 %	6,093	326	167	251	214
Nitto Hawaii	108 Lots	100 %	1,086	22	59	68	40
Pacific Basin Conference Resort	300 Rooms	100 %	2,612	139	72	108	92
Manua Olu Subdivision	117 Lots	100 %	1,178	24	64	74	44
Makaha Valley Plantation	687 Units	50 %	1,134	55	82	77	60
Makaha Valley Towers	536 Units	50 %	884	43	64	60	47
Retirement Community (parcel #1, 53.531 acres)	535 Units**	100 %	1,766	86	128	120	94
Lower Makaha	100 Lots	100 %	1,006	20	55	63	37
TOTALS			15,759	715	691	821	628

* NOTES

VPD = vehicles per day

VPH = vehicles per hour

** Assumed 10 units per acre

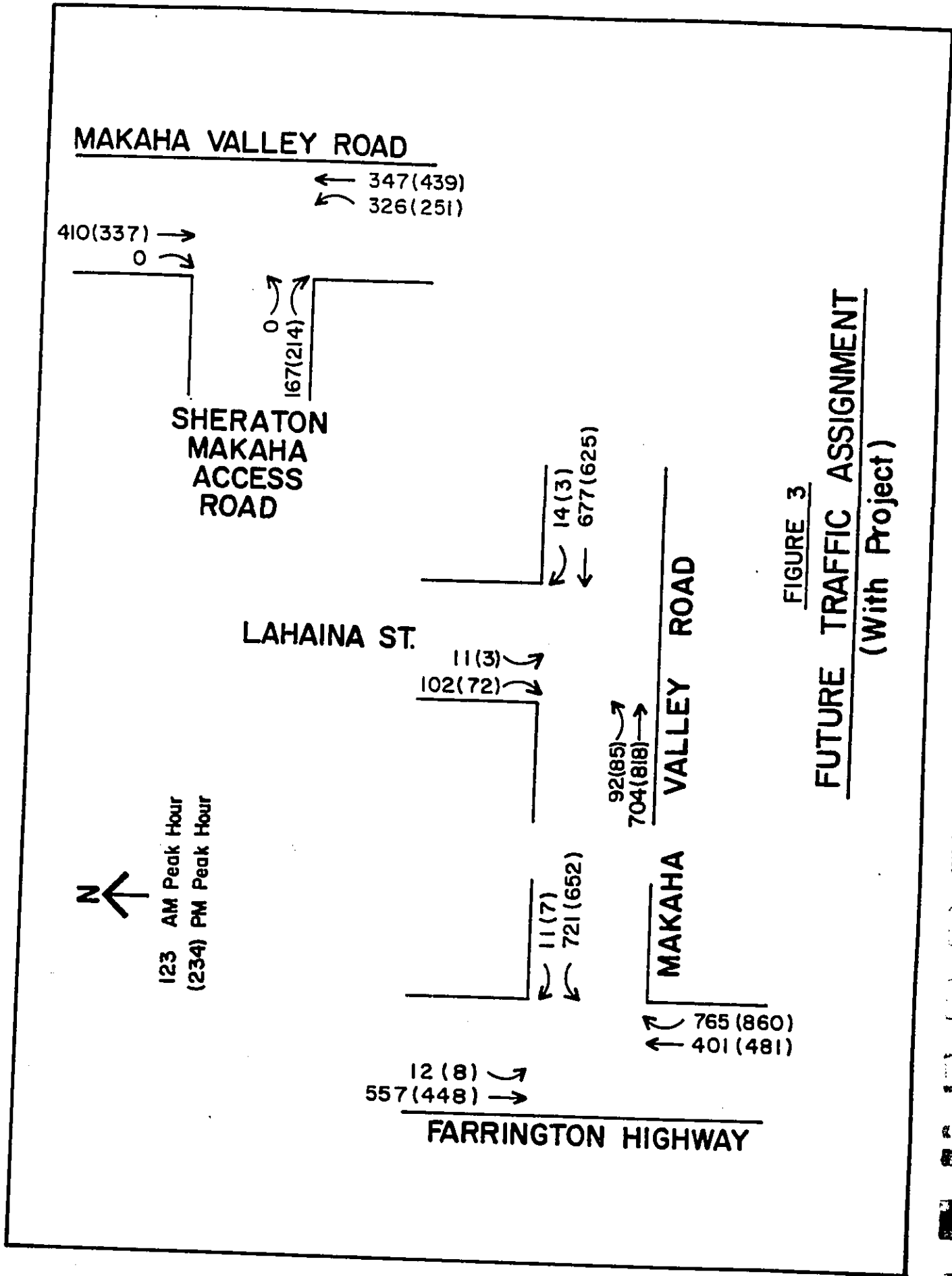
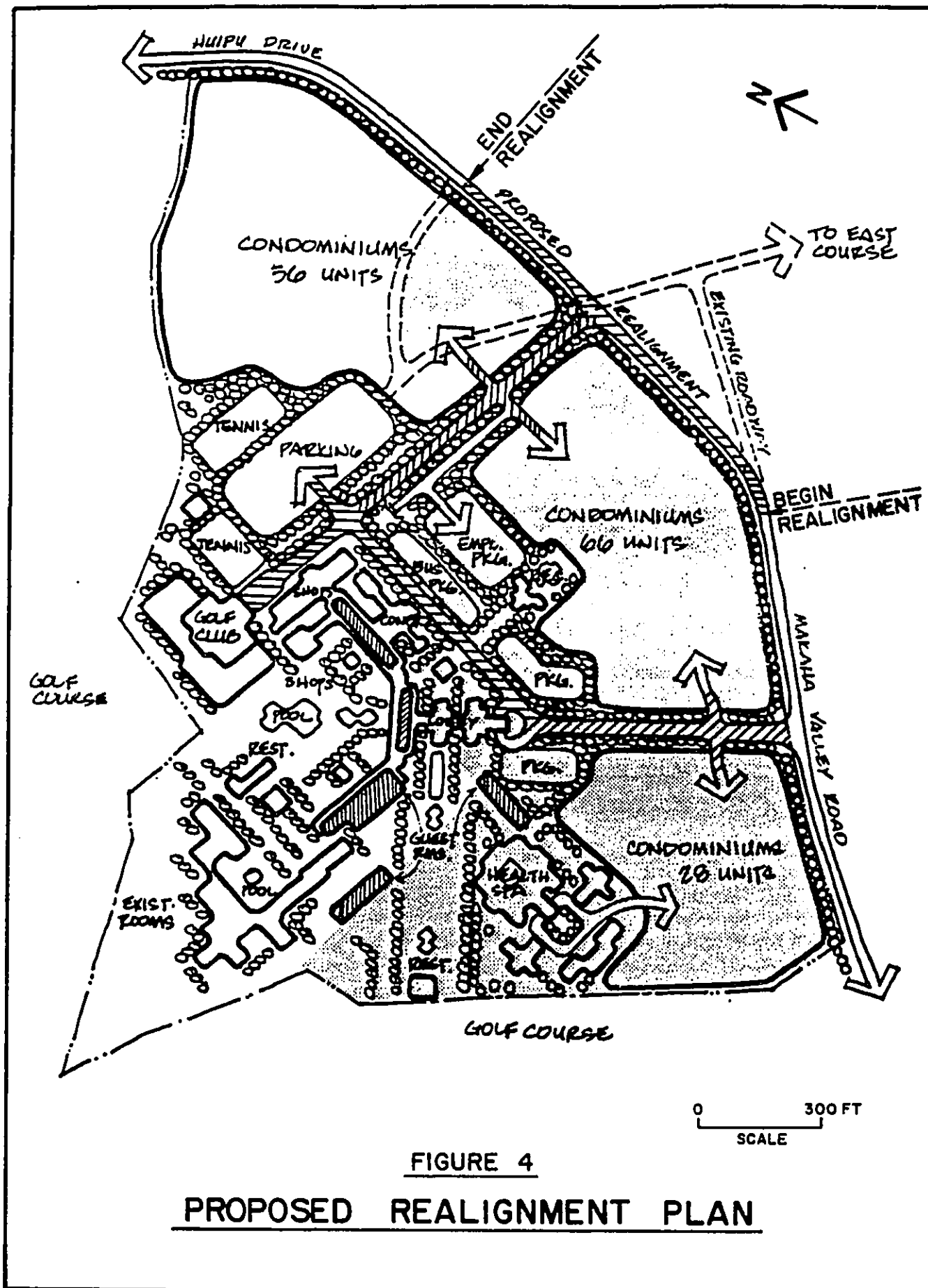


FIGURE 3
FUTURE TRAFFIC ASSIGNMENT
(With Project)





TRAFFIC IMPACTS

The Highway Capacity Manual's unsignalized intersection analysis was utilized to evaluate the conditions at the intersections. The analysis revealed that the intersections of Makaha Valley Road/Lahaina Street and Makaha Valley Road/Sheraton Makaha Access Road would operate at under capacity conditions without signalization during the AM and PM Peak Hours. However, the analysis indicated that over capacity conditions would result at the intersection of Farrington Highway and Makaha Valley Road without signalization.

The intersection of Farrington Highway and Makaha Valley Road was then evaluated as a signalized intersection using the Highway Capacity Manual's operational analysis. The Farrington Highway/Makaha Valley Road intersection would operate at Level of Service C during the AM Peak Hours and Level of Service B during the PM Peak Hours (Table 4) if a separate right turn lane and a separate left turn lane are provided for northbound and southbound Farrington Highway traffic, respectively.

Full development of Makaha Valley will result in increased traffic on Farrington Highway. Two-way volumes south of Makaha Valley Road would increase to about 2,400 vehicles per hour in both the AM and PM peak hours. Poor operating conditions would result on the two-lane Farrington Highway with these volumes. The State Department of Transportation has plans to extend the four-lane section on Farrington Highway north to Jade Street; current plans call for construction to begin in 1994.

TABLE 4
EXISTING AND FUTURE
LEVELS OF SERVICE

	<u>AM Peak Hour</u>	<u>PM Peak Hour</u>
EXISTING (unsignalized)		
Makaha Valley Road/Lahaina Street	A	A
Farrington Highway/Makaha Valley Road	E	B
FUTURE (unsignalized)		
Makaha Valley Road/Lahaina Street	A	A
Makaha Valley Road/Sheraton Makaha Access Road	A	A
FUTURE (signalized)		
Farrington Highway/Makaha Valley Road	C	B

CONCLUSIONS AND RECOMMENDATIONS

The existing peak hour traffic volumes at the unsignalized Makaha Valley/Lahaina Street intersection is significantly under capacity; existing traffic demands are serviced adequately. With the full development of Makaha Valley, the unsignalized Makaha Valley Road/Sheraton Makaha Access Road and Makaha Valley/Lahaina Street intersections will also have adequate capacity.

Increased traffic volumes at the unsignalized Farrington Highway/Makaha Valley Road intersection would change existing near-capacity conditions to over-capacity. Traffic signals, which are already warranted by peak hour volumes, would provide adequate capacity. Widening of each approach to allow separate turn lanes would allow for efficient operation of the signal. Widening of Farrington Highway to four lanes, which is planned by the State Department of Transportation, will accommodate the projected increase in highway traffic.

The layout of the new access roadways into the Sheraton Makaha project should be coordinated with the local roads and/or driveways proposed for the Nitto Hawaii project, located opposite the realigned Makaha Valley Road. The creation of cross intersections should be considered; alternatively, adequate offsets should be provided to minimize conflicts between turning movements.

REFERENCES

1. Transportation Research Board, National Research Council, Highway Capacity Manual, Special Report 209, Washington, D.C., 1985.
2. U.S. Department of Transportation, Federal Highway Administration, Manual on Uniform Traffic Control Devices for Streets and Highways, 1978, as amended.
3. Institute of Transportation Engineers, Trip Generation, Fourth Edition, Washington, D.C., 1987.

APPENDIX

The Highway Capacity Manual defines six Levels of Service, labelled A through F, from best to worst conditions. Levels of Service for signalized and unsignalized intersections are defined in terms of average user delays. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

Unsignalized Intersections

For unsignalized intersections, the Highway Capacity Manual evaluates gaps in the major street traffic flow and calculates capacities available for left turns across oncoming traffic and for left and right turns onto the highway from the minor street.

LEVEL OF SERVICE A: Little or no delay.
LEVEL OF SERVICE B: Short traffic delays.
LEVEL OF SERVICE C: Average traffic delays.
LEVEL OF SERVICE D: Long traffic delays.
LEVEL OF SERVICE E: Very long traffic delays.
LEVEL OF SERVICE F: Demand volume exceeds capacity, resulting in extreme delays with queuing that may cause severe congestion and affect other movements at the intersection.

Signalized Intersections

For signalized intersections, the Operational Analysis measures signal operations by two separate indicators, volume-to-capacity (v/c) ratios and Level of Service. The v/c ratios provide a comparison of the traffic demands to the theoretical capacity of the intersection while levels of service are determined from the estimated delay. These two indicators do not necessarily correlate to each other.

LEVEL OF SERVICE A: This level describes operations with very low delay, i.e., less than 5.0 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LEVEL OF SERVICE B: This level describes operations with delays in the range of 5.1 to 15.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher average delays.

LEVEL OF SERVICE C: This level describes operations with delays in the range of 15.1 to 25.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear as the number of vehicles stopping is significant; many vehicles, however, still pass through the intersection without stopping.

LEVEL OF SERVICE D: This level describes operations with delays in the range of 25.1 to 40.00 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from a combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LEVEL OF SERVICE E: This level describes operations with delays in the range of 40.1 to 60.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures (queued vehicles do not clear in one cycle) are frequent occurrences.

LEVEL OF SERVICE F: This level describes operation with delay in excess of 60.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle length may also be major contributing causes to such delay levels.

APPENDIX E

DEMAND ASSESSMENT
Chaney Brooks & Company

December 1988



ANA HOTELS

Demand Assessment for

Sheraton Makaha Resort and Country Club Expansion

Prepared For
ANA HOTELS HAWAII, INC.

Prepared By
Chaney Brooks & Company

December 1988

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Sheraton Makaha Resort and Country Club Expansion Demand Assessment

I. EXECUTIVE SUMMARY

The Sheraton Makaha Resort and Country Club is the only resort designated site within the Waianae Development Plan area with an operating hotel. The existing resort contains a 200 room hotel, an 18 hole championship golf course, meeting rooms, tennis facilities and horse stables. The resort has been in continuous operation for almost thirty years with a history of marginal profitability. During the past three years the resort has been financially successful under the management of the Sheraton Hotels in Hawaii - Japan management company. In January 1988 the resort's owner, ANA Hotels Hawaii, Inc. a subsidiary of All Nippon Airways, the largest domestic air carrier in Japan, acquired an additional 40 acres of land adjacent to the existing resort. A portion of the property acquired is zoned resort (8 acres) while the remainder is zoned country or residential (32 acres). ANA desires to use the entire property acquired for expansion of the existing resort facilities.

As part of the process for redesignation of the land from residential to resort use ANA is preparing an Environmental Impact Statement (EIS). The market assessment which is the subject of this report is a part of that EIS. The Consultants (*Appendix I*) have relied on published government studies as well as published information from private institutions and other sources to assess state and county demand and supply of resort units. For specific information and recommendations on the Makaha Resort the consultants have relied heavily on the information provided by the resort's manager (Sheraton), the resort's owner (ANA) as well as their own experience as resort real estate developers, managers and consultants.

According to preliminary projections published by the State Department of Business and Economic Development (DBED) in January of 1988 (M-K series) the demand for resort units statewide is expected to double between 1985 and 2010 from 65,900 to 134,400. Based on the same source the demand for resort units on Oahu is expected to increase from 38,600 to 57,800 units or 50% during the same period.

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Sheraton Makaha Resort and Country Club Expansion

The supply of resort units on Oahu is currently limited to existing units plus approximately 8,600 new units. Thus only about one half of the demand for resort units anticipated by the year 2010 is provided for in the City's Development Plans. ANA, the applicant, is seeking to utilize 500 of the units already approved by the City Council for development in the Waianae Development Plan area. These 500 units would be allocated as follows: 300 for hotel expansion; 50 units for a free standing spa facility; and 150 units for resort condominium development. Upon completion of the expansion the Sheraton Makaha Resort and Country Club would contain 700 of the 1,000 resort units currently designated for development in the Makaha Resort destination area. The remainder of the units would be utilized by the proposed Honvest Conference Center development located deeper in Makaha Valley.

The necessity for the proposed expansion is to meet the indicated demand and to build on the strengths of the existing facilities in order to remain competitive in the Hawaii resort market. According to Sheraton executives, the small size (200 rooms) of the Makaha Resort has resulted in lost business due to lack of rooms and facilities. However, the most basic problem is that the existing facilities will not allow for the implementation of the Sheraton marketing plan for the property which is as follows:

1. Develop a Unique Resort Identity;
2. Appeal to both the visitor and local resident;
3. Achieve the status of a full service, self contained, destination resort;
4. Develop and maintain a variety of market segments which insure high average occupancies while providing insulation from any single market.

This program was developed based on Sheraton's internal forecast of 32% visitor growth by the year 1995 with an increasing percentage of that business being from Japan.

The current resort property lacks the "critical mass" to provide the facilities and services necessary to develop the self contained resort necessary to compete in today's marketplace. Sheraton executives have provided a number of examples of how this situation impedes the marketing of the existing property including the following:

1. The property's small size lacks the rooms to justify a range of athletic activities which Sheraton research shows is desired by visitors with a guest profile similar to existing guests of the Makaha Resort. The Makaha property has the physical attributes to provide excellent programs of hiking, biking, jogging and horseback riding but lacks the guest base to justify first class programs.
2. The property's small size and hence visitor base necessarily limits the ability of the resort to provide the level of service it feels is necessary. Sheraton cites what it considers to be an excellent horseback riding

Demand Assessment
Sheraton Makaha Resort and Country Club Expansion

operation which it feels could offer fantastic riding programs, but is forced to limit services to a minimum due to the lack of a business base.

3. Also cited are the resort's small size limiting its ability to provide only two night time musicians when a group of three to five might be more appropriate.
4. The property is excluded from presenting events sanctioned by the Professional Golfers Association due to the PGA's minimum requirement of 300 plus hotel rooms.

If the number of activities and experiences can be increased so that the average visitor stay can be extended from the current two days to three days, the overall resort occupancy could be increased by 50%.

Sheraton executives stated that the company's (Sheraton's) own market segmentation program would leave the existing property in a marketing no-mans land between a Sheraton Resort (full service, self-contained resort) and a Sheraton Inn (economy hotel).

A review of recent economic data published in November of 1988 by the Bank of Hawaii indicated that of the approximately 69,000 resort units in the state approximately 30% or 20,000 units are resort condominiums. At the present time the Makaha Resort lacks the opportunity to participate in this market. The consultants' research of the member firms of the Hawaii Resort Developers Conference indicates that all of the resorts represented had condominium units as part of their overall master plan.

The proposal to add a spa to the Makaha resort would capitalize on the resort's reputation for golf and ability to provide other athletic activities. In addition the Makaha Resort's relative isolation should enhance the ability of the spa guests to focus on their personalized programs in order to meet their goals.

There is a strong demand for resort units statewide and on Oahu forecast for the next 20 years by DBED. This is confirmed by Sheraton Hotels in Hawaii - Japan's internal forecast of 32% growth in visitor traffic by 1995. The proposed expansion plan at the Sheraton Makaha Resort and Country Club builds on the resort's existing strengths. It eliminates the weaknesses caused by the small size and enhances its ability to generate the "critical mass" resort's to become truly self contained. Every aspect of the proposed expansion program will result in an improved property by expanding the visitor base and the variety of visitor markets which can be served while meeting a portion of Oahu's projected increase in demand for resort units.

II. BACKGROUND

The Sheraton Makaha Resort and Country Club is located in Makaha Valley and contains 200 guest rooms. The hotel is approximately 30 years old and is the only operating resort within the area designated for resort use in the Makaha Valley. For the past ten years the resort has been owned by ANA Hotels Hawaii, Inc. a subsidiary of All Nippon Airways the largest domestic air carrier in Japan. The resort complex includes the hotel, an 18 hole championship golf course, meeting rooms, tennis facilities and a horse riding operation. The hotel for most of its life had been alternately losing money or marginally profitable. However, under Sheraton management, the hotel has become consistently profitable and according to the *Lodging and Hospitality* August 1988 the Makaha Resort and Country Club is now the 53rd most profitable resort in the United States.

The 200 room Sheraton Makaha Resort and Country Club is located on 26.413 acres. The area is designated for Resort use on the City and County of Honolulu's Waianae Development Plan Land Use Map.

In December of 1987, ANA Hotels Hawaii, Inc. acquired two additional parcels adjacent to the Sheraton Makaha Resort. One of the parcels is 8.475 acres, vacant, and designated for Resort use on the Waianae Development Plan Land Use Map. The other property that was acquired is 35.709 acres, mostly vacant and designated for Residential use. This site is currently zoned county, a very low density residential use which permits lot sizes of one acre and larger. ANA Hawaii Hotels, Inc. proposes to expand the facilities of the Sheraton Makaha Resort on the newly acquired 44 acres. The proposed Master Plan for the Sheraton Makaha Resort includes 300 additional hotel rooms, 150 new resort condominiums, a new conference facility, additional tennis facilities, 5,500 sq.ft. of resort related retail space and a new 50 unit health spa. Thus a total of 500 additional resort units are proposed for the site.

III. DEMAND FOR RESORT UNITS STATEWIDE

The following information is based on information contained in the Department of Business and Economic Development (DBED) *Revised Long Range Economic and Population Projections to 2010 State of Hawaii (Series M-K) Preliminary Report* January 1988. The projections contained in this report are based on the official State estimates of growth. These estimates are used by state and county governments for long term planning and programing purposes. Although the information contained is preliminary and will not become official until adopted formally by the state, the final projections are likely to be very close to the estimates contained in the report. The officially adopted projections remain the M-F series projections which were officially adopted in 1984.

The series M-K projections anticipate a much stronger growth for the Hawaiian tourist industry than the previous M-F projections. They also show a much higher participation by Japanese visitors. See *Exhibit 1* for a comparison of tourist projections between the M-K and M-F projections.

EXHIBIT 1

COMPARISON BETWEEN NEW (SERIES M-K) AND OLD (SERIES M-F)
TOURISM PROJECTIONS: 1985 TO 2010

Variable and series	1985 ^{1/}	1990	1995	2000	2005	2010
Growth rate of visitor arrivals:						
New (M-K)	4.4	6.1 ^{3/}	3.5	3.0	2.5	2.5
Old (M-F)	5.0	4.0	3.0	2.0	1.0	(NA)
Number visitor arrivals (millions):						
New (M-K)	4.9	6.6	7.8	9.0	10.2	11.6
Old (M-F)	5.0	6.1	7.1	7.8	8.2	(NA)
Percent of visitors from Japan (percent):						
New (M-K)	17.5	20.0	22.0	24.0	25.0	25.0
Old (M-F)	17.5	20.0	20.0	20.0	20.0	(NA)
Visitor rooms:						
New (M-K)	65,900	77,400	91,300	105,100	118,500	134,400
Old (M-F)	63,600	79,200	91,700	101,400	106,500	(NA)
Average daily visitor census						
New (M-K)	116,700	161,700	190,000	217,700	244,900	277,100
Old (M-F)	124,000	155,600	179,000	197,600	207,700	(NA)
Total visitor expenditures (millions of 1982 dollars) ^{4/} :						
New (M-K)	4,210.5	5,929.3	7,115.8	8,334.6	9,478.2	10,723.7
Old (M-F)	4,058.6	4,977.0	5,255.4	6,359.1	6,686.1	(NA)

NA Not available.

^{1/} For M-K series projections these are actual 1985 figures.

^{2/} Average annual 5-year growth rate ending with this year.

^{3/} This represents a combination of the actual 1986 growth of 14.8 percent, estimated 1987 growth of 4.0 percent, and projected average annual growth for 1988 through 1990 of 4.0 percent.

^{4/} Includes expenditures of visitors and of overseas airline crews in Hawaii.

Source: Department of Business and Economic Development (DBED) *Revised Long Range Economic and Population Projections to 2010 State of Hawaii (Series M-K) Preliminary Report January 1988.*

IV. DEMAND FOR RESORT UNITS ON OAHU

The Statewide M-K projections have been broken down by DBED to show various components of the tourism estimates by county. *Exhibit 2* shows the Oahu Tourism projections compared with previous projections contained in the M-F series.

Based on these estimates the demand for Oahu resort hotel and condominiums units is expected to increase by 19,200 by the year 2010 (1985 existing 38,600 to 2010 estimated 57,800). It should be noted that previous estimates of long term visitor growth by the state have been consistently low as can be seen by the comparison of M-K with M-F estimates.

EXHIBIT 2

COUNTY TOURISM PROJECTIONS; NEW SERIES (M-K) VERSUS OLD SERIES (M-F): 1985 TO 2010

Subject	1985 <u>1/</u>	1990	1995	2000	2005	2010
OAHU						
Average visitor census:						
M-K	65,300	87,300	95,000	102,300	110,200	119,200
M-F	80,600	95,000	102,000	106,700	112,200	(NA)
Share of State average visitor census (percent):						
M-K	56.0	54.0	50.0	47.0	45.0	43.0
M-F	65.0	61.1	57.0	54.0	54.0	(NA)
Hotel or condo units:						
M-K	38,600	41,800	45,700	49,400	53,300	57,800
M-F	35,600	39,600	43,200	45,600	47,900	(NA)
Share of State hotel or condo units (percent):						
M-K	58.5	54.0	50.0	47.0	45.0	43.0
M-F	58.6	56.0	50.0	47.1	45.0	(NA)
HAWAII						
Average visitor census:						
M-K	8,000	12,100	19,000	26,100	34,300	41,600
M-F	9,900	14,000	17,900	21,700	22,800	(NA)
Share of State average visitor census (percent):						
M-K	6.9	7.5	10.0	12.0	14.0	15.0
M-F	8.8	9.0	10.0	11.0	11.0	
Hotel or condo units:						
M-K	7,500	10,100	13,700	16,800	20,100	24,200
M-F	7,600	11,100	13,800	15,200	16,000	(NA)
Share of State hotel or condo units (percent):						
M-K	11.4	13.0	15.0	16.0	17.0	18.0
M-F	11.9	14.0	15.0	15.0	15.0	(NA)

Source: Department of Business and Economic Development (DBED) *Revised Long Range Economic and Population Projections to 2010 State of Hawaii (Series M-K) Preliminary Report January 1988.*

V. SUPPLY OF RESORT UNITS ON OAHU

The supply of resort units on Oahu is controlled by the City Council of the City and County of Honolulu which through its zoning authority designates the number of resort units permitted within the City and County.

At the present time Waikiki is Oahu's largest and most developed visitor destination area. It contains approximately 30,000 to 33,000 visitor units. The City Council has for a number of years had in place an ordinance which limits the number of visitor units in Waikiki to 30,000. Very little growth has taken place within the Waikiki area in recent years due to the visitor unit cap for the area. The remaining resort units are scattered around Oahu at various locations including the Kahala Hilton 350 units, the Ala Moana hotel 1,200 units, various airport hotels near the Honolulu International Airport, the Sheraton Makaha Resort and Country Club 200 units, the Turtle Bay Hilton and Country Club 600 units. Part of the problem in identifying the exact number of visitor units is that there are a number of condominium units in the Waikiki area which although residentially designated actually are used to house visitors. These units often switch back and forth between residential and resort use.

To provide for future visitor growth the City Council has designated two resort destination areas on Oahu for major expansion. These two areas are West Beach (Ko Olina) within the Ewa Development Plan Area and Kuilima within the Koolauloa Development Plan area. Ko Olina has been approved for 4,000 new resort units while the Kuilima Development has been approved for 3,400 new resort units. Other areas designated for additional resort units include Makaha in the Waianae Development Plan area 800 additional units and Laie in the Koolauloa Development Plan area, 400 units. Hotels can be developed in other areas including the airport area and downtown Honolulu, but these are likely to be for special purposes outside of the normal tourist demand. Thus a total of approximately 8,600 resort units have been designated for future growth or slightly less than half of the additional units which are projected for the year 2010 in the M-K projections. The proposed Sheraton Makaha Resort and Country Club Expansion is within the 8,600 resort units already authorized by the City Council to meet future demand for resort units.

VI. NEED FOR EXPANSION OF THE SHERATON MAKAHA RESORT AND COUNTRY CLUB

As discussed previously the Makaha Valley has been designated by the City Council for future resort unit growth. In order to assure that the existing hotel remains competitive (and profitable) the Sheraton Corp. managers of the property have recommended the following strategy to the owners ANA Hotels Hawaii, Inc. These recommendations are based on Sheraton's own internal estimate of visitor growth for the state of Hawaii. Their own estimates are limited to the year 1995, however they are relatively close to the state estimates. Sheraton estimates a 32% growth in traffic between 1988 and 1995 or an average 4% growth rate. This growth is expected to come from a 1% annual growth in Westbound travel and a 10% growth in Eastbound travel.

1. Develop a Unique Resort Identity
2. Appeal to both the visitor and local resident
3. Achieve the status of a full service, self contained, destination resort
4. Develop and maintain a variety of market segments which insure high average occupancies while providing insulation from any single market.

Each of the strategic marketing recommendations for future growth is based on what the Sheraton management believes are existing strengths of the property which should be built upon in the future.

While implementation of the strategic marketing plan will require a revised and expanded market program and renewed emphasis of some of the resort's existing strengths it will also require a major upgrading and expansion of facilities as have been suggested in the proposed expansion. The following discussion is based on the consultants' observations and communication with Sheraton Hotels in Hawaii - Japan executives.¹

¹ Meeting 11/23/88 with Keith Vierra, Divisional Director Marketing, Dale Christenson, Divisional Director Communications, Wayne Judd, Divisional Director, Technical Services and Engineering, and David Kochi, Manager Sheraton Makaha Resort and Country Club.

VII. A DISCUSSION OF THE CONCEPT OF "CRITICAL MASS"

The concept of "Critical Mass" is often used to describe the necessity for having a certain minimum resort population in order to provide the people to support a desired level of activity. While most persons grasp the overall significance of the concept the consultants were provided with a number of concrete examples by Sheraton Hotels in Hawaii - Japan marketing and operating executives.

A. ABILITY TO PROVIDE ACTIVITIES:

Sheraton market research indicates that a guest at the Makaha facility is likely to be active and athletically inclined. In addition to participating in golfing and tennis activities at the hotel they are also interested in hiking, jogging, bicycling and other sports. The Makaha resort is an ideal location for developing all of the alternate activities identified in the market research, however, due to the small number of rooms which limits the guest population there is a lack of participants with which to justify the necessary expense to develop and operate these activities.

Sheraton executives stress that any activity provided by the hotel must result in a positive experience. Thus the number of visitors on which to draw becomes critical. They site the excellent horseback riding opportunities at the Makaha resort. The existing hotel units provide a steady demand for horseback riding but at very low levels. The existing riding facilities could accommodate 3 to 5 times the existing level of activity and could easily be expanded to accommodate even more activity. An increased level of activity would justify an expansion of the existing trail system and for the provision of more optional horseback experiences. This in turn would result in higher visitor satisfaction with the horseback riding experience.

Thus it is clear that the resort must provide not only more activities but activities of higher quality.

Another example cited is that of roving musicians in the resort restaurants. Marketing research has shown that Makaha guests desire a more "Hawaiian" atmosphere than Waikiki visitors. The hotel employs musicians to stroll within the dining areas playing Hawaiian music and singing to provide additional atmosphere. However, given the small number of guests and the mix of guests, i.e., golfers, working business groups and those on vacation, the resort can justify only two musicians, whereas with a larger resort population, a group of perhaps three or four musicians could be justified, increasing both employment and the level of the musical experience for the visitor.

A third example cited is the fact that some events have facilities minimums which are set by organizations outside the control of the resort operator. An example of this is the Professional Golfers Association (PGA) which sets the standards for the facilities hosting PGA sanctioned events. The Sheraton Makaha Resort and Country Club, although it includes one of the best known and highly rated golf facilities on Oahu, is ineligible to host a

Demand Assessment
Sheraton Makaha Resort and Country Club Expansion

PGA sanctioned event simply because it falls short of the 300 room minimum required by the PGA. Thus one of the resort's prime assets, its golf facilities, which could be used to promote the property in a competitive manner, i.e., Kuilima (Kemper Open LPGA) and Kapalua (Isuzu Open) is not available.

While the impact of critical mass on the ability to provide activities and services and a higher level of guest satisfaction is well documented, the impact on demand is less obvious but just as important. The Sheraton Makaha Resort and Country Club currently has an average stay of two days. If the number of activities and the variety of experiences can be increased so that the average visitor spends three days at the resort, overall occupancy could be increased by 50% without the addition of new visitors.

The Sheraton executives indicated that the minimum number of hotel rooms necessary to achieve "critical mass" in the resort setting is 400 to 450 rooms. This absolute minimum size allows the operator to commit blocks of rooms up to 125 rooms in size without undue disruption to normal hotel operations. However a larger base of rooms is more desirable in order to achieve the self contained resort envisioned by the Sheraton Resort market segment. The proposed expansion would exceed the minimums while at the same time provide a variety of unit types from which guests could choose.

The absence of other resort oriented developments in Makaha Valley indicate that if expansion of the visitor base in the Makaha area is to occur it will most likely have to be generated at the Makaha Resort itself. For a more through discussion of existing condominium developments in the Makaha Valley see *Section X - Resort Condominiums* of this report.

VIII. SHERATON MARKETING PROGRAM

The visitor industry worldwide has enjoyed tremendous growth and it is expected to continue. However, the traveling public is becoming less homogeneous requiring that companies supplying visitors' needs recognize the various market segments. The Sheraton Corp. has embarked on a corporate restructuring to recognize these different market segments and is dividing its properties into four distinct types: the Sheraton Resorts; the Sheraton Inns; the Sheraton Luxury Hotels; and the Sheraton Hotels. Ultimately, Sheraton believes that the Sheraton Makaha Resort and Country Club can be expanded and upgraded into a Sheraton Resort property. At the present time it would qualify only as a Sheraton Inn as it lacks the physical plant and self containedness of a Sheraton Resort.

The decision of the Sheraton Corporation to restructure was the result of an extensive company study and planning program. Sheraton's primary market is the middle income traveler. The focus of its marketing program is to serve a wide range of the market segments in that middle income market. Simply having hotel rooms does not automatically meet the demand for hotel rooms. Visitors demanding resort units have specific criteria to satisfy. If these criteria cannot be met at one resort they will be met at another and not necessarily within the State of Hawaii or within the Sheraton Family of accommodations.

Thus the competitive nature of the resort industry is the driving force prompting ANA Hotels Hawaii, Inc. to seek the expansion of the Makaha Resort at this time.

In addition to the need to develop the critical mass necessary to stay competitive, the Makaha Resort is facing a second and equally critical competitive problem, economic and operational obsolescence.

The Makaha resort is approaching thirty years of age. Thirty years is considered to be the economic life of a resort structure. In the case of the Makaha Resort much of the physical plant, particularly the rooms, are no longer competitive with newer hotels. The economic life of the Resort can be extended with major renovations, however, they cannot be justified unless the final product will be competitive with other resort properties.

The new Sheraton marketing program and the restructuring of Sheraton properties, offers the Makaha Resort a unique opportunity to upgrade and expand existing facilities, now, when the property profile for the future has been identified.

IX. FUTURE DEMAND AT SHERATON MAKAHA

The fastest growing segment for the Makaha resort has been the demand for business conferences. In 1985 the resort hosted 900 groups, in 1986 1,100 groups and in 1987 1,400 groups. The average group required ten hotel rooms. However, the lack of rooms as well as the lack of function rooms resulted in the hotel losing business due to inadequate facilities. To service the existing demand from groups for meeting rooms, the Makaha Resort converts guest rooms to meeting rooms. The lack of guest rooms and function rooms are both addressed in the expansion plans. The bulk of this demand came from Hawaii based companies seeking a location where conference participants could concentrate on the business purpose yet at the same time capitalize on the enjoyable Makaha experience.

As indicated in the M-K projections, the Japanese market segment is expected to become a larger and larger proportion of the total market. Sheraton research indicates that the Japanese market is currently segmented into three major groups: honeymooners; young single working women; and retirees.

The honeymooner group is on the decline in Hawaii with larger numbers of this segment going to Australia.

The young single working women market is expanding due to the increase in incomes and changing social standards of this group in Japan. The segment tends to prefer the extensive shopping and night life of Waikiki but is also interested in the athletic pursuits available at the Makaha Resort. This group is a candidate for a short stay at the Makaha Resort.

The retiree segment of the Japanese visitor market is expanding. Many Japanese retirees have substantial assets due to property ownership or retirement benefits. This group is strongly interested in the golf and isolation offered at the Makaha Resort.

The expansion program would make the Makaha Resort more attractive to the growing segments of the Japanese visitor market.

X. RESORT CONDOMINIUMS

The development proposal contains a total of 150 resort condominiums for the Sheraton Makaha Resort and Country Club. The consultants surveyed the 13 member resorts of the Hawaii Resort Developers Conference and found that all of the member resorts included resort condominiums in their overall development plans. According to *Hawaii 1988* Bank of Hawaii's annual economic publication which was released in November of 1988, in 1987 transient accommodations in the state totaled 69,012 of which 30.6% were condominium units available for transient rental. Inclusion of the 150 resort condominium units into the total of 700 resort units of the existing and proposed expansion of the Makaha Resort would result in the condominiums comprising 21.4% of the total resort units.

The purpose of the resort condominium units is to provide for an increase in the unit base and diversity available at the future Makaha Resort. However, due to the necessity to market the resort condominiums to individual buyers, the resort condominium units are anticipated to be developed over a much longer timeframe than the other increments of the development program. The consultants envision an incremental absorption rate of 20 units per year over a seven to eight year timeframe. This would assume that the units would be developed in five increments of 30 units each and require approximately 18 months to sell.

The resort units proposed would be low rise, high quality apartments ranging in size between 1,000 and 2,000 square feet with an average size of 1,200. Approximately 20% of the units would have golf course frontage with the remainder being garden apartments. The units would be heavily landscaped and designed to provide a low density quality environment. It is anticipated that the units would be purchased primarily as second homes, but that they would be rented to provide supplementary income to the owners. A secondary market is expected to be investors and a small number may be purchased as primary residences.

The Makaha Valley area contains over 1,000 condominium units in two projects: the Makaha Valley Towers and the Makaha Valley Plantation.

The Makaha Valley Towers project was conceived in the 1960's and completed in 1970. The developer had envisioned a more active resort community in Makaha Valley would eventually emerge. Many of the units were sold to investors who hoped for resort rentals. The lack of additional resort development in the valley and the attractiveness of the units to long term renters, including a number of military people stationed in the Ewa area, has resulted in a project where few if any of the units are consistently rented as resort units.

The Makaha Valley Plantation was developed as an affordable housing project. The project was conceived as a residential project and has met that expectation.

Thus, neither of the existing condominium projects in the Valley are providing any significant support in the area of visitor base to the Makaha Resort. The prospects for either of the projects to do so in the future appears to be remote.

XI. SPA

The spa being considered is one similar to the Golden Door or La Costa operations in California. It is currently envisioned to be a free standing module within the resort complex, but would share in the recreational amenities available to complex residents and guests including: golf; tennis; horseback; as well as being able to share in some of the basic ongoing resort facilities including the servicing of rooms, building maintenance, and landscape maintenance. The special facilities offered by the spa would include a number of specialized exercise rooms; saunas and jacuzzis. The primary difference between the hotel and spa guests would be the high degree of personal service provided to the spa guest whether as a highly organized physical regimen with special attention to diet or a "pampering spa" with emphasis on massage, skin care, manicure, etc. or even both. Activities within the spa complex would be highly supervised in order to meet personalized goals.

XII. CONCLUSION

There is a strong need to undertake the renovation and expansion of the Sheraton Makaha Resort and Country Club at this time for the following reasons:

1. The demand for visitor accommodations state wide will double by the year 2010.
2. Demand for visitor accommodations on Oahu will increase by 50% by the year 2010.
3. The Makaha Resort, while currently operating profitably, is near the end of its economic life and will soon be uncompetitive due to functional obsolescence.
4. Extensive research has been undertaken to determine the demands of the existing and future market and a program building of the strengths of the Makaha Resort (natural setting, nationally renown golf facilities and opportunities to provide a wide range of athletic activities) has been suggested by the Resort's management company.
5. The program proposes to eliminate current weaknesses of the property by providing an expansion sufficient to provide "critical mass" and to upgrade facilities to todays standards, thus making the property more competitive.
6. From a marketing point of view the proposed expansion is justified as it will insure retention of the properties existing markets while providing the facilities and services which market research has shown are being demanded by current and future visitors.

APPENDIX A

List of Consultants

LIST OF CONSULTANTS

WENDELL BROOKS, JR., Managing Director, Chaney, Brooks & Company, Realtor, Certified Property Manager, member Urban Land Institute, Real Estate Developer, Real Estate Consultant, former President of Mililani Town, Inc., and former General Manager of Wailea Development Company. MR. BROOKS has qualified as an expert witness before the Land Use Commission Hearing in 1984 and 1985 regarding Housing and Population.

JOHN ZAPOTOCKY, Real Estate Consultant, has an MBA Degree from the University of Hawaii. MR. ZAPOTOCKY has been a financial analyst for Kaiser Aetna (Hawaii Kai) and Wailea Development Company. He has served as Project Manager for the proposed Mokuleia Homesteads Development on Oahu's North Shore and has provided consulting services for a wide range of real estate projects.

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APPENDIX F

WETLAND DETERMINATION
Corps of Engineers

September 1988



ANA HOTELS



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

September 2, 1988

REPLY TO
ATTENTION OF
Operations Branch

SUBJECT: Makaha Resort Wetland Determination

Mr. Vincent Shigekuni
Helber, Hastert & Kimura Planners
Grosvenor Center
PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813


Dear Mr. Shigekuni:

In regard to our survey of the three suspected wetland areas indicated on your map provided to us on August 31, 1988, we find that none of the suspected areas are wetlands subject to the regulatory jurisdiction of the Corps of Engineers. Thus, no Department of the Army permit is required to fill the man-made impoundment basins. These basins do not contain soils, hydrology or plants indicative of wetlands.

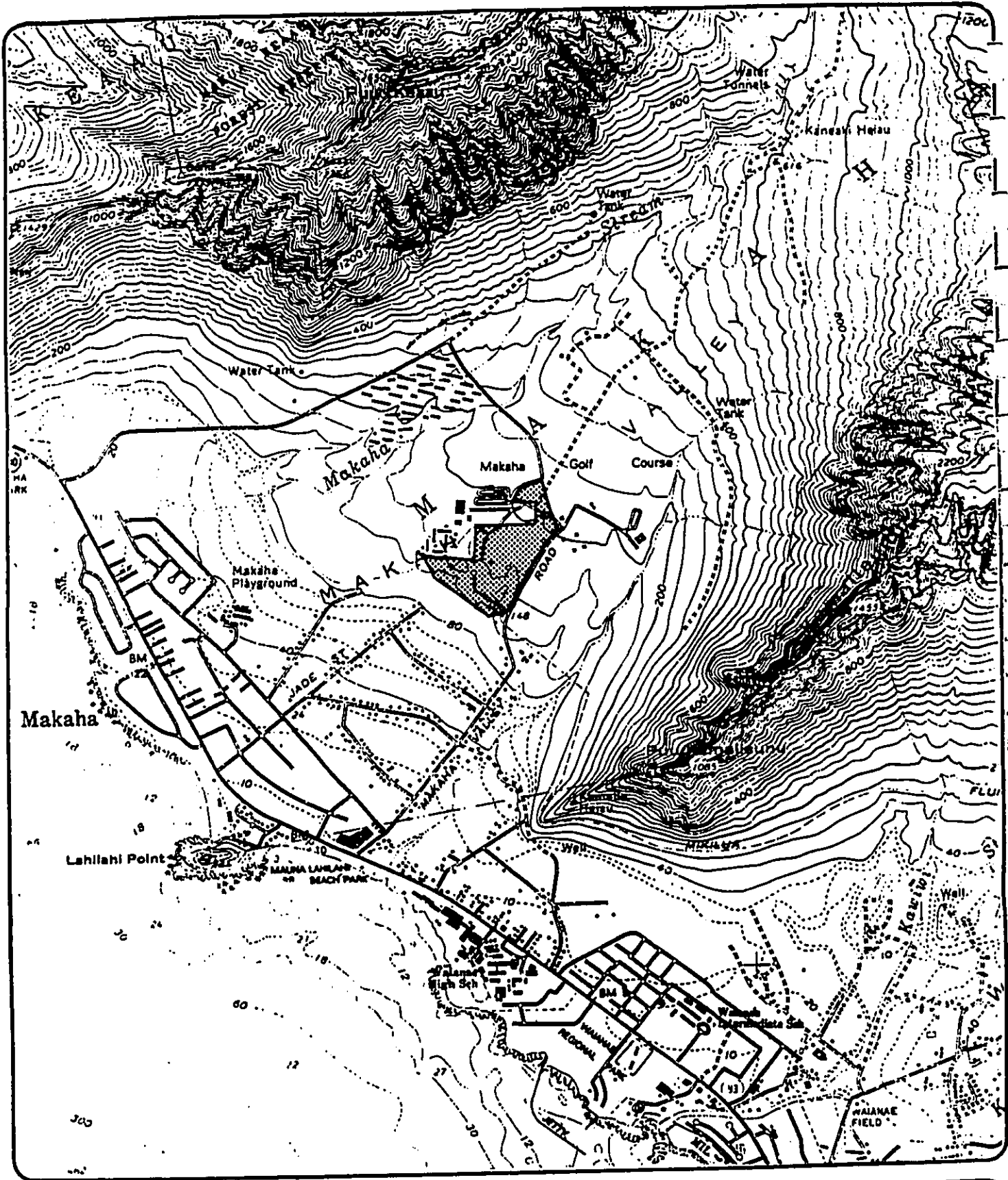
In regards to the drainageways entering the impoundments, the dry gullies are neither perennial nor headwater streams subject to the Corps jurisdiction. Thus, no permit is required in the grading or modification of the gully.

Any questions regarding this determination should be directed to Michael Lee, Phone: 438-9258.

Sincerely,


John G. Emmerson
Chief, Operations Branch
Construction-Operations Division

Attachment



Location Map

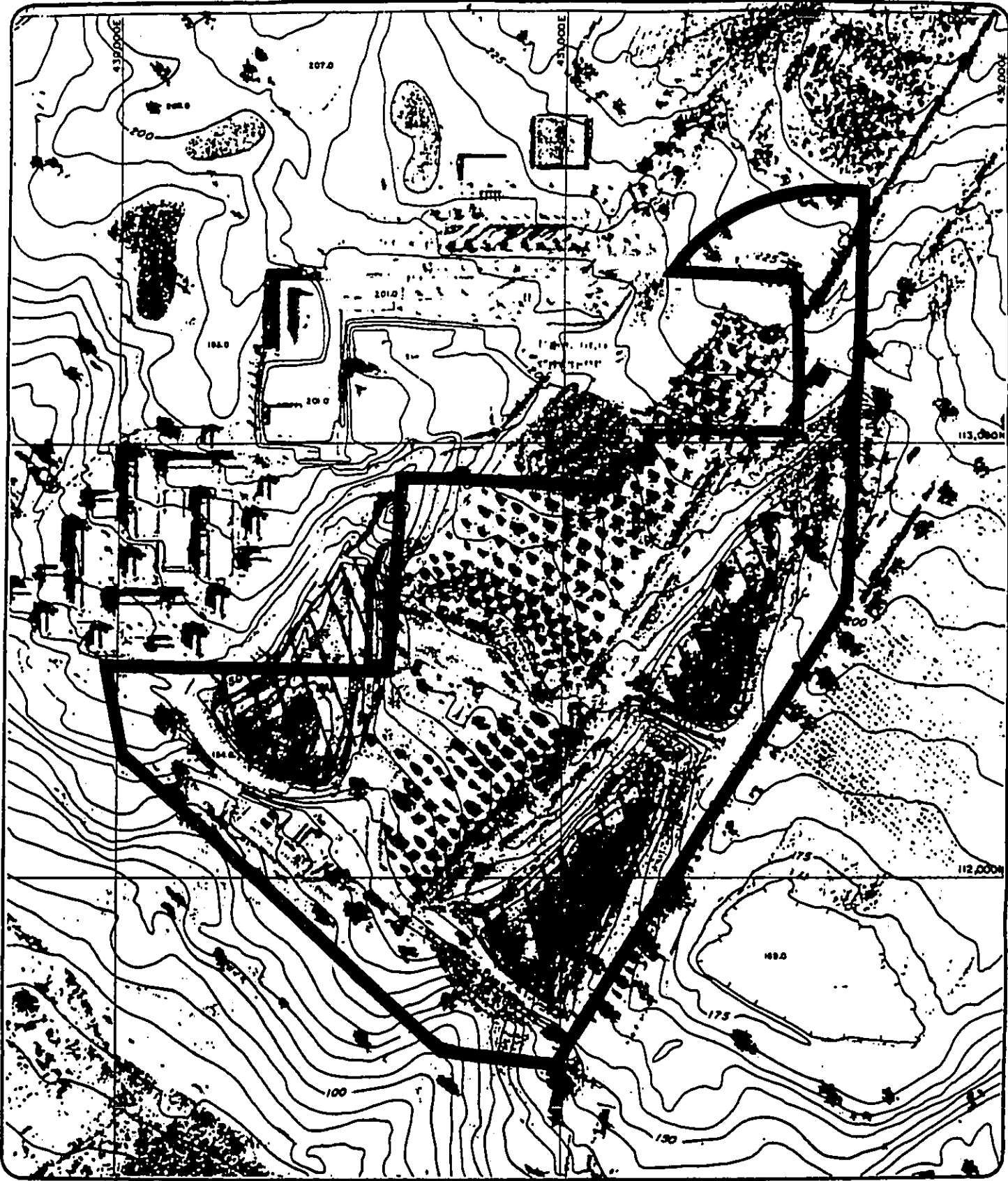


0 2000
Feet

Figure 1

ANA Enterprises, Ltd.

HELBER, HASTERT & KIMURA PLANNERS
 GROSVENOR CENTER • PINE TOWER • 723 BISHOP STREET • SUITE 2300
 HONOLULU, HAWAII 96813 • TELEPHONE: (808) 546-3088



Topo Map



0 300
Feet

Figure 5

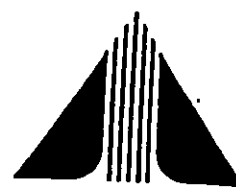
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 HONOLULU, HAWAII 96813 • TELEPHONE: (808) 543-3066

APPENDIX G

AIR QUALITY STUDY
Barry D. Root & Barry D. Neal

March 1989



ANA HOTELS

AIR QUALITY STUDY
FOR THE PROPOSED
SHERATON MAKAHA RESORT EXPANSION
WAIANAE, OAHU, HAWAII

Prepared for:

ANA Hotels Hawaii, Inc.
Helber, Hastert & Kimura Planners

Prepared by:

Barry D. Root & Barry D. Neal

March 1, 1989

SUMMARY

1. ANA Hotels Hawaii, Inc., is proposing to expand the existing facilities of the Sheraton Makaha Resort in Waianae, Oahu, to include 300 additional hotel rooms, 150 new resort condominiums, a new conference facility, additional tennis facilities, 5,500 square feet of resort-related retail space and a new 50-unit health spa.
2. Ambient Air Quality Standards have been set for six major pollutants. Particulates from construction and carbon monoxide from vehicles attracted to the project are likely to be of greatest concern for a project such as this. The Hawaii one-hour ambient air quality standard for carbon monoxide is four times more stringent than the national limit.
3. Present air quality in the project area is estimated to be quite good, but State of Hawaii standards for carbon monoxide and ozone have been exceeded in the Honolulu area in recent years.
4. The only significant direct adverse air quality impact that the project is likely to create is the emission of fugitive dust during construction. Strict compliance with State of Hawaii air pollution control regulations should effectively mitigate this potential impact.
5. Once completed, the Sheraton Makaha Resort Expansion should have little direct impact on air quality in the area. Pesticide use on associated landscaping should be only a minor concern.
6. Off site, expected impacts include increased air pollutant emissions at electric generating facilities to satisfy new energy demand and possible additional emissions to dispose of solid wastes.
7. Indirectly, vehicle traffic generated by the project could have an adverse impact on air quality at critical "hot spots" near major intersections between the project and urban Honolulu, but because traffic generated by the project is expected to be mostly in the off-peak direction with respect to the flow of typical commuter traffic, impact at the major intersection closest to the project has been computed to be minimal. For this reason no mitigative measures are recommended in this regard.

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1. INTRODUCTION AND PROJECT DESCRIPTION

ANA Hotels Hawaii, Inc. is proposing to expand the existing facilities of the Sheraton Makaha Resort in Waianae, Oahu. The project area encompasses a 35.7-acre site adjacent to the existing facilities of the Sheraton Makaha Resort and Makaha Valley Road as shown in Figure 1. Central elements of the project include 300 additional hotel rooms, 150 new resort condominiums, a new conference facility, additional tennis facilities, 5,500 square feet of resort-related retail space and a new 50-unit health spa. The proposed development site is mostly vacant except for two unoccupied residential structures, a private STP and maintenance facilities.

The project will be linked to the Oahu roadway network via Makaha Valley Road and Farrington Highway. Makaha Valley Road would be realigned somewhat in the immediate project area, but retain its two-lane rural character. Farrington Highway, however, is slated to be widened to four lanes as far northward as Jade Street in 1994 and the currently unsignalized intersection at Makaha Valley Road is expected to be signalized by that time. The 330-room hotel addition and 50-unit health spa are expected to be completed within two years after necessary governmental approvals are obtained. The first 30 condominium units will be completed about 18 months after opening of the new hotel units with approximately 30 additional condominium units built and available for occupancy every 18 months thereafter, depending on market conditions. Following this schedule, total project completion would not be expected until about 10 years from commencement of construction.

The purpose of this study is to describe existing air quality in the project area and to assess the potential short-term and long-term direct and indirect air quality impacts that could result from construction and use of the site as planned. Possible measures to mitigate any adverse impacts are also described and discussed.

2. AMBIENT AIR QUALITY STANDARDS

State of Hawaii and Federal Ambient Air Quality Standards (AAQS) have been established for six classes of pollutants as shown in Table 1. An AAQS is a pollutant concentration not to be exceeded more than once per year over a specified sampling period which varies from as little as one hour to a year for each pollutant depending upon the type of exposure necessary to cause adverse effects. Each of the regulated pollutants has the potential to create or exacerbate some form of adverse health effect or to produce environmental degradation when present in sufficiently high concentration.

Federal AAQS have been divided into primary and secondary levels for particulates and sulfur dioxide. For these pollutants, primary AAQS are relevant to the prevention of adverse health impacts, while secondary AAQS refer to public welfare impacts such as decreased visibility, diminished comfort levels, or other potential damage to the natural or man-made environment, e.g. soiling of materials or other economic impact.

State of Hawaii AAQS have been set at a single level which is in some cases significantly more stringent than Federal AAQS. In particular, the State of Hawaii one-hour AAQS for carbon monoxide is four times more stringent than the comparable Federal AAQS.

Under the provisions of the Federal Clean Air Act [1], the U.S. Environmental Protection Agency (EPA) is required to periodically review and re-evaluate Federal AAQS in light of research findings more recent than those which were available at the time the standards were originally set. Periodically new standards are created as well. Most recently the Federal standard for particulate matter has been revised to include a standard which applies only to particulates 10 microns or less in diameter (PM-10) [2]. The State of Hawaii has not addressed the question of whether to set more stringent limits for this category of air pollutant, but Federal AAQS prevail where States have not set their own more stringent levels.

3. PRESENT AIR QUALITY

Present air quality at Sheraton Makaha Resort is likely to be affected by air pollutants from three different types of sources: natural, industrial, and vehicular. Natural air pollutant producers which could affect Makaha air quality include the ocean (sea spray), plants (aero-allergens), dust (from wind blowing over unvegetated areas or from agricultural or construction activities), or perhaps a distant volcanic eruption on the island of Hawaii.

Industrial emissions affecting Makaha would most likely come from the direction of Campbell Industrial Park (about 12 miles southeast) and the power plant at Kahe (about 9 miles southeast). Industrial air pollutants consist of particulate matter, sulfur dioxide, and nitrogen dioxide. A summary of recent air pollutant measurements from State of Hawaii long term monitoring stations located nearest to the project is presented in Table 2. Particulates (and PM-10) as well as sulfur dioxide are measured at the Chevron Oil Refinery at Barbers Point, within the Campbell Industrial Park. Levels of particulates and sulfur dioxide in the air have been well within allowable AAQS in the Barbers Point area in recent years. Nitrogen dioxide concentrations have not been measured in Hawaii since the early 1980's. The AAQS for nitrogen dioxide is an annual value, implying that nitrogen dioxide presents a health concern only for long term exposures. When nitrogen dioxide was last measured at Sand Island in 1981, readings were well below the 24-hour standard then in force. Pollutants from industrial sources are not likely to be a problem at Makaha.

Unfortunately there are no nearby long term measurements of carbon monoxide, ozone, or lead in the immediate vicinity of Makaha, so the current burden of vehicular emissions is difficult to evaluate. Measurements of lead from sites in urban Honolulu indicate that most recent levels are barely above the threshold of detection for current measuring techniques. Airborne lead is thus not considered to be a problem at any Oahu location.

On the other hand, carbon monoxide and ozone readings from urban Honolulu indicate that allowable State of Hawaii standards for these vehicle-related air pollutants have recently been violated at rates of up to three times a year. Ozone is an indicator of the formation of photochemical pollutants in the air, a condition which tends to develop if the air mass over the islands has been fairly stable with little wind flow for a period stretching over several days. High ozone concentrations are thus an area-wide concern the origin of which is impossible to trace to a specific site. Concentrations of carbon monoxide are more directly related to vehicular emissions and tend to be highest at "hot spots" near congested intersections during peak hour traffic conditions. Carbon monoxide would thus be the pollutant most likely to cause difficulty in meeting allowable AAQS as a result of new development on Oahu.

4. SHORT TERM DIRECT AND INDIRECT IMPACTS OF PROJECT CONSTRUCTION

There will be two types of short term direct air quality impacts from project construction: fugitive dust and on-site emissions from construction equipment. There will also be a short term indirect impact from slow moving construction equipment traveling to and from the project site as well as a temporary increase in local traffic caused by commuting construction workers.

Fugitive dust emissions will arise from grading and dirt moving activities within the project site and from any off-site dirt hauling as well. The quantitative rate of emission for this type of emission is almost impossible to estimate because the potential for such emissions will vary greatly from day to day depending upon the amount of dirt-disturbing activity taking place and the moisture content of exposed soil in work areas. The EPA has provided a rough estimate for fugitive dust emissions from construction activity [5]: 1.2 tons per acre per month of activity under conditions of "medium" activity, moderate soil silt content (30%), and a precipitation/evaporation (P/E) index of 50. The project site is considerably drier than the stated P/E index, thus increasing the potential for fugitive dust generation from this project. State of Hawaii Air Pollution Control Regulations [6] require that visible fugitive dust emissions from construction activity be essentially nil.

Adequate fugitive dust control can usually be accomplished by establishment of a frequent watering program to keep bare-dirt surfaces in work areas from becoming significant dust generators. Control regulations also require that open-bodied trucks be covered at all times when in motion if they are transporting materials likely to give rise to airborne dust. Paving parking areas and establishing landscaping as early in the construction process as possible as well as good housekeeping on the job site have also proven to be helpful in abating fugitive dust emissions.

On-site mobile and non-mobile construction equipment will also emit some air pollutants in the form of engine exhausts. The largest equipment is usually diesel-powered. Nitrogen dioxide emissions from this type of equipment can be significant, but resulting concentrations are of short duration and are of little concern with respect to the long term AAQS for nitrogen dioxide. Carbon monoxide emissions from a single piece of construction equipment are rarely more than those from a single automobile, and the overall air quality impact of emissions from construction equipment should be insignificant compared to vehicular emissions from roadways nearby.

Indirectly, slow moving construction vehicles on roadways adjacent to the project can obstruct the normal free flow of traffic to such an extent that overall vehicular emissions are increased, but this impact can be mitigated by moving heavy construction equipment during periods of low traffic volume on the roadways affected. Likewise the schedules of commuting workers can be adjusted slightly to avoid peak traffic hours in the project vicinity. Thus most potential short term air quality impacts from project construction should be relatively easy to mitigate.

5. LONG TERM DIRECT IMPACT

A. ON-SITE

Once construction has been completed, the on-site direct air quality impact of the proposed Sheraton Makaha Resort Expansion will be minimal. Smoke from cooking, emissions of pesticides and other products used in landscaping should be the only noticeable air pollution emanations.

B. OFF-SITE

ELECTRICAL ENERGY GENERATION AND SOLID WASTE INCINERATION

Residents of the 350 hotel and 150 condominium units proposed for the project will generate an annual demand for electrical energy of about 4.9 million kilowatt hours. In the worst case this demand would be met by burning additional fuel oil in existing power plants, primarily the Kahe Power Plant on the Waianae coast. This new energy requirement could be reduced significantly by installing solar waters on all new homes and by incorporating solar design features into all construction plans, e.g. use of landscaping to provide afternoon shade to cut down on use of air conditioning and positioning of windows to maximize indoor light without unduly increasing indoor heat.

It is also possible that the new demand can be met by means other than burning fuel oil. In fact, an operating wind farm has been developed on the north shore of Oahu, and other low-pollution energy generating systems might be developed in coming years. At this writing the planned City and County resource recovery facility (H-POWER) is being constructed at Campbell Industrial Park. The H-POWER facility could be generating electrical energy by the time the initial phases of the Sheraton Resort Expansion are completed. H-POWER will not be air pollution free, however, and even with the use of on-site wet scrubbing and electrostatic precipitation, emissions from this source could be significant. Furthermore, the Hawaiian Electric Company has evidently decided that purchasing power from new coal-fired power plants to be constructed in Campbell Industrial Park would provide the most economical means for meeting future Oahu energy demands. Even with latest technology control devices on these new plants, air pollution emissions in the Campbell Industrial Park are likely to increase with the addition of these new facilities.

Using EPA estimates for emission rates for low sulfur fuel combustion in electrical power plants and assuming that all electrical demands from the new project will be met by burning low sulfur fuel and that all project-related solid waste will be disposed of by incineration in the H-POWER plant yields the annual emission rates listed in Table 3. H-POWER emission factors were estimated using values in the EIS for the West Loch Project (4).

5. LONG TERM INDIRECT IMPACT OF PROJECT-RELATED TRAFFIC

By serving as an attraction for increased motor vehicle traffic in the area the proposed Sheraton Makaha Expansion project constitutes a potential indirect air pollution source.

Motor vehicles, especially those with gasoline-powered engines, are prodigious emitters of carbon monoxide. Motor vehicles also emit some nitrogen dioxide and those burning fuel which contains lead as an additive contribute some lead particles to the atmosphere as well. The major control measure designed to limit lead emissions is a Federal law requiring the use of unleaded fuel in most new automobiles. As older cars are removed from the vehicle fleet lead emissions should continue to fall. In fact, so few vehicles now require leaded gasoline that the EPA is proposing a total ban on lead in gasoline to take effect immediately. Even without such a ban, reported quarterly averages of lead in air samples collected at the Department of Health building on Punchbowl and Seretania Streets in urban Honolulu have below measurable thresholds since early 1986.

Federal control regulations also call for increased efficiency in removing carbon monoxide and nitrogen dioxide from vehicle exhausts. By the year 1995 carbon monoxide emissions from the Oahu vehicle fleet then operating should be about 20 percent lower than amounts now emitted. At present, however, no further reductions in vehicular emissions have been mandated and increases in traffic levels after 1995 will result in directly proportional increases in vehicle-related pollutant emissions.

In order to evaluate the potential air quality impact of increased traffic from the proposed Sheraton Makaha Expansion in view of these decreasing emission rates per vehicle, a detailed modeling effort was carried out. Carbon monoxide was selected for modeling because it is both the most stable and the most abundant of the motor vehicle generated pollutants. It is also likely to be the pollutant with the greatest likelihood of violating present AAQS.

7. CARBON MONOXIDE DIFFUSION MODELING

A single critical receptor location was selected for analysis. This site, on the north side of the intersection of Makaha Valley Road and Farrington Highway (shown on Figure 1), was selected for analysis because of its proximity to the main entry/exit point to the completed project. The particular position of the receptor site with respect to the intersection was chosen because that area would be the most likely to show the greatest level of impact from project-related automobile-generated air pollutants, specifically carbon monoxide, under worst case peak hour traffic and meteorological diffusion conditions. The site is within the small parking area in front of the Cornet store and includes a picnic table and kiddie play area with a coin-operated amusement ride. Modeled carbon monoxide concentrations for this site can be compared directly to allowable state and federal ambient air quality standards.

The traffic assesment for the project [5] indicated that highest total traffic volumes would occur during the evening rush hour, but the difference between morning and evening peak hour volumes is relatively small and the far less favorable meteorological diffusion conditions which can prevail in the morning (cold temperatures yielding higher emission rates and light winds with high stability and low mixing) and higher degree of traffic congestion (lower levels of service) result in modeled carbon monoxide concentrations which are highest during the morning rush hour.

Modeling was performed for 1989 and for 1995. At present Farrington Highway and Makaha Valley Road are both two lane roadways and the intersection is unsignalized with a stop sign on Makaha Valley Road. By 1995 it is assumed that Farrington Highway will be widened to four lanes and the intersection will be signalized. Existing traffic passing through the intersection comes from the 100 residential lots in Lower Makaha, the 687 units at Makaha Valley Plantation, the 536 units at Makaha Valley Towers and the 200 rooms at the Sheraton Makaha Resort. For the 1995 scenario without the proposed project, new traffic will be added by 117 lots of the planned Mauna Olu Subdivision, 108 lots to be developed by Nitto Hawaii, 535 units at a planned retirement community and 300 rooms at the Pacific Basin Conference Center. The 1995 scenario with proposed Sheraton Makaha Resort Expansion assumes that all units of the planned expansion will be completed by 1995 (somewhat faster than the planned rate of condominium unit development).

Using 1986 vehicle registration figures for Oahu, the existing peak hour vehicle mix in the project area is estimated to be 91.9% light duty gasoline-powered vehicles, 4.2% light duty gasoline-powered trucks and vans between 6000 and 8500 pounds, 0.5% heavy duty gasoline-powered vehicles, 0.5% diesel-powered automobiles, 0.1% light duty diesel-powered trucks, 1% diesel powered trucks and buses, and 1% motorcycles. The same vehicle mix was assumed for the 1989 and 1995 emission rate calculations.

Vehicle speeds were assumed to be 25 mph on Farrington Highway and 16 mph on Makaha Valley Road upstream from signal and stop sign queues. Downstream from signals and turns 16 mph speeds were assumed. A cold winter morning temperature of 59 degrees F was assumed for morning rush hour conditions. Vehicle operating characteristics were computed assuming that 29.6 percent of the vehicles equipped with catalytic converters and 29.6 percent of the vehicles without catalytic converters would be operating in the "cold start" mode and that 27.3 percent of all vehicles would be operating in the hot start mode. The EPA computer model MOBILE3 [8] was run using the above parameters to produce vehicular carbon monoxide emission estimates for each of the years studied. National averages for "mis-fueling" were assumed.

The computer model CALINE4 [9] was used for calculating carbon monoxide concentrations for each scenario studied. Stability category 6 was used for determining diffusion coefficients. This stability category represents the most stable (least favorable) atmospheric condition that can be used for these computations. For all scenarios a surface roughness of 100 was assumed since this value is closest to that which occurs over suburban countryside.

To simulate worst case wind conditions a uniform wind speed of one meter per second was assumed with the worst case wind direction determined by which wind direction produced the highest concentration of carbon monoxide. Concentrations were computed at a height of 1.5 meters above ground in order to estimate levels that would exist within the normal human breathing zone. Background contributions not directly considered in the carbon monoxide computations were assumed to be zero in order to avoid masking the magnitude of project impact. At most, background concentrations from other sources or distant roadways in the vicinity of the intersection selected would not be likely to exceed one quarter milligram per cubic meter, which is significantly lower than the probable modeling margin of error given the numerous assumptions required in model input formulations.

Results of the peak hour carbon monoxide analysis are summarized in Table 4. Computed peak hour carbon monoxide levels under the worst case assumptions used in this study are within allowable State of Hawaii and federal AAQS for all scenarios considered. The relatively minor increase in morning peak hour levels of carbon monoxide (less than 0.5 milligrams per cubic meter) attributable to the Sheraton Makaha Resort Expansion stems mainly from the fact that the project serves as a destination for almost three times more traffic than it generates. This extra traffic in the off peak direction has very little impact on peak hour carbon monoxide levels which are more substantially affected by the longer traffic queues in the peak direction. In fact, even with the Sheraton Makaha Expansion and all other planned developments for Makaha, 1995 carbon monoxide levels in the vicinity of the intersection studied are projected to be slightly lower than is currently the case.

For areas where no better data exists, worst case eight-hour carbon monoxide levels are usually estimated by multiplying peak hour modeled values by a "meteorological persistence factor" of 0.6 which is recommended in EPA modeling guidelines [10] to account for the fact that average one hour traffic volumes over an eight hour period are lower than peak hour volume and the fact that wind conditions are more variable over an eight hour period than they are for a one hour period. Because the peak eight hours will occur in the daytime, however, it is not deemed appropriate to use morning peak hour meteorological dispersion conditions as a basis for the computation since stability category six is to be used only during nighttime or within an hour of sunrise or sunset. Furthermore, a long term relationship between peak one hour and eight hour levels of carbon monoxide has been established by the last three years of reported measurements at the State of Hawaii Department of Health in Honolulu. In 1985 and 1986 the ratio between these peak values was 0.35. In 1987 it was 0.42. A peak-to-eight-hour ratio of 0.4 therefore appears to be more appropriate for use in estimating highest likely eight hour concentrations of carbon monoxide on leeward Oahu. In fact, even this ratio is probably too conservative since eight hour traffic volumes in Honolulu are probably closer to peak hour levels than they are in suburban west Oahu. Eight hour estimated carbon monoxide levels have thus been computed using the 0.4 ratio discussed above with results summarized in Table 5.

Computed worst case eight-hour carbon monoxide concentrations are within both State of Hawaii and Federal AAQS under all scenarios considered.

8. MITIGATIVE MEASURES

A. SHORT TERM

From an air quality standpoint the major short term impact of project construction will be potential emissions of fugitive dust. Strict compliance with State of Hawaii Air Pollution Control Regulations regarding establishment of a regular watering program and covering dirt-hauling trucks should effectively mitigate this concern.

B. LONG TERM

On-site air pollutant emissions from the proposed Sheraton Makaha Resort Expansion are likely to be minimal once the project is completed and occupied. Off-site there will be impacts generated because of new residential demands for electrical energy and waste incineration. Electrical requirements can be reduced somewhat by planning and implementing solar energy design features to the maximum extent possible.

Other indirect long term air quality impacts are expected in those areas where traffic congestion can potentially be worsened by the addition of vehicles traveling to and from the project. Since computer model simulation indicates that future concentrations of automobile-related pollutants at the major intersection serving this project will be well within allowable State of Hawaii and national air quality standards, no particular mitigative measures seem necessary in this regard. Because the stringent national vehicular emissions reduction program now being pursued is entirely the product of ever-changing government regulations, it is always possible that economic conditions or other factors could lead to an early abandonment of the program. If that were to occur then future emission reductions might be smaller than expected and carbon monoxide levels projected in this study could be lower than those that actually occur. On the other hand, future innovations in vehicle design could lead to power systems that produce no significant air pollution.

REFERENCES

1. U.S. Congress. Clean Air Act Amendments of 1977 (P.L. 95-95), Section 109, National Ambient Air Quality Standards, August, 1977.
2. U.S. EPA. Revisions to National Ambient Air Quality Standards for Particulate Matter, Federal Register, Vol. 52, p.2463, July 1, 1987.
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TABLE 1

SUMMARY OF STATE OF HAWAII AND
FEDERAL AMBIENT AIR QUALITY STANDARDS
(AAQS)
(micrograms per cubic meter except where noted)

POLLUTANT	SAMPLING PERIOD	FEDERAL		STATE OF HAWAII
		PRIMARY	SECONDARY	
Total Suspended Particulate Matter (TSP)	Annual Geometric Mean	75	60	60
	24 Hour	260	150	150
PM-10 Particulates <10 microns in diameter	Annual Mean	50	50	-
	24 Hour	150	150	-
Sulfur Dioxide	Annual Mean	80		80
	24 Hour	365		365
	3 Hour		1300	1300
Nitrogen Dioxide	Annual Mean	100		100
Carbon Monoxide (milligrams per cubic meter)	8 Hour	10		5
	1 Hour	40		10
Photochemical Oxidants (as Ozone)	1 Hour	240		100
Lead	Calendar Quarter	1.5		1.5

Federal AAQS: U.S. Government, Code of Federal Regulations, Title 40, Protection of Environment, Part 50, National Primary and Secondary Ambient Air Quality Standards.

State of Hawaii AAQS: State of Hawaii, Title 11, Administrative Rules, Chapter 59, Ambient Air Quality Standards, as amended, April, 1986.

TABLE 2

SUMMARY OF RECENT AIR POLLUTANT MEASUREMENTS
AT MONITORING STATIONS NEAREST TO
THE PROPOSED PROJECT SITE

Pollutant/Location	YEAR		
	1985	1986	1987
Carbon Monoxide/Honolulu: (milligrams per cubic meter)			
No. Days of 1-Hr Samples	342	348	345
Range of Daily Max 1-Hr Values	0.0 - 10.4	0.2 - 13.5	0.3 - 11.1
Average Daily Max 1-Hr Value	1.5	2.2	1.7
No. of State 1-Hr AAQS Exceedences	1	3	1
Ozone/Sand Island: (micrograms per cubic meter)			
No. Days of 1-Hr Samples	341	346	342
Range of Daily Max 1-Hr Values	8 - 198	10 - 88	4 - 84
Average Daily Max 1-Hr Value	43	39	38
No. of State 1-Hr AAQS Exceedences	3	0	0
Lead/Liliha: (micrograms per cubic meter)			
No. of 24-Hr Samples	58	61	59
Range of 24-Hr Values	0.0 - 0.5	0.0 - 0.3	0.0 - 0.1
Average Quarterly Value	0.2	0.0	0.0
No. of State AAQS Exceedences	0	0	0

TABLE 2 CONT'D

SUMMARY OF RECENT AIR POLLUTANT MEASUREMENTS
AT MONITORING STATIONS NEAREST TO
THE PROPOSED PROJECT SITE

Pollutant/Location	1985	YEAR 1986	1987
Particulate Matter/Barbers Point, (micrograms per cubic meter)			
No. of 24-Hr Samples	44	50	51
Range of Daily Values	24 - 138	17 - 65	20 - 61
Average Daily Value	57	29	34
No. of State 24-Hr AAQS Exceedences	0	0	0
PM-10/Barbers Point (micrograms per cubic meter)			
No. of 24-Hr Samples	9	52	46
Range of Daily Values	10 - 26	7 - 66	10 - 40
Average Daily Value	20	26	21
No. of 24-Hr AAQS Exceedences	0	0	0
Sulfur Dioxide/Barbers Point: (micrograms per cubic meter)			
No. of 24-Hr Samples	50	57	53
Range of Daily Values	<5 - 25	<5 - 10	<5 - 13
Average Daily Value	5	<5	5
No. of State 24-Hr AAQS Exceedences	0	0	0

* Sampling for total suspended particulates was discontinued at Barbers Point on Oct.1, 1985. Reading for 1986/87 are from Pearl City.

Source: State of Hawaii Department of Health

TABLE 3

ESTIMATED ANNUAL EMISSIONS OF AIR POLLUTANTS
TO MEET DEMANDS OF SHERATON MAKAHA RESORT EXPANSION
FOR ELECTRICAL ENERGY AND SOLID WASTE DISPOSAL

POLLUTANT	EMISSIONS (Tons/Year)	
	POWER PLANTS	H-POWER
Particulate Matter	1.4	0.3
Sulfur Dioxide	13.4	0.6
Nitrogen Dioxide	17.7	3.0
Carbon Monoxide	0.9	2.7

TABLE 4

RESULTS OF MORNING PEAK HOUR CARBON MONOXIDE MODELING
(milligrams per cubic meter)

LOCATION	1989	YEAR/SCENARIO	
		1995 WITHOUT SHERATON MAKAHA EXPANSION	1995 WITH SHERATON MAKAHA EXPANSION
Farrington Highway & Makaha Valley Road	6.7	6.2	6.6

STATE OF HAWAII AAQS: 10
FEDERAL AAQS: 11

NOTE: See Figure 2 for location of receptor sites. See text, Section 7, for description of scenarios, models, and assumptions.

TABLE 5

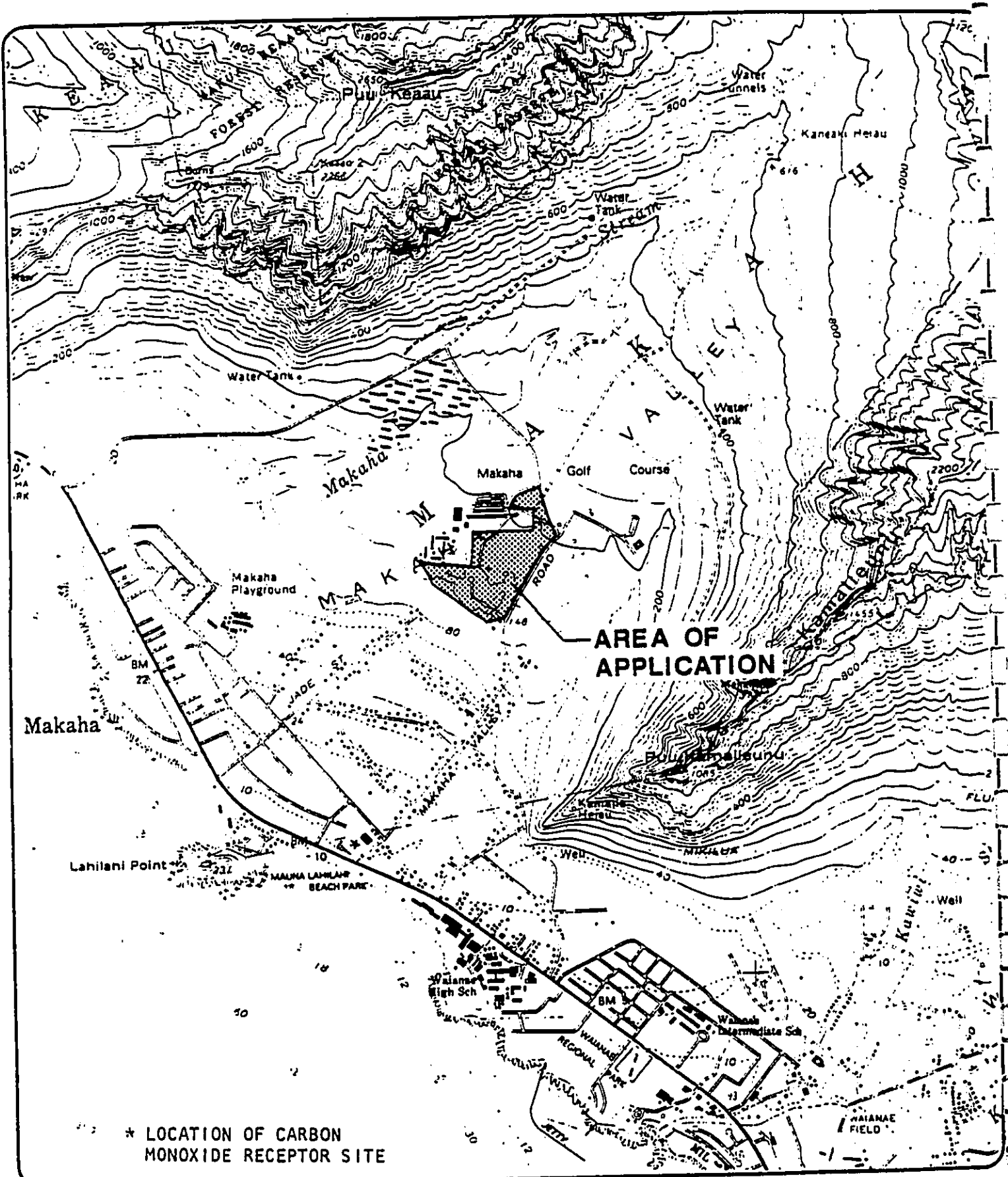
ESTIMATE OF MAXIMUM EIGHT HOUR CARBON MONOXIDE CONCENTRATION

(milligrams per cubic meter)

LOCATION	1989	YEAR/SCENARIO	
		1995 WITHOUT SHERATON MAKAHA EXPANSION	1995 WITH SHERATON MAKAHA EXPANSION
Farrington Highway & Makaha Valley Road	2.7	2.5	2.6

STATE OF HAWAII AAQS: 5
FEDERAL AAQS:

NOTE: See Figure 2 for location of receptor sites. See text, Section 7, for description of scenarios, models, and assumptions.



Location Map

ANA Hotels Hawaii, Inc.



0 2000
Feet

Figure 1

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