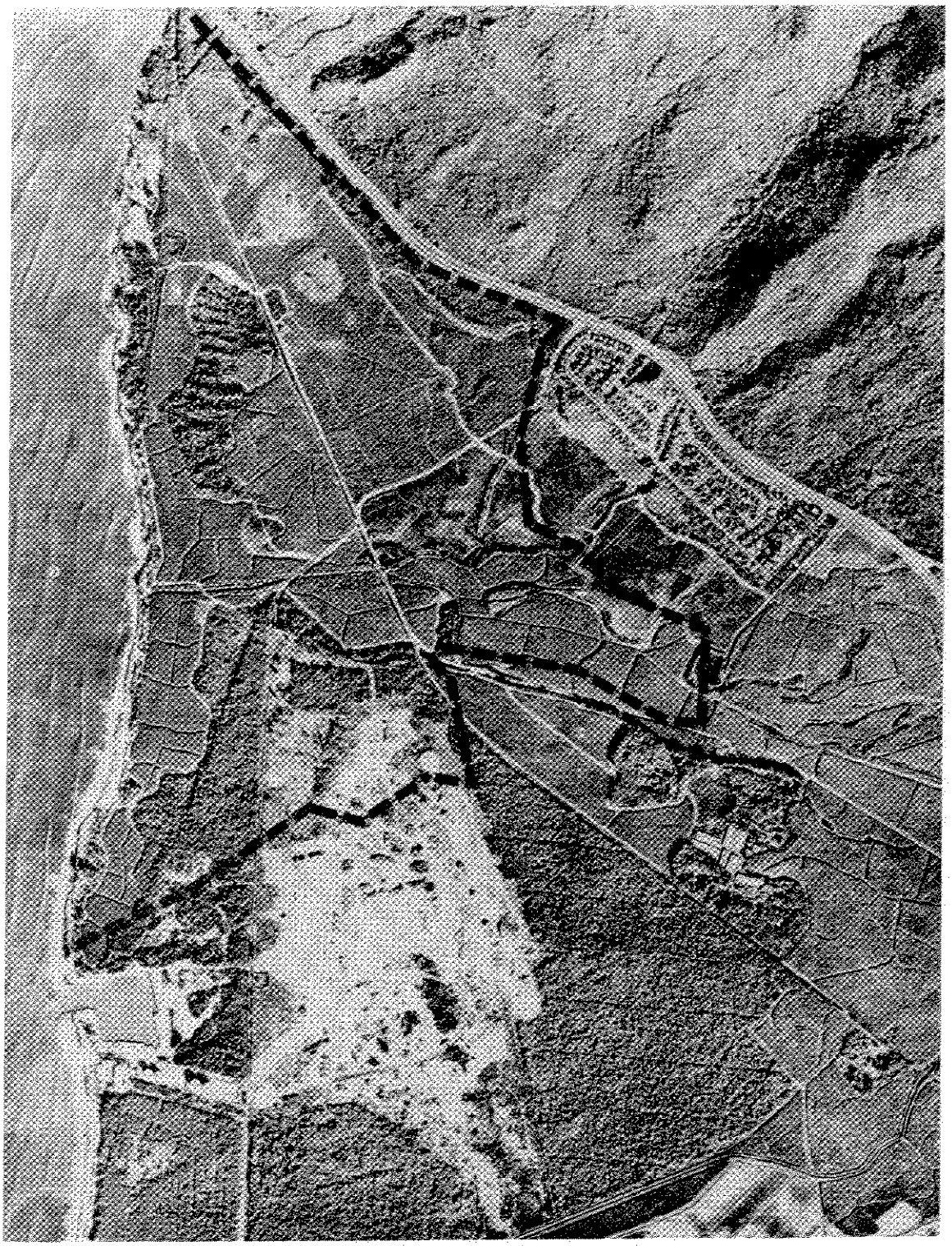
FINAL
Environmental Impact Statement



for the Proposed West Beach Resort

SEPTEMBER, 1980

HONOULIULI, EWA DISTRICT, ISLAND OF OAHU, HAWAII

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4411

FRANK F. FASI
MAYOR

TYRONE T. KUSAO
DIRECTOR

79/SMA-45(SM)

September 19, 1980

Mr. Fred Rodriguez
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Revised Environmental Impact Statement
West Beach Resort

We have determined that the above is an acceptable Environmental Impact Statement (EIS) document for the proposed project. It should be pointed out that the acceptance of this document does not constitute approval for any land use policy changes or permit applications.

There are a number of unresolved issues which cannot be adequately addressed at this time due to the general nature of this document, but are expected to be thoroughly addressed at the time that supplemental EISs are submitted. These issues are included in the Acceptance Report, which is attached.

If there are any questions, please contact Sampson Mar of our staff at 523-4077.

Very truly yours,

TYRONE T. KUSAO
Director of Land Utilization

TTK:sl
Attach.

DEPARTMENT OF LAND UTILIZATION
79/SMA-45(SM)

September 19, 1980

ACCEPTANCE REPORT : ENVIRONMENTAL IMPACT STATEMENT (EIS)
WEST BEACH RESORT
HONOULIULI, EWA, OAHU

A. BACKGROUND

Environmental Impact Statement (EIS) was prepared for the applicant, West Beach Resorts, by Environmental Communications, Inc. The EIS was required under the provisions of Chapter 343, HRS, when the applicant made a proposal to the City and County Department of Land Utilization (DLU) to develop a resort community within the Shoreline Setback Area (Chapter 205-32, HRS) and the Special Management Area (SMA) (Ordinance No. 4529). As the agency initially receiving the request for an approval, the DLU required the preparation of the EIS. Under Section 1:24 of the Environmental Quality Commission (EQC) Regulations, "Identification of Approving Agency", DLU is also the accepting authority of the statement.

In addition to development within the Shoreline Setback Area and SMA, the project involves work within the State Conservation District and shorewaters under the jurisdiction of the U.S. Army Corps of Engineers.

In accordance with Sub-Part J. NEPA Actions, of the EQC regulations, the applicant notified the Army Corps of Engineers, the State Environmental Quality Commission, State Department of Land and Natural Resources and the DLU. This is a first attempt to prepare a single EIS document which would satisfy requirements of all pertinent government agencies.

This document was prepared as a generic or programmatic document and follows Federal guidelines of the National Environmental Policy Act of 1969 (NEPA) for content and format, as well as State EIS content requirements (Chapter 343, HRS, and Ordinance No. 4529, as amended).

It generally describes the anticipated environmental effects of the development of 640 acres of land to the maximum usage as follows:

LAND USE	APPROXIMATE ACREAGES
Hotel/condominium (7,520 units)	109.0
Residential (1,482 units)	97.9
Low/Medium Density Residential (198 units)	12.4
Commercial	16.7
Marina/Related Areas	48.0
Golf Course/Club	158.7
Beach Club	2.2
Marine Park	10.2
Tennis Courts/Related Areas	6.6
Cultural Center	11.4
Parks	67.7
Lagoon System	24.6
Restaurants	1.6
Circulation/Open Space	66.1

The proposed project would be constructed over a period of twenty years and will require land use policy changes and permits from the City and County of Honolulu, State of Hawaii, and Federal governments. In order to create a document acceptable to all three levels of government, the applicant coordinated between the various levels of government.

B. PROCEDURES

1. Under the provisions of Chapter 343, HRS, the DLU issued an EIS Preparation Notice on April 18, 1979. This was distributed by the applicant to a list of consulted parties suggested by DLU.

2. The consultation period for the EIS Preparation Notice was initiated on April 23, 1979 and terminated on June 8, 1980. This is substantially longer than the 30-day minimum consultation period required by Section 1:41(b)

of the EIS Regulations. Thirty-seven (37) parties submitted written comments during this period, and the applicant responded in writing to parties having substantive comments.

3. The Draft EIS review period officially began on July 8, 1980, although most of the Draft EISs had been sent to reviewing agencies two weeks prior to that date. The State deadline for comments was August 7, 1980; the Federal deadline for comments was August 18, 1980. Forty (40) parties commented in writing; seven (7) letters had no comments, while the remaining thirty-three (33) letters containing substantive comments requiring analysis and response.

4. The applicant requested that the response period be extended by 14 days, from August 21, 1980 to September 4, 1980. This was granted by OLU. The applicant made written responses to all comments by the end of the extended response period.

C. CONTENT

The revised EIS meets all of the basic content and style requirements specified in Section 1:42 and 1:43 of the EIS Regulations. However, as pointed out earlier in this report this document is a generic or programmatic EIS, which means that the overall project concept has been described, but the actual design details of the project have yet to be finalized. This document also incorporates 15 technical support studies which have been reviewed by private parties and governmental agencies. The applicant will be required to submit supplemental EISs for review prior to the time that a particular aspect of the proposed project is scheduled for implementation.

The following is a listing of environmental issues, which cannot be adequately answered due to the general nature of this document, but are expected to be thoroughly addressed at the time that supplemental EISs are submitted.

1. The configuration of the marina, including design details as width, length, depth, flushing characteristics, marina entrance, marine breakwater, etc.

2. The development of recreational lagoons, including design details as length, width, importation of materials, etc.

3. Salt water intrusion on the freshwater basal lens due to the development of the marina and lagoons.

4. The drainage system, including siltation basins, transmission lines, offshore impacts, and use of the golf course.

5. The sewage disposal system, including final transmission line to the Honouliuli Wastewater Treatment Plant.

6. The disposal site and method of disposal for solid waste.

7. The number and types of housing units, including low/moderate income housing.

8. The source, quantity, and commitment of domestic water, and any water conservation techniques to be employed at the project site.

9. Proposed parks within the project site including design, facilities, and access.

10. The transportation network, including roadway widths, access points, interchange designs on H-1 Freeway, implementation of a private mass transit system, parking.

11. Traffic projections based on designs of the project, and most recent external developments.

12. Noise conflicts with Barber's Point Naval Air Station, roadway noise, noise buffers and barriers.

13. The grading, flood protection, and landscaping plans, including provision for relocation and/or propagation of endangered plant species.

14. Historical/archaeological/paleontological concerns, including Federal (36 CFR 800) and State coordination (SHPO) for critical sites, including Hawaiiana, bone finds, and the OR and L Railroad.

15. Socio-economic impacts based upon the ultimate design of the project.

D. RESPONSE

Based upon the conceptual information available at this time, the applicant has made adequate responses to all comments postmarked before the end of the official review period. However, the supplemental EISs will be scrutinized to insure that prior to project implementation, the previously listed environmental issues are adequately addressed.

E. EIS ACCEPTANCE AS A JOINT CITY-STATE-FEDERAL DOCUMENT

The DLU, under the provisions of Chapter 343, HRS, required that an EIS be prepared. The DLU is the accepting authority for the City and County of Honolulu.

According to the Office of Environmental Quality Control, the marinas and lagoons involve State owned lands and therefore the EIS document must also be accepted by the governor.

The Corps of Engineers is developing their own EIS document based upon the information provided in the subject EIS and will take action on this document after action is taken at the State and County level.

E. DETERMINATION

The revised EIS is determined to be an acceptable generic/programmatic EIS under the criteria for acceptance established in Section 1:71 of the EIS Regulations. However, prior to any land use policy changes or permit applications required from the City and County of Honolulu,

the applicant will be required to present a schedule of the supplemental EISs to be subsequently submitted to the various levels of government for review and determination of acceptability. All unresolved issues must be satisfactorily addressed prior to the granting of any land use policy changes or permits from the City and County of Honolulu.

APPROVED

TYRONE T. KUSAO
Director of Land Utilization

TTK:sl

REVISED

JOINT FEDERAL-STATE

FINAL

ENVIRONMENTAL IMPACT STATEMENT

WEST BEACH PROJECT

HONOULIULI, EWA DISTRICT, ISLAND OF OAHU, HAWAII

PURSUANT TO

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969
Public Law 91-190

AND

CHAPTER 343, HAWAII REVISED STATUTES

SEPTEMBER, 1980

SOURCE OF AERIAL PHOTOGRAPH ON COVER: REAL ESTATE DATA, INC.

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JOINT FEDERAL-STATE

FINAL

ENVIRONMENTAL IMPACT STATEMENT

FOR

PERMIT ACTIONS REGARDING THE PROPOSED WEST BEACH

RESORT DEVELOPMENT

HONOULIULI, EWA DISTRICT, ISLAND OF OAHU, STATE OF HAWAII

1. This Final Environmental Impact Statement (FEIS) is prepared as part of Federal, State and County permit actions relating to the proposed West Beach Resort Development Project. The FEIS format follows federal regulations promulgated by the President's Council of Environmental Quality (40 Code of Federal Regulations Parts 1500-1508); additionally, the FEIS was coordinated with the State of Hawaii, Office of Environmental Quality Control. Sections 10 and 11 of the FEIS were added to comply with the State EIS format requirements. (Chapter 343, Hawaii Revised Statutes.)

2. The cooperating Federal, State and County agencies listed below are the lead agencies for their respective levels of government.

   a. The Department of Land Utilization, City and County of Honolulu, will evaluate the Shoreline Setback permit application under Chapter 205, Hawaii Revised Statutes, and the Special Management Area permit application under Ordinance 4529.

   b. The Department of Land and Natural Resources will evaluate the Conservation District Use Application for work in the shore waters under Chapter 205, 183, Hawaii Revised Statutes and Regulation No. 4 of the Department of Land and Natural Resources (DLNR) providing for land use regulations within a Conservation District.

   c. The U.S. Army Corps of Engineers will evaluate a Department of the Army permit application for the construction of bathing lagoons and marina under Section 10 of the River and Harbor Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344).

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Abstract. The applicant, West Beach Resorts, a Hawaii General Partnership, has applied for a Department of the Army permit to construct a resort complex that may include a maximum of 1,680 residential units, 7,520 hotel/condominium units, a 35-acre marina with a capacity of 700 berths, a series of bathing beach lagoons fronting the resort hotels, a tourist recreational-commercial center, a park, a shopping center, interior road systems, utility systems, a golf course, tennis courts and other urban support facilities. The project described represents a conceptual plan with the highest density allowed under the State Land Use Commission's decision to designate the land urban.* Construction will be phased, and specific project features will be added or deleted from the project plan depending upon costs, design changes and permit conditions imposed by the regulatory agencies. The project will create approximately 75 acres of new aquatic habitat at the expense of terrestrial habitat. Agricultural and rural lands will be converted to urban uses increasing human presence in the area and increasing the population in the region by about 17,500 persons. Water demands will increase together with other utility demands. Communities of endangered plants will be disturbed; however, the plants will be used for landscaping in hopes of propagating the species. Archaeological resources in the area will be disturbed, some sites salvaged and the data preserved, and other sites destroyed. The project will also create more jobs, provide housing for some segments of the island population, and increase property and tourism revenues in the State. Recreational use and opportunities in the area will increase. Urban encroachment on Barber's Point Naval Air Station will tend to increase military and urban conflicts due to noise and aircraft safety hazards. Approximately 266 acres of prime agricultural lands and 133 acres of other important agricultural lands will be converted to urban uses. Joint use of the Barber's Point Deep Draft Harbor and a recreational marina may make the harbor channel unsafe for large ships using the harbor. Water quality in coastal waters will be altered as a result of the discharges from the marina and lagoons and the discharge of urban storm water pollutants.

The alternatives considered in the FEIS included reducing the size and scope of the development, no action and denial of the permits. The alternatives vary the severity of environmental impacts and alterations. The No-action alternative preserves the status quo and results in no change to the environment. Denial of the permits does not prevent the developers from developing lands outside the jurisdiction of the regulatory agencies.

* This FEIS evaluates the worst-case impacts of the highest possible density allowable. The applicant may be required, through land use restrictions or other factors to implement a project of lesser density or size. As provided, the document is an evaluation of potential environmental impacts attributable under these density levels. It is not a request for those densities.

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IF YOU WANT FURTHER INFORMATION CONCERNING THE FEIS AND PERMIT REQUIREMENTS PLEASE CONTACT THE AGENCY OF RESPONSIBILITY LISTED BELOW:

Project Feature	Permit Requirements	Person to Contact
Construction within the Shoreline Setback and Construction in the Coastal Zone	Shoreline Setback Special Management Area Permit	Mr. Sampson Mar Department of Land Utilization City and County of Honolulu 650 South King Street Honolulu, Hawaii 96813 Phone: (808) 523-4077
Work in the State Conservation District	Conservation District Use Application	Mr. Roger Evans, Planner Department of Land and Natural Resources P.O. Box 621 Honolulu, Hawaii 96809 Phone: (808) 548-7837
State EIS Requirements	Chapter 343, HRS	Ms. Helene Takemoto Office of Environmental Quality Control 550 Halekauwila Street, Room 30 Honolulu, Hawaii 96813 Phone: (808) 548-6915
Marina and Bathing Lagoons and Federal EIS Requirements	Department of the Army Permit	Mr. Stanley Arakaki, Chief Operations Branch, Honolulu District, U.S. Army Corps of Engineers Room 205, Building 230 Fort Shafter, Hawaii 96858 Phone: (808) 438-9258

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LIST OF TECHNICAL SUPPORT STUDIES

PREPARED FOR THE FEIS FOR THE PROPOSED

WEST BEACH RESORT

1. "Birds of West Beach, Ewa, Oahu, Region, Follow-up Report, April-May, 1979," revised August 27, 1979. "Birds of West Beach, Ewa, Oahu, Region, Statement on possible fossil bird sites," October 5, 1979. Prepared by Andrew J. Berger, Ph.D.

2. "Botanical Survey of the Proposed West Beach Resort Project, Honouliuli, Ewa, Island of O'ahu," June, 1979. Prepared by Winona P. Char.

3. "A Review of Pertinent Literature of the Nearshore Communities of Macrobiota in the Barbers Point to Kahe Point Region on Oahu, Hawaii," May, 1979. Prepared by Paul K. Bienfang, Ph.D. and Richard E. Brock, Ph.D.

4. "West Beach Resort Project Water Pollution Implications of Project Site Storm Runoff," July, 1979. Prepared by Michael J. Chun, Ph.D. and Gordon L. Dugan, Ph.D.

5. "Noise Impact Analysis for West Beach Resort Project," August, 1979. Prepared by Darby, Ebisu & Associates.

6. "An Analysis of Selected Socioeconomic Impacts of the West Beach Development," August, 1979. Prepared by Evaluation Research Consultants (Robert N. Anderson, Ph.D. principal).

7. "Traffic Impact Statement for West Beach Resort Project," August, 1979. Prepared by Henry T. Au.

8. "Air Quality Analysis for the Proposed West Beach Resort Project," September, 1979. Prepared by Barry D. Root.

9. "West Beach, Oahu: An Archaeological Survey," September, 1979. Prepared by Chiniago, Inc. (William Barrera, Jr., principal).

10. "Summary of Technical Input for the West Beach Lagoon Concept Development," April, 1979. Prepared by Karl H. Bathen, Ph.D.

11. "Summary of Technical Input for the West Beach Marina Concept Development," October, 1979. Prepared by Karl H. Bathen, Ph.D.

12. "Predictive Analysis of Chemical and Biological Conditions in the Proposed West Beach Marina, A Basin Influenced by Groundwater Intrusion, A Contribution to the West Beach Marina Concept Effort," October, 1979. Prepared by Paul K. Bienfang, Ph.D.

13. "Wave Trap and Tidal Prism Analyses for Lagoons: Evaluation of Marina Concept (E.I.S. Related) West Beach Development," October, 1979, prepared by F. Gerritsen, Ph.D.

14. "The Environmental Conditions Anticipated in Two Lagoons and A Marina for the Proposed West Beach Development, and the Potential Impact of These Facilities on the Project Coastal and Nearshore Ocean Environments," November, 1979. Prepared by Karl H. Bathen, Ph.D.

15. "Predevelopment Reconnaissance of the Water Quality and Macrobiota Conditions Afronting the West Beach Coastline, Oahu, Hawaii," January, 1980. Prepared by Paul K. Bienfang, Ph.D. and Richard E. Brock, Ph.D.

These technical studies were prepared to provide detailed information on the proposed West Beach project site and the potential environmental impacts of the project. The information, analyses, and findings presented in this FEIS are primarily based on these studies. During the preparation of the technical studies (over a one year period), the developer was reviewing various options in the total number of units and unit mix. Although the unit number/mix differs in some of the above indicated reports, the differences are not significant enough to warrant a change in the impacts as described in the technical reports or the Final EIS. Therefore, the reviewer is advised to refer to these studies for detailed information; these studies are available to reviewers through the Environmental Quality Commission.

INFORMATION OF STATE EIS CONTENT REQUIREMENTS

This FEIS was prepared to meet both the Federal and State EIS requirements. Through discussions with the cooperating agencies and the State Office of Environmental Quality Control, it was agreed that the FEIS would follow the Federal content and format requirements and that the State EIS content requirements would be included in subsections or added sections. In order to fully orient the State and local agencies and civic organizations to this new format, the State EIS content requirements are identified below, along with the Section or subsection in which this information is provided.

1. SUMMARY - SECTION 5

2. PROJECT DESCRIPTION - SECTION 6, SUBSECTION 7.2, SUBSECTION 8.9

3. DESCRIPTION OF ENVIRONMENTAL SETTING - SECTION 8, SECTION 9

4. THE RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AFFECTED AREA - SUBSECTION 9.15

5. THE PROBABLE IMPACT OF THE PROPOSED ACTION ON THE ENVIRONMENT - SECTION 9

6. ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED - TABLE 3, SECTION 9

7. ALTERNATIVES TO THE PROPOSED ACTION - TABLE 2, SECTION 7

8. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY - SECTION 10

9. MITIGATION MEASURES PROPOSED TO MINIMIZE IMPACT - TABLE 3, SECTION 9

10. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES - SECTION 11

11. AN INDICATION OF WHAT OTHER INTERESTS AND CONSIDERATIONS OF GOVERNMENTAL POLICIES ARE THOUGHT TO OFFSET THE ADVERSE ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION - SUBSECTION 9.15

12. ORGANIZATIONS AND PERSONS CONSULTED - SECTION 12

13. REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE CONSULTATION PROCESS - SECTION 12

14. SUMMARY OF UNRESOLVED ISSUES - SUBSECTION 5.4

15. LIST OF NECESSARY APPROVALS - SECTION 1.

16. REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE DRAFT EIS REVIEW PERIOD - SECTION 13

5. SUMMARY

5.1 West Beach Resorts, a Hawaii General Partnership, has applied to the U.S. Army Corps of Engineers, for permission to develop a self-contained resort complex on 640 acres of land located in Honouliuli in the Ewa District of southwest Oahu, State of Hawaii. The total project concept plan includes 1,680 residential units, 7,520 hotel/condominium units, a marina, a lagoon bathing system, tourist recreational-commercial center; park, shopping centers, interior road systems, utilities, a golf course, tennis courts and other necessary urban support facilities. The plan is based on the maximum density allowed in the area.

5.2 The proposed project is expected to provide employment, increase recreational resources and availability, increase access to the shoreline, improve recreational boating, and development of a cultural park. Agricultural land uses will be replaced by urban land uses increasing population in the area, water and power demands for the region, and traffic congestion. Increased traffic will alter ambient air quality with automotive emissions replacing agricultural field burning practices. Aircraft noise may affect the residents and increased traffic noise will affect residents presently located along Farrington Highway. The project is located within the Barber's Point historic area and some archaeological and historic resources will be affected. Existing vegetation will be replaced with landscaped species. Communities of rare plants will be relocated and propagated as part of the landscaping. Fossilized bird bones will be recovered and preserved for further scientific study. The marina and lagoons will create new aquatic habitat and new water pollution sources. Reducing the size of the development or eliminating the proposed alteration of the shoreline and work in shore waters will modify the severity of environmental impacts. The no action alternative allows the continued use of the land for agriculture, essentially preserving the existing environment limiting public access and use of the shoreline.

5.3 This generic FEIS is specific enough in nature to obtain land use approvals, but will need to be supplemented with more details for specific construction activities. The FEIS, therefore, identifies probable impacts and information gaps, and proposes design criteria or studies to minimize or prevent the adverse impacts. The specific permit actions and authorities applicable to the proposed project are listed below in order of their approval sequence.

Project Feature	Approval/Permit Required	Agency	Authority
Work within the Shoreline Setback and Special Management Area.	Shoreline Setback Special Management Area	Department of Land Utilization, City & County of Honolulu	Chapter 205, HRS Ordinance No. 4529
Resort Development and Use	Rezoning County Land Use Amendments	Department of Land Utilization	County Ordinances
Shoreline Construction	Conservation District Use Application	Department of Land & Natural Resources, State of Hawaii	Chapters 183, 205, HRS

REVISED

Project Feature	Approval/Permit Required	Agency	Authority
Bathing lagoons marina	Department of the Army Permit	U.S. Army Corps of Engineers	Section 10, River and Harbor Act of 1899. Section 404, Clean Water Act of 1977.

5.4 Issues to be resolved.

(a) The project will increase demands on potable water resources and possibly cause seawater to infiltrate freshwater aquifer. The limited availability of water may also limit the size and scope of the development. Water managers in the State and County will have to determine the effects of the development of water resources within the region. The effects of water resource development must be determined within the constraints of the Pearl Harbor Water Control Area.

(b) Portions of the project site lie within the Barber's Point Archaeological District. Archaeological surveys of the project site indicate that similar sites within the District are found in the proposed development area. Coordination with the State Historic Preservation and the U.S. Advisory Council on Historic Preservation is required in order to comply with the provisions of the National Historic Preservation Act in the evaluation of the Department of the Army permit.

(c) Communities of rare plants formerly proposed for listing as endangered or threatened by the U.S. Fish and Wildlife Service are located within the proposed project area. The developer proposes to propagate the plants as ground cover and landscaping in order to preserve and increase the population of plants. Coordination with the endangered species coordinators of the State and Federal government is necessary as part of the permit evaluation process.

(d) Construction of the marina could result in the loss of fossil bird bones found in sinkholes located throughout the area. Efforts to salvage or preserve the scientific data will be necessary.

(e) The project will create a conflict between aircraft operations at Barber's Point Naval Air Station and the new residents of the area. Coordination between the air station representatives and local government land use agencies will be necessary to prevent creating a potential safety hazard and noise nuisance.

(f) The lagoon and marina design is not complete. At present, joint use of the Barber's Point Deep Draft Harbor and a marina may create turbulent water conditions in the deep draft harbor that may make the channel and berthing area unsafe for large vessels. The marina design will be model tested to determine its effects on the operation of the deep draft harbor and to insure safety within the harbor.

(g) The design of the lagoon and marina flushing system are based on conceptual ideas that need verification by model testing to insure that the design will work and that 5 times the water volume of the lagoons can be exchanged daily with the coastal waters.

6. PURPOSE AND NEED OF THE PROPOSED ACTION

West Beach Resorts, (WBR) proposes to establish West Beach (a commercial venture), as the secondary visitor destination area on Oahu (the first being Waikiki). Favorable environmental factors such as the relatively close proximity to the Honolulu International Airport (25 minutes driving time), its dry and mild climate, its 1.9 miles of shoreline, and flat topography are advantageous for this development. The proposed project will benefit the public in the following areas: (1) it will provide employment in the construction and visitor industries, as well as create jobs in secondary and tertiary industries; (2) it would provide additional recreational resources to the public; (3) it would increase access to the West Beach shoreline; (4) it would provide recreational bathing lagoons and marina which can be utilized by both visitors and residents; (5) the project plan also envisions the conversion of the Alice Kamokila Campbell property consisting of 35 acres (which has two natural lagoons) as a cultural park.

7. ALTERNATIVES INCLUDING THE PROPOSED ACTION

7.1 Introduction. Four major alternatives were considered: (1) development of the project based on the maximum density allowed by the Decision and Order granted by the State Land Use Commission (which redesignated the project site from Agriculture to Urban); (2) limited development of the resort complex; (3) development of the resort complex without alteration to the shoreline and work in the shore waters; (4) no action. Land use planning alternatives are still available. Since specific details (i.e., architectural design, exact location of uses, engineering plans) have not been prepared, the discussion of alternatives and environmental impacts are based on project conceptual designs.

7.2 Alternatives within the capability of the applicant and within the jurisdiction of the permitting agencies.

(a) Proposed Project Concept. The applicant, West Beach Resorts, proposes to develop their 640-acre parcel (Figures 1 and 2) to the maximum density allowable (Figure 3). The plan envisions hotel/condominiums 7,520 units (109 acres), residential 1,482 units (97.9 acres), low/medium density residential 198 units (12.4 acres), commercial areas 16.7 acres, marina and related areas 48.0 acres, golf club/golf course 158.7 acres, beach club 2.2 acres, marine park 10.2 acres, tennis courts/related facilities 6.6 acres, cultural center 11.4 acres, park(s) 67.7 acres, lagoon system 24.6 acres, restaurant(s) 1.6 acres, and circulation and open space 66.1 acres. If implemented, construction of all of these facilities and improvements will take place over a twenty year time frame.

(1) Roads. Access to and from Farrington Highway will be provided by major streets with 108 feet and 80 feet rights-of-way. Pavement widths will consist of two 36-foot travelways with 10-foot sidewalks and 16-foot median strips (108 feet right-of-way). The secondary street will have a 64-foot travelway with 8-foot sidewalks. (80 feet right-of-way.) Other service roads will be 60 feet wide, containing 8-foot sidewalks and no median strip. Total cost for the road system is estimated to be $4.6 million (1980 value). The developer intends to construct an freeway interchange (subject to approval by the appropriate governmental agencies); this interchange would cost approximately $770,000.

(2) Major Landscaping Plan. Extensive landscaping is contemplated for the resort sector of this project. This landscaping plan will emphasize the tropical Hawaiian flora as a background setting comensurate with a major destination resort. There will also be major landscaping features for the 18-hole golf course as well as the condominium residential sectors above the major berm road. The cost for landscaping is estimated to be $1.75 million (1980 value). Where possible indigenous plants (plants native to Hawaii and adaptable to the Ewa plain) will be utilized. These plants include: Euphorbia skottsbergii var. kalaeloana Sherff and Gossypium sandvicense Parl. (Hawaiian cotton).

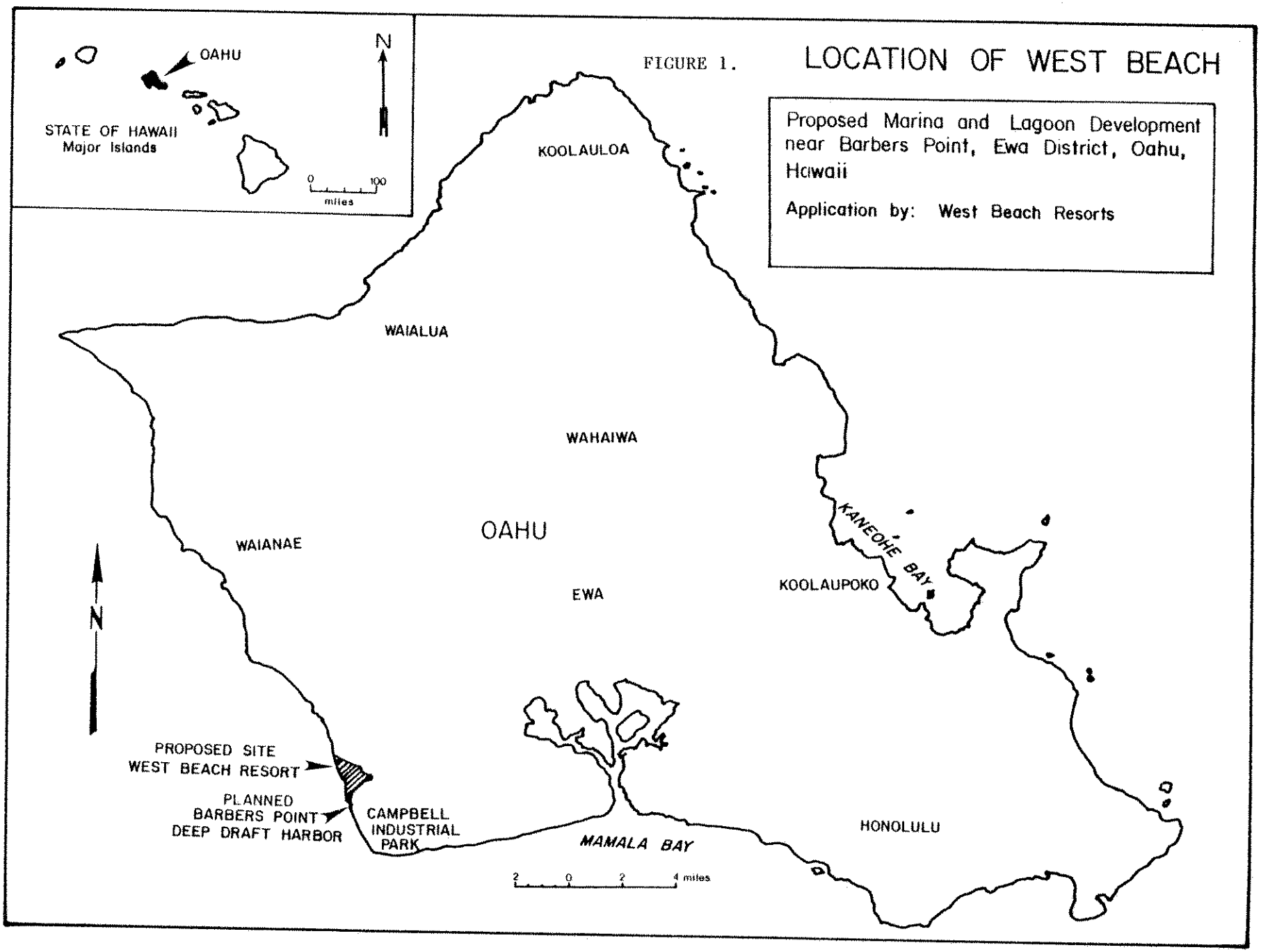


FIGURE 1.
LOCATION OF WEST BEACH
Proposed Marina and Lagoon Development near Barbers Point, Ewa District, Oahu, Hawaii
Application by: West Beach Resorts
STATE OF HAWAII
Major Islands
OAHU
N
0 100 miles
KOOLAULOA
WAIALUA
WAHAIWA
WAIANAE
OAHU
EWA
KOOLAUPOKO
KANEOHE BAY
PROPOSED SITE
WEST BEACH RESORT
PLANNED
BARBERS POINT
DEEP DRAFT HARBOR
CAMPBELL
INDUSTRIAL
PARK
MAMALA BAY
HONOLULU
2 0 2 4 miles

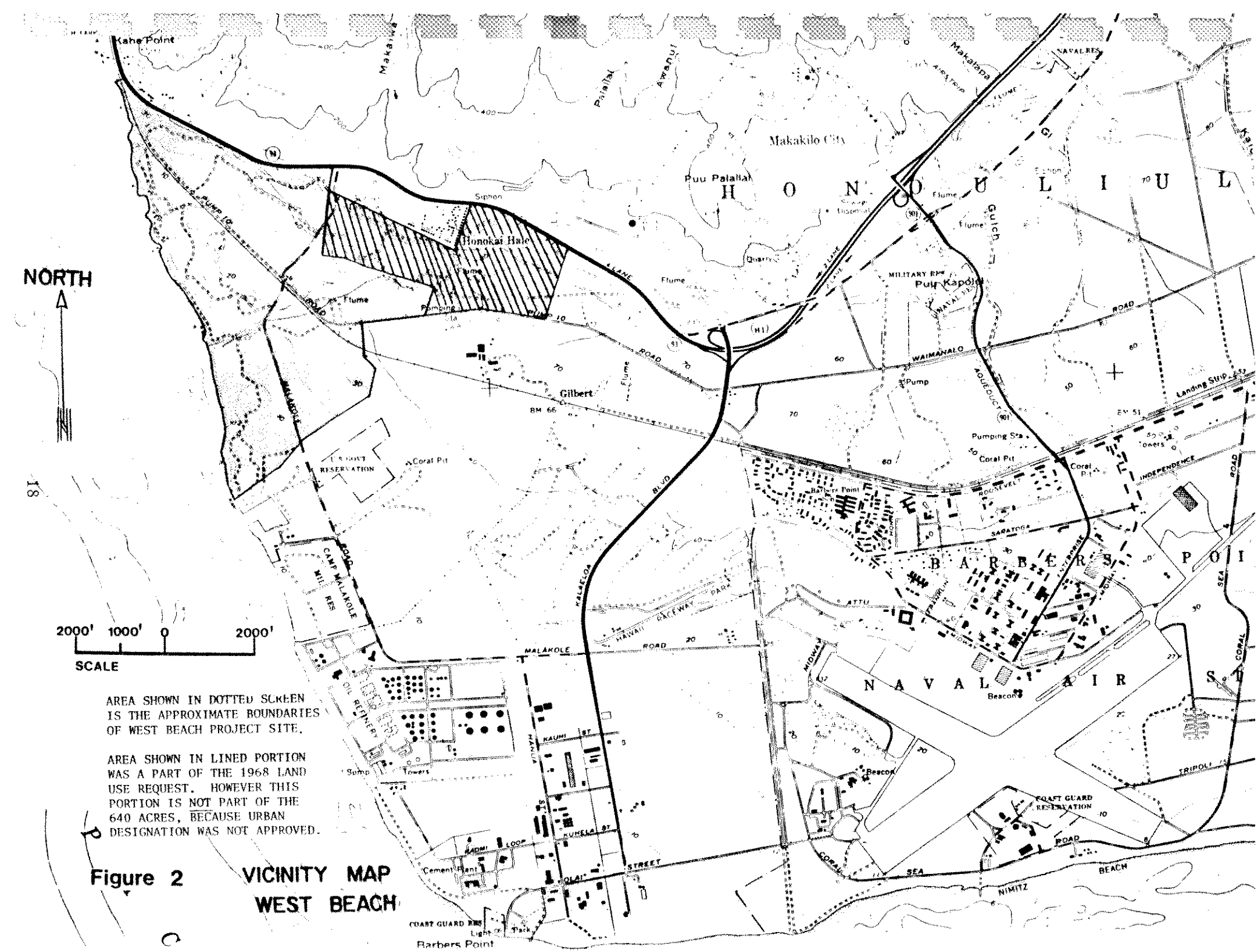


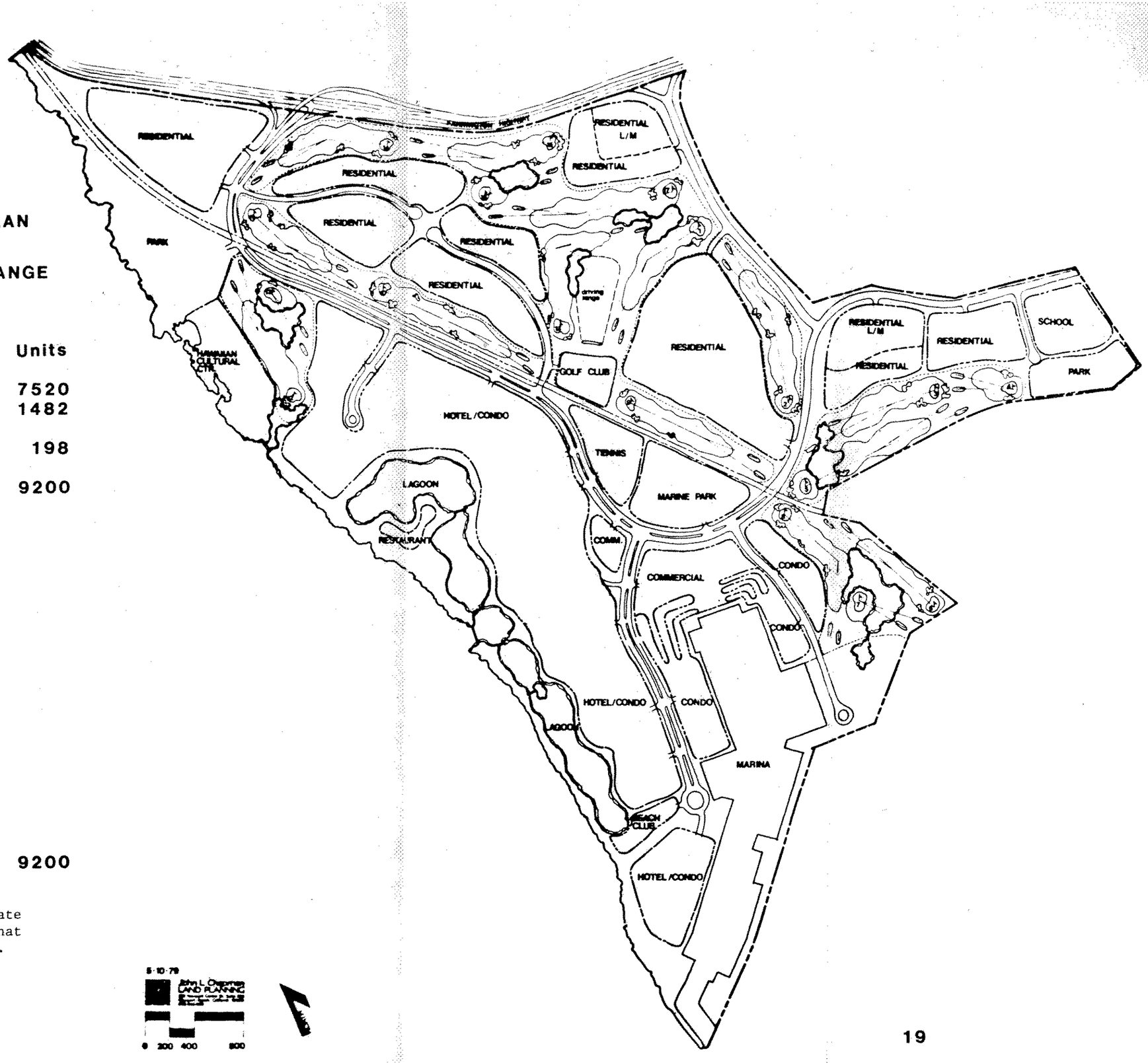
Figure 2 VICINITY MAP WEST BEACH

FIGURE 3.
WEST BEACH DEVELOPMENT PLAN
PROPOSED CONCEPT
MARCH, 1980 SUBJECT TO CHANGE

LEGEND

	Acres	Units
HOTELS/CONDOS	109.0	7520
RESIDENTIAL	97.9	1482
RESIDENTIAL (low/medium)	12.4	198
	219.3	9200
COMMERCIAL	16.7	
MARINA	48.0	
SCHOOL	6.9*	
GOLF CLUB/GOLF COURSE	158.7	
BEACH CLUB	2.2	
MARINE PARK	10.2	
TENNIS	6.6	
CULTURAL CENTER	11.4	
PARK	67.7	
LAGOONS	24.6	
RESTAURANT	1.6	
CIRCULATION & OPEN SPACE	66.1	
	420.7	
TOTAL	640.0	9200

* During the DEIS review period, the State Department of Education recommended that the elementary school site be deleted.



West Beach

(3) Sewage Treatment and Disposal. The total project sewage will be conveyed via gravity flow to a pump station to be located in the hotel/condominium area. The sewage is then pumped up to and along the old railroad right-of-way for an approximate distance of 10,000 feet. The sewage will then be transported by gravity flow along the old railroad right-of-way for a distance of 10,000 lineal feet to the proposed Makakilo interceptor sewer, connecting at that point for final transport to Honouliuli Sewage Treatment Plant. The connection with the Makakilo interceptor and subsequent transmission line will be sized to accommodate both the West Beach and Makakilo sewage and will consist of 12,500 lineal feet. Average daily flow of sewage anticipated at maximum development is 2.5 mgd. The total off-site sewage costs is estimated at $4.1 million (1980 value). Onsite sewage costs which involve the connection from property boundary lines to various project phases within West Beach will cost approximately $4.1 million.

(4) Potable Water. At the present time, the availability of a sustained yield source of potable water is undetermined. The State Department of Land and Natural Resources, Division of Water and Land Development, and the City's Board of Water Supply are exploring various source development alternatives which will enable present and future users of water from the Pearl Harbor Basin to plan effectively for their water needs. For West Beach, the average daily demand at maximum development is estimated to be 5.5 mgd. Of this total, 4.5 mgd is estimated for potable water consumption with the balance to be used for irrigation. The irrigation water source is planned at the present time to be from wells on the site, using an existing plantation well. The demand for potable consumption will be reviewed and evaluated by both the State and City to determine source availability as well as the volume permitted to be pumped from the Pearl Harbor Basin.

(5) Drainage. The engineering design to accommodate the onsite surface runoff flows during peak episode events (50 and 100 year storms), will utilize the golf course as a major settling or ponding basin. However, runoff from storms exceeding the retention capacity will overflow into the Marina as is the present practice today at the Ala Wai Small Craft basin, Keehi Lagoon, Honolulu Harbor, and Kaneohe Bay. This will minimize the storm water runoff as much as possible from the shoreline lagoon areas as well as the hotel/condominium sectors. The flow would be diverted along the major berm road to the proposed marina and discharged at that point. For the storms of lesser intensity, the permeability characteristic of the coral base will absorb storm water via percolation. Hotel - condominium sites will be graded to drain the storm runoff away from the lagoons. Major drainage system costs are estimated at $4.14 million (1980 value).

(6) Utilities. Telephone, electrical, and gas will be designed in accordance with various utility companies engineering staff. Utilities will be underground to enhance the environment. The undergrounding of transmission lines will be financed by the developer. The demand and availability will be phased in as development takes place. At the present time, the electrical power source is planned to come from Kahe Power Plant.

(7) Golf Course. Present plans call for the design and construction of a championship 18-hole golf course. In addition to the golf course the development of a clubhouse facility for both public as well as private use is planned. The total estimated cost is $8.6 million.

(8) Marina. As a major recreational amenity, the design and construction of a small boat marina sized to accommodate 700± slips is under preliminary review. The developer is seriously considering a significant reduction of 50% percent or more of the marina. The technical studies prepared as of this date provides the parameters for an optimum sized, situated, and environmentally acceptable marina. However, the final design and sizing of the marina (and the lagoon system) will be dependent on the need, economic feasibility, simulated model results, oceanographic field research and engineering tests, and discussion with and acceptability of detailed plans with the Corps of Engineers and other State and local agencies who review these plans prior to the issuance of approvals and/or permits (termed the technical verification stage). Demand for small boat slips in the State has increased at a significant rate and discussions with the Water Transportation Facilities Division of the State Department of Transportation indicate that there is a significant demand for strategically located marinas such as that proposed for West Beach. In addition to the availability of a percentage of slips for public use (this amount has not been established), the demand for a small boat launching ramp has also been expressed in discussions with various community associations in Central and Leeward Oahu. Also, the need to establish and locate commercial boating slip facilities for charter fishing, cruise boats, and support facilities (i.e. fuel, ice, drydock, storage) has been suggested. The estimated cost of the marina is $9.5 million (1980 value).

(9) Lagoons. The need for bathing beach lagoons has been pointed out by the land use planner as well as the marketing consultant as amenities that are vital to the resort sector of West Beach. At the present time there is 1.9 miles of shoreline that consists of rocky outcroppings of basaltic rock, sandstone, and infrequent pockets of sandy beaches. To sustain the resort climate that would be comparable to Waikiki, the development of the lagoons is vital. A conceptual lagoon design which maximizes flushing and minimizes water quality degradation was developed but will be subject to technical verification. Total estimated cost of the lagoon system is $9.38 million (1980 value).

(10) Parks. The land planner will be making adjustments to the land plan after the EIS process is completed. At that time, Department of Parks and Recreation will be contacted for input into this land use plan. There are four (4) areas which will be available to the public for park activities. As shown on Figure 3, page 19 of the Final EIS, there is a park located on the extreme northern shoreline portion of the site. This area will be turned over to the City to be utilized as a beach park. This appears to be a logical extension of the existing Kahe Point Beach Park. The second park area is around the natural lagoons of the former Alice Kamokila Campbell estate. This area, called the Hawaiian Cultural Center (refer to Figure 3) will be operated privately, but will be open to the public for various occasions. The third area is the shoreline from the southern end of the Hawaiian Cultural Center to the end of the southernmost lagoon. The developed bathing lagoons and the existing shoreline (except for the lagoon entrances and wave traps, for safety reasons) will be available for public use, but managed and maintained by the developer. Finally, the park site at the east end of the project was planned as a community park primarily for the residential neighborhood. This community park would be

turned over to the City. The City presently operates a 5.88-acre park adjacent to the Honokai Hale and Nanakai subdivisions. Other recreational facilities (e.g. golfing, commercial residential areas) will be available to the public at a fee or admission cost.

(11) Resort. The development of the various residential units to be sold at West Beach will be directed primarily towards the visitor. The total 9200 units will be built in four, 5-year periods with the resort condominium units along the shoreline being developed initially. These condominium units will be in one and two bedroom configurations, ranging in size from 700 to 1100 square feet. In accordance with the Decision and Order of the State Land Use Commission, the building height maximum permitted will be 170 feet with the siting of the buildings on the shoreline being subject to review approval from the City and County in accordance with the County General Plan as well as the Special Management Area Ordinance (Ordinance No. 4529, City and County of Honolulu). View plane corridors will be a special concern since West Beach will be viewed from as far away as Makakilo and also from the major traffic arterials (Farrington Highway and H-1 Freeway). It is felt that the building mass should not infringe on the view plane aesthetics of both onsite view planes (at pedestrian level along the major interior berm road) as well as offsite (previously mentioned). Construction of the total resort/condominium units (7,520 total) is an estimated $762 million (1980 value).

(12) Residential Condominium Units. These units will be designed and build above the golf course with densities of 20 to 30 units per acre. These units will be provided for local residential purchasers in mind and will be established in sectors apart from the designated resort sectors. The grading plan calls for the creation of small knolls, using dredged material from the lagoons and marina to establish view amenities for these condominium units. This will provide a view towards the ocean as well as the golf course. Total residential condominium units (1,680 total) is estimated to cost $210 million (1980 value). Building heights will be limited to 25 feet on the site. At this time the developer has not finalized the total amount of residential units to be constructed. Nor has a City, State, or Federal housing program been considered. Under the State Land Use Commission's condition, the developer must provide 10 percent of the total residential units for low and/or moderate income.

(13) Costs. The costs for the off-site and on-site improvements and facilities will be financed by the developer. Table 1 shows the breakdown of costs for the four, 5year phasing. The developer will seek funding from conventional financial sources; no public monies will be directly utilized. Indirectly, public funds will be necessary for such services and utilities such as (1) pro-rata share of water development if other "public uses" are served; (2) collection of solid waste park(s), school; (3) costs in providing public services (i.e. police, teachers, firemen, fire station, school buildings, and personnel costs); (4) cost involved in permit processes and approvals and inspection of work items. The developer's major off-site (indirect) costs include the interchange and intersection connections along Farrington Highway, oversizing the Makakilo interceptor sewer line (or constructing a separate line from the site to Honouliuli Wastewater Treatment Plant), other sewage facilities, and water development cost (on a pro-rata basis).

(b) Reduced Size of the Resort Complex. The size of the resort complex can be influenced by permit conditions, denial of permits, economics, agreements between the landowner (Campbell Estate) and the developer (West Beach Resorts), growth of the visitor industry, availability of utilities, water resources and waste disposal services, and requirements to minimize or prevent significant adverse environmental impacts. In essence, reduced development size could be used to influence the severity of environmental change or to prevent environmental degradation. The final outcome depends on permitting agency actions and the identification of public interest benefits and values to be protected or enhanced. Examples of reduced sizing include, reducing the total number of residential and hotel/condominium units to half or less, reducing the size of the popuulation density. Denial of the Shoreline Setback permit prevents development within 40 feet of the shoreline. Denial of the Special Management Area permit prevents development within 100 yards of the shoreline. Denial of the Conservation District Use Application prevents construction seaward of the shoreline. Denial of the Department of the Army permit prevents work or the discharge of dredged or fill material in waters of the United States effectively eliminating construction of the marina and lagoons.

TABLE 1.

PROJECT COSTS IN 1980 DOLLARS

(Unit $1000 of 1980 Dollars)

Item	1st 5-year	2nd 5-year	3rd 5-year	4th 5-year	TOTAL
SITE IMPROVEMENTS	38,502	12,448	31,602	-----	82,552
INDIRECT COSTS	13,281	10,109	7,270	3,153	33,813
BUILDING CONSTRUCTION	51,783	22,557	38,872	3,153	116,365
Hotel/Condominium (9520 units)					752,000
2100 units $100,000@	210,000	-----	-----	-----	-----
3630 units $100,000@	-----	363,000	-----	-----	-----
1790 units $100,000@	-----	-----	179,000	-----	-----
Residential (1680 units)	-----	-----	-----	-----	210,000
830 units $125,000@	-----	-----	103,750	-----	-----
850 units $125,000@	-----	-----	-----	106,250	-----
TOTAL	261,783	385,557	321,622	109,403	1,078,365

7.3 Alternatives Within the Capability of the Applicant, but Outside the Jurisdiction of the Permitting Agencies. The applicant may be able to develop a portion of his property outside the areas of jurisdiction of the permitting agencies. The alternative would eliminate the need for the Shoreline Setback, Special Management Area, Conservation District Use and Department of the Army permit. This alternative means that less than 640 acres of land could be developed by the developer without the permits mentioned.

7.4 Alternatives Outside the Capability of the Applicant, but Within the Jurisdiction of the Permitting Agencies. The nature of this alternative is to meet the proposed project needs through services provided by the permitting agencies. At the present time, none of the permitting agencies have programs that can provide the same benefits at West Beach that would result from the proposed development. The Corps at the request of the State could participate in the planning of a small boat harbor in the region, but at the present time the State has not requested Corps assistance and encourages private development to provide the services and facilities.

7.5 Alternatives Beyond the Capability of the Applicant and the Permitting Agencies. The nature of this alternative is to meet the proposed project needs through the programs of other private organizations or government agencies. At the present time, this alternative is not available. No government agencies can provide similar public benefits or meet the project needs at West Beach.

7.6 A comparison of alternative impacts is provided on Table 2.

7.7 Potential mitigative actions are outlined on Table 3.

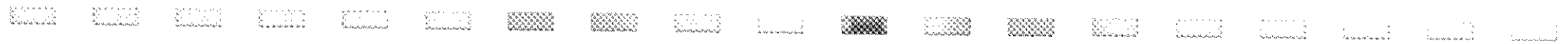


TABLE 2

COMPARISON OF ALTERNATIVE IMPACTS

REVISED

SIGNIFICANT RESOURCES	BASE CONDITION AVAILABILITY	TOTAL DEVELOPMENT	REDUCED DEVELOPMENT	NO ACTION
Social Profile				
Ewa District Population	1978-169,000 persons, Population rate of growth 28% between 1970-1978.	Increase population by 33,000-35,300 persons persons by 2000.	Increase less than Total Development.	No change from base condition.
Closest Urban Community	Honokai Hale			
Sewage	Honouliuli STP	Estimated average daily flow-2.5 mgd.	Less than 2.5 mgd average daily flow.	No change from base condition.
Water	Pearl Harbor, Waianae Makaha resources. Dependable capacity 38 mgd. Sustained capacity 29 mgd. Annual consumption 29 mgd.	Maximum daily demand 5.5 mgd.	Less than 5.5 mgd.	No change from base condition.
		Potential saltwater intrusion into freshwater supply.	Same as Total Development	No change from base condition.
Power	12,000 volt systems	Require two 46,000 volt lines and a probable Substation.	Possibly less than Total Development needs.	No change from base condition.
Education	Barber's Point Elementary, Ilima Intermediate, Campbell High School. School enrollments are declining.	Estimated 120-250 students. 70-150 - kindergarten to sixth grade. 20-40 - grades 7-8. 30-60 - grades 9-12. Need 5 to 11 new teachers.	Possible less than Total Development.	No change from base condition.
Fire Protection	Makakilo Fire station Nanakuli Fire station Long-term increase with development of urban zoned areas.	New fire station with engine and hook-and-ladder companies. 33 additional staff.	Possible less than Total Development.	No change from base condition.
Police Protection	Waianae Police station	Need 37 personnel, possible use of private security service.	Possible less than Total Development.	No change from base condition.
Commercial Shopping Centers	Ewa Beach, Waimalu, Waipahu, Pearl Ridge.	Create a new shopping center.	Create a new shopping center.	No change from base condition.
Health Care Facilities	Within 15 minutes of project site at Waianae, Ewa and Waipahu.	Unknown increase in out patient care.	Unknown increase in out patient care.	No change from base condition.
Traffic	1976-Average daily traffic-18,756 Farrington Highway, 1990-Average daily traffic Farrington Highway-31,154 H-1 Freeway-47,070 Farrington Highway capacity: 1,275 cars per lane per hours. H-1 Freeway capacity: 1,900-2,200 cars per lane per hour. 1990 Peak hour traffic: Farrington Highway 1,956 VPH H-1 2,313 VPH.	Residential traffic generation-14,114 trips/per day. Marina - 70 trips/per day. Commercial traffic generation-12,298 trips/day. Hotel/condominium traffic generation 2,444 trips/per day. Peak hour traffic generation: Residential - 1,186 VPH. Commmercial - 1,318 VPH (afternoons). Estimated highway level of service 1,500-1,600 vehicles per hour per lane.	Possibly less than Total Development.	No change to base condition.
Recreation	Access restricted, use of area limited. Low use for camping, fishing, surfing.	Access unrestricted, use of area unlimited Recreational diversity increased: Fishing Surfing Swimming Picnicking Tennis Golf Bicycling Boating Create 73 acres of boating and swimming area with marina and lagoons.	Level of recreational development, shoreline access and area use could be limited depending upon permitted uses and final development layout.	No change to the base condition.
Land Use Issues				
Zoning	Urban	No change.	No change.	No change.
Existing Uses	Agricultural 580 acres	640 acres urban development.	Possibly less area developed.	Same as base condition.

TABLE 2

COMPARISON OF ALTERNATIVE IMPACTS

SIGNIFICANT RESOURCES	BASE CONDITION AVAILABILITY	TOTAL DEVELOPMENT	REDUCED DEVELOPMENT	NO ACTION
	Vacant 240 acres.			
	5 residential units on 10 acres of land.	9,200 housing units; density of residential units 20/30 units per acre.	Possibly less area developed.	Same as base condition.
Shoreline Area.	1.9 miles of shoreline limited sandy beach area.	Create 73 acres of water by construction of a marina and bathing lagoons.	No water development or smaller area developed.	No change to base condition.
Agricultural Lands	266 acres prime agricultural lands 133 acres agricultural lands of other importance.	Marina does not affect any agricultural lands of importance. Lagoons have potential of destroying agricultural use of 16 acres of prime agricultural lands and 14 acres of agricultural lands of other importance. Residential development will eliminate further use of 250 acres of prime agricultural land and 119 acres of other important agricultural lands.	Possibly reduce the amount of prime agricultural lands modified or destroyed by development.	No change to the base condition.
Navigation	Barber's Point Barge harbor is located near the proposed marina and is expected to be expanded into a Deep Draft Harbor.	Marina channel may adjoin the Deep Draft Harbor channel. Water floating out of the marina may make the deep draft harbor channel unsafe for large vessels. Removing the shoreline revetment may increase wave heights in the deep draft harbor making it unsafe to berth in the harbor.	Possibly eliminate the marina, dredge a separate channel to the ocean or reduce the size of the marina.	No change to the base condition.
Cultural Resources				
National Historical Sites	Oahu Railroad and Land Company (OR&L) Railroad.	Preserve for use in the development.	Preserve for use in the development.	No change to base condition.
Archaeological Sites	Area is extension of Barber's Point Archaeological District. 11 sites located within development area. Six recommended for preservation or salvage. Agricultural activities not affecting sites.	Potential loss of valuable archaeological data sites.	Possibly reduction of archaeological data loss. Mitigation action same as Total Development.	All sites preserved.
Paleontological Sites	9 numerous limestone sinkholes found on property near the Deep Draft Harbor. Holes found to contain fossil bones of birds new to science and never before found in Hawaii.	Lagoon construction has potential of destroying two sites. Marina and housing development has potential for destroying the sinkholes and resulting in loss of the scientific information.	Possibly limit development to avoid sinkholes or eliminate actions that cause a loss of the resource.	All sites preserved.
Vegetation	580 acres of sugarcane. 240 acres of kiawe, koa haole, and grass. 10 acres of residential landscaping.	660 acres of landscaped urban development.	Less than 660 acres of landscaped urban development.	No change to the base condition.
Rare Plants	Communities of: *Euphorbia skottsbergii kalaeloana* *Gossypium sandvicense* Both plants eligible for listing as endangered or threatened species.	Marina and golf course construction will destroy colony. Residential development will destroy the colony.	Possibility of preventing their loss by either eliminating the project features where the plants are found.	No change to the base condition.

TABLE 2

COMPARISON OF ALTERNATIVE IMPACTS

SIGNIFICANT RESOURCES	BASE CONDITION AVAILABILITY	TOTAL DEVELOPMENT	REDUCED DEVELOPMENT	NO ACTION
Marine Resources	Unknown. Will be studied when decision is made to construct the marina.	Creates 73 acres of new aquatic habitat. Dredging at the shoreline and the entrance channel will destroy coral resources in a limited area.	Possibly eliminate construction of the lagoons and marina.	No change to the base condition.
Noise	Major sources: Aircraft overflights Traffic along Farrington Highway. 6 hour A-weighted sound level ranged from 55-79dB. Aircraft L_{dn} expected to be less than 55, but helicopter overflights occur at altitudes of 500 feet.	Residents will be exposed to aircraft noise, especially those in-flight paths.	Same as Total Development except few residents may be in the development and development may not be concentrated in flight paths.	No change to the base condition.
	Honokai Hale exposed to 70-72 (L_{eq})dB expected to increase with anticipated increase in traffic volume on Farrington Highway.	Residents within 300-400 feet of Farrington Highway will be exposed to traffic noise exceeding HUD standards.	Residents along Farrington Highway will be exposed to highway noise.	No change to the base condition.
		Interior areas of development will have to contend with local traffic noise.	Same as Total Development.	Impact does not occur, since area is presently in agricultural use.
		Marina construction: Blasting noise will influence those persons who reside in the development.	Same as Total Development.	Impact does not occur.
Air Quality				
Sulfur Dioxide	Less than 5 micrograms per cubic meter. Does not exceed Air Quality Standards (AQS). Major Sources: Kahe Power Plant Campbell Industrial Park Potential Deep Draft Harbor	No new sources created. Area exposed to Kahe 0.5% of the time, and to Campbell Industrial Park 2% of the time.	Same as Total Development.	No change to the base condition.
Total Suspended Particulates	Average annual range 40-54 micrograms per cubic meter. Exceeds AQS once each month.	Construction dust 1.2 tons per acre per month.	Same as Total Development. Period of construction shorter.	No change to the base condition.
	Major Sources: Agriculture Campbell Industrial Park	Long-term: Probable no change to base condition. Possibly reduction with termination of agriculture.		
Nitrogen Dioxide	Average annual range 11-less than 20 micrograms per cubic meter. Does not exceed AQS. Major Sources: Kahe Power Plant Automobiles	Potential increase due to increased traffic.	Same as Total Development, except fewer cars present.	No change to the base condition.
Carbon Monoxide:	Major Sources: Agricultural burning Automobiles	Potential increase due to traffic. Possible long-term decrease if emission controls effective.	Same as Total Development, except fewer cars.	No change to the base condition.
Odors	Major Sources: Hawaii Meat Co. feedlot, Campbell Industrial Park	Resort population exposed 2% of the time.	Same as Total Development.	No change to the base condition.
Water Quality				
Stormwater	Sheet flow to ocean, except in irrigation drainage ditches. Porous soil allows water to percolate into the ground.	Increase surface cover increasing volume of surface runoff and concentrating runoff to point discharges.	Possible reduction in surface area modified, resulting in less runoff than Total Development.	No change to the base conditions.

TABLE 2

COMPARISON OF ALTERNATIVE IMPACTS

SIGNIFICANT RESOURCES	BASE CONDITION AVAILABILITY	TOTAL DEVELOPMENT	REDUCED DEVELOPMENT	NO ACTION
Stormwater Pollutants	Sedimentation from agricultural lands. Pesticides from agricultural activities. Vegetation decomposition.	Initial construction might contribute to an increase in rate of sedimentation. Long-term stabilization of the land should result in reduced rate of sedimentation or erosion in comparison to agricultural activities. Termicides, fertilizers, oil-grease, automotive pollutants. Nitrogen and phosphorous constituents may increase.	Same as Total Development.	No change to the base condition.
Water Quality				
Coastal Water	No major pollution sources at the site. Campbell Industrial Park and Kahe Power Plant.	Marina and Lagoon development will locally influence coastal water quality. Groundwater infiltration introduce brackish water and nutrient laden water. Potential violation of water quality standards. Marina and lagoon may not flush adequately. Waters will be warmer, than ocean, contain higher concentration of nutrients and plankton than ocean. Marina operation will introduce another source of petro-chemical pollutants into the water.	Eliminate impact by preventing the marina and lagoon from being constructed or reduce the size of the facilities possibly reducing the effect on coastal waters.	No change to the base condition.

TABLE 3

MITIGATION OF POTENTIAL ADVERSE IMPACTS

Resources Impacted	Potential Mitigation Measures
Water Supply Limited Resources.	Limit size of development and install conservation equipment to reduce demands.
Possible saltwater infiltration	Reduce ground water withdrawl by increasing water supply from other sources: Desalinization. Water catchment or cisterns. New water development in watershed areas. Line lagoon and marina walls with impervious materials to prevent leakage of groundwater or infiltration of seawater.
Land Use.	
Prime and other important agricultural lands	
Conversion to urban lands	Limit development of prime agricultural and other important agricultural lands to park or open areas that could easily be reconverted to cultivation use.
Encroachment on Barber's Point Naval Air Station.	Regulate land uses around Naval Air Station to avoid increasing human density within noise and safety hazard zones around air station.
Navigation.	
Interference with Deep Draft Harbor navigation safety	Prevent joint use of deep draft harbor channel or connections of marina to the channel. Simulated model testing of the marina design to insure that marina does not create strong eddies and cross currents in the channel, increase wave heights in the berthing basin or increase tsunami hazards in the harbor.

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TABLE 3

MITIGATION OF POTENTIAL ADVERSE IMPACTS

Resources Impacted	Potential Mitigation Measures
National Historic Sites OR&L Railroad	Enhance display values by renovation and reuse. (See page 119, paragraph 9.13.4.)
Cultural Resources.	Modify the development to preserve archaeological resources.
Loss of archaeological information	Salvage archaeological sites.
	Enhance display values of archaeological sites.
	Increase survey intensity to insure that as many sites as possible are located and evaluated.
Paleonotological Resources.	
Loss of sinkholes containing fossilized bird bones	Modify the development to preserve the sites.
	Salvage the data.
	Enhance the display value of the sites.
Vegetation.	Modify development to avoid communities or colonies of rare plants.
Disturbance and loss of natural communities of natural rare and potentially endangered and threatened plants	Cultivate the plants for use in landscaping and increase their abundance in the area.
Marine Resources.	
Loss of coral resources due to dredging	Avoid rich coral areas in alignment of marina channel, if joint use of deep draft harbor channel infeasible.
Noise.	Adherence to local noise ordinances.
Aircraft noise nuisance	Limit air traffic to confined corridors and heights over the development.
	Insulate residential and hotel/condominium units. However, it was noted by the FAA that the insulation of residential and/or hotel/condominium units will result in the loss of the natural advantage of a superior climate (i.e. wind, sunlight).

TABLE 3

MITIGATION OF POTENTIAL ADVERSE IMPACTS

Resources Impacted	Potential Mitigation Measures
	Change flight patterns over the area to reduce noise exposure hazards.
Traffic noise (Farrington Highway Only)	Construct noise barriers along highway to separate homes from highway.
	Insulate homes.
Construction-blasting	Regulating the charge size to reduce noise and ground vibration nuisances to residences living close by.
Air Quality.	
Traffic emissions	None.
Odors	Limit development within areas most probably affected by odors from the Hawaii Meat Co. feed lot.
Construction dust	Wetting the open work areas.
	Grassing and hydromulching open areas; landscaping.
	Erecting dust barriers near susceptible residential areas.
Water Quality.	
Stormwater	
Create urban stormwater effluent discharges in area	Divert stormwater flows away from coastal waters.
	Use open park and golf course areas as ponding and infiltration areas.
	Treatment of stormwater effluent by ponding or use of sediment traps prior to discharge into coastal waters.

TABLE 3

MITIGATION OF POTENTIAL ADVERSE IMPACTS

Resources Impacted	Potential Mitigation Measures
Coastal Water Quality	
Marina and Lagoon waters will not mix or flush to equal existing coastal water quality standards.	Design lagoon and marina to assure flushing of 5 times the volume of water in the lagoon and marina each day. Assist flushing with pumping. Monitor water quality in lagoon and marina during Kona wind conditions to determine if pump assistance is needed to maintain water quality.
Marina and Lagoon discharges will be high in nutrients and may contain trash, petro-chemical pollutants.	Provide for trash collection and control within the water bodies. Provide for petro-chemical spill controls within the marina.

8. THE AFFECTED ENVIRONMENT

8.1 The proposed West Beach project site consists of 640± acres situated in Honouliuli, on the southwestern end of Oahu (see Figure 1). The island of Oahu (543 square miles) is the third largest island in the Hawaiian Islands chain. The Hawaiian Islands are centrally located in the Pacific Ocean, extending northwest to southeast from about 155° to 179° W. longitude and 19° to 28° N. latitude. There are eight major islands in the Hawaiian chain. Honolulu, the state capital, is located on the island of Oahu. The State of Hawaii is noted for its unique blend of ethnic cultures, its natural beauty, and its subtropical climate, as well as its strategic location in the Pacific.

8.2 The land area of the State totals 6,425 square miles. The island of Hawaii also known as the "Big Island," accounts for 4,037 square miles. the remainder is divided among the islands of Maui (728), Oahu (548), Kauai (549), Molokai (261), Lanai (139), Niihau (69), Kahoolawe (45), and 11 islets, rock atolls, or exposed reef (totaling 4 square miles). The major islands are all of volcanic origin and are very mountainous. Elevations range from sea level to 13,796 feet, with many peaks in excess of 2,500 feet.

8.3 General Site Conditions. Presently 430 acres of the project site are in sugarcane cultivation. Approximately 200 acres are undeveloped and vacant. The remaining 10 acres contain five single-family residential units. These homes are located on the grounds of the late Alice Kamokila Campbell's property; caretakers for the property live in these homes.

8.4 Surrounding Uses. The northern boundaries of the project site generally follow along Farrington Highway, except for an area which abuts the existing Honokai Hale and Nanakai Gardens residential subdivisions located along Farrington Highway. The eastern boundaries of the property abut agricultural lands planted in sugarcane and lands which are undeveloped. The southern boundaries of the site abut the existing Malakole barge basin (site for the proposed Barbers Point deep draft harbor). The western boundaries follow along the shoreline from the barge basin to Farrington Highway. The Hawaiian Electric Company's Kahe Power Plant is located approximately .5 miles north of the project site. The Campbell Industrial Park lies approximately .7 miles to the south.

8.5 Geology. With the exception of a strip of area less than 1,000 feet wide that abuts a portion of the Farrington Highway property line, caprock underlies the proposed West Beach project site. Generally speaking, the entire Ewa Plain area, below an elevation of approximately 100 feet, consists of caprock. Caprock, largely comprised of different types of terrestrial and marine sedimentary deposits, form a wedge that retards the seaward movement of fresh groundwater from the inland basaltic aquifer. Varying degrees of permeability are found in the different deposits of caprock. However, the overall effect is that caprock has a low permeability in comparison to that of the fresh basaltic aquifer.

8.6 Soils. The soils included in the proposed project fall within the Lualualei-Fill land-Ewa association (reference: Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, prepared by the U.S. Department of Agriculture, Soil Conservation Service, issued August, 1972). This association is characterized by deep, nearly level to moderately sloping, well drained soils. Specifically within the site are coral outcroppings, five soil series (Ewa, Jaucas, Keaau, Lualualei and Mamala), with Lualualei and Keaau series each having five and three sub-series, respectively. With two exceptions, the various soil and cover types are characterized by slow runoff and an erosion hazard which is classified as slight. The exceptions are Mamala Stony Silty Clay Loam (Mnc) located in a narrow band near the Barbers Point side (south) of the property and Lualualei Extremely Stony Clay (LPE) situated generally within 500 feet of the Farrington Highway property line. The runoff for Mnc is considered very slow to medium, with an erosion hazard of slight to moderate; whereas, the runoff for LPE is classified medium to rapid, and erosion moderate to severe.

8.7 Topography. The site of the proposed project is characterized by relatively gentle slopes that range from 0 elevation (sea level) at the shoreline to a maximum of about 100 feet at the northern boundaries of the project site. As indicated, two-thirds of the site are presently under furrow irrigated surgarcane cultivation by the Oahu Sugar Company. The remainder of the site (except for the Alice Kamokila Campbell estate) consists of an extensive coverage of shrubs such as kiawe, haole koa, and grasses. The nearly two miles of shoreline is characterized by emerged calcareous reef with limited pockets of sandy beaches.

8.8 Climate. The West Beach project site, situated on the Ewa Plain (also referred to as the Honouliuli Plain) is considered by Hawaii standards to be generally hot and dry. The average annual precipitation for the entire Ewa Plain is approximately 20 inches, while the temperature of the normal, average warmest month is within two degrees of downtown Honolulu. (The average temperature range is between 72°F and 80°F.) Winds are predominately from a northeasterly direction (tradewinds). Winds from a southeasterly direction (Kona wind) may be expected 5 to 8 percent of the time.

8.9 Cultural Heritage. The project site was part of the ancient Hawaii ahupuaa (a major division of land) of Honouliuli. The name was later used by James Campbell for a ranch he owned that encompassed approximately the same boundaries of the ahupuaa. Hawaiian legend does not accord much importance to the Ewa District.

In 1873, James Campbell purchased the Honouliuli Ranch. Campbell bored the first artesian well near West Loch (Pearl Harbor) in 1879, thereby providing a vital and economically profitable resource to this area. A large parcel of land was subsequently leased to Ewa Plantation for sugarcane cultivation.

Extensive sugarcane cultivation in the late 1800's led to the construction of Oahu Railway and Land Company (OR&L) Railroad. Although no longer in use today, the railroad's right-of-way (40 feet) has been nominated to the National Register of Historic Sites and Places. The right-of-way is delineated in Figure 2.

The portion of the site bordering the sea was not used for growing sugarcane, but it was cleared up and recontoured in 1942 for the construction of three Army camps.

The portion of the property bordering the sea was later reoccupied by Mrs. Alice Kamokila Campbell (a daughter of James Campbell) after the war. Mrs. Campbell maintained two ponds along the shoreline area and had palms and other native trees planted replacing the abundant kiawe (algaroba) trees surrounding her home. Mrs. Campbell lived on and off at the estate for three decades until 1968 when she moved to San Francisco. The estate is presently used for holding luaus (for visitors bussed in from Waikiki), and other party-type affairs.

8.10 Socioeconomic Conditions

8.10.1 The Island of Oahu. The island of Oahu is under the jurisdiction of the City and County of Honolulu. It is the most populated (1978 estimated population 719,600) and urbanized island; versus the State's population of 896,600 in 1978. The island of Oahu is divided into seven districts: Honolulu (1978 pop. - 352,100), Koolaupoko (1978 pop. - 104,000), Koolauloa (1978 pop. - 13,000), Waialua (1978 pop. - 9,900), Wahiawa (1978 pop. - 42,600), Waianae (1978 pop. - 28,100), and Ewa (1978 pop. - 169,000). The population figures provides a fairly good comparison of those areas which are urbanized. The project is located within the Ewa District, but is nearer to the Waianae population centers (Nanakuli, Waianae, Maili). In recent years population of in the Ewa District has grown the most rapid (28.3 percent from 1970 to 1978) in comparison to the other districts of Oahu. This has been the result of suburban developments outside metropolitan Honolulu. The increasing cost of land and the scarcity of land resulted, in the late 1960's in the development of single-family homes, shopping centers, and industrial areas in the Ewa District. The development of a Freeway system (H-1) also facilitated commuting between metropolitan Honolulu and the Ewa District. This urbanization has and is continuing to reduce the large acreages of sugarcane and pineapple fields which once dominated land use.

8.10.2 Oahu's Economy. Unsurprisingly, the decline of the sugarcane and pineapple industries is occurring Statewide. Hawaii's natural environment has lured many visitors (both from the mainland U.S. and in recent years from Japan) to the islands. Since the early 1970's visitor expenditures ($2,100 million in 1978) have surpassed Federal defense expenditures ($1,155.5 million in 1978), followed by sugar ($284.3 million in 1978) and pineapple ($161.6 million in 1977).

8.10.3 Project Concept and Background. Economic forecasts show that the visitor industry will continue to be the primary source of new jobs and income in the future. However, the City has placed a limit on the

number of hotels which can be developed in Waikiki, the primary tourist center in Oahu. Coupled with the rapid development of resort complexes on the neighbor islands, such as Kaanapali and Lahaina in Maui, Kohala and Kona on the Big Island, and Princeville and Poipu on Kauai, Oahu may not keep up with the overall State visitor revenue increases in future years. Review of several alternative sites for this second resort complex was undertaken by the City; at about the same time, the developer of West Beach was processing applications to convert the 830± acres of West Beach from Agricultural to Urban. In 1977, the State Land Use Commission redesignated 640± acres of the project site to Urban.

West Beach Resorts (WBR) proposes to establish West Beach as the secondary visitor destination area on Oahu (the first being Waikiki). Favorable factors for this location include: (1) travel distance from the Honolulu International Airport (25 minutes), downtown Honolulu (40 minutes), and Waikiki (50 minutes); (2) the climate is dry and mild (the West Beach area receives 20 inches of rainfall a year, which is less than Waikiki; (3) the 1.9 miles of shore frontage is the principal amenity which, when improved, will be a primary visitor attraction; (4) the flat topography will allow for easier construction and development. WBR proposes to provide various recreational facilities, including a golf course, tennis courts, bathing lagoons, and a marina. These recreational facilities will enhance the principal proposed uses of the site which are hotels, condominiums, shopping centers, and visitor oriented exhibits and activities. The West Beach project is envisioned as a self-contained destination resort providing full services and amenities for the visitors to Hawaii.

8.10.4 Anticipated Tourism Growth. Projections of the number of visitors to Hawaii in 1985 and 1990 are 5.32 million and 6.47 million, respectively. These projections differ very little from the projections prepared by the City's Department of General Planning as released in August, 1978. The projections assume a decline in the annual rate of growth from about 7 percent at present to 4 percent in 1985, and continuing at 4 percent through 1990. The actual growth rate in the first half of 1979 was 6.9 percent, in spite of the depressive effects of the DC-10 groundings and the United Airlines strike.

8.10.5 The conversion of this level of visitor arrivals to hotel room demand requires assumptions concerning length of stay, the percent of visitors utilizing hotels, the number of visitors per unit, and the nature of seasonal variations. The assumptions used in the marketing analyses assumed a stabilization of the average length of stay on Oahu at 5.0 nights, which is approximated by the experience of the past decade. The percent of visitors utilizing hotels is assumed to be 95.0 percent, which reflects the increasing historical trend. The number of persons per hotel room is also assumed to continue close to recent levels of 1.88 (1.90 is used in the projections). The peak seasonal levels have historically occurred for the month of August, suggesting that in conditions of neither a shortage nor a surplus of hotel rooms, the hotel rooms on Oahu should be fully (95%) occupied in August, providing demand is being met. This implies an annual occupancy rate of

about 75 to 80 percent, which still does not allow for sufficient space to fully meet short-term demand during the key holidays of Christmas, New Year's and Easter.

8.10.6 Oahu's Market Share. This factor is somewhat more responsive to policy decisions than are the assumptions just discussed concerning statewide growth of tourism demand. If hotel space on Oahu is tightly restricted in comparison with the Neighbor Islands, Oahu's share would tend to decline more than would otherwise be the case. Also, a continuation of the "common-fare" prices is a policy decision that will greatly affect the level of use of Neighbor Island tourism facilities. In the absence of a better technique, the market analysis has simply projected the continuation of Oahu's slowly declining market share of statewide tourism.

8.10.7 The arithmetic result of calculating from the preceding series of assumptions is a total demand on Oahu for 38,200 hotel rooms in 1985 and 44,300 rooms in 1990, assuming an 80 percent annual occupancy rate. (The arithmetic procedure survived a validity check by "backcasting" for five years.)

8.10.8 Location on Oahu. Given some reasonable estimate of the remaining capacity of Waikiki to absorb additional hotel development, the key question remains of where additional hotel development would be most appropriate on Oahu. It is estimated that 3,018 hotel rooms will be added to Waikiki in 1979 and early 1980. Also, additions are likely of 1,155 rooms at the Hilton Hawaiian Village and 400 to 450 at the Halekulani, giving a total of about 4,600 additional rooms known to be likely. Given the existing units in place, and assuming no units will be closed or converted due to obsolescence the total supply of rooms foreseen would be 30,300 in Waikiki and 34,000 for all of Oahu.

8.10.9 The market analyses prepared in planning the West Beach project argue that once the additional 4,600 rooms are added as described in the previous paragraph, there will be no further significant additions in the Waikiki district. The restrictions imposed by the Waikiki Special Design District Ordinance, the size and location of the remaining eligible parcels, and principles of sound investment decision-making effectively preclude significant further development in Waikiki. Consequently, if future economic demand for hotel space on Oahu is to be supplied outside of Waikiki, locations must be selected for approximately 4,200 units by 1985 and 10,300 units by 1990.

8.10.10 The marketing analyses reject Kakaako as a desirable location for major resort development, primarily because of a resort's incompatability with Kewalo Basin and with continued use by residents of Ala Moana Beach Park. Transportation problems argue against Queen's Beach near Hawaii Kai, as does the lack of any apparent interest by private parties to pursue such development. Makaha is also rejected on the grounds of comparative travel time, the lack of beach frontage, and the lack of water resources. The remaining areas that are possibly viable are the proposed West Beach and the Kuilima Resort areas.

8.10.11 The West Beach area has an advantage in terms of being closer to the airport, but both the West Beach and Kuilima areas offer the possibility of developing a resort location on Oahu that is an improvement over Waikiki in the sense of Waikiki's past history of poor planning, problems with crime, and overdevelopment. The major weakness of both the West Beach and Kuilima locations in their present condition is the lack of long stretches of natural sandy beaches where swimming is safe and convenient. The isolation of both areas is a significant disadvantage only if either remains small. If a sufficient size is developed, each area could become somewhat self-contained, as has been demonstrated at Kaanapali.

8.10.12 The projected demand for hotel rooms on Oahu is based on conservative estimates. Consequently, the implied justification seems reasonable for constructing outside of Waikiki an additional 4,200 rooms by 1985 and 10,300 by 1990, for defensible justification could be made for substantially higher projections. Current proposals for hotel resort development at the Kuilima Resort site call for 4,700 rooms by the year 2000 to be developed at a fairly constant rate through the interim period. This indicates an intention to develop approximately 1,175 rooms during each five-year period. If this intention is fulfilled, and if the preceding demand projections are accepted, a remaining shortage of about 3,000 and 8,000 rooms on Oahu would occur in 1985 and 1990, respectively. Completion of the 7,200 resort units proposed at West Beach would approximate this level of unfulfilled demand. In other words, there appears to be sufficient anticipated economic demand to justify both proposals, while curtailing further increased densities in Waikiki. The alternatives would be to permit further hotel development in Waikiki or to allow room rates there to soar in response to a government-mandated scarcity of resort room space on Oahu.

9. ENVIRONMENTAL CONDITIONS AND CONSEQUENCES

9.1 Water Pollution Implications of Project Site Storm Runoff

9.1.1 The estimated storm runoff and constituent changes due to the proposed West Beach project are shown in Table 4. The values presented are for comparative purposes only, and are not intended to be representative of the accurancy implied by the practice of reporting results to one decimal place. This was done primarily for convenience of calculations and balancing.

9.1.2 The changes shown in Table 4 are those occurring within the 640 acres covered by the proposed project site. No attempt was made to compare these changes with contributions from the entire drainage area. In this situation a comparison of the project site area to its entire drainage area would significantly negate apparent changes caused by the land-use change within the project site.

9.1.3 As would be generally expected the greatest calculated incremental storm runoff volume (70.9 acre-feet/event) resulted from the 100-year storm with a 24-hour duration. These values (acre-feet/event) represent a volume of water and should not be confused with peak discharge rates which represent the maximum volume of storm water runoff discharges per unit of time (e.g. cubic feet per second or cfs). Peak discharge rates are required for engineering design of proposed drainage facilities and ascertaining the capacity of existing facilities, while total runoff volume provides a more realistic estimate of impact on water quality.

9.1.4 Besides the changes in the volume of storm water runoff, the quantity of the various constituents being transported is of equal, if not more importance. However, estimates of water quality constituents resulting from significant storm water runoff that occurs at the most only a few times a year is very perplexing, especially since only in recent years has information on this subject become available at both the local and national level.

9.1.5 Inasmuch as there is no water quality information for storm water runoff from the project site itself, nitrogen and phosphorous levels of 1.10 mg/l and 0.11 mg/l, respectively, were used for the present (1979) conditions. These values, which were based on information published by Loehr (1972), were derived from nitrogen outputs of 2 lb/acre-yr and phosphorous outputs of one order of magnitude less; an annual rainfall of 20-in; and a rainfall-runoff coefficient of 0.4. The nitrogen and phosphorous output values reported by Loehr that represent the nearest situation to the one under review ranged from 1 to 3 lb/acre-yr for nitrogen and a magnitude less for phosphorous. The 2 lb/acre-yr for the proposed project site is considered quite conservative inasmuch as a significant portion of the site is planted in sugarcane, which requires a high fertilizer input.

9.1.6 Representative suspended solids values in storm water runoff from the proposed project site are again difficult to determine, inasmuch as it is commonly presumed, by mainly indirect methods, that the majority

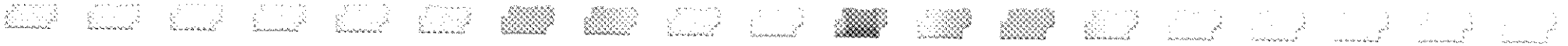

TABLE 4

ESTIMATE STORM WATER RUNOFF AND CONSTITUENT CHANGES DUE TO THE PROPOSED 640-ACRE WEST BEACH PROJECT, LEEWARD OAHU, HAWAII

Storm[a]			Hydraulic Development			Nitrogen[b] Development			Phosphorous[c] Development			Suspended Solids[d] Development		
Duration hours	Recurrence Interval year	Quantity inches	1979 AF event	Full AF event	AF event	1979 lb event	Full lb event	lb event	1979 lb event	Full lb event	lb event	1979 tons event	Full tons event	tons event
1	1	1.35	6.3	20.9	+14.6	18.7	34.1	+15.4	1.9	34.1	+32.2	12.8	7.1	- 5.7
1	5	2.0	17.6	39.5	+21.9	52.6	64.4	+11.8	5.3	64.4	+59.1	35.9	13.4	-22.5
1	10	2.25	22.9	47.5	+24.6	68.5	77.5	+ 9.0	6.9	77.5	+70.6	46.7	16.1	-30.6
1	25	2.6	31.1	59.3	+28.2	93.0	96.7	+ 3.7	9.3	96.7	+87.4	63.4	20.1	-43.3
1	50	2.8	36.1	66.2	+30.1	107.9	108.0	+ 0.1	10.8	108.0	+97.2	73.6	22.5	-51.1
1	100	3.2	46.8	80.7	+33.9	139.9	131.6	- 8.3	14.0	131.6	+117.6	95.4	27.4	-68.0
6	1	2.2	21.8	45.9	+24.1	65.2	74.6	+ 9.4	6.5	74.9	+68.4	44.4	15.6	-28.8
6	5	4.3	80.0	122.7	+42.7	239.2	200.1	-39.1	23.9	200.1	+176.2	163.1	41.7	-121.4
6	10	5.3	113.5	163.2	+49.7	339.3	266.1	-73.2	33.9	266.1	+232.2	231.4	55.4	-176.0
6	25	6.4	161.8	209.3	+47.5	483.7	341.3	-142.4	48.4	341.3	+292.9	329.8	71.1	-258.7
6	50	7.4	192.0	252.3	+60.3	587.0	411.5	-175.5	57.4	411.5	+354.1	391.3	85.7	-305.6
6	100	8.5	236.4	300.4	+64.0	706.8	489.9	-216.9	70.7	489.9	+419.2	481.9	102.1	-379.8
24	1	3.2	46.8	80.7	+33.9	139.9	131.6	- 8.3	14.0	131.6	+117.6	95.4	27.4	-68.0
24	5	6.7	164.8	222.1	+57.3	492.7	362.2	-130.5	49.3	362.2	+312.9	335.9	75.5	-260.4
24	10	8.5	236.4	300.4	+64.0	706.8	489.9	-216.9	70.7	489.9	+419.2	481.9	102.1	-379.8
24	25	10.4	316.6	385.0	+68.4	946.6	627.9	-318.7	94.7	627.9	+533.2	645.4	130.8	-514.6
24	50	12.0	386.9	457.2	+70.3	1156.8	745.6	-411.2	115.7	745.6	+629.9	788.7	155.3	-633.4
24	100	13.6	459.2	530.1	+70.9	1172.9	864.5	-308.4	137.3	864.5	+727.2	936.1	180.1	-756.0

[a] From U.S. Weather Bureau "Rainfall-Frequency Atlas of the Hawaiian Islands" (1962)

[b] Based on a nitrogen value of 1.10 mg/l for undeveloped (1979) conditions and 0.60 mg/l for full development

[c] Based on a phosphorous value of 0.11 mg/l for undeveloped (1979) conditions and 0.57 mg/l for full development

[d] Based on a suspended solids value of 1,500 mg/l for undeveloped (1979) conditions and 250 mg/l for full development

of the annual suspended solid load is carried by the heavy storm water runoff events which tend to occur on an infrequent basis. For estimation purposes, and considering the results from the analysis of sporatic storm water runoff samples during heavy storms, a value of 1,500 mg/l was used for the present situation.

9.1.7 The concentration of water quality constituents of storm water runoff from urban areas is very sparse both locally and nationally, however, Loehr (1974) published a compilation of urban storm water runoff quality data collected throughout the United States with a few international locations. As would be expected the results are at times somewhat diverse. There is, however, a study of urban storm water runoff quality collected from storm drains in different drainage areas of Honolulu (Fujiwara, 1973).

9.1.8 For comparative purposes the results of average storm water runoff values for residential areas of Honolulu, rounded-off to 0.6, 0.57, and 250 mg/l for nitrogen, phosphorous, and suspended solids, respectively were used to simulate complete residential project development.

9.1.9 The summation of nitrogen, phosphorous, and suspended solids loads from both present (1979) and projected (full) residential and hotel development for storms of 1-, 6-, and 24-hour duration at recurrence intervals of 1-, 5-, 10-, 25-, 50-, and 100-years are shown in Table 4. The incremental changes per storm event for the present and projected development conditions for the various duration and recurrence interval storms indicate that from the least to the greatest amount of rainfall: nitrogen increases from 15.4 lb/event to a decrease of 308.4 lb/event; phosphorous increases from 32.2 lb/event to almost 728 lb/event; and suspended solids shows a decrease from 5.7 tons/event to over 756 tons/event.

9.1.10 The constituent values are only for comparative purposes, thus the indicated decrease in nitrogen output as a result of residential and hotel development should be construed as essentially no change; the phosphorous output should increase; while the suspended solids should decrease.

9.1.11 Aside from these general trends, from a water quality standpoint the 1-year storm events are of greatest concern because of their more frequent occurrence. Changes in nitrogen and suspended solids for these storm events are not considered to be large, and for practical purposes might even be considered as not undergoing any change. This suggests that these constituents do not pose a significant hazard to the coastal waters under projected conditions.

9.1.12 Phosphorous, on the other hand, does increase significantly, although the quantities involved are still not at unacceptable levels, considering the frequency of occurrence. The apparent reason for the phosphorous increase is that organic soils readily absorb phosphorous, thus, water that has percolated through the soil or has been in intimate contact with the soil usually has a low phosphorous concentration, whereas, storm water runoff from residential areas with usually only small areas of exposed soil tend to transport a higher concentration of

phosphorous. Conversely, the decreased amount of exposed soil in residential areas tend to decrease the quanitity of the suspended solids load even though the total quantity of storm water runoff increases.

9.1.13 Containment facilities, such as golf course impoundment, will be constructed to treat stormwater runoff associated with the more frequent storm events, recognizing that such facilities may not be feasible for the less frequent, say 25-, 50-, and 100-year, storm events.

9.1.14 The hydrologic and water quality aspects of the surface water runoff were only considered for the present and projected conditions. However, increases in constituent loads will undoubtedly result from construction activities, especially if a significant storm occurs during the interim period between earth moving operations and soil stabilization completion. The impact of construction activities can be minimized by adhering to strict erosion control measures, particularly those specified in the City and County of Honolulu's Grading Ordinance (1972) and in the State Department of Health's Water Quality Standards, Chapter 37-A (1968).

9.1.15 During the DEIS review period, the Oahu Civil Defense Agency, City and County of Honolulu noted that portions of the project site are within the 100-year flood plain. This will effect the building's design and structure. Depending on the site's final topography and building location, the engineer will mitigate inundation by the living areas above the flood level.

9.1.16 References Cited.

"West Beach Resort Project Water Pollution Implications of Project Site Storm Runoff," July, 1979, Michael J. Chun, Ph.D and Gordon L. Dugan, Ph.D.

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9.2 The Marina and Lagoon System - Environmental Conditions and Impacts

9.2.1 Lagoon Configurations and Concepts. Any discussion of potential impacts on the West Beach coast and nearshore waters from the proposed lagoons must be related to a specific range in lagoon size and configuration. The existing nearshore circulation patterns, background water quality, site heat budget and meterology, coastal wave climate and bathymetry, and lagoon flushing needs were the primary environmental considerations in developing a conceptual lagoon plan. Once the conceptual plan was determined, several analyses were completed to examine the potential performance of the lagoons. These included examination of the lagoon tidal prism (the tidal prism is that amount of water that enters the marina during each tidal change), natural and induced flushing schemes, source water injection rates, potential lagoon water quality alteration while passing through the lagoons, lagoon circulation, stratification, mixing and overturn, and anticipated extremes of several water quality parameters.

9.2.2 The area close to and paralleling the coastline, allocated for up to two lagoons, dictated the maximum size, while intended lagoon use established a minimum acceptable size. Lagoons sized from seven to eleven acres in surface area at mean sea level were considered, with 5:1 to 6:1 length to width ratios. The lagoon configurations included cusp-like beaches, long curved beaches, steep and gentle entry beaches, deep and shoal areas, small central lagoon islands, sand and rock portions of the shoreline, and depths of 6 to 9 feet at mean lower low water.

9.2.3 The exact final lagoon shape and hypsography (depth, volume, and surface area distribution) remain unspecified pending final land planning needs. However, the optimum general configuration is described as follows:

> Two lagoons, designated a north and south lagoon (or one central lagoon), will lie approximately parallel to the site coastline. The lagoons will range in size between 7 to 11 acres (or a single lagoon sized up to 18 acres). The south lagoon longitudinal axis will parallel the coastline and the lagoon will have a length to width ratio of approximately 6:1. The north lagoon longitudinal axis will contain a gentle curve away from and back toward the coastline, and have a length to width ratio of approximately 5:1. Both lagoons (or a single central lagoon) will adjoin a common wave trap (a constructed facility to catch wave transported water) and reservoir pond of 1/2 to 2 acres located in the central portion of the site coastline between the north and south lagoons. Each lagoon will have 2 to 4 cusp-like beaches with 5:1 to 10:1 sloping beach-to-water entries. Both lagoons will be limited to a 7-foot maximum depth at mean lower low water, with the depth along the central longitudinal axis being uniform along the lagoon. As such the north and south lagoons each will contain between 17 million to 33 million gallons of sea water at mean lower low water (mllw).

9.2.4 The lagoon configurations and volumes become important when considering flushing, since it is necessary to maximize the daily exchange of lagoon sea water with clean coastal sea water. The minimum flushing rate, in terms of lagoon volumes (at mllw) per day, was established during the earlier concepting work considering biological constraints and recommendations. A minimum of 2 1/2 times per day and a maximum 4 to 5 times per day was proposed. The maximum flushing rate is limited by the resulting currents in the lagoons from the proposed one-way flow of water. Lagoons with 7 to 11 acres surface area must have minimum transverse cross-sectional areas 1,000 sq. ft. to 2,400 sq. ft. flushing rates of 2 to 4 times per day if lagoon currents are to remain less than 2.0 knots. However, considering lagoon use and beach and bottom lining materials, the maximum current at any point in the lagoons should be limited to less than 1.5 knots, preferably less than 1.0 knots.

9.2.5 It is proposed that active and adequate flushing of the lagoons would be accomplished using a combination of the local seasonally varying tidal prism, wave induced flushing, and standby pumping. The tidal flow could enter the lagoons through one-way flow gates, installed in 150 feet to 250 feet long ducts connecting the lagoons with coastal waters, with recommended minimum duct cross-sections of 20 square feet (72 inches maximum diameter). Input to both lagoons from the central wave trap would also be routed one-way to add to the flushing.

9.2.6 The typical twice daily tidal changes are expected to deliver throughout the year one-way flows of 30% to 92% of the lagoon volume daily. Annually, the tidal exchange of new sea water would average 55% of each lagoon volume per day, providing the flow was completely one-way. This flushing may be complemented by a volume of water added to each lagoon daily from the centrally located wave trap. This trap would take advantage of the local bathymetry (bottom topography) with a natural 30:1 run-up ramp, combined with a designed and fabricated wave trap entrance located at the coastline. The daily wave run-up caught could be held in a reservoir and subsequently delivered to both lagoons through one-way flows from the small centrally located reservoir pond. Using historical wave data, it was estimated in past concept work that a wave trap conceptually can deliver up to several times each lagoon volume per day. However, recognizing that periods of several hours can exist during each year when the tidal exchange is limited and possibly no wave or swell activity exists, standby auxiliary pumping was recommended to insure that the minimum flushing rate of 2 1/2 lagoon volumes per day is accomplished at all times. Further, prolonged periods of Kona storms may necessitate lagoon water recirculation rather than drawing upon coastal water. Possibly treatment of recirculated water would be required to meet biological constraints and to minimize water quality changes.

9.2.7 A concept also considered was to direct the discharge from the southern lagoon (up to 11 acres in size) into the project marina (maximum size 35 acres). This discharge volume would be limited by the design of the discharge duct (s) and one-way gating plus the hydraulic head that might be capable of being maintained between the south lagoon and neighboring marina during the discharge process. The equivalent of 1 to 1 1/2 lagoon volumes may be able to be transferred to the marina to aid flushing.

9.2.8 Lagoon Incoming Water. Water can enter the two lagoons from primarily four sources: (1) as incoming coastal sea water entering through the tidal gates, wave trap reservoir spillways, or auxiliary pumps, (2) as infiltrating brackish ground water entering through the lagoon sides and bottom, (3) as runoff from the lagoon beaches and bordering lands, and (4) as direct precipitation on the lagoon surface. Each incoming source quality will vary considerably due to the completely different character of origin, plus different input rates and frequency of inflow.

9.2.9 The coastal waters off the project are both the receiving waters for local discharges north and south of the site and the source water for the lagoons. Thus far the coastal water appears to have remained relatively pristine, indicating an effective net flushing of the area with clean open sea water despite these neighboring pressures. It is postulated that most of this water comes from northwest of the site. Nutrients, particularly nitrogen forms, do presently exceed the State's water quality standards for wet open coastal waters for short periods in winter months primarily as a result of ground water percolation from the coast and storm runoff during months of increased rainfall. Table 5 following shows an estimate of the annual range of quality of incoming coastal sea water anticipated to be found in the lagoon intake area based upon historical data.

9.2.10 Infiltrating ground water reaching the lagoons will vary in quality depending upon the type of geologic strata disturbed for the construction of each lagoon. Historical data provide information from seven borings taken in 1969 for the project, with just two of these located in the proposed south lagoon. The geologic stratification varied widely for each boring, making any estimate of the actual geologic character to be disturbed, the hydraulic permeability and the infiltration rates for the north and south lagoons difficult. The available data do, however, allow a range in infiltration rates, salinity, and nutrient quality to be estimated postulating the limiting cases where (1) the most impermeable dense structured coral material found in the area will line both lagoons, to (2) the most permeable lining of open structured coral, coral sand and alluvial silt. In each case a limit of minus 10 feet below mean sea level excavation is assumed.

9.2.11 Approximately 1.0 to 1.8 gal/day/ft^2 of ground water infiltration from the lagoon bottoms, and 13.2 to 15.5 gal/day/ft^2 infiltration from the lagoon sides may occur. As such this incoming, brackish, nitrogen rich ground water will comprise between 1 1/2% to 3 1/4% of the total lagoon volume per day for each 7 to 9-acre lagoon (or a single lagoon up to 18 acres in size). The infiltrating water could vary in salinity from 8 o/oo to 29 o/oo, and is estimated to average 22.5% from the surface to the minus 10 feet below msl datum. Nitrate-nitrogen in the infiltrating water will be high, and is expected to vary from 107 micro m/l to 370 micro m/l. Phosphate concentrations are expected to vary from 1.1 to 3.1 micro m/l. As such these nutrients concentrations will be from 10 to 125 times greater than the coastal source waters. It was estimated during earlier lagoon concepting work that if lagoon phosphate levels exceed 0.3 micro m/l and nitrate levels exceed 0.4 micro m/l, the

Table 5

ESTIMATE OF THE ANNUAL RANGE IN WATER
PROPERTIES OF LAGOON INCOMING COASTAL WATER

Temperature (°C)	22.0 - 26.0
Salinity (o/oo)	34.50 - 35.15
Density (gm/cm^3)	1.025 - 1.027
Dissolved Oxygen (mg/l)	5.5 - 7.0
Nitrate (micro m/l)	0.10 - 0.20
Nitrite (micro m/l)	0.13 - 3.0
Ammonia (micro m/l)	0.20 - 0.90
Total Nitrogen (mg/l)	0.015 - 0.380
Phosphate (micro m/l)	0.20 - 0.30
Total Phosphorous (mg/l)	0.003 - 0.065
Secchi Depth (ft)	10 - 60
ph	8.1 - 8.7
B.O.D. (mg/l)	0.4 - 1.8
Total Coliform (col/100 ml)	0 - 5
Suspended Load (ml/m^3)	0.5 - 4.3

impact will be to induce considerable biostimulation unless the mix of lagoon and infiltration water is actively and constantly flushed from the lagoons each day.

9.2.12 Runoff from the lagoon beaches and surrounding land can be minimized with proper grading and related construction techniques. It is assumed, and was emphasized in the technical concept development work, that no direct surface runoff, potentially high in fertilizer nutrient compounds, from the land adjacent to the lagoons be allowed to reach the lagoons. However, beach runoff during rainfall periods will be unavoidable since some of the beaches surrounding the lagoons will be graded down to the lagoon edge. In that these beach areas will be limited, the runoff from these areas is expected to be negligible when compared to the increased ground water inflow during storm conditions.

9.2.13 The site area is meterologically dry, with rainfall averaging less then 20 inches per year. Historical data show that most showers occur in the West Beach area during the early pre-dawn hours, adding a fresh water input of usually less than 0.01 inches per event. The potential for showers is greatest during the winter months, with precipitation amounts normally varying from 0.3 to 4.4 inches per month. These monthly additions to the lagoons are expected to be negligible when compared with the daily tidal and wave induced flushing, infiltrating water, and mean evaporation from the surface of 6.2 inches per month.

9.2.14 Lagoon Water Quality and Anticipated Changes. Incoming coastal water and infiltrating water will both initially fill the lagoons plus subsequently provide the lagoons with water for flushing. The incoming water will vary in amount each day and will be undergoing constant change while it passes through the lagoon during it's one-way transit toward each lagoon exit. The changes in lagoon water quality will occur from (1) the initial method of entry, (2) mixing with the other sources of incoming water, (3) the effects of stratification and/or overturn in the lagoon, (4) contact with the lagoon lining material, (5) surface effects of evaporating precipitation and heat exchange, (6) biota uptake and release, (7) potential changes in composition of resident and/or incoming biota, and (8) human usage of the lagoons and surrounding beaches. Most, but not all, of the changes will act to degrade the water, when compared with the incoming coastal water while in residence in the lagoons.

9.2.15 Incoming water in the wave trap will likely be aerated by wave action. Oxygen concentrations could change from 6.0 or 6.5 mg/l to perhaps 7.0 to 7.5 mg/l, subsequently returning to just below saturation. The suspended sand and silt load in this water, and water entering via the tidal ducts, will vary according to the amount and the direction of movements of wave and swell activity existing at the shoreline, the direction of the longshore flow, and the strength of the tidal currents along the coast. The suspended loads are expected to normally vary from 0.5 to 4.3 ml/m^3, and contain about equal portions of sand and silt. The heavier particles may deposit in the wave trap or tidal ducts, depending upon particle size and wave activity. The smaller suspended particles, less than about 50 micron in diameter, will probably enter

the lagoons from the wave trap spillway and/or tidal inflow. The mixing and flushing rate occurring within the lagoons at the time of entry will determine whether the material settles out or remains suspended and subsequently flushes from the lagoon. These rates will vary with the amount of water flushing through the lagoons and the lagoon stratification and overturn. In that it will be necessary to maintain an active flushing rate to meet the biological criteria of minimal biostimulation, it is anticipated that most of the incoming fine suspended load will flush through the lagoons. However, some accumulation of medium to fine sized sand particulate material is anticipated in the immediate area of incoming water entry. Site specific field data on the annual wave activity, suspended loading, and size distribution in the proposed wave trap run-up ramp area are necessary to further quantify this potential lagoon water quality impact.

9.2.16 Some heating of lagoon water is anticipated during transit from entrance to exit. This will be caused by changes in the heat budget from wind, shading of the area from the terrain and buildings surrounding the lagoon, higher daytime air temperatures on shore, and the shallow character of the lagoons. The amount of heating will depend on the prevailing mixing and flushing rate and the temperature of infiltrating ground water. In all it is estimated the lagoon water will show an annual mean warming trend, entrance to exit, of approximately 1/2°C.

9.2.17 Incoming brackish (estimated at 22.5 o/oo) ground water seepage through both the lagoon bottom and sides will bring significant amounts of nitrate-nitrogen to the lagoon waters. Evaporation and precipitation at the lagoon surface will also change the surface salinity. The resulting concentration of nitrate, assuming minimal or no vertical stratification, will vary with the prevailing flushing rate, biota uptake and location in the lagoon. Horizontal and vertical mixing of the lagoon waters with incoming ground water is expected to be active from both flushing, lagoon hypsography, lagoon use, and wind at the surface. However, nitrate concentrations, as with lagoon temperature, will likely be higher toward the exit end of each lagoon. Nitrate concentrations in the lagoon are expected to range from 5.6 to 23.4 micro m/l i.e. for a flushing rate of 2 1/2 times per day to the extreme case of 1/2 volume flushes per day, and 0.3 to 0.5 micro m/l for phosphate. These values are up to 180 times (mean of 6 times for 2 1/2 times per day) the anticipated concentrations in the incoming coastal water. In the absence of mixing of overturn the salinity in the surface two feet of the lagoon could be depressed 1.6 to 3.2 o/oo below incoming coastal water, and show the greater amount of ground water injected nutrients.

9.2.18 Lagoon Sediments and Potential Changes. Lagoon water quality may also change as a result of contact with the lagoon lining material. In the absence of coring data it is unknown what the composition of the lagoon sides and bottom would be following excavation and preparation for the lagoon lining. A clean medium coarse sand, 0.5 to 1.0 mm mean diameter, over a hard impermeable, cleaned, sub-bottom will probably be placed on the bottom. This material would help minimize biota growth and sand movement within the lagoon, In any case, the bottom, i.e. added lining, and sub-bottom should not contain silt and clay sized sediment materials less than 1/16 mm, nor should these materials be

allowed to enter the lagoon through runoff or seepage, as they contain or will take up phosphorous and sulphide compounds. Degradation of the lagoon water quality will result.

9.2.19 The existing sub-bottom at the site and lagoon construction techniques will determine the potential impact of the lagoon lining on water quality. The available data, though sparse, indicate that alluvial silt, coral sand or open-structured coral is likely to be encountered during excavation beneath the surface soils 2 to 6 feet thick. Dense-structured coral may also be encountered down to 14 feet beneath mean sea level (msl). Some of these materials will contain small silt and clay sized particles.

9.2.20 The excavation process being below msl will likely release these materials to a water-filled excavation zone. This must be removed or controlled to a clean bottom, or clean incoming brackish water, prior to lining the lagoon bottom, sides, and beaches with coarse sand or other stabilizing materials as recommended during construction of the lagoons. No particulate material below silt size should be allowed in the lagoons following excavation, be allowed to leach into the lagoons with incoming ground water, or enter via surface runoff or as windblown dust particles. A maximum effort made to control this potential problem during excavation and construction, filling, and subsequent use will substantially aid the maintenance of lagoons with aesthetically acceptable water quality.

9.2.21 Stability Conditions and Potential Extremes. Estimates can be made of the anticipated change in the incoming coastal source water, once mixed in the lagoons with incoming ground water and subsequently altered slightly by processes occurring within the lagoons. Short period conditions of quasi-stability may be reached given a fixed flushing and ground water infiltration rate, and stable seasonal meterological condition. During the year, however, these conditions will change. Winter months will likely bring widely varying wave activity and rates of ground water infiltration, slightly less flushing with decreased insolation and variable winds. Summer months should have more consistent, moderate, wave activity, slight moderate, wind conditions. The result would be a measurable, though moderate, variation in lagoon water quality with the seasonal changes, and slight variations week to week within any month.

9.2.22 The factors causing anticipated extreme changes in water properties, including waves, currents, stratification and mixing in the lagoon, would not likely all occur at the same time seasonally or diurnally. It is possible, however, to postulate the limiting case to develop an envelope of potential extreme values for each water property while in residence in the lagoons. The tendency would be to find the greatest change from incoming coastal sea water toward or at the exist ends of each lagoon. Table 6 shows an estimate of both the anticipated normal and extreme range in seasonally varying water properties within the lagoon.

Table 6

ESTIMATE OF SEASONALLY NORMAL RANGE AND
EXTREME RANGE IN THE LAGOON ENVIRONMENT

(Reference: "normal" flushing rate of 2 1/2 lagoon volumes at mllw/day)

	Minimum	"Normal" Range	Maximum
Temperature (°C)	22.0	22.5 - 26.5	28.0
Salinity (o/oo)	31.30	33.40- 34.80	35.20
Dissolved Oxygen (mg/l)	5.5	6.0 - 7.0	7.5
Nitrate (micro m/l)	0.6	2.3 - 4.7	23.4
Total Nitrogen (mg/l)	0.02	0.04 - 0.4	0.7
Phosphate (micro m/l)	0.2	0.3 - 0.4	0.5
Total Phosphorous (mg/l)	0.004	0.005- 0.06	0.007
ph	8.0	8.1 - 8.6	8.7
B.O.D. (mg/l)	0.3	0.4 - 1.0	2.1
Total Coliform (col/100ml)	0	0 - 10	100
Suspended load (ml/m^3)	0.5	1.0 - 3.0	6.0
Currents (ft/sec)	0.9	1.5 - 2.3	3.3
Surface wind waves (height/period) (ft/sec)	calm	0.2/1.0 - 0.7/1.5	1.1/2.0
Seiche (height/period) (inches/min)	calm	0.5/1.1 - 1.5/3.6	3.0/3.6

9.2.23 Included in potential extreme conditions is the case of tsunami occurring at the site coastline. Historical data and analyses of these data by past investigators have provided a range of tsunami wave heights, run-up areas affected and dates of past events for the Barbers Point to Maili Point area has been ten feet. The project site lies between these two points.

9.2.24 Recorded events date from 1819 to the present. Particularly severe tsunamis occurred in 1837, 1877, 1923, 1946, 1952, 1957, 1960, and 1964. Tsunami wave heights along the site coastline are recorded for 1946, 1952, 1957 and 1960. They range from 20 feet in 1946 off Nanakuli, four miles north of the project, to three feet in 1952 at Kahe Point, one mile north of the project. The mean tsunami height in the area has been eleven feet.

9.2.25 Past tsunami investigators have employed historical records (Hilo case) and probability methods to estimate the return of a tsunami 1.5 times as large as any historical tsunami. These estimates give the probability such a tsunami may occur within a defined period of time. A 20-foot tsunami, for example, might be exceeded by a 30-foot tsunami within a period of 164 years. In the case of a repeat 20-foot tsunami the probabilities were estimated as 0.05 of having another tsunami in 1.6 years, 0.5 in 21.5 years, and 0.95 within 93 years for the Hilo case.

9.2.26 In the case of the project site, tsunami run-up on land will be a function of tidal elevation and coastal set-up existing at the time of the tsunami, plus final site land topography, slope and roughness. Using past study results of theoretical maximum run-up for coastal areas it was estimated that a 10-foot tsunami occurring at a high tide of +3.0 feet above mllw, in the absence of any coastal set-up, would produce a run-up to the 19-foot elevation. This estimate assumes a terrain roughness approximately equivalent to the existing site conditions. Such a tsunami run-up would flood inland as little as 150 feet at the north border of the site and as much as 0.5 miles in the north and central site coastal areas, and 0.7 miles inland at the site south border. During the DEIS review period, the Oahu Civil Defense Agency, City and County of Honolulu noted that: "There are no apparent adverse effects from the standpoint of Civil Defense planning caused by the development of the proposed West Beach Resort."

9.2.27 The final lagoon landscaping and the inland development character and grading will determine the site tsunami run-up potential. The facilities adjacent to both the lagoons and the potential marina/deep draft harbor bordering the southern edge of the project, will have to be properly elevated or protected from the possibility of damaging run-up during a tsunami. The lagoons, being at and connected to sea level, with a minimal berm for protection, will likely be flooded by tsunami of even modest magnitude. This would negatively impact the lagoons by delivering both a degraded quality of water and coastal sediments to the lagoons during flooding.

9.2.28 Alternatives for Controlling Lagoon Water Quality. It was determined during the lagoon planning that properly sized one-way ducts, connecting the lagoon with the coast, would not significantly inhibit the coastal tidal height from entering the lagoon. Flushing rates between 30%

to 90% of the lagoon volume per day would result, averaging 1/2 the lagoon volume per day during the year. The concepting plan for a wave trap indicated that up to 10 times either lagoon volume can be trapped daily and delivered to the lagoons for even modest 2-foot high coastal waves. Proper design of a run-up ramp, wave trap entrance and one to two-acre holding pond would be imperative.

9.2.29 In the absence of any coastal wave activity, i.e. statistically 24 days per year when calm conditions to waves and swell less than 1 foot exist for periods longer than 6 hours, it will be necessary to augment lagoon flushing via pumping to maintain the desired rate of 2 1/2 lagoon volumes per day. Aeration and overturn, if required, might be accomplished via fountains recirculating lagoon water. Though treatment of lagoon water for the removal of nutrient material, biota or bacteria is possible, and it may be required during prolonged periods of storm activity, it is not considered practical for this project for continuous application.

9.2.30 The potential degradation of lagoon water quality would derive primarily from infiltrating nitrogen rich ground water and from lagoon use. Design engineers may install barriers to the horizontal flow of ground water around the landward sides of the lagoons. The lagoon use must be controlled to minimize adding debris or runoff containing nutrients, particularly phosphorous. A water quality monitoring program may be needed to determine if further treatment of lagoon waters is needed to maintain safe bathing and to prevent eutrophication.

9.2.31 Marina Configuration. As in the earlier lagoon concept-E.I.A. work, the historical information assembled for the marina did allow examination of several design and environmental problems. The marina configuration provided by design engineers allowed several analyses evaluating the potential environmental conditions likely to be found in this maximum sized 35-acre facility. The final marina shape is yet to be selected. Given this uncertainty very little data were available for the analyses. This is particularly true of estimated infiltration rates, in the absence of specific marina siting and size, plus related site coring and test data.

9.2.32 One element of the example marina concept explored, i.e. the entrance configuration, is related to the proposed Barbers Point deep draft harbor. At the date of this writing the viability of that harbor remains uncertain and, therefore, concepting studies completed for this work considered the deep draft harbor as existing in the manner given in the deep draft harbor E.I.S.

9.2.33 Marinas sized from a few 100 slips to over a thousand slips were sketched during the earlier concepting studies. In this work a configuration for a maximum sized 35-acre marina was specified and considered further because it was necessary to know the specific marina dimensions and shape to complete some of the technical analyses, including circulation, seiche (seiche is an oscillating behavior of the free surface of the marina) conditions and flushing in relation to the lagoons. Once known, the potential coastal environmental impact could be estimated. The latest concept, as of this writing, for a 1000-slip approximately 35-acre marina was therefore evaluated.

9.2.34 The proposed maximum sized marina may be phased in several components (Reference Fig. 1). Typically a first phase would include a 5-acre entrance channel and initial small basin. This would be followed by a 500-slip, 16.9-acre rectangular 4 1/2 to 1 extension angularly 45° landward, and a final further landward phased 500-slip 2 to 1 basin extension jutting an additional 45° angularly west, paralleling the coastline. Depths are unspecified, but would range from 10 to 15 feet, averaging 12 feet deep at mean sea level. This work considered the three phased basins as 6-acre, 17-acre, and 12-acre additions, with a uniform depth of twelve feet at msl. Further, the basin sides were considered to be vertical in all cases. As such, the final marina would be 35 acres, with the volume distributed approximately 17% in phase 1, 49% in phase 2, and 34% in phase 3 development.

9.2.35 The marina configuration has a 150 to 200-foot wide channel some 650 feet long, 1,900-foot section varying from 350 to 450 feet wide, and a 1,200-foot section varying from 400 to 775 feet wide. This overall sized marina would have a surface area of approximately 15.25×10^5 square feet and volume at msl. (12 feet mean depth) of 136.9×10^6 gal. (1.8×10^7 ft^3). The narrowest restriction is in the marina entrance, i.e. cross-section of 1,800 square feet. A second restriction exists between the last two phased landward most basins. This second restriction of 4,800 square feet cross-section is approximately 60% along the final length.

9.2.36 The marina entrance is proposed to connect with the main entrance channel for the adjacent 90-acre Barbers Point deep draft harbor. As such, the specific entrance configuration would be an item of final agreement between the developer and those state and federal agencies with jurisdiction over the deep draft harbor. The land surrounding the marina would be, in part, land altered during construction of the West Beach development and, the remaining eastern part bordering the deep draft harbor. All grading around the marina will be performed to slope the ground away from the facility. Two exceptions are recognized for the direct routing of a storm runoff drain to the marina and tsunami protection grading at the marina borders.

9.2.37 The marina hypsography will change if/as the marina concept is altered. Marina use, circulation, flushing, or seiche and harbor surge might require the basin dimensions or depths to be changed. In the case of free oscillations of the surface for the 35-acre facility evaluated, for example, the proposed configuration will need to be altered (reference section on potential problem areas). The maximum sized marina surface area and mean depth would, however, not change. Therefore, the hypsographic results summarized above were used for flushing computations and the shape shown was used as an example marina for circulation patterns and seiche computations. Unlike the lagoon concept development, where flushing and allowable currents in the lagoon established lagoon sizing, the marina size and shape will ultimately be established to meet development needs. The final hypsography will in turn establish the environmental conditions that are most likely to occur in the marina.

9.2.38 Marina Source Waters. Water entering the marina includes coastal water entering via the daily tidal prism, infiltrating ground water, lagoon discharged water, direct precipitation and storm runoff. Each enters in varying amounts versus time and each will have considerably different quality.

9.3.39 The diurnal tidal range at the project coastline generally varies from 1.3 feet to 2.9 feet (mean of 1.9 feet). The tide is predominately mixed-semidiurnal in character throughout the year, i.e. two unequal highs and lows per day. Annually observed greater tidal changes in the area, i.e. diurnal changes of approximately 3.8 feet, occur a few times each year. However, a conservative average daily tidal exchange of 2.0 feet considered constant throughout the year, was chosen for this work. The time of this tide at the site would precede the Honolulu tide by 10 to 13 minutes during the year.

9.2.40 Analysis results show this marina tide would be impeded a very small amount for an 1,800 square foot cross-sectional area 650-foot long entrance channel. The entrance configuration will be designed to absorb incoming swell and surf, and will be wider and possibly deeper, to insure the tidal prism is not restricted.

9.2.41 The tidal prism for this typical daily tidal change (flowing into an 11-foot deep marina at mllw) is 22.8×10^6 gallons, or approximately 17% of the marina volume. The estimated quality of this incoming coastal water was given in Table 1 earlier. If the neighboring (southern most of two) project lagoon were to continually release its discharge water into the marina, as has been proposed, this would add for a 7 to 11-acre lagoon between 21×10^6 to 33×10^6 gallons per day times a flushing rate of 1 to 2 1/2 x /day.

9.2.42 The combined maximum tidal and lagoon exchange prism, representing about 55% to 77% of the marina volume, occurs over a 24-hour period. The exchange occurring over a single 12-hour 25 minute tidal change depends upon the prevailing semidiurnal tidal profile. A maximum daily volume of between 80% to 95% of the marina volume could be exchanged combining the greatest amount of lagoon discharge with the spring tides. This does not consider the efficiency of the exchange process nor consider the volume of infiltrating water, storm runoff or the evaporation - precipitation balance. Infiltrating water, however, adds only an estimated maximum of 4 mgd though this water is very high in nitrogen content. The evaporation - precipitation balance should be negligible throughout most of the year (net evaporation 0.02 mgd). During storm conditions precipitation and storm runoff added to the marina (estimated at receiving one-half the site runoff) may add up to 12 mg/event in the most severe case of a 100-year storm with a 24-hour duration. The balance (12 mg/event) would directly reach the northern portion of the coastline via routing of storm drainage for the northern half of the project. The storm runoff water is expected to be high in phosphorous concentration.

9.2.43 Marina Anticipated Environmental Conditions. Ground water from the surrounding aquifier will infiltrate the marina sides and bottom. The rate of entry of this brackish water will depend upon the amount of ground water existing in the area from the local season-to-season changes in rainfall and upon the hydraulic permeability of the soils.

9.2.44 The geology of the area indicates the marina will lie entirely in the seaward most coastal zone containing an approximately 200 feet thick coral brackish aquifier base. The geological stratification likely includes a thin 6-inch to 18-inch soil layer, a coral sand layer,

and dense structured coral layer overlying open-structured coral to the 10-foot depth below mean sea level (msl). The dense coral has typically the lower hydraulic permeability, i.e. lower than the coral sand or open structure coral. Conservative rates of infiltration estimated from examples for both the old (21 feet deep) and new Barbers Point harbor (projected to be 38 feet deep) were used for the marina (12 feet deep at msl). These estimates range between 13.2 gal/day/ft^2 to 15.5 gal/day/ft^2 for the marina sides and 1.0 gal/day/ft^2 to 1.8 gal/day/ft^2 for the marina bottom.

9.2.45 Using these infiltration rates, it was determined that the 35-acre surface area marina, 11 feet deep (reference mllw), will receive between 3.5 mgd to 4.1 mgd of infiltrating ground water. This water will be less saline than the incoming sea water and therefore buoyant. Considering the marina volume at msl, in this case 136.9 million gallons, and a non-flushing condition the infiltrating water will comprise approximately 2.5% to 3.0% of the marina volume. As such, it could comprise 13.6% to 16% of a typical diurnal 2-foot tidal prism inflow classifying the marina as a wet-embayment per the State 208 standards.

9.2.46 The incoming brackish ground water may vary in salinity from 8 o/oo to 29 o/oo. In that it is less saline than the incoming tidal flow, the marina will tend to become stratified, with a lighter less saline surface layer probably existing in the marina throughout the year.

9.2.47 The infiltrating water and the lagoon discharged water (also containing some ground water input), if diverted to the marina, will add to the net amount of water leaving the marina daily. This assymetry in inflow/outflow would increase the velocity of water daily exiting the marina. The effect of just the infiltrating ground water would only slightly increase that for the tidal prism alone. Adding the lagoon discharged water does, however, significantly increase the outflow. In the limiting case, including storm runoff, the outgoing mean flows throughout the water column at the marina entrance over a 6-hour period for semidiurnal tidal changes would range from 5.7 to 7.0 cm/sec (entrance cross-section of 1,800 sq. ft.) depending upon the lagoon discharge rate. Peak velocities during the 6-hour period might therefore reach 10 to 15 cm/sec (about 1/4 knot) in the entrance channel during ebbing tides. Offshore blowing winds might tend to increase these exit flows slightly more. If the stratification were to limit the outflow to a buoyant 3 to 4-foot thick layer at the surface, the exiting flows could increase up to perhaps 1 knot in extreme cases. This could cause some navigational difficulties for small boats using the channel.

9.2.48 Incoming solar radiation will annually add heat to the water in the marina while heat will be lost via evaporation and back radiation, and a small amount of heat will be exchanged at the surface via sensible heat. The net month-to-month result is responsible for the annual cycle of heating and cooling of the marina waters which in turn effects stratification in the marina, circulation and biota growth.

9.2.49 The marina waters are expected to gain heat from March to September and lose heat from October to February. Annually the area is expected

to gain approximately 30 to 70 cal/in^2/day. The marina waters are expected to be approximately 0.1°C warmer than the coastal waters if the maximum gain is considered distributed over the entire marina depth. If confined to a surface buoyant layer a few feet thick the marina waters could seasonally become up to 0.4°C warmer than coastal waters, especially in the landward portions of the basin. Diurnal heating and cooling could result in up to 0.5°C additional change, peaking during mid-day hours. Overall the vertical gradient of temperature may annually reach 1.0°C.

9.2.50 Approximately 74 in/yr are expected to evaporate from and 20 in/yr precipitate on the marina surface. This is equivalent to a monthly average net evaporation rate of 4.5 inches per month, or in terms of volume, approximately 428,000 gallons per month. Evaporation would increase salinity slightly; the effects of ground water and lagoon discharged water tending to dilute the salinity in a more significant amount. Any water evaporated, however, would be replaced with combined incoming coastal water, infiltrating water and lagoon discharged water. This replacement would be very small, i.e. less than 1% of the daily tidal prism.

9.2.51 Thus a warm, less saline layer is expected to form and overlie a cooler, more saline subsurface layer. The salinity of the lower layer would be maintained by exchange with water in the incoming tidal prism. The amount of stratification in the surface layer would diurnally vary slightly with heating and cooling, but variations seasonally with infiltrating ground water, rainfall changes and heat budget changes will be more significant.

9.2.52 Infiltrating ground water could range in salinity between 8 to 29 o/oo. The estimated daily infiltration rate of approximately 4 mgd represents 3% of the marina volume per day. If vigorous mixing were to occur throughout the water column, of 22.5 o/oo infiltrating ground water, the marina salinity would drop 0.37 o/oo. If buoyant ground water were to enter the marina, primarily from the sides, and remain principally in the surface most layer the salinity in this layer could drop between approximately 2.3 and 4.8 o/oo depending upon the infiltrating water's salinity. The introduction of 21 to 82.5 mgd of lagoon discharged water (i.e. 7 acre lagoon flushed once/day to 11 acre lagoon 2 1/2 times) from 1.0 to 3.2 o/oo below the coastal water salinity could further depress the marina salinity an additional 0.3 to 1.2 o/oo.

9.2.53 Stratification is thus very likely to be evident in the marina. The existing Barbers Point harbor presently demonstrated a measureable stratification. Wind blowing across the marina surface will likely thus induce different circulation patterns, one in a shallow surface layer a few feet thick and a second in the subsurface layer just beneath. Density differences top to bottom in the water column are expected to exist in the marina throughout the year due to approximately a 0.1°C to 1.0°C and 0.2 o/oo to 4.0 o/oo vertical gradient of temperature and salinity.

9.2.54 The incoming water from the lagoon discharge and/or the infiltrating ground water will be high in nutrients, particularly in nitrogen.

Incoming brackish ground water is expected to contain 107 to 370 micro m/l nitrate nitrogen, 1.1 to 3.1 micro m/l phosphate prosphorous and 260 to 330 mg/l bicarbonate. Lagoon discharged water has been estimated to contain between 5.7 to 11.7 micro m/l of nitrate-nitrogen (at lagoon flushing rates of 2 1/2 to 1/2 times per day) and 0.3 to 0.4 micro m/l of phosphate. In comparison, the coastal waters in the area have been found to contain 0.1 to 0.5 micro m/l of nitrate-nitrogen and 0.2 to 0.3 micro m/l of phosphate-phosphorous, i.e. generally comparative low levels of these nutrients. If these sources of marina water become well mixed upon reaching marina entrance, the exiting water quality, in the limiting case (not including storm runoff) would contain approximately 16.7 micro m/l nitrate, 0.4 micro m/l phosphate, 12.2 mg/l bicarbonate, and have a temperature 0.2°C warmer than 0.4 o/oo lower than coastal waters. If this exiting buoyant water were composed primarily of mix of lagoon discharged water and marina infiltration, nitrate levels could reach 25.4 to 50.4 micro m/l, phosphate 0.34 to 0.67 micro m/l, and bicarbonate 18.7 to 37.2 mg/l in a shallow surface exiting layer. Whichever condition prevails seasonally, a well-mixed or stratified condition, nutrient concentrations in the marina are expected to be much greater than coastal waters and greater than lagoon water.

9.2.55 The dissolved oxygen concentrations expected in the marina will principally be a function of the marina water temperature, oxygen uptake by the marina phyto-plankton community, and replacement of oxygen via vertical and horizontal mixing of new water with resident water. Dissolved oxygen concentrations in the coastal waters and lagoon discharged water is expected to seasonally range from 6.0 to 7.5 mg/l. Within the marina, if circulation and mixing is sluggish toward the bottom, dissolved oxygen concentration may be depressed to 3 to 4 mg/l. In extreme cases of very poor vertical mixing, or within the marina sediments, dissolved oxygen may drop to 1 to 2 mg/l.

9.2.56 Circulation in the marina will be established by several factors including the marina shape and orientation to the prevailing winds, the daily tidal exchange, and the stratification within the marina. The prevailing tradewinds will blow in the seaward direction angularly across any longitudinal marina placed along the southeastern most end of the project. The flow at the surface will thus tend to move toward the downwind (west) side of the marina, as will much of the floating debris. Overturn will be aided by this cross marina seaward flow. In that the marina waters will most likely exhibit some vertical stratification a warmer, less saline surface layer varying in thickness throughout the marina should be evident at all times of the year. The separation of this surface layer from cooler, more saline subsurface waters will depend upon the degree of mixing existing in the marina from day-to-day. This mixing will be induced by the wind, wind waves in the basin, obstructions to the flow (as in slips and pilings), harbor use by small craft, and circulation patterns set up within the marina.

9.2.57 A long basin shape, oriented angularly to the prevailing winds, will result in a seaward and southwest cross marina net daily flow at the surface. This will tend to transport buoyant surface water angularly across and out of the harbor. The thickness of the less saline surface layer should be greater on the western side of the marina, this surface

layer thickness increasing toward the entrance of the marina. Some downward sinking of water on the west side would be compensated for by a weak vertical motion upward along the eastern side of the marina. The seaward and across basin wind drift in the shallow surface layer would also be compensated for by a weaker landward upwind moving subsurface flow of coastal waters from the entrance. This pattern of circulation in a varying stratified case will cause a slow mixing and overturn of the marina waters. Analysis of the expected circulation rates, amount of stratification differences within the marina, and tidal flows provided estimated rates of turnover between two to five days.

9.2.58 During flooding tides entering water should exhibit movement upwind into the basin. During periods of weak tradewinds or Kona southerly winds this flow will likely even be evident at the surface, though weak, unless the basin is receiving a significant volume of fresh water storm runoff. Flooding tides in the basin may be up to 0.3 kts, the stronger flows found in the subsurface layer and toward the entrance. A typical velocity profile might vary as much as two to two and one-half times in strength over the water column. This flow will move around obstructions and corners in varying eddy patterns. During ebbing tides the flow throughout the water column should be seaward but be strongest and first to change seaward in the surface layer. The outgoing flows may reach 0.5 kts during strong tidal changes or periods of significant storm runoff.

9.2.59 Both incoming and outgoing flows will tend to diminish in strength further into the marina. Care must be taken in shaping the marina to avoid creating stagnant areas or debris traps, particularly on the western (downwind) side and landward most portion of the basin.

9.2.60 In that it is proposed to discharge the south lagoon exiting water into the marina, both potential areas of concern, i.e. limited circulation areas and debris-floatable traps, can be relieved somewhat by proper placement of this lagoon discharge flow. Pending final marina configuration, this source of flushing water would best be placed at the landward most end of the marina. Duct size and the available head for this flow will limit the length of travel from the south lagoon to the marina. The shaping of the southern end of the south lagoon, along with the marina configuration, must be considered together in design if both are to be part of the final project configuration.

9.2.61 Tradewinds at the site are expected to vary in strength annually from 5 to 20 knots, averaging 12.2 knots. The predominant tradewind direction is from 070° true with the trades occurring up to 90% of the summer days and 50% of the winter days. Periods of calm occur 1.5% of the year. Kona conditions of weak winds or Kona storms with winds from the south and west quadrant may occur a few days each year. Though storm wind speeds typically reach 20 to 30 knots, the strongest wind reported as observed at the site on January 13-14, 1979, was 40 knots sustained, gusting to 83 knots. In that the trades predominate throughout the year, they will be responsible for producing the typical wave climate found within the marina, with the surf, swell and storm surge entering the marina being the far more significant wave activity that could cause damage within the basin.

9.2.62 It is estimated that under typical tradewind conditions a flat-calm to small 0.1 to 0.3 foot waves with 1.5 to 2.0 second periods are expected in the marina. During extreme conditions of strong trade or kona winds, waves up to 1.3 feet in height may occur. The western side and seaward portions of the marina will have the greatest wave activity from tradewinds. This side will also tend to accumulate most of the surface debris and floatables reaching the harbor form the land or marina use. During Kona storms the inner most reaches of the marina will experience the greatest wave activity and accumulation of debris and floatables.

9.2.63 Flushing criteria for the marina cannot be as stringent as the lagoons, thus the intent in the marina concepting studies was to explore schemes to provide as much flushing as available and practical to help minimize degradation of the marina water quality. Flushing of the marina under typical conditions would be accomplished through the mixing of entering water with resident water and the subsequent removal of this mix via the daily tidal changes and the net daily outflow. The efficiency of this process is judged by the water quality of the entering and exiting water. The efficiency is increased by inducing mixing and increasing the net outgoing exchange via routing the lagoon discharge to the marina. Water exiting from the south lagoon, discharged at a 21 to 50 mgd rate, will aid in increasing a net daily one-way exiting flow. The marina, in addition, is considered to receive 4 mgd of infiltrating ground water that is likely to be the least saline and most nutrient laden. The lagoon discharged water should be slightly less saline and containing significant, but diluted, amounts of nutrients. The coastal waters entering the marina should be the more saline and lower in nutrient concentrations than marina water. Within the marina a varying mix of these source waters will exist, acted upon by the resident biota, further altering the marina water quality.

9.2.64 The minimum tidal volume exchanged daily is approximately 59 million gallons, representing 43% of the marina volume. This volume is increased to 62 mgd (60%) in the case of two equal semidiurnal tidal changes. If all the south lagoon daily discharge were transferred to the marina the maximum volume leaving the marina each 24 hour 50 minute period would be 132 mgd, i.e. 98% of the marina volume. The contribution of the evaporation - precipitation is expected to be negligible (net evaporation at 0.02 mgd). Note that the incoming ground water and lagoon discharged water is expected to provide most of the daily net outflow. Though the maximum turnover volumes can sum to 98% of the marina volume in practice between 20% to 50% of the total marina volume is expected to be turned over daily. The most active exchange will occur in the surface layer and least active in the bottom waters. The surface 2 to 3 feet might be flushed daily while the bottom waters will take several days.

9.2.65 Potential Impacts. Subjects of concern regarding the marina environmental conditions focus primarily on the sea state conditions at the marina entrance (i.e. waves, surge and storm set-up), free oscillations of the marina surface and resonance characteristics of the marina, tsunami inundation and risk, and nutrient loading on marina waters.

9.2.66 Due to the complexity of the wave transformations in the proposed marina entrance area, evaluation of wave height outside of the entrance was made by analyzing the hydraulic model study results for the Barbers Point deep draft harbor. In that model study various generator positions were used to simulate wave conditions from different directions. By comparing wave height measurements in the entrance and wave heights offshore, two types of information were obtained. First, the amount of hours per year that a wave height interval of a specific class may be expected, and, second, the ratio between the wave height at the entrance approach. Though model data are not specific enough to specifically derive a frequency distribution for waves near the entrance to the marina, it was estimated that significant waves in the class 4 to 6 feet would have a duration of at least 363 hrs/yr, whereas waves 6 to 8 feet would account for at least 83 hrs/yr.

9.2.67 Without detailed information about the duration of periods of high waves it was not possible to convert the hours per year into days per year, without assuming a conversion rate. Using a rate of 1 day equals 12 hours of activity, it was estimated that 6 to 8 foot heights 7 days per year. Note that wave heights considerably larger than the above significant value may occur due to the probabilistic nature of waves. Characterizing the mean value of the highest 10% by $H_{1/10}$, and the significant wave height by $H_{1/3}$, one has approximately $H_{1/10} = 1.27 H_{1/3}$. This aspect should be taken into consideration when evaluating the above estimated wave conditions for the marina entrance.

9.2.68 The ratio between the wave height in the marina entrance area and the offshore wave height was also calculated from the model data. Although the data are incomplete and some trends appear inconclusive, some interesting observations can be made. Considering the directions W, WNW, NW, there is a strong dependence of entrance versus offshore wave height on wave period as well as on incoming wave height. The lowest ratio (0.3) occurs with high waves (18 to 20 feet) and long periods (20 sec). For waves of moderate height the ratio is minimal (0.5) for periods of about 14 seconds. The ratio factor increases for decreasing wave periods; waves of 4 second periods in the entrance will be about 80% of the offshore wave height. Considering the direction S-SW trends are similar but with considerably lower ratio-values.

9.2.69 This result is not directly obvious, but may be explained by further analysis. Realizing that the main entrance channel the proposed Barbers Point harbor (and the marina entrance channel) has a SW-NE direction, it would not have been surprising if waves from the SW, for which the entrance channels are completely open, would have produced the higher waves in the entrance channel. The opposite is true; wave refraction apparently diverts much energy away from the entrance channel, resulting in lower wave heights near the entrance to the marina.

9.2.70 This indicates that the entrance area to the proposed marina may have moderate to heavy wave conditions during an appreciable number of days per year. Partial reflections from the channel boundaries are, in addition, likely to create confused seas in the channel. Furthermore, the entrance to the marina is located in an area with limited space for maneuvering. Consequently, the design of the marina entrance

will provide for adequate maneuverability, absorption of wave energy, and an uninhibited flow of water entering and leaving the marina daily. Specifically, the NW side of entrance channel and basin of the deep draft harbor must be provided with effective wave absorbers in order to keep wave action inside the harbor basin within acceptable limits. Such an arrangement may reduce wave height arriving from the northeasterly direction.

9.2.71 The proposed typical maximum sized marina is basically rectangular in configuration with a dogleg length of approximately 3,100 feet (3,750 feet including the entrance channel) and widths of approximately 350 to 775 feet. Weak periodical variations in wind, barometric pressure, or entrance surge and surf conditions will produce seiches in the marina, particularly if these variations are of a period length corresponding to one of the natural periods of the marina. When oscillation of the free surface, or seiche, occurs the surface will in effect oscillate back and forth across, or along, the marina with periods dependent upon basin geometry and depth. These oscillations will have periods between 5.3 to 12.8 minutes along the marina length, and 0.6 to 1.3 minutes across the marina width. Amplitudes of vertical motion may be up to a few inches similar to those seiche oscillations presently observed in most shallow Hawaiian embayments.

9.2.72 The local periods for tsunamis are very similar to the periods calculated for the 35-acre basin shape provided. The result in this case is that severe problems of seiching in the marina could occur during tsunamis. Further, it has been reported that the configuration of the Barbers Point deep draft harbor would produce harbor oscillations in a "pumping mode" (single entrance node) with a maximum period of 13.3 minutes, again very similar to the marina. These neighboring basins might thus tend to share seiching energy producing undesirable marina oscillations. Changing the marina dimensions would help limit this potential problem but not eliminate seiches in the marina. Any energy fluctuation, particularly those with periods of 12.7 minutes or less, will produce seiche activities in the marina. Periods of oscillation (i.e. basin shapes) similar to periods for tsunamis, coastal surge (as an observed 4 minute period surge off Ala Moana reef), or storm surf will be avoided to minimize resonate oscillations in the marina.

9.2.73 Tsunami run-up on land is a function of the coastal bathymetry, tidal elevation, and the coastal storm or surf set up existing at the time of the tsunami. The land topography, slope and roughness (or resistence to flow) also determines the amount of flooding that can occur. A 10-foot tsunami occurring at the existing site (existing roughness for undeveloped agriculture land), during a maximum tide of +3.0 feet above mean lower low water and the absence of any coastal set-up, would produce run-up to approximately the 19-foot elevation on land. This would flood up to 3,700 feet landward at the proposed marina site. However, the final grading and development around the marina will determine the run-up potential. The marina entrance area and seaward most basin will likely receive tsunami flooding for even a tsunami of modest magnitude. The surrounding lands, however, can be given some protection with sufficiently high marina sides and grading. Proper elevation and protection would help limit the risk of run-up damage.

The complete marina, however, will likely be flooded by 10-foot tsunamis. Current velocities in the marina could increase an order of magnitude. Design of the structures in the marina will consider this event. The marina and coastal waters would also be negatively impacted by the poor quality of water exchanged during tsunamis due to changes in movement of coastal and harbor sediments and the resulting increase in suspended loads.

9.2.74 Impact of Lagoon, Marina and Storm Discharged Water on Site Coastal Conditions. Each lagoon contains between 17 to 33 million gallons of water for 7 to 11 surface acre lagoons. In that the minimum desired flushing rate, established by the biological criteria of minimizing phytoplankton biomass increases, was established as 2 1/2 times each lagoon volume per day, the coastal waters may be expect to receive up to 83 million gallons of lagoon discharged water per day at two possible locations. Table 2, presented and discussed earlier, summarizes estimates of the yearly range in the quality of the water leaving the north and south lagoons. The south lagoon, however, may discharge 33 to 50 mgd into the project marina, and the balance (50-33 mgd) to the coastal waters.

9.2.75 The north lagoon water will exit about 400 feet north of the central point of the site coastline, i.e. approximately 1500 feet north of the central lagoon wave trap intake area. It has not been specified at this time whether this discharge would be surface or subsurface. Similarly, the south lagoon may discharge its output (or excess over the discharge to the marina) about 2000 feet south of the common central intake area, i.e. about 1800 feet from the site's southern border. The north lagoon discharged water could be routed to the marina, though the distance and head loss makes this unpractical. The limiting case considered here is that two 83 mgd discharges (i.e. 11 acre lagoons) would exist 3500 feet apart, one just north of the site central coastline point and the second towards the site's southern border. This was considered because of the construction phasing may find both lagoons completed before the marina is constructed.

9.2.76 The quality of the water exiting the lagoons is expected to be lower in salinity (1 o/oo), slightly warmer (0.5°C), and more nutrient-rich than the receiving coastal waters throughout the year. As such it will be slightly buoyant. If discharged through a subsurface duct it would attempt to rise, rapidly mixing with the receiving waters before reaching the surface. Only an increase in nutrients, primarily nitrogen, should be identifiable beyond 300 to 400 feet of the discharge point. The limiting case, however would be when the exiting waters were discharged at the surface via a channel across the shoreline. In this case the exiting water would tend to remain toward the surface, quickly spreading both seaward and along the coastline in the direction of the prevailing longshore and/or tidal current. If highly nutrient ladened, the discharge water is expected to retain its increased nutrient identification longer, extending both seaward and down the shoreline. However, its thermal and saline characteristics would not likely be found beyond 400 to 600 feet from the point of discharge.

9.2.77 The algal communities found in the discharge area are very stenohaline (narrow range of salt content) and stenothermal (narrow range of heat content). At the coastal points of discharge these communities will be adversely impacted. However, rapid mixing in the coastal currents, combined with the small magnitudes of the anticipated thermal and saline changes in the exiting lagoon water, are expected to result in minimal impact of the coastal biota outside of the initial 300 to 600 feet. Naturally occurring fluctuations of similar magnitude presently occur seasonally and diurnally in the receiving coastal waters. However, the addition of nitrogen (primarily as nitrate) and phosphorous will likely stimulate nearshore phytoplankton growth and fisheries. Any suspended particulate material of fine sand or silt will adversely affect the local assemblage of coral growth within this initial mixing zone. The potential particulate material in the lagoon exiting water is expected to be that fine sized portion that remains suspended in the lagoon incoming water via entry through the wave trap and/or tidal ducts. Coarse material should settle out earlier and no other particulate material is considered as having entered the lagoon via surface runoff or leaching from the lagoon bottom or sides.

9.2.78 The water leaving the lagoons would thus in effect be principally nearshore surf zone water, enriched with nitrate-nitrogen and biota, and slightly less saline. This water is redistributed to the nearshore surf and longshore zone. The predominant tradewinds blowing toward offshore along with the nearshore head created by the volume of exiting water would tend to aid transport of this water away from the shoreline. In the limiting case of a discharge at the shoreline on the surface the net direction of this transport would vary with the season, and the prevailing winds and tidal phase.

9.2.79 During August through April the nearshore net transport is southwest angularly away from the coast. The incoming surf during most of these months is from the northwest quadrant. During flooding tides strong 3/4 to 1 1/4 knot alongshore flows to the southwest would move the exiting water south-southwest to west southwest. Dilutions of 5 to 20:1 are expected within 1 to 1 1/2 miles from the point of discharge. During ebbing tides weaker 1/2 to 3/4 knot flows should move the mix of lagoon discharged water and coastal receiving waters to the northwest, angularly away from the shoreline. Dilutions of 5 to 20:1 would likely be found 1/2 to 3/4 mile from the discharge points. In both cases the net daily transport would be to the southwest. Some recirculating water might be drawn into the lagoon intake area, after having been diluted with the receiving waters.

9.2.80 During the summer months of May to July a weak nearshore daily net transport to the north-northwest is believed to exist in the area. In this case west-southwest flooding flows of 3/4 knots should prevail along with northwest ebbing flows of 3/4 to 1 knot. Dilutions of 5 to 20:1 during these months should be found 1/2 to 3/4 miles from the lagoon discharge locations.

9.2.81 The lagoon discharge impact areas so defined consist of, first, an immediate mixing zone. In this adversely impacted area thermal,

haloline (salt content), suspended load and potential B.O.D. or bacteriological loads will impact the resident coastal algae and corals within a few hundred feet (up to approximately 600 feet from the points of discharge) extending in the offshore and both longshore directions. Second, a larger nutrient enriched overall mixing zone extending from approximately 1/4 mile north of the project's northern border to 1/2 mile south of the southern border and extending 3/4 to 1 mile seaward is anticipated. Beyond these approximate limits the daily variations in the receiving water nutrient levels would likely mask the identity of the lagoon discharged water.

9.2.82 The volume of water leaving the two lagoons daily, totaling up to 166 mgd for two 11-acre lagoons, is sizable enough to alter the longshore transport (wave induced transport along the beach) in the immediate discharge areas. The existing transport is believed to be southward along the project 1 1/2 mile shoreline most of the year and northward during the summer months of May to July. If, in a limiting case, the discharged water from one lagoon were to join a longshore flow and parallel the shoreline within the 0 to 15-foot depth zone, i.e. within 700 feet from the shore, it would add approximately 7% to the coastal flow, or in the opposing case subtract a similar amount from the longshore transport. During times of slack water at the change of the tide and/or periods of calm seas the lagoon exiting water would continue to provide a weak (less than 1-5 inches per second) alongshore transport, probably radiating both directions away from the point of shoreline discharge. The strongest flows would be experienced close to the discharge locations on the coast.

9.2.83 The impact of this change on transporting sand along the site coastline will depend on where the reservoirs of sand exist in relation to the discharge locations. Though the exact areal distribution of the local sand resources are not known, they are believed to be small and contained in limited localized areas along irregular coral and basalt shoreline. Some local redistribution of this sand is likely to occur. This is recommended as a subject of further study pending the final lagoon discharge volumes and locations, and more comprehensive field information detailing the local sand resource.

9.2.84 The volume of water discharged each day from the marina will depend upon several conditions prevailing at the time. These include the tidal prism(s) occurring within the 24-hour period, the amount of water entering the marina from the lagoon discharge, the rate of ground water infiltration for the season of the year, the net result of evaporative losses versus direct precipitation on the surface, and the prevailing conditions of storm drainage, if any, into the marina. The two most significant of these factors are the daily tidal prism and lagoon discharge rate. The latter, however, is also dependent upon the tidal prism entering the south lagoon along with the prevailing coastal sea state and wave trap activity for lagoon flushing.

9.2.85 The "low" extreme condition would be a day of weak tidal changes, calm-flat coastal sea state, occurring during the driest season with evaporation exceeding precipitation, a weak rate of ground water infiltration and no storm drainage. Under these conditions approximately 40 to

50 mgd would leave the marina, flowing into the coastal receiving waters. The "high" extremes could occur during a spring tide, with coastal surf conditions flushing the south lagoon at least 2 1/2 times per day, occurring during the wet season with a high ground water infiltration rate and preciptation exceeding evaporation. Under these conditions approximately 100 to 120 mgd would leave the marina daily. If the latter conditions also occurred during a severe Kona storm, i.e. when the marina was receiving a portion (approximately 1/2) of the significant amount of storm drainage resulting from a 100-year storm with a 24-hour duration, the volume leaving the marina exit could reach 132 mgd during the day of the storm.

9.2.86 Both the quality and volume of water leaving the lagoon effect coastal conditions at and around the marina entrance. The quality of the exiting water was discussed earlier. The volume of water being discharged will leave the marina in two daily ebbing tides, i.e. semi-diurnal conditions prevailing in Hawaii during the year. Thus a minimum of 22 to 28 million gallons are expected to leave the marina entrance in any typical 6-hour 25 minute ebbing tidal period increasing to 66 million gallons during a severe storm. Averaged exit velocities for these flows over the entire 11 to 13 foot water column (12 ft msl) would be between 0.05 to 0.1 knots.

9.2.87 The greater condition of discharge, i.e. 66 mgd during storm conditions, is about equivalent to the discharge from the proposed north lagoon during a 24-hour period. Much of the south lagoon discharge may be routed to the marina, i.e. 33 to 83 mgd, with the remainder if any discharged to coastal waters. The greater discharge would be from the north lagoon, releasing approximately 83 mgd some 5,300 feet north of the marina entrance and 2,000 feet north of the lagoon intake area. In comparison, the marina outflow would be located about 3,800 feet from the central intake and wave trap area for both lagoons.

9.2.88 The slightly buoyant water leaving the marina would tend to remain in the coastal surface layer. During summer months, ebbing tides, or periods of on-shore southerly surf or Kona winds, the discharged water from the marina would tend to flow northward, up the coast, and reach the lagoon intake area within 1 1/2 to 2 hours. Dilutions at that time might reach 5:1 to 20:1, indicating a portion of this recirculating water might be drawn into the lagoon intake area. Thus the intake quality would drop during these conditions. The prevailing coastal circulation is the important factor in this case. It needs to be carefully studied at the site coastline.

9.2.89 The longshore transport may in turn be affected by the marina discharged water, particularly in the immediate area of the marina exit. If, in a limiting case, this water were to leave the basin and flow along the coastline, staying within 500 feet of the shore (i.e. 0 to 10 foot depth), it would add approximately 15% to the alongshore transport in the area of the marina exit. This flow would tend to follow the existing flow from tidal currents and/or coastal surf set-up. During periods of slack tides and calm sea the exiting water would move radially outward from the marina entrance, most probably tending to move to the south-southwest.

9.2.90 Two intermittent streams presently traverse the project property; the Waimanalo and Makaiwa gulch. Neither is a perennial stream due to the generally dry nature of the area. Project land plans will change their routing entirely. Existing proposals would route storm runoff from the project grounds through constructed drainageways to the ocean. The points of discharge may vary depending upon the final topography following full development. A large portion of the storm runoff may be routed to the project's proposed marina. However, the terrain in the northern section of the site indicates a portion may reach the northern 1/3 of the site coastline.

9.2.91 A report by M. Chun and G. Dugan (see subsection 9.1) provides project information on storm runoff quality and quantity for 1-, 6-, and 24-hour duration events, with storm recurrence intervals of 1-, 5-, 10-, 25-, 50-, and 100-year periods. Pollutant concentrations and runoff volumes resulting in pollutant estimates for water pollution implications are given in a summary table.

9.2.92 Chun and Dugan indicate approximately no change in nitrogen output, an increase in phosphorous and a decrease in suspended solids load will likely occur as a result of the project's proposed residential and hotel development. They calculated that the greatest incremental storm runoff volume of 70.9 acre-foot per event would result from the 100-year storm with a 24-hour duration. They subsequently used concentrations of 0.6, 0.57, and 250 mg/l for nitrogen, phosphorous, and suspended solids to simulate complete residential project development. Tabulated comparative 1979 and projected storm loadings for the 3 durations and 6 recurrence intervals show nitrogen increasing (to 15.4 pounds per event) for short duration frequent occurrence cases and decreasing (to 308.4 pounds per event) for 24-hour 100-year recurrence storms. Similarly, phosphorous is estimated to increase from 32.2 to 727.2 pounds per event over the same conditions, and suspended solids decrease to between 5.7 to 765.0 pounds per event. They concluded that 1-year storm events would be of the greatest concern because of their more frequent occurrence, but the modest changes in nitrogen and suspended solids would not pose a significant hazard to the coastal waters. Phosphorous, however, would increase significantly, but they felt still not at an unacceptable level considering the frequency of occurrence.

9.2.93 Significantly, the suspended loading is projected to decrease in all cases. At present two storm channels route much of the storm runoff directly to the coastline, thereby stressing the nearshore coral community during each storm. Rerouting this runoff to the project marina, and with less suspended solids each event, will considerably lessen this stress on the local coral. The harbor will in effect act as a holding and settling basin.

9.2.94 In the limiting case, i.e. a 24-hour duration storm with 100-year recurrence at full project development, 180.1 tons per event of solids would reach the marina. The 1-hour duration 1-year recurrence event would deliver 7.1 tons per event. The particulate distribution was not specified by Chun & Dugan. However, if similar to historical experience in coastal waters, about 1/2 of the solids would settle out. In this case, 3.6 to 90 tons of solids per event would reach the marina

bottom. Most would settle out in the immediate area of entry into the marina, i.e. within a few 100 feet of the discharge point. The most frequent, smallest, event would thereby deposit an average of 3×10^{-3} mm of solids over the likely discharge area, while the less frequent, largest, event would deposit 74×10^{-3} mm of solids.

9.2.95 Those fine particulate materials that do not settle would be flushed from the marina, given a flushing discharge from the south lagoon, and move away from the site shoreline with the prevailing nearshore and offshore transport. Most probably this fine material would remain in suspension, thus the marina acted as a settling basin. Any other portion of the site storm runoff routed directly to the coastline would negatively impact the coral community in the particular discharge area. Though the solid's concentration will be less than before development, the coral abundant areas to be avoided are believed to lie primarily off the northern half of the site coastline where much of the viable local coral community is found, excluding the northern most end of the site.

9.2.96 Ground water infiltrating into the lagoons and marina will be very high in nitrogen compounds, particularly nitrate-nitrogen. Some ground water is most probably reaching the coastal water at present through natural percolation from the site shoreline. The seasonal rates are unknown but historical water quality data from the local waters do not show signs of consistently significant release rate. This would be expected in that the area tends to be dry. Water discharged from the lagoons and marina, however, would contain significantly greater amounts of nitrogen than the receiving coastal waters. During storm conditions the runoff, and therefore the marina exiting water also, is expected to contain significant amounts of phosphorous . The addition of storm runoff high in phosphorous would tend to increase eutrophication potential in the discharge water.

9.2.97 Both nitrogen and phosphorous concentrations in the marina during a storm may increase between 7 to 18 times greater than the receiving coastal waters. When discharged from the marina during ebbing tides this water will mix and dilute with coastal waters as noted earlier. The difference from non-storm conditions will be that the phosphorous loading will also increase in the discharged water. This water existing in the marina will likely retain its increased nutrient and suspended load identification to approximately 2,000 to 3,000 feet from the coastal point of discharge. However, the coastal waters during storm conditions normally contain increased loading from direct shoreline runoff, masking some of this impact. In addition, the marina storm discharge will be small in comparison with the discharge from the adjacent 90-acre Barbers Point deep draft harbor.

9.2.98 Feedback of Lagoon Water, Marina Water and Neighboring Stressed Waters. Water discharged from the lagoon one-way exit (s) or water from the neighboring marina, deep draft harbor and industrial discharges to the south could potentially recirculate back to the lagoon intake area and marina channel. In the case of the lagoons this tidal inflow and wave trap intake area for both lagoons is centrally located on the site coast. It is proposed that the north lagoon will discharge water approxi-

mately 1,500 feet north of this intake area, and the south lagoon discharge either 2,000 feet south and/or through a duct to a project marina up to 35 acres in size located on the southern edge of the property. One-half mile further south of the Barbers Point harbor entrance is an industrial-refinery area that presently contributes to degraded coastal waters in that area.

9.2.99 The site nearshore circulation effects both the source water entering the lagoons and the removal of water leaving the exit areas. The patterns found off the project coastline in the past suggest that water reaching the site central shoreline area would arrive most of the year from the north and offshore, especially during flooding tides. During these conditions water from the north lagoon discharge would mix with coastal waters as discussed earlier and reach the intake within 20 to 35 minutes. In contrast, water from discharges further south would flow southwest away from the site. Tradewinds blowing toward offshore would tend to move most, but not all, of the water leaving the Barbers Point harbor toward the west and northwest, angularly away from the coastline during most ebbing tides.

9.2.100 During the summer months of May to July, typical tradewind conditions and ebbing tides, a portion of the discharged water leaving the south lagoon, or the water leaving the marina-deep draft harbor entrance to the south, is expected to reach the lagoon common intake area. In transit dilutions, estimated at 5 to 20:1 would occur, the amount depending upon the prevailing tradewinds, incoming surf, and the longshore circulation strength. An increase in intake water nutrient concentration would result until an equilibrium is reached with the local daily net transport to the northwest. Under these conditions nitrogen and phosphorous concentrations, plankton biomass, and water turbidity would likely seasonally increase in the intake area. Considering the occurrence and recurrence times for these conditions to prevail during the year, concentrations of nutrients have been estimated to perhaps rise to 1.1 times the offshore unaffected waters.

9.2.101 During winter periods of strong ebbing tides and either Kona winds or periods of calm, Barbers Point harbor water and coastal water from the industrial discharge area to the south, mixed with offshore water, could reach the lagoon intake area within 1 to 3 hours. During extreme conditions it is estimated that lagoon intake water salinities could decrease as much as 1.0 o/oo in the presence of storm rainfall and coastal runoff. Suspended solids in the lagoon intake water during storm conditions could increase to as much as 40 ml/m^3 and chlorophyll levels to over 2.6 mg/m^3. Dissolved oxygen would decrease, the more stable forms of nitrogen and phosphorous increase in the nearshore waters 2 to 20 times over open ocean conditions, sulphate concentration increase up to 375 mg/l, and hexane soluble materials plus ions of several metallic elements from industrial discharges to the south be found in the lagoon intake area. Such conditions may statistically occur 13 to 20 days per year. During such times it may be advisable to close the lagoon intake area to avoid accelerated eutrophication or sediment accumulation, and recirculate, aerate and sand filter lagoon waters, or draw upon unaffected offshore waters via standby pumps.

9.2.102 Other Potential Impacts and Mitigation. An effort was made in planning to attempt to recognize and list potentially problem areas that could result from including two lagoons and marina in the West Beach development. The lagoons and marina were evaluated as a system. Technical evaluation of the lagoons and marina showed that some important site specific data are missing, particularly site data on ground water infiltration rates and water quality, nearshore circulation and coastal wave climates. Project design phase will obtain site specific field data. Until that time the evaluation of impacts must be considered approximate. Following is a list of impacts and mitigation concepts that can be identified at this time and identification of future studies to be completed prior to or during the design phase.

1. The amount of ground water infiltrating either the lagoons or the marina each day is principally a function of the seasonally varying head of ground water and the hydraulic permeability of the soils and substructures existing at the site. During prolonged dry periods conceivably saltwater from these inland constructed salt water filled bodies may infiltrate the surrounding terrain and impact the ground water in the immediate area. In the absence of sufficient site specific boring and permeability test data the probability of this impact cannot be safely estimated though the potential impact is recognized.

2. A potential significant impact exists for the coastal water during the excavation for construction of the lagoons, wave trap, tidal ducts, and marina. Excavation will be close to or on the coastline and be between 8 to 15 feet below the mllw level. Portions of the beach dunes and basalt base will be completely removed or altered. The construction process can create or release considerable amounts of suspended materials of fine sand, silt and clay. If allowed to reach the coastline (or settle in the lagoons) the abundant nearshore beds of principally Porites lobata and Pocillodora meandrina corals could subsequently sustain considerable damage. The largest area of these coral species exist within a few 100 yards of the shoreline, especially off the northern half of the project shoreline.

3. Silt and clay sized sediment materials (1/16 mm and smaller) must not be left on the lagoon bottom following excavation, or be allowed to enter the lagoon, as they will tend to take up phosphorous and sulfide compounds leading to water quality degradation.

4. Coastal swimming and small coastal beach facilities will combine natural and constructed limitations to contain swimmers close to the shore. Though the coastal currents are usually much less, velocities up to 1.5 knots have been observed in the area along with a resident population of sharks. In addition, people will be kept clear of the lagoon entrance and exit tidal channels or ducts, and the wave trap run-up ramp.

5. The lagoons could interrupt littoral drift. Medium fine (1/4 mm dia) and larger sand particles will slowly accumulate, both in the lagoon wave trap entrance and holding pond. Assuming a mean suspended load during typical conditions of 2 ml/m^3, 1/2 of which is sand sized, up to 0.7^3 of sand per day could be caught. A higher suspended load of

6 ml/m^3 would provide 2 m^3 of sand per day that could accumulate. This sand would have to be regularly removed from the lagoon entrance wave trap ramp and holding pond.

6. Importance is placed upon comprehensively knowing the low end of the wave spectrum at the site coastline. The investigations indicate that 341 days of the year waves and swell greater than one foot in height reach the shoreline. Calm conditions, or waves and swell less than 1 foot in height, exist statistically at the site for 24 days per year. Exactly when these days occur, or how many consecutive hours exist with absolutely flat seas and no incoming swell, is not known for the site area. It is believed these conditions would appear in late summer and/or mid-winter.

7. The tidal ducts, wave trap, and backup pumping equipment will be designed to be capable of providing flushing rates up to 5 times the lagoon volume per day. This capability will insure active flushing if/when it is needed following water degradation from excessive calm periods, storm periods, or accidental and deleterious discharges into the lagoon.

8. The lagoons will be receiving ground water seepage very high in biota stimulating nitrate-nitrogen. Both the infiltrating water and the water leaving the lagoons are expected to show an increase in nitrogen during winter months when rainfall increases. Several borings to the lagoon depth, and bore water composite samples sampled for temperature, salinity, nutrients, dissolved oxygen, suspended solids and bacteriology, will be taken at both lagoon sites to verify geologic character of the lagoon bed, infiltrating water quality and rate of seepage. The lagoon daily natural flushing rates will also vary with local wave activity and the prevailing tidal profile. The combination of small daily tidal change and calm winds and seas following a recent winter storm, will result in insufficient flushing for short periods of time. These periods might extend from a few hours to a day or two. At these times the lagoon water quality will be monitored (temperature, salinity and nutrient levels) to determine if pump aided flushing, aeration and/or sand filtering is needed to maintain desirable lagoon water quality.

9. The deep central portions of the lagoon will have a constant depth to insure all benthic waters are uniformly flushed. The entrance and exit ducts will sufficiently be large to directly reach and flush the lagoon bottom waters. The size will be determined in the design stage.

10. The existing coastal ridge seaward of the lagoons, or at a minimum, the existing hard basalt and coral shoreline armored terraces will protect the lagoon. Removal of any portion of this coastal feature will significantly alter coastal processes. The nature of the effect could be better evaluated after completion of the wave spectrum studies and study of littoral processes.

11. All grading around the lagoons (except for the lagoon beaches) will be directed away from the lagoons, particularly those surrounding grounds containing vegetation that receive regular treatment with plant fertilizers, plant control chemicals, or pesticides. However, due to

the inherent porosity of the coral and sand substrata believed to exist at the project site, some of these materials are expected to reach the subsurface waters and, in time, will infiltrate the lagoon sides. No direct storm runoff from urban areas, streets, hotels or parking areas will be allowed to reach the lagoons. The results of discharging storm-water pollutants into the lagoons (nutrients primarily nitrates, and phosphate, bacteria, solids and particulate substances, hexane soluble materials, hydrocarbons, oils, tar waxes and debris) will degrade the aesthetics of the lagoon waters.

12. The final lagoon shapes will be designed giving consideration to the flow of water from entrance to exit such that neither vertically nor horizontally stagnant areas will develop for accumulation of degraded water or floating debris. Debris from the lagoon beaches and surrounding grounds, plus wind blown vegetation and dust debris, will be controlled in the immediate lagoon areas. This will avoid adding aesthetically objectional non-degradable and organic material to the lagoon waters.

13. The hotels adjacent to the lagoons will elevated to eliminate the possibility of damaging run-up during a tsunami. The lagoons, however, being by necessity at sea level with direct connections to the ocean, will receive some inundation for tsunamis of even modest magnitude via directly from the coastline or from each end of the shoreline. Elevating the hotels on fill could alter tsunami inundation hazards in the area.

14. Any marina placed along the site's southern border will tend to accumulate debris and floatables on the northwestern side. This debris will be collected periodically or the marina will be destroyed to prevent trapping in corners with weak circulation. The debris moving seaward with surface flows will be discharged from the marina into coastal waters during ebbing tide.

15. The entrance-exit area of the marina will be designed to minimize the possibility of storm surf and surge energy from reaching the interior of the marina. An entrance design incorporating a wave absorption boundary or beach will aid in reducing this risk, while providing a safer entrance for small boats.

16. Care will be taken in selecting the final marina design shape to avoid restrictions to the horizontal flow and the attendant increase in current strength within the marina. A 35-acre (maximum sized) marina, in the presence of 2-foot tidal prisms, plus receiving the south lagoon discharge, infiltrating ground water, and storm drainage will not have a cross-section between any two boundaries of the marina less than 3,000 square feet.

17. Any marina design that incorporates its entrances as part of the Barbers Point deep draft harbor or the main channel for the harbor will result in some harbor discharge water reaching the marina during the first hour or two of a flooding tide. If the marina entrance is as seaward as possible, as in the concept evaluated, this recirculation effect would be small, likely influencing less than 5% of the incoming tidal prism. The marina in return will also influence water quality in the deep draft harbor.

18. Wave conditions anticipated to occur at the proposed entrance to the marina are rougher than desirable for safe navigation. An improvement may be obtained by constructing a breakwater north of the entrance channel. If such a breakwater would be built, it would be desirable to relocate the marina entrance further seaward. If a breakwater cannot be considered, the entrance configuration design for the marina must consider a structure that would insure wave dissipation.

19. A disadvantage of a marina design using Barber's Point Deep Draft Harbor is the mixing of recreational and commercial traffic, although the availability of the deep water entrance channel for both types of shipping is an advantage. Separate entrances will be considered further. Secondly, water discharge from the marina into the deep draft channel may create eddies which may make the channel unsafe for large vessels. The removal of a portion of the deep draft harbor revetment may create unsafe wave conditions in the harbor basin that could prevent safe berthing in the deep draft harbor. The marina may alter tsunami response in the deep draft harbor causing damage to property around the harbor's shoreline.

9.2.103 Additional Discussion on the Impact of the Marina and Lagoons as Identified in Comments During the DEIS Review Period.

(1) Impact on marina from groundwater infiltration.

The high nutrient concentrations associated with groundwater infiltration to the basin are expected to effect primarily a limited area immediately outside the entrance channel. Nutrient levels outside the basin are expected to decline rapidly with distance from the entrance and with time as the result of advection and mixing with the adjacent coastal waters. Further, because the nutrients are associated with the less dense, brackish groundwater, nutrient levels decline markedly with depth and thus their contact with the benthos is limited for the most part to the most shallow areas. The principal impacts to effected areas will likely be decreased diversity and increased abundance of benthic algal species having higher capacity for nutrient assimilation. The basis for these conclusions comes from analysis of horizontal and vertical nutrient profiles in the regions of the existing Barbers Point basin and the Honokahau Small Boat Harbor, two basins presently receiving nutrient-rich groundwater infiltration.

(2) Sedimentation effects.

Sedimentation effects to the nearshore communities will be minimized by conducting dredging operations in the dry, and by the construction of settling basins inland of the lagoon and marina basins to trap portions of the surface runoff.

The most pronounced effects to the nearshore coral communities will occur in the regions adjacent the entrance channel to the marina. Decreased size and diversity of coral communities are expected to result from the increased sedimentation and turbidity (decreased water clarity) that will likely be associated with this region.

(3) Potential of ciguatera outbreak.

As association of ciguatera outbreaks with construction/dredging activities has been witnessed in several Pacific locales. The causative nature of this association, that is the triggering mechanism(s) which may lead to the production of toxins from the epiphytic dinoflagellate (Gambeirediscus toxicus) is at present incompletely understood. Because of this lack of knowledge, it cannot be stated unequivacably that a ciguatera outbreak will or will not be associated with the proposed dredging at West Beach; it is however, definitely to be acknowledged that the possibility of such an occurrence exists.

Neither (a) the fact that an outbreak occurred in conjunction with dredging at the adjacent Waianae local, nor (b) that many dredging operations around the state over the years have failed to illicit such incidents of ciguatera toxicity enables one to improve on the certainty of the simple statement that "the possibility exists".

Because factor(s) triggering the incidence of ciguatera are unknown, no mitigating measures can be put forth to avoid a possible occurrence. It would, however, be possible to alert fishermen to the potential hazard and thus reduce the likelihood of consumption of poisonous products by this population. It is recommended that appropriate state agencies be asked to notify fishermen in the area of the potential hazard associated with organisms taken from the area during and for several months following dredging. In conjunction with this alert, a monitoring program designed specifically to address the ciguatera issue could evaluate the toxicity status. The periodic analysis of reef fish taken from the area for toxicity is probably the best diagnostic tool.

(4) Marina size.

The developer is considering a significant (50 percent or more) reduction in the size of the marina. This would reduce excavation, groundwater infiltration, salt water intrusion into basal groundwater, et cetera.

(5) Salt water intrusion into the basal groundwater.

As the marina design is finalized the technical verification studies prepared, a groundwater hydrologist will be consulted to make an evaluation of saltwater intrusion into basal groundwater. Based on his evaluation, the developer will adhere to the applicable regulations and laws which relate to adverse impacts on saltwater intrusion and groundwater seepage.

(6) Littoral processes.

The last project concept reviewed by the oceanographic consultants did not contain a marina breakwater extending seaward of the site coastline. The marina entrance channel intersects the much larger Barbers Point Harbor channel landward of the coastline. Thus the subject of littoral drift in that area was not included. We note, however, that the earlier marina concepting work did at one time consider seaward extending breakwaters. If the final design again includes such a breakwater the oceanographic consultants agree that the subject of littoral drift around the marina entrance will require evaluation in the design phase.

(7) Boat discharges into the marina.

Boat sewage is a management matter and is governed by State and Federal laws and regulations (i.e. holding tanks). Compliance with these laws and regulations is mandated. Raw sewage cannot be discharged from the boats into the marina. The specific number of sewers and pumpouts to be included in the marina will depend on governmental requirements, ability to enforce the laws, and advanced planning. The management will advise boaters of the legal requirements.

(8) Marina entrance.

If it is determined during the design stage (including discussions with the Harbors Division, State Department of Transportation and the U.S. Corps of Engineers) that interference problems with commercial traffic using deep draft harbor is likely, a separate entrance to the marina would appear to be the most likely alternative.

(9) Tsunami.

The final site topography is yet to be established. Both the final elevations and terrain roughness will establish runup heights on land. In absence of a final development plan, an attempt was made to roughly quantify the extent of runup on the existing terrain. It showed tsunami runup will be a problem. Final work will include, the Corps of Engineer's waterways experiment station (WES) work and 100-year runup height along with the National Flood Insurance Guidelines. A local tsunami expert will provide an analysis during the design stage. Further work in absence of the final site topography and terrain characteristics would not seem meaningful at this time.

(10) Public use of the marina.

A condition of the State Land Use Commission was the availability of the marina slips to the public. The developer intends to allot a portion of the total slips to residents outside the resort development. However, the total number has not been determined, nor the percentage of that total to be provided to the other residents (i.e. public).

(11) Population of sharks.

There is a resident population of sharks (page 69) along the existing shoreline fronting West Beach. Because of the longshore current and rough swimming conditions, there is presently little swimming and surfing activity. Even when the bathing lagoons are completed, these conditions will minimize swimming off the natural shoreline. Should swimming in this area (i.e. outside the natural shoreline) take place, it could mean that contact with sharks may occur. Also, the marina users should be advised of properly maintaining their fish catch and not cleaning fish within the marina waters so as to prevent "attraction" of sharks.

(12) Technical verification and design stage, coordination.

The technical verification and design stage is expected to be initiated upon completion of the EIS. The work will involve a detailed review of the marina and lagoons, including the sizing, design, modeling and engineering considerations. During this period, the work will be coordinated with the Corps of Engineers, Harbors Division (State Department of Transportation), National Marine Fisheries Service, Fish and Wildlife Service (Department of the Interior), Department of Land and Natural Resources (State of Hawaii), Department of Land Utilization (City and County of Honolulu), Board of Water Supply (City and County of Honolulu), Advisory Council on Historic Preservation, Environmental Protection Agency, other Federal, State, and County agencies as determined by the Corps of Engineers.

(13) Increased fishing pressure.

The project will result in increased fishing pressure in both the nearshore ad offshore area. The proposed marina will undoubtedly berth many recreational and part-time commercial fishing vessels. Their immediate accessibility to the nearshore reefs and offshore waters will subject these areas to additional fishing pressure.

(14) Humpback whales and green turtles.

The National Marine Fisheries Service (NMFS) indicated that "The endangered whale (Megaptera novaeangliae) is commonly sighted off the west coast of Oahu between the months of January through April. Their preferred habitat is well within the 100 fathom isobath, consequently they occur close to shore. Although the coastal waters of Oahu do not appear to be a critical habitat to these large whales, they can often be seen migating along the coast, particularly late in the season."

On the green turtles, the NMFS stated: "The second listed marine animal to be considered is the green turtle (Chelonia mydas) which recently was designated threatened under the Endangered Species Act of 1973. Green turtles occur in the shallow reef areas surrounding Oahu where they are usually seen feeding on benthic algae or resting in coral caves. They are commonly sighted off West Beach."

The proposed project will increase the potential of sighting and contact with these marine animals. To the extent practical, the boaters and fishermen will be advised of their existence in the area and that these animals are not to be harassed, caught, or otherwise harmed under the Federal law.

9.3 Air Quality Considerations and Impact

9.3.1 Ambient Air Quality Standards. State and/or Federal Ambient Air Quality Standards (AQS) have been set for seven classes of air pollutants as shown in Table 7 . An AQS is a pollutant concentration not to be exceeded over a specified sampling period which varies from pollutant to pollutant. Each of the pollutants listed has the potential to cause some form of adverse health effect or to produce environmental degradation when present in sufficiently high concentration. The Federal Air Quality Standards have been set at levels below which known adverse effects are expected to occur, but State of Hawaii Standards include an extra margin of safety designed to protect especially sensitive individuals or environments from possible adverse effects resulting from long-term exposure to low levels of these pollutants.

9.3.2 For suspended particulate matter, the Secondary Federal Standards refer to levels deemed necessary to preclude welfare impacts such as reduced visibility or property damage, while Primary Standards refer exclusively to adverse health impacts. For all the other pollutants, only Primary Standards apply.

9.3.3 In most cases, the State Standards are substantially more stringent than Federal limits (four times more stringent in the case of the one-hour Standard for carbon monoxide). Furthermore, the State Standards are even more stringent regarding the number of allowable annual violations. The Federal Standards are levels not to be exceeded more than once per year, while the State Standards apply to any exceedance of specified limits.

9.3.4 The AQS for airborne lead has just recently been adopted by the Federal government. Under the provisions of this Standard, the State of Hawaii is required to develop, adopt and implement a control plan to insure that the Standard will be met by 1982 and maintained thereafter.

9.3.5 Present Air Quality. At present, the proposed project site has only a few permanent dwellings used by the caretakers. The primary land use is sugarcane cultivation. Existing roadways within the site are for the most part unpaved and primary usage is for cane hauling and associated agricultural activities. The major access road from Farrington Highway is partly paved and is sometimes used by chartered buses or private vehicles bringing invited guests to picnics or evening luaus on the beach.

9.3.6 The primary air pollutant generated by present usage of the site is fugitive dust from vehicles traveling over unpaved roads or from the wind blowing over recently-harvested fields. During the cane harvest season (approximately March through November), open field sugarcane burning is a major source of short-term particulate and carbon monoxide concentration. So few vehicles travel the present roadways that vehicular emissions of carbon monoxide, hydrocarbons, nitrogen oxides and lead are minimal.

9.3.7 Nearby major air pollutant sources likely to affect present ambient air quality within the proposed project site include the

TABLE 7

SUMMARY OF
STATE OF HAWAII AND FEDERAL AMBIENT AIR QUALITY STANDARDS

POLLUTANT	SAMPLING PERIOD	FEDERAL STANDARDS PRIMARY	FEDERAL STANDARDS SECONDARY	STATE STANDARDS
1. Suspended particulate matter (micrograms per cubic meter)	Annual Geometric Mean	75	60	-
	Annual Arithmetic Mean	-	-	55
	Maximum Average in any 24 hours	260	150	100
2. Sulfur Dioxide (micrograms per cubic meter)	Annual Arithmetic Mean	80	-	20
	Maximum Average in any 24 hours	365	-	80
	Maximum Average in any 3 hours		1300	400
3. Carbon Monoxide (milligrams per cubic meter)	Maximum Average in any 8 hours		10	5
	Maximum Average in any 1 hour		40	10
4. Hydrocarbons Non-methane (micrograms per cubic meter)	Maximum Average in any 3 hours		160	100
5. Ozone (micrograms per cubic meter)	Maximum Average in any 1 hour		240	100
6. Nitrogen Dioxide (micrograms per cubic meter)	Annual Arithmetic Mean		100	70
	Maximum Average in any 24 hours		-	150
7. Airborne Lead (micrograms per cubic meter)	Average Over 3 Months		1.5	1.5

Source: 40 Code of Federal Regulations, Part 50 and State of Hawaii Public Health Rule and Regulations, Chapter 42.

Hawaiian Electric Company Power Plant complex just north of Kahe Point, the Chevron USA (formerly Standard) Oil Refinery in Campbell Industrial Park near Barbers Point, and vehicles traveling on Farrington Highway adjacent to the project site. Other potential contributors to air pollutant levels within the project site include several smaller industrial and commercial activities in Campbell Industrial Park, nearby sugarcane field burning, and aircraft using Barbers Point Naval Air Station.

9.3.8 Natural air pollutant producers that might affect air quality at the proposed site include the ocean (sea spray), plants (aeroallergens), and volcanic eruptions from the island of Hawaii. Concentrations of pollutants from these sources at the proposed West Beach site should not differ markedly from values that might be encountered at other Oahu beachside locations, and are thus discussed no further in this report.

9.3.9 There are no long-term air quality measurements available for any receptors within the proposed project area. Present air pollutant levels there must, therefore, be estimated based on data from nearby monitoring stations, short-term on-site measurements, and air pollution dispersion modeling.

9.3.10 Sulfur Dioxide. Sulfur dioxide is a gas produced mainly by combustion of sulfur-containing fuels. It is regulated as an air pollutant because of its potential to act as an irritant creating or contributing to a variety of human respiratory ailments. Sulfur dioxide in conjunction with particulates of respiratory size is potentially more hazardous than sulfur dioxide acting alone. The Federal AQS listed in Table 7 have been set based on this consideration.

9.3.11 The most recent tabulation of air pollutant emissions by type and source category on Oahu is presented in Table 8. By far the most significant category of sulfur dioxide emissions is Fuel Combustion in Stationary Sources, with Steam-Electric Utilities being the highest emitters.

9.3.12 Measurements and diffusion models of sulfur dioxide emanating from Kahe Power Plant indicate that both State of Hawaii and Federal AQS are at present being exceeded for 3-hour and 24-hour periods within the boundaries of the proposed West Beach project. Sulfur dioxide emissions from the Campbell Industrial Park area do not appear to be a problem since sulfur dioxide concentrations at the Barbers Point air quality monitoring station are well within allowable standards.

9.3.13 In future years, a new oil refinery and a resource recovery facility are planned for Campbell Industrial Park. Air quality modeling conducted in the Environmental Assessment for the new oil refinery indicate that it is not likely to have a significant impact on air quality at West Beach. Ships operating at the proposed Barbers Point Deep Draft Harbor could cause sulfur dioxide concentrations to exceed allowable State of Hawaii AQS in the southern portion of the West Beach area. Even though the Hawaiian Electric Company is converting from 1.67 to 0.5 percent sulfur-content fuel and building very tall emission

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TABLE 8

SUMMARY OF AIR POLLUTANT EMISSIONS IN THE

CITY AND COUNTY OF HONOLULU AS OF MAY, 1980

(Tons/Year)

Source Category	Sulfur Oxides	Particu-lates	Carbon Monoxide	Hydro-Carbons	Nitrogen Oxides
Transportation					
Motor Vehicles	823	2,136	235,696	31,252	18,141
Aircraft	472	2,021	8,702	5,933	1,939
Vessels	1,323	180	328	254	1,096
Gasoline Handling & Evaporation	0	0	0	2,464	0
Fuel Combustion in Stationary Sources					
Residential, Commercial, Institutional	572	163	53	40	559
Industrial	79,421	7,866	1,877	3,372	19,391
Steam-Electric Utilities	37,976	2,109	59	272	19,523
Solid Waste Disposal					
Open Burning	30	1,578	4,054	1,256	230
Incineration	76	43	900	554	62
Industrial Process Losses	5,211	14,956	659	21,830	1,406
Agricultural Field Burning	0	4,383	15,471	5,157	516
GRAND TOTAL	125,908	35,435	267,799	72,384	62,863

SOURCE: State of Hawaii, Department of Health

stacks, air pollution models predict that when the wind blows from Kahe toward West Beach, State of Hawaii AQS for 3 and 24-hour periods could be exceeded. There seems to be little or no chance, however, that future sulfur dioxide levels at West Beach will ever exceed Federal Ambient Air Quality Standards.

9.3.14 Particulates. Particulates are any kind of non-gaseous airborne material that can be trapped and weighed on collector filters. From Table 8, the most significant producers of particulates in Hawaii are industrial sources which have the potential to create airborne material as the result of process losses. Any time a manufacturing process causes raw materials to undergo physical or chemical changes, such process losses can occur. In the proposed West Beach area, the primary process industries are steel and cement making at Campbell Industrial Park. These industries are small, however, and their particulate emissions are tightly controlled by installed engineering control devices. A look at Table 9 indicates that the Kahe Power Plant and the oil refineries at Campbell Industrial Park are the most prolific producers of particulates among significant stationary sources in the project area. When other smaller fixed sources in the Campbell Industrial Park are considered, the emissions of particulates from this area are probably equal to or even greater than emissions from the Kahe Power Plant.

9.3.15 Judging from measurements at the Department of Health air quality monitoring station at Barbers Point, particulate concentrations in the West Beach area presently exceed the allowable State of Hawaii 24-hour AQS about once per year. This is most likely the result of a combination of smoke and dust from sugarcane harvesting and fixed source emissions from Campbell Industrial Park.

9.3.16 Scheduled construction projects within and near West Beach are expected to cause increased fugitive dust emissions during the period of construction. Future industrial developments such as the planned resource recovery facility will undoubtedly increase total particulate emissions in the West Beach area, but the contribution from canefield burning will be diminished. Any new particulate sources in the area will be required to meet stringent performance standards using the most effective technological control devices available. Emissions from new sources are, therefore, likely to be small, and particulate air quality should continue to meet all Federal AQS and most State of Hawaii AQS (with exceedance of the 24-hour standard not likely more than once a year).

9.3.17 Carbon Monoxide. Carbon monoxide is an odorless, colorless, tasteless gas that causes adverse human health effects by limiting the capability of human red blood cells to absorb and distribute oxygen to other body organs. Carbon monoxide poisoning can cause dizziness, headaches, and similar symptoms. Very high concentrations can produce fatalities.

9.3.18 Present concentrations of carbon monoxide at West Beach are not likely to exceed allowable standards except under rare circumstances when the smoke from a cane field combines with morning rush hour

emissions from vehicles to cause one-hour State of Hawaii AQS to be exceeded. Vehicles are the major sources of carbon monoxide in the area, but in spite of future traffic volume increases overall vehicular carbon monoxide emissions are expected to decrease through 1995 because of the increasingly stringent Federal emission control requirements that will apply to newly manufactured vehicles. A computer analysis of future levels of carbon monoxide at critical receptor sites near Farrington Highway indicates that both State and Federal AQS will not be exceeded if the free-flow intersections with Farrington Highway are constructed as designed. If access to Farrington Highway from West Beach must take place via a signalized at-grade intersection, then the State of Hawaii one-hour AQS for carbon monoxide is very likely to be exceeded on mornings with unfavorable meteorological dispersion conditions.

9.3.19 Nitrogen Oxides. Nitrogen oxides resulting from high temperature combustion processes are chiefly measured in the air as nitrogen dioxide and are regulated because of both their potential to produce or enhance human respiratory ailments and to react with other pollutants and constituents of the atmosphere in such a way that they produce potentially harmful secondary pollutants such as ozone.

9.3.20 From Table 8, the major producers of nitrogen oxides in Hawaii are Steam-Electric Utilities and motor vehicles. As shown in Table 8, the Kahe Power Plant significantly overshadows any of the refineries or other stationary sources of nitrogen oxides. Data listed in Table10, however, show that the highest 24 hour levels of nitrogen dioxide measured at the nearest State of Hawaii monitoring site in Campbell Industrial Park are less than 20 percent of the allowable State of Hawaii AQS of 150 ug/m^3.

9.3.21 A simple Gaussian model or analogy to wind tunnel model results indicate that future nitrogen dioxide levels at West Beach from the Kahe Plant could be higher than the allowable AQS, but nitrogen dioxide is chemically reactive with other constituents of the atmosphere and such models are therefore of limited validity.

9.3.22 Expansion of the Kahe Power Plant and planned new fixed sources in Campbell Industrial Park as well as increased vehicular traffic in the West Beach area will cause an increase in total nitrogen dioxide emissions, but based on existing measurements it is estimated that it would take a five-fold increase in these emissions to cause daily levels exceeding allowable State of Hawaii AQS Standards.

9.3.23 Hydrocarbons and Ozone. Airborne hydrocarbons can result from handling, processing, or incomplete combustion of materials of organic origin. A few of the hydrocarbons are suspected carcinogens, but hydrocarbons as a whole (excluding methane) are regulated primarily because of the precursor role that they play in the formation of secondary pollutants such as ozone.

9.3.24 Ozone is a secondary pollutant formed as a result of photocatalytic reactions among primary air pollutants and normal constituents of the atmosphere. It is a strong respiratory irritant and is representative

TABLE 9

SUMMARY OF AIR POLLUTANT EMISSIONS
FROM SIGNIFICANT STATIONARY SOURCES IN THE
VICINITY OF THE PROPOSED WEST BEACH PROJECT

1978 (Tons/Year)

LOCATION	SOURCE	SULFUR OXIDES	PARTICU-LATES	CARBON MONOXIDE	HYDROCARBONS	NITROGEN OXIDES
Kahe	Hawaiian Electric Power Plant	26149	1978	521	104	10939
Campbell Industrial Park	Chevron Oil Refinery	9825	871	6	750	3165
"	Cyprus Hawaiian Cement	801	93	28[a]	21[a]	358
"	Hawaiian Independent Refinery	384[b]	121	32	519[c]	511
"	Hawaiian Western Steel	70	88[a]	1308[a]	7[a]	142[a]
"	Dillingham Precast	15	1	1	-	7
Barbers Point NAS	Power Generators	6	NA	NA	NA	NA

[a] 1975 data

[b] Refinery data from Reference 12

[c] 1973 data from Reference 12

NA=Not Available

SOURCE: State of Hawaii, Department of Health

TABLE 10

AMBIENT AIR POLLUTANT MONITORING
AT BARBERS POINT 1973-1978

SULFUR OXIDES (SO_x)

	1973	1974	1975	1976	1977	1978
Period of Sampling (Months)	12	12	12	12	12	12
No. of Samples	95	85	90	74	52	57
Range	<5	<5-12	<5-11	<5-7	<5-18	<5-40
Average	<5	<5	<5	<5	<5	<5
No. of Times AQS Exceeded	0	0	0	0	0	0

TOTAL SUSPENDED PARTICULATES (TSP)
(Micrograms per cubic meter-24 Hour Sampling Period)

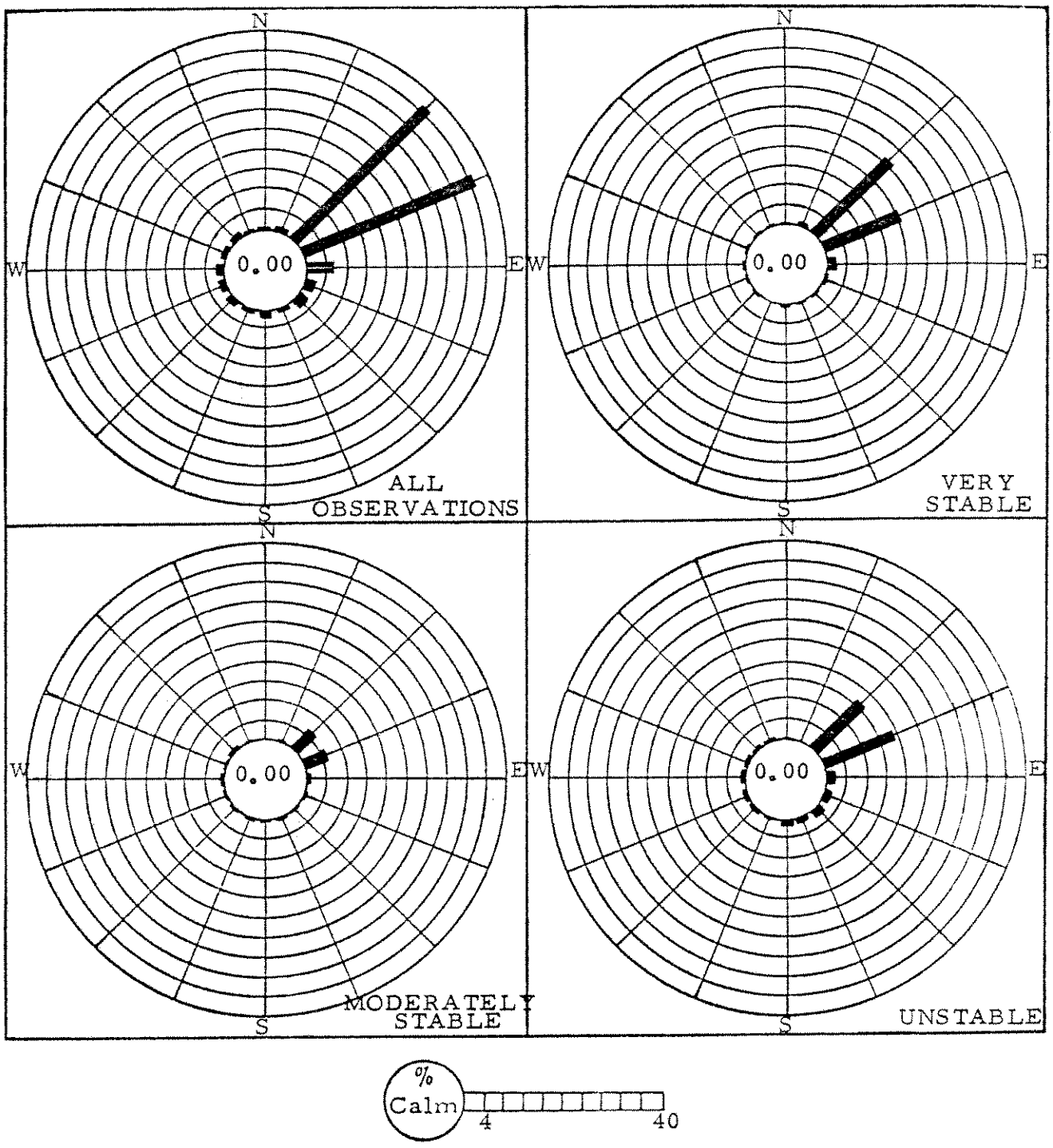
Period of Sampling (Months)	12	12	12	12	12	12
No. of Samples	96	84	89	69	51	59
Range	14-129	19-132	13-137	12-101	25-134	22-127
Average	50	47	52	40	54	48
No. of Times AQS Exceeded	1	1	1	1	1	1

NITROGEN DIOXIDE (NO_2)*
(Micrograms per cubic meter-24 Hour Sampling Period)

Period of Sampling (Months)	12	12	12	3
No. of Samples	95	85	93	22
Range	<23	<20-24	<5-25	<5-29
Average	<20	<20	11	14
No. of Times AQS Exceeded	0	0	0	0

*Note: NO_2 Sampling discontinued in 1976.

SOURCE: State of Hawaii, Department of Health



SOURCE: Conoco-Dillingham Oil Company, Conoco-Dillingham Refinery, Barbers Point, Oahu, Hawaii - Environmental Report, 1972.

FIGURE 4

WIND ROSE FOR BARBERS POINT
June, 1972

(Direction from which the wind was blowing)

of a large class of photochemical oxidants which can produce or aggravate various adverse human health effects.

9.3.25 Hydrocarbon concentrations are not routinely measured anywhere in the State of Hawaii and not even spot measurements are available for the West Beach area. Very little can therefore be said about present to future levels of hydrocarbons near West Beach. Measurements of ozone at a site near downtown Honolulu show that a concentration above the State of Hawaii one-hour AQS has occurred only once in over 1,000 measurements taken over the past four years. The climatological situation in the Honolulu Air Basin is such that the buildup of a significant concentration of ozone is extremely unlikely.

9.3.26 Airborne Lead. Lead is a poisonous heavy metal that can be produced by industrial smelter operations or become airborne as a particulate constituent of motor vehicle exhausts. The lead in vehicle exhausts is mostly a function of the amount of lead additive in the gasoline used for fuel.

9.3.27 Spot measurements of airborne lead in the Campbell Industrial Park (Table 11) indicate that levels in the West Beach area are presently well below the allowable limits. Airborne lead concentrations should be continually decreasing as the percentage of vehicles using leaded gasoline shrinks, and airborne lead concentrations should pose no problem for future residents of West Beach.

9.3.28 Odors. Hawaii Meat Co. maintains a feedlot at Campbell Industrial Park. In the processing of oil at refineries, odorous compounds such as hydrogen sulfide or mercaptans can be produced. While on-site efforts are usually effective in controlling these stockyard and chemical odors, it is conceivable that under worst case meteorological diffusion conditions, some odors could travel as far as the proposed West Beach site at detectable levels.

9.3.29 In general, the wind blows from Campbell Industrial Park towards the proposed project at only about 2 percent of the time; however, and as indicated in Figure 4, the atmosphere is usually unstable when this wind direction occurs. This means that on those rare occasions when odors are blown in the direction of the West Beach project, atmospheric conditions would most likely favor rapid dispersion, thus greatly reducing odor concentrations over the 2 mile distance between Campbell Industrial Park and the proposed project.

9.3.30 Short-term Air Quality Impact of Project Construction. Over the twenty year construction phase of this project, it is inevitable that a certain amount of fugitive dust will be generated by activities within the project area. Based on field measurements of such emissions from apartment and shopping center construction projects, an emission rate of 1.2 tons of dust per acre of construction per month of activity, has been estimated. This figure assumes: (1) medium-level activity; (2) moderate soil silt content (about 30%); (3) a semi-arid climate. In fact, it is nearly impossible to predict what fugitive dust emissions from this particular project are likely to be, even on a yearly basis.

TABLE 11

ANALYSIS OF PARTICULATE MATTER ON HIGH VOLUME AIR FILTERS AT CONOCO-DILLINGHAM REFINERY SITE

Date	Fe ($\mu g/m^3$)	Cu ($\mu g/m^3$)	Cr ($\mu g/m^3$)	Ni ($\mu g/m^3$)	Be ($\mu g/m^3$)	As ($\mu g/m^3$)	V ($\mu g/m^3$)	Hg ($\mu g/m^3$)	B ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Se ($\mu g/m^3$)
2/09/72	0.480	0.020	<0.001	0.016	0.002	<0.16	0.016	0.0030	N.D. [a]	0.278	N.D.
2/11/72	0.822	0.034	<0.001	0.018	0.006	<0.16	0.018	0.0001	N.D.	0.396	N.D.
4/24/72	1.420	0.047	<0.001	0.029	<0.001	<0.02	<0.001	0.0001	<0.001	0.552	0.001
4/28/72	0.757	0.046	<0.001	0.026	<0.001	<0.02	<0.001	0.0001	<0.001	0.167	0.001

[a] N.D. = Not Determined.

SOURCE: Conoco-Dillingham Oil Company, Conoco-Dillingham Refinery, Barbers Point, Oahu, Hawaii - Environmental Report, 1972.

Since the project area is mostly level, not much grading should be required. On the other hand, a substantial amount of excavation might be needed to produce features such as the lagoon and marina. It is anticipated that material excavated from these locations will be used as fill at other sites within the project so that it should not be necessary to transport loose dirt and fill material beyond the boundaries of the project.

9.3.31 Exhaust emissions from heavy construction equipment being used within the project site will also occur. These emission pollutant levels will be lower when compared to pollutant levels produced by normal traffic on the nearby Farrington Highway.

9.3.32 Mitigative Measures: Short-term. As indicated by the foregoing analysis, the only direct adverse air quality impact that this proposed project is expected to create is the emission of fugitive dust during the 20-year construction period. Since some of the earliest structures are likely to be inhabited before construction of the entire project is completed, a certain amount of effort will have to be directed toward preventing the creation of excessive amounts of fugitive dust. State of Hawaii Department of Health Rules and Regulations (Chapter 43, Section 10) stipulate the control measures that are to be employed to reduce this type of emissions. Primary control consists of frequent wetting-down of loose soil areas with water, oil or suitable chemicals. An effective watering program can reduce particulate emissions from construction sites by as much as 50 percent. Other control measures include good housekeeping on the job site and possibly, erection of dust-catching barriers if nearby local residents are being subjected to suspended particulate levels more than 150 micrograms per cubic meter above existing background levels (as measured on a 12 hour basis). Grassing hydromulching or other types of ground cover would also help and would also reduce soil erosion.

9.3.33 Mitigative Measures: Long-term. Once completed, this project, in itself, is not expected to significantly affect the air quality of the surrounding region. To the contrary, if any mitigative measures are required, they will be needed to reduce the exposure of future West Beach residents to air pollutant intrusions from sources outside the project boundaries. To a certain extent, such impacts can be mitigated by the planting of landscaping vegetation that is likely to grow to be both tall and dense. Heavy plantings of trees and shrubs along the project boundaries can be effective in removing some pollutants such as particulates and carbon monoxide from the air. Landscaping along the edge of Farrington Highway and in the vicinity of proposed intersections can be especially effective in this respect.

9.3.34 Indirectly, it might be possible to mitigate potential air pollution impacts from the electrical power generating units at Kahe by designing dwellings within the project to be as energy-efficient as possible. This could help to delay the date when it will be necessary to add Units 7 and 8 to the complex. In fact, the use of solar and other "clean" local energy sources within the project should be maximized since new demand for oil and manufactured gas from the Campbell

Industrial Park could then be somewhat reduced. There is already a fair likelihood that the proposed Conoco-Dillingham refinery might never be built.

9.3.35 The addition of almost 30,000 vehicle trips per day into, out of, and within the development area will will contribute significantly to an increase in automotive emission pollutant levels. Over the long-term, emission control standards, equipment, and the use of mass transit systems may contribute to a reduction in engine emission pollutants. For the near term (5-10 years) automotive emissions are expected to continue to contribute to carbon monoxide, hydrocarbon and nitrogen oxide air pollutants.

9.3.36 Future levels of air pollutants at West Beach have been estimated here without consideration to potential, but not presently available, technological control devices that might be installed to reduce emissions from significant stationary sources in the area. Federal air pollution control laws set stringent performance standards for new sources so that emissions from such sources should be substantially lower than those from existing sources.

9.3.37 In future years, it seems inevitable that sugarcane growing will be giving way to housing development on the Ewa plain. As this happens, fugitive dust from unpaved cane haul roads and air pollutant emissions from cane fires will disappear. For the short-term, the State Department of Health has developed an open burning control regulation which bans burning on days when meteorological conditions are deemed to be unfavorable for pollutant dispersion.

9.3.38 There are several planned developments in the Campbell Industrial Park and the Hawaiian Electric Company is planning an expansion of the Kahe Power Plant. Each of these projects will be required to meet PSD (Preservation of Significant Deterioration) Standards that should insure maintenance of air quality within allowable standards at the project site. It is the responsibility of the developer of each of those projects to carry out monitoring and/or modeling efforts sufficient to prove that such standards can be met.

9.4.39 In fact, in the final analysis, future residents of West Beach can only rely on governmental implementation and enforcement of existing air pollution rules and regulations to be assured protection from excessive levels of air pollution. To this end, it might prove beneficial if a new air pollution monitoring station were established within the West Beach project area so that potential problems could be detected early and appropriate control actions initiated as quickly as possible. Relocation of the existing Barbers Point monitoring station to West Beach would serve the same purpose (at little or no addtional cost to the State).

9.3.40 Conclusions. The major conclusions of this study are as follows:

1. Although the proposed West Beach project will be located in an area that includes many of Honolulu's most significant sources

of air pollution, the present air quality is well within allowable Federal and State limits for most of the pollutants considered.

2. Present and future concentrations of sulfur dioxide from the Kahe Power Plant could potentially exist at West Beach at levels that exceed allowable State of Hawaii Standards, but the wind blows from Kahe towards West Beach so infrequently (only about 0.5 percent of the time under mostly unstable conditions), that the likelihood of such an occurrence is very small.

3. Other than fugitive dust emissions during the construction period, existence of the West Beach project is likely to have no significant impact on the ambient air quality of the surrounding area.

4. In considering the overall environmental impact of the proposed project, air quality has been shown herein to be a minor consideration at best.

5. Automotive emissions will significantly increase within the the project area, but pollutant levels should decrease over the long-term with more stringent emission control standards, equipment, and possible increase in mass transit use.

6. Dredging the lagoons and marine will be conducted in the "dry". Stockpiling is not expected to be a problem since the coral fill is to be used at the golf course and residential locations.

9.4 Noise Conditions and Impacts

9.4.1 The Existing Noise Environment. Daytime noise measurements were performed on March 23, 1979 at Sites No. 1 and No. 2 (as shown in Figure 5) to determine the existing aircraft noise environment at the project site. Additional noise measurements were performed on March 29, 1979 at Sites No. 3 and No. 4, and on June 6, 1979 at Site 4 to determine the existing highway noise environment at the project site, and to determine the shielding effects afforded by single-story homes in the immediate area.

9.4.2 Based upon a six and one-half hour total measurement period at Sites No. 1 and No. 2, it was apparent that aircraft were the dominant noise sources in the West Beach areas which are distant (in excess of 1,600 FT) from Farrington Highway. At Site 1, from 9:00 AM to 12:00 Noon, a total of 58 aircraft were recorded with A-weighted sound levels (L_A) ranging from 55 to 79 dB. Of these 58 aircraft, 16 were helicopters, 23 were commercial air carrier jets, 10 were fixed-wing military aircraft, 5 were general aviation propeller aircraft and 4 were unidentified jet aircraft. At Site 2, from 1:00 PM to 4:30 PM a total of 43 aircraft were recorded with L_A values ranging from 55 to 79 dB. Of these 43 aircraft, 1 was a helicopter, 15 were commercial jets, 17 were fixed-winged military aircraft, 5 were general aviation propeller aircraft, and 5 were unidentified aircraft. Figure 6 presents the hourly equivalent sound level (L_{eq}) contribution by the various aircraft types recorded. From Figure 7, it was concluded that aircraft noise sources were major contributors to the hourly equivalent sound levels at Sites 1 and 2 (when all noise sources were combined). Except for potential nuisance type conflicts, the hourly equivalent sound levels measured did not suggest that existing exterior noise criteria for residential or commercial development would be exceeded.

9.4.3 Traffic noise measurements performed at Sites 3 and 4, and vehicle count data provided by the State DOT for Station C-10-C (see Figure 5) indicate that highway noise could result in adverse impacts to residential lots within 300 to 400 FT from the near curb edge of Farrington Highway. Figure 8 presents 1977 hourly traffic count data along the highway as well as spot counts performed at Sites 3 and 4. Figure 7 presents measured and predicted traffic noise (using the L_{eq} descriptor) vs. distance from the near curb edge for various periods of the day. Reference 7 was used in performing highway noise predictions. Based upon the good agreement measured and predicted data at 50 FT, and the relatively high equivalent sound levels (71 to 65 dB) from 50 FT to 300 FT from the highway under the unshielded and hard ground cover condition, it was concluded that proposed residential lots within 400 FT of the highway should be examined in greater depth for potential noise conflicts and for potential beneficial effects of barriers and natural shielding.

9.4.4 Probable Impact of Existing Aircraft Noise on Future West Beach Residents. A general trend has developed toward the increasing use of the Day-Night Sound Level (L_{dn}) in describing environmental noise in general, and particularly near airports. Reference 1*, jointly published by the Air Force, Army and Navy in June, 1978 adopts the L_{dn} Metric. Reference 2, proposed as a replacement of HUD Circular 1390.2 (a pioneer

* See Table 9 for References.

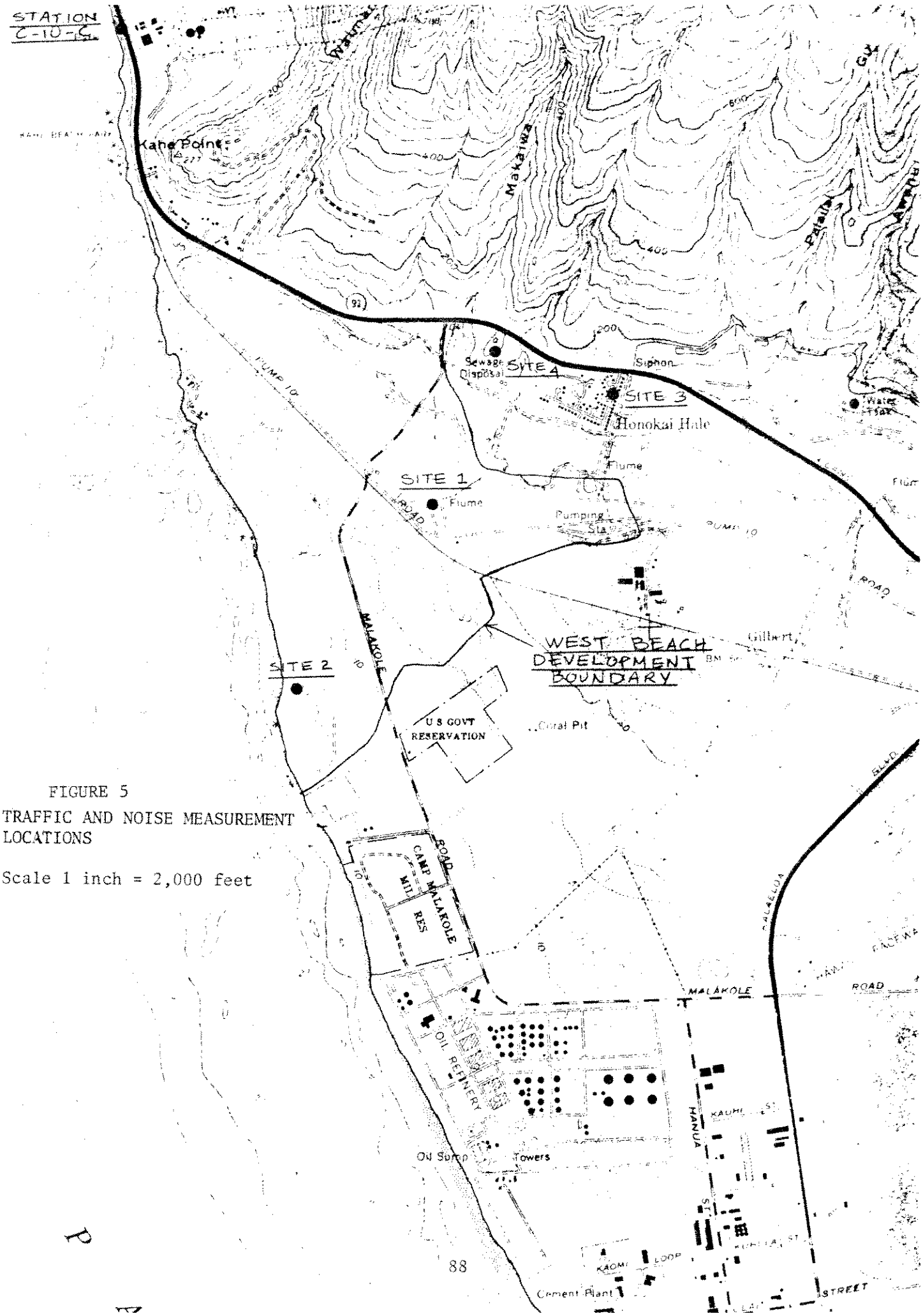


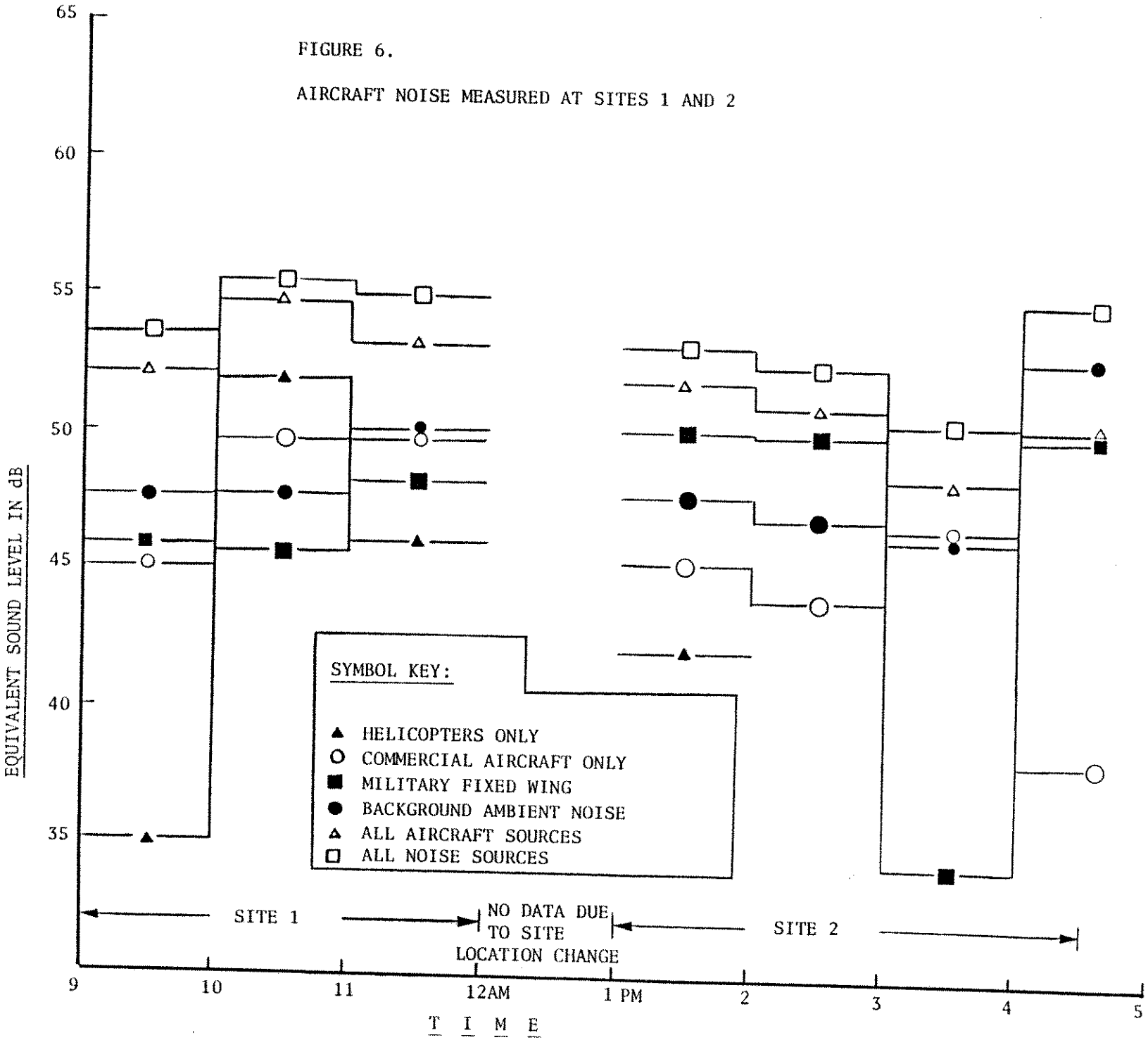
FIGURE 5

TRAFFIC AND NOISE MEASUREMENT LOCATIONS

Scale 1 inch = 2,000 feet

FIGURE 6.

AIRCRAFT NOISE MEASURED AT SITES 1 AND 2



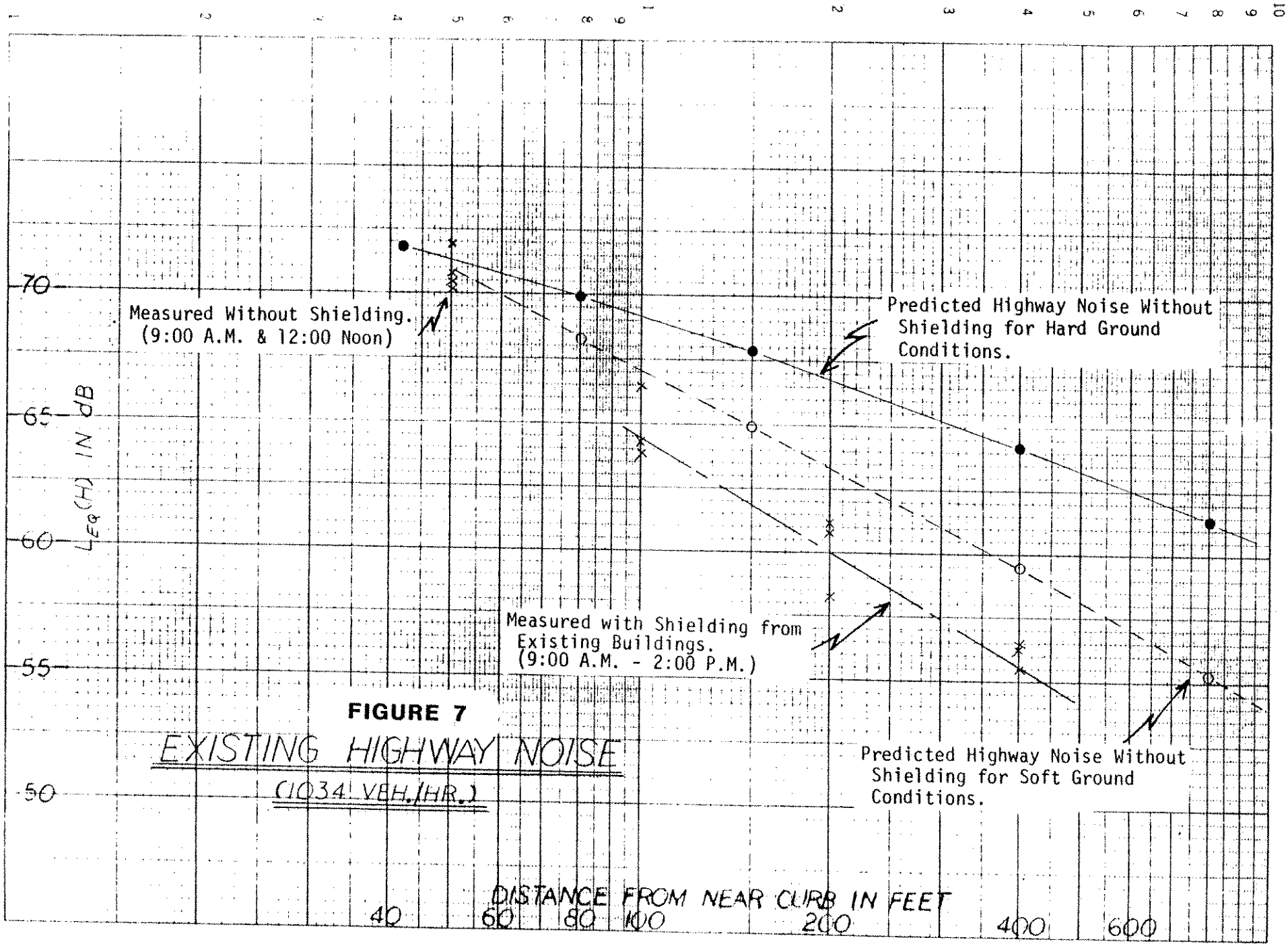

70
65
60
55
50
$L_{EQ}(H)$ IN dB
Measured Without Shielding.
(9:00 A.M. & 12:00 Noon)
Predicted Highway Noise Without
Shielding for Hard Ground
Conditions.
Measured with Shielding from
Existing Buildings.
(9:00 A.M. - 2:00 P.M.)
Predicted Highway Noise Without
Shielding for Soft Ground
Conditions.
EXISTING HIGHWAY NOISE
(1034 VEH./HR.)
DISTANCE FROM NEAR CURB IN FEET
40
60
80
100
200
400
600

FIGURE 7

document), also utilizes the L_{dn} metric. The U.S. Environmental Protection Agency (EPA), by Reference 3, is working toward the development of a "uniform federal statement and guidance package on the noise element of land use control." Because of EPA's prior support of the L_{dn} metric (Reference 4), it is likely that the L_{dn} metric will be included in this future uniform guidance. A general consensus among federal agencies has developed whereby residential housing is considered acceptable where exterior noise does not exceed L_{dn} 65. EPA's prior recommendations of L_{dn} 55 or less for residential housing has not been adopted by other federal agencies, but is recognized as a desirable long-term goal.

9.4.5 Based upon the aircraft noise measurements obtained on March 23, 1979, the Barber's Point Naval Air Station (NAS) operational data contained in Reference 5, and other aircraft noise data collected with the Honolulu International Airport (HIA) Automatic Noise Monitoring System, it is considered unlikely that aircraft noise currently exceeds L_{dn} 55 in the majority of the proposed West Beach project area. Because measured hourly L_{eq}'s at the project site did not exceed 55 dB, because NAS rotary wing activity over the project site is generally confined to daytime operations (see Reference 5), and because HIA related aircraft noise contributions (resulting from Runway 08L approaches) during the nighttime hours of 10:00 PM to 7:00 AM also diminishes greatly (in excess of 10 dB) from the 51 dB (L_{eq}) daytime value measured at the project site, aircraft noise at the project site is probably between L_{dn} 50 and L_{dn} 55, and at least 10 dB below current and proposed federal guidelines for residential housing developments. During the Draft EIS review period, the Federal Aviation Administration (FAA) commented that although the noise level from aircraft is below the 65 LDN level at which essentially no aircraft noise complaints are expected, such noise may be a nuisance to outdoor community activities. Because the proposed resort plans many outdoor oriented activities (e.g. swimming, sunbathing), noise from aircraft will be more noticeable.

9.4.6 For Figure 6, between the hours of 10:00 to 11:00 AM, NAS rotary wing aircraft noise was the dominant contributor to the measured hourly L_{eq}. In order to account for the added annoyance factor attributable to rotary wing aircraft noise, 7 dB (Reference 6) should be added to the rotary wing results shown in Figure 6. The net effect of this correction would increase the L_{eq} (6.5 HR) from 52.5 dB to 55.0 dB, would increase rotary wing contributions to the total L_{eq} (6.5 HR) from 19% to 54%, and would imply that 17 helicopters (of a total of 101 aircraft measured) contributed over 50% of the total aircraft noise measured on March 23. Because these aircraft currently fly directly over the project site at altitudes below 500 FT, a conflict regarding these overflights may occur following implementation of the project. The existing noise environment would worsen if nighttime overflights of these aircraft began to occur on a regular basis, and the potential for future conflict will increase.

9.4.7 Potential noise conflicts regarding Barber's Point NAS rotary wing and fixed wing aircraft are possible based on reference 5. At the present time, noise levels from NAS operations and aircraft are compatible with residential, resort, and hotel development. Depending upon operational uses of the NAS and future growth of the NAS, portions of

the proposed development centered around the marina area will be exposed to aircraft noise, and noise complaints are expected to increase. Existing information indicates that special sound attenuation measures are not presently required. The applicant has indicated that special acoustical design features could be implemented if necessary to minimize the potential future conflict, and further desire to see that rotary wing traffic over the project area be confined to a single flight corridor at mandatory altitudes. It is clear that the proposed development creates a potential problem by exposing a portion of its future occupants to aircraft noise, increasing public exposure to noise nuisances. The compatibility of the proposed development with the operation of the NAS will have to be discussed with the NAS representatives. Discussions on the noise levels and potential aircraft accident zones are taking place between the Department of the Navy and the landowner, Campbell Estate. Their lands, including Ewa Marina and West Beach, are involved, subsequently, they are taking the lead in examining these concerns. Further coordination with the Department of the Navy and federal authorities will be necessary during the land use planning stage. The developer understands and acknowledges the military mission of the air base and the potential for accidents, and will work closely with the Navy to work out a suitable solution to any conflicts.

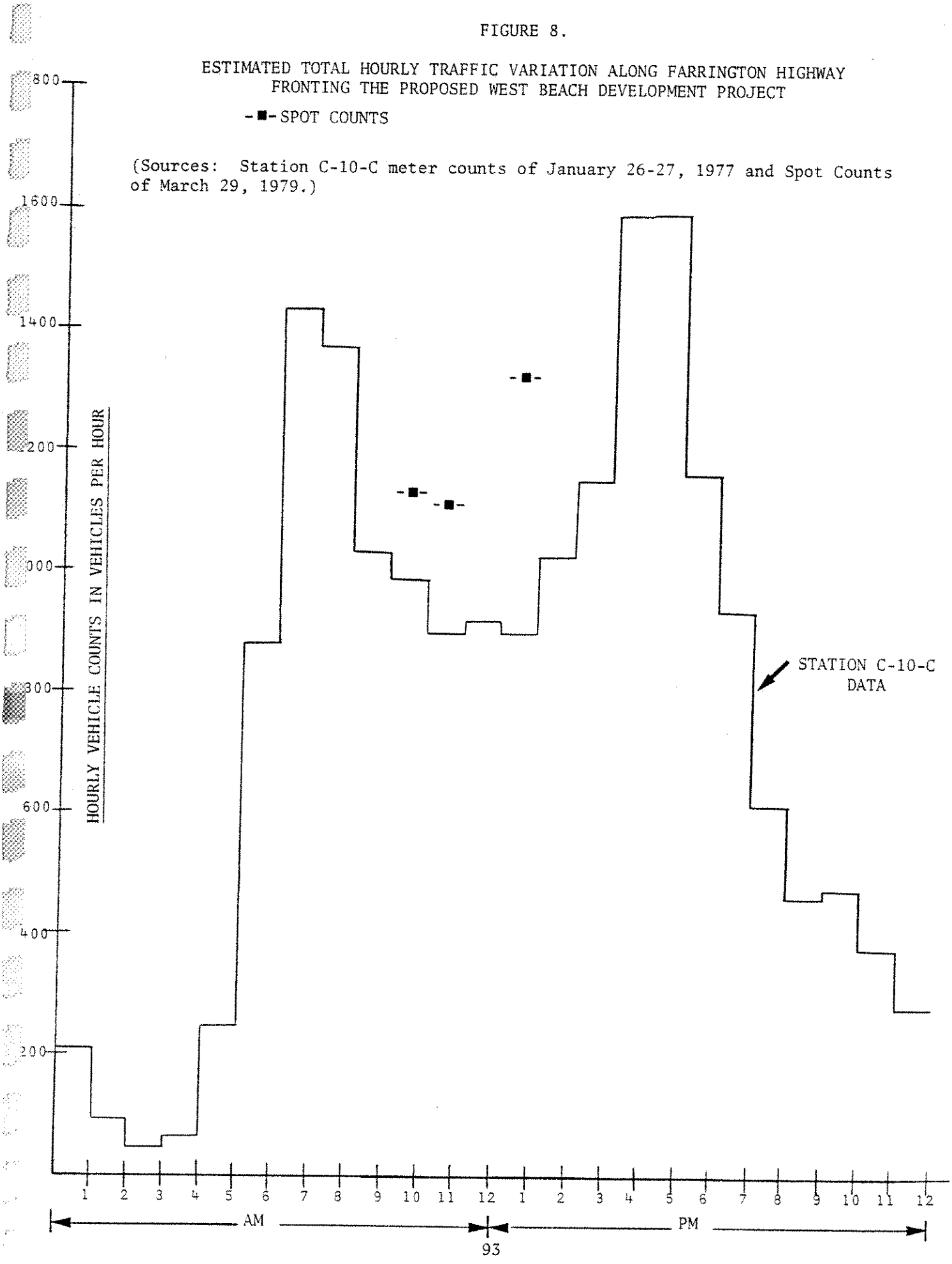
9.4.8 Probable Impact of Highway Noise on Future West Beach Residents.* Existing highway noise levels at 50 FT distance from near curb edge of Farrington Highway are currently between 70 to 72 dB (L_{eq}) during the daytime, and also exceed existing and proposed HUD criteria for residential development. Noise measurements obtained at Honokai Hale on March 29, 1979 indicated that existing residential lots fronting the highway are currently exposed to approximately 70 to 72 dB (L_{eq}). Follow-up measurements at 50 FT distance from the near curb edge performed on 6/6/79 at Site 4 confirmed the March measurements with L_{eq}'s ranging from 71 to 72 dB, and L_{33} values of 70 to 71 dB. At interior lots within 100 to 400 FT of the highway curb, equivalent sound levels of approximately 65 to 56 dB were measured. An excess attenuation of 5 to 8 dB was attributable to the partial noise shielding effects caused by existing homes between the measurement point and the highway traffic. For lots fronting the highway, exterior noise levels of L_{dn} 73 to L_{dn} 74 currently exist (at approximately 21,500 vehicles per day), and are 8 to 9 dB above proposed HUD criteria for residential development.

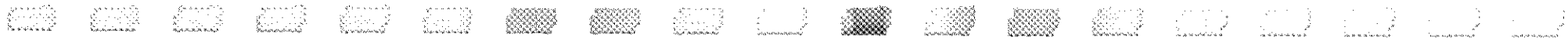
9.4.9 By 1990, if average daily traffic along Farrington Highway approaches 60,000 vehicles per day, a 4 to 5 dB increase in highway noise levels above the existing situation can be anticipated. Daily exterior L_{dn} values of 77 to 79 are anticipated for lots within 50 feet of the highway (See Figure 9). Exterior noise levels in excess of L_{dn} 75 are considered unacceptable for residential housing by proposed HUD and existing federal criteria. Noise levels at existing residences fronting the highway (Honokai Hale, for example) will likewise be increased.

* Aircraft noise contributions, ranging from 50 to 55 L_{dn}, were considered. At traffic noise levels of 65 to 75 L_{dn}, these aircraft noise levels would not materially add to the L_{dn} values generated by traffic.

FIGURE 8.

ESTIMATED TOTAL HOURLY TRAFFIC VARIATION ALONG FARRINGTON HIGHWAY FRONTING THE PROPOSED WEST BEACH DEVELOPMENT PROJECT





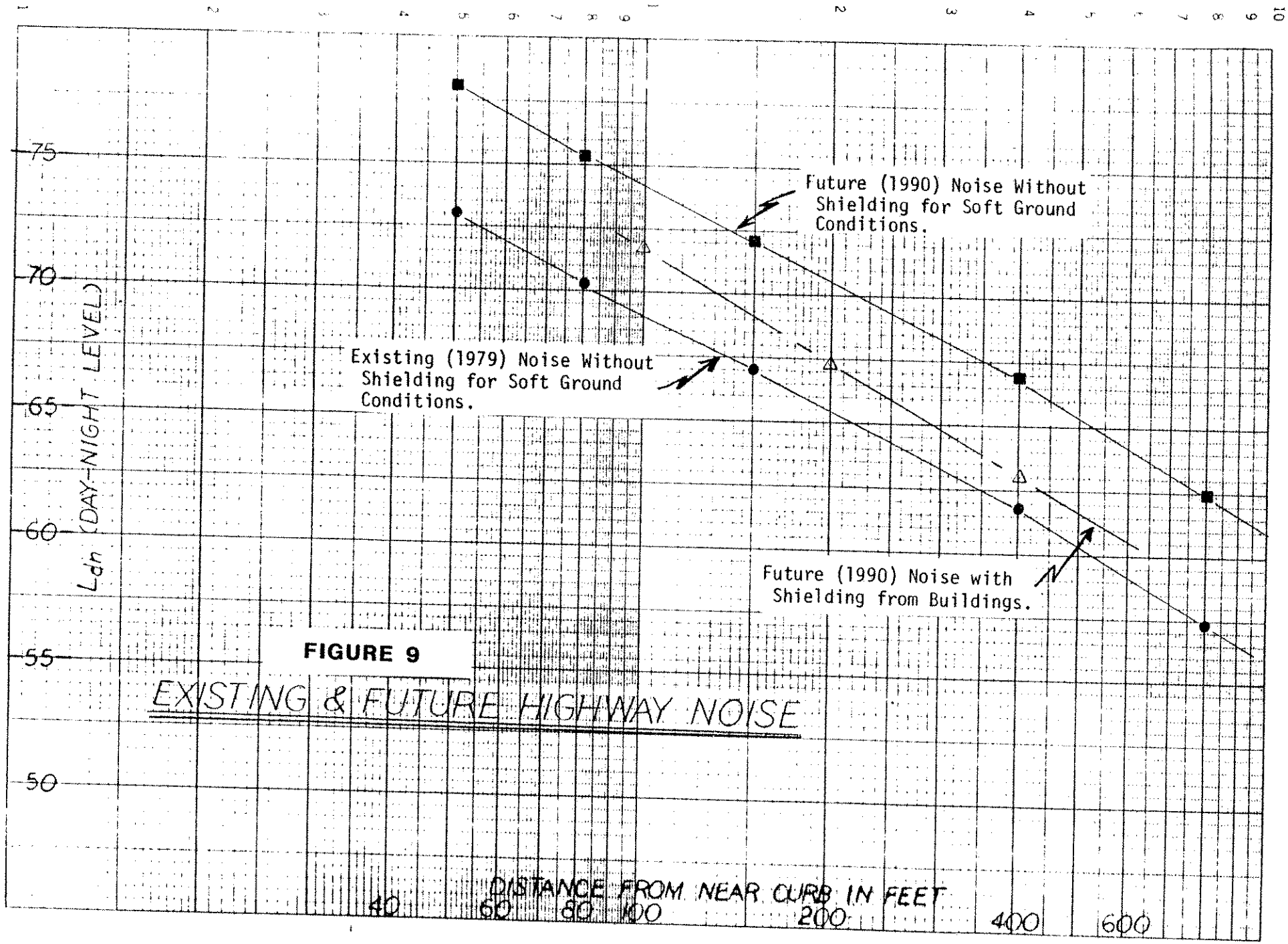


FIGURE 9

EXISTING & FUTURE HIGHWAY NOISE

9.4.10 Proposed West Beach residential units fronting the highway will require sound attenuation measures such as air-conditioning, forced ventilation or noise barrier construction to reduce highway noise to acceptable exterior and interior levels. If multi-story construction is used for residential units fronting the highway, noise barrier construction will not be a practical abatement measure, and the use of air-conditioning or forced mechanical ventilation of the units will be required to meet existing and proposed HUD criteria. Without noise abatement measures, interior noise levels of 67 to 69 (L_{dn}) can be expected. Construction of minimum 10 foot height noise barriers and/or earth berms will be required to meet HUD criteria for residential lots fronting the highway if natural ventilation is planned for these homes.

9.4.11 Since existing highway noise levels are already above existing HUD and federal criteria for residential housing, and since the proposed project's traffic will increase current noise levels by 3.5 dB (with an additional 1.5 dB increase attributable to non-project traffic increases projected by year 1990), costs associated with noise abatement for existing homes along the highway should not be born solely by the West Beach developer. Noise barrier construction along existing Honokai Hale homes fronting the highway will be required. Federal aid may be available to fund a major portion of costs associated with the noise abatement treatment. (Part 772 - Noise Standards and Procedures, 23 CFR 772, describes potential Federal funding for noise abatement under Type II Project program. Existing residential units fronting H-1 and east of the West Beach area may be Type II project candidates.)

9.4.12 Probable Impact of Internal Street System Noise on Future West Beach Residents. Internal street system noise generated by residential and commercial vehicular movement (26,586 trips) and by buses anticipated to service the hotel/condominium units (1,650 trips) may exceed L_{dn} 65 at 50 foot setback from the curb edge. Bus noise, in particular, is anticipated to be a dominant noise source along the two streets between Farrington Highway and the hotel/condominium units although bus noise is not anticipated to occur between the nighttime hours of 10:00 PM to 7:00 AM. Suggested mitigation measures include use of 50 to 100 foot setback of residential units from the main thoroughfares, control of vehicle speed below 35 miles per hour, minimization of heavy vehicle and bus traffic between the hours of 10:00 PM to 7:00 AM, and lot specific treatments such as noise barriers and building treatment. Internal street system noise is unlikely to exceed L_{dn} 75, and hence, the interior residential lots can be developed to HUD and other federal noise criteria. At traffic noise levels of L_{dn} 75, mitigation measures required would be similar to those discussed in paragraph 9.4.10 for lots fronting Farrington Highway.

9.4.13 Potential Impact of Blast Noise/Vibration During Marina Construction. Because existing residential or industrial structures are located beyond 1,000 foot distance from the site of the proposed marina, the risks of structural damage resulting from possible blasting operations can be minimized by the blasting contractor in accordance with the procedures delineated in reference 9. These procedures are summarized as follows:

1. Maximum charge weight (in equivalent pounds of TNT) per delay should not exceed (D divided by 50)^2 pounds, where D is the distance in feet, between the charge and the existing structure.

2. If the maximum charge weight or distance restriction are not conducive to efficient blasting operations, utilize vibration measurement instruments during blasting operations, and do not exceed a safe blasting limit of 2.0 inches/second peak particle velocity in the ground adjacent to the structure of interest.

3. Since human complaints resulting from ground vibrations and air blast noise may occur at levels considerably below those necessary to cause structural damage, additional mitigation measures such as limiting peak particle velocity at inhabited structures to 0.4 inches/second, advising the surrounding residents about the blasting operations and precautionary steps taken, and use of milli-second delay charges are recommended.

The implementation of specific noise control measures during the project design phase, to insure adherence to State and County noise regulations should serve as mitigation measures.

It is assumed that construction of the proposed Barbers Point Deep Draft Harbor will occur prior to construction of the West Beach Marina and Hotel/ Condominium units, and that construction of the West Beach Hotel/Condominium units will occur following the construction of the marina. Therefore, West Beach building occupants should not be a dominant restrictive factor during the construction and blasting phases of the harbor or marina.

9.4.14 References for noise analysis.

1. Environmental Protection--Planning in the Noise Environment, Departments of the Air Force, the Army, and the Navy; AFM 19-10, TM 5-803-2, NAVFAC P-970; 15 June 1978.

2. Proposed HUD Regulations for Determining Acceptability of Housing Projects in Terms of Noise Exposure; 43 FR 60396, December 27, 1978.

3. "Land Use: EPA Launches Effort to Consolidate Federal Land Use Guidance," Noise Regulation Reporter, No. 104, May 8, 1978, pp. A-14.

4. Guidelines for Preparing Environmental Impact Statement on Noise, Report of Working Group 69 (CHABA), National Research Council, National Academy of Sciences, 1977.

5. Air Installations Compatible Use Zones (AICUZ), Naval Air Station Barbers Point, Oahu, Hawaii, Pacific Division, Naval Facilities Engineering Command, April 8, 1976.

6. AICUZ Preparation Policy, Federal Register, Vol. 42, No. 2, January 4, 1977.

7. FHWA Technical Advisory T 50405.5, Hand-Held Calculator Listings for the FHWA Highway Noise Prediction Model; U.S. Dot, FHWA, September 5, 1978 and October 17, 1978 (Change 1).

8. Traffic Impact Statement for West Beach Resort Project, Henry Tuck Au, Consulting Engineer, August 1, 1979.

9. Blasting Vibrations and Their Effects on Structures; PB-231-971; Denver Mining Research Center; 1971.

9.5 Botanical Survey Results and Evaluation of Impact on Flora

9.5.1 Botanical Survey. A botanical survey of the entire project site was undertaken by Winona P. Char, botanical consultant. Figure 10, shows the location of the vegetation types in the West Beach project site.

9.5.2 Vegetation Types. There are three (3) broad vegetation zones that occur in the Hawaiian Islands, and each of these zones is in an area of uniform macroclimate (Mueller-Dombois and Gagne, in press). The three (3) major vegetation zones are xerotropical (coastal flats and lowlands to submontane), pluviotropical (windward lowland to upper montane), and cool tropical (upper montane to alpine; these occur only on the islands of Maui and Hawaii).

9.5.3 The study site lies within the xerotropical vegetation zone which is characterized by low rainfall (20 inches/annum). Because of low rainfall, this zone supports only a sparse vegetation. Within this zone a number of different plant communities or vegetation types can be delimited. These mosaics of plant communities are controlled largely by edaphic factors such as substrate, run-off, salinity, et cetera, and partly by past and present human activities- these include agriculture, ranching, military activities, et cetera.

9.5.4 The dominant species in these vegetation types are predominantly introduced species (exotics) such as Prosopis (kiawe), Leucaena (koa haole), and Chloris (swollen fingergrass). Remnants of the original native flora can be found scattered throughout the area, usually in small numbers. The activities of man and the grazing animals he introduced have been the primary causes for the degradation of the native flora in the xerotropical zone (St. John, 1957).

9.5.5 Rare and Endangered Plants. Seven species which were listed proposed Endangered and Threatened plant species (1976) have been collected or are recorded from the Ewa plains area. The list of plants which include the seven species was withdrawn in December, 1979. Action is underway to repropose the species for listing as Threatened or Endangered species.

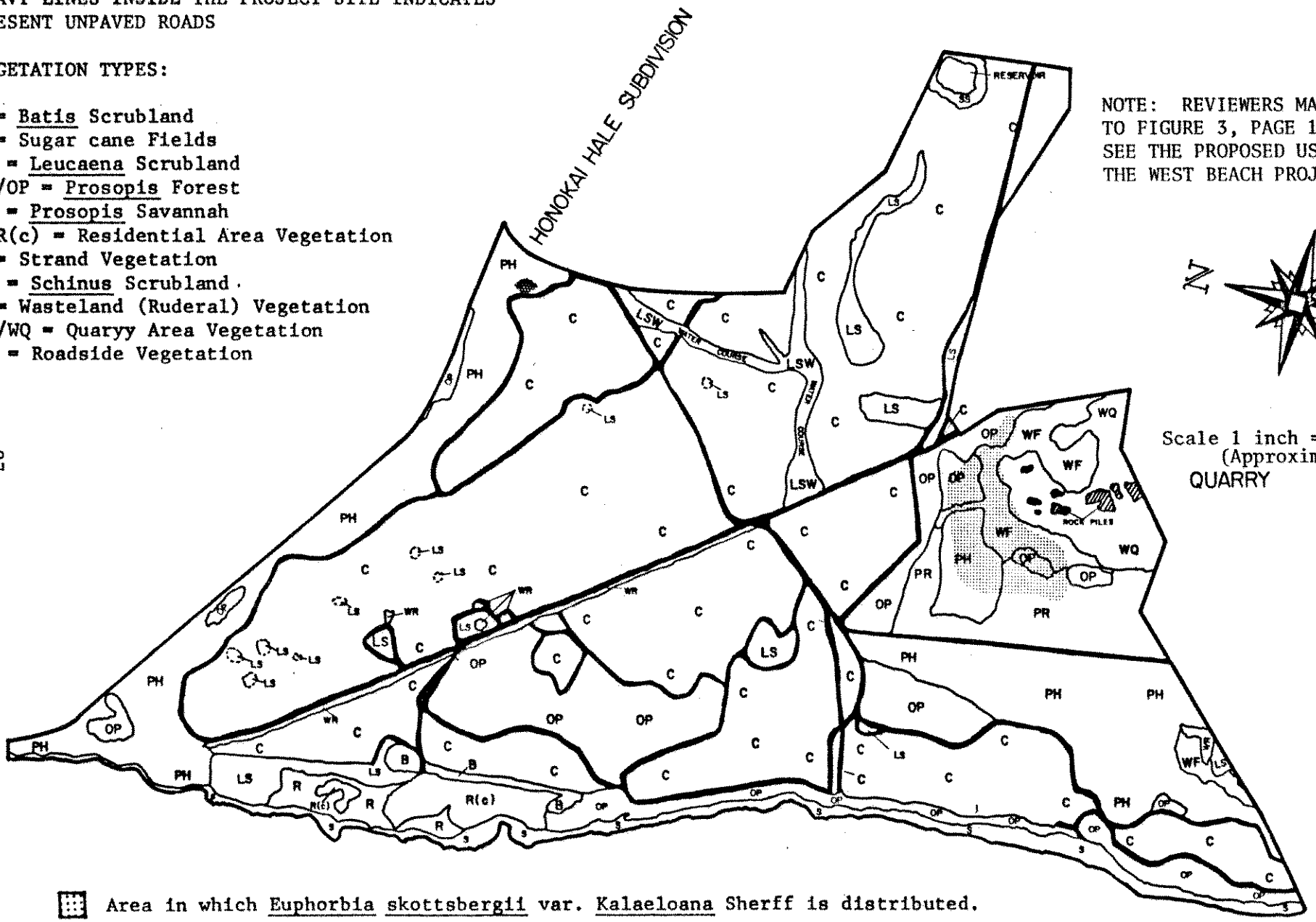
Eragrostis paupera, an annual grass;
Marsilea villosa, a fern;
Euphorbia skottsbergii var. skottsbergii, a small shrub, probably extinct;
Euphorbia skottsbergii var. kalaeloana, a small shrub, recently rediscovered;
Achyranthes splendens var. rotundata, a shrub, endemic to the island of O'ahu;
Scaevola coriacea, a decumbent shrub, restricted to the strand vegetation; and
Gossypium sandvicense, a shrub, native Hawaiian cotton.

During the course of the survey, two of these plant species, Euphorbia skottsbergii var. kalaeloana Sherff and Gossypium sandvicense Parl., were found within the study site. Euphorbia skottsbergii var. kalaeloana,

HEAVY LINES INSIDE THE PROJECT SITE INDICATES
PRESENT UNPAVED ROADS

VEGETATION TYPES:

B = Batis Scrubland
C = Sugar cane Fields
LS = Leucaena Scrubland
PH/OP = Prosopis Forest
PR = Prosopis Savannah
R/R(c) = Residential Area Vegetation
S = Strand Vegetation
SS = Schinus Scrubland
W = Wasteland (Ruderal) Vegetation
WF/WQ = Quaryy Area Vegetation
WR = Roadside Vegetation



NOTE: REVIEWERS MAY REFER TO FIGURE 3, PAGE 19, TO SEE THE PROPOSED USES OF THE WEST BEACH PROJECT.

N

Scale 1 inch = 740 feet
(Approximate)

QUARRY

97

Area in which Euphorbia skottsbergii var. Kalaeloana Sherff is distributed.

Area in which Gossypium sandvicense Parl. is distributed.

FIGURE 10. VEGETATION MAP

DATE: JUNE 1979

WEST BEACH RESORT PROJECT

West Beach

'akoko, is endemic to the island of O'ahu, and was thought to have been extinct until recently (Herbst, 1976). A biological survey for the proposed Deep Draft Harbor for Barber's Point found two (2) large colonies of the Euphorbia and a number of smaller scattered colonies. The large colony on the western boundary of the quarry will be directly affected by the development plans of the resort's proposed marina and golf course (Figure 10). A rough inventory taken of the colony found approximately 1,300 plants ½ to 1 meter tall in this area. Many seedlings were found in a recently disturbed area. The mature plants had only a few flowers on them at this time (May, 1979). The plants are found primarily in the open Prosopis community and in the wasteland area near the fringes of the quarry. The species prefers the more open, exposed areas where it is exposed to full or partial sun. Gossypium sandvicense (syn. Gossypium tomentosum Nutt.), ma'o or the native Hawaiian cotton, is endemic to the Hawaiian Islands. About half a dozen plants were found in the study site near the highway and subdivision (Figure 10). Fosberg and Herbst (1975) considered the species to be rare (total population low), depleted (much less common over all or most of its former range), and endangered (in considerable danger of disappearance). It is in cultivation by a few botanic gardens and some private individuals. It makes a handsome ornamental plant with silvery, tomentose leaves and bright yellow flowers. The fibers around the seed are short and of no economic use; however, the species is resistant to many of the insects that affect the commercially grown cotton species and has been used in a number of hybridizing experiments.

9.5.6 The proposed West Beach Resort Project will have convert sugarcane and kiawe vegetated areas to urban landscaped areas. The project could eliminate communities of two (2) proposed endangered plant species found within the study site: Euphorbia skottsbergii var. kalaeloana - the only known habitat for this Euphorbia species is the Ewa plains area where it is restricted to the coralline substrate. The only known large concentrations of the plant are around the quarry area. In order to preserve the Euphorbia species, the applicant proposes to do the following:

1. The area where the plants are located should be left as it is and serve as a buffer zone between the deep draft harbor and the industrial complex that will be built around it. The buffer zone would be composed of the existing kiawe forest in that area with transplanted Euphorbia skottsbergii var. kalaeloana ('akoko) plants beneath the kiawe trees. The kiawe trees would thus be used as a visual screen.

Euphorbia loses most of its leaves during the dry summer months in response to the lack of sufficient water, however, if it is watered regularly it will retain its leaves. Plants which were transplanted during the summer months to the nursery at Honolulu Botanic Gardens (Foster Garden) quickly produced new leaves and retained their foliage during the summer months. We have observed a plant near the Standard Oil Refinery which is always green. It is growing along side a chain-link fence next to an unpaved road. The surface of the unpaved road is regularly watered to keep the dust down. The water drains off the road and some waters the Euphorbia.

The State and Corps of Engineers are studying habitat requirements and transplant methods for successful propagation of the plnats. The findings of this study will be useful in propagating Euphorbia as landscape material for West Beach. The botanist consultant is involved with the Corps' study and it is expected that she will be retained to assist and/or manage the Euphorbia nursery.

Since the main purpose of the resort is to attract tourists and is tourist-oriented, it would be to the advantage of the resort to block out the view of the industrial area, especially the oil refineries.

2. If it is impossible to change the configuration of the project plan, then as many of the plants that can be moved should be used for landscaping or perhaps moved to the woods that are planned for the golf course. Development in the area of the Euphorbia will be deferred until the population is successfully established elsewhere. The advantages of using the Euphorbia as a landscape plant are many. It is adapted to the hot, dry coralline area and will not need much topsoil, if any, or much watering. It is attractive. Other lowland plants should also be grown: these include wili wili, nohu, pohinahina, et cetera. They would also cost less to maintain in the long run. They are attractive and can be used for Hawaiiana exhibits. Several botanic gardens, among them the Honolulu Botanic Gardens and the Maui Botanical Garden, have had excellent results with landscaping with native lowland plants.

Other populations of Gossypium are known from O'ahu and the other islands where they are found along the coasts and lowlands. The status of this species is not as critical as that of the Euphorbia. About half a dozen plants can be found in the study site. These plants or seeds from the plants can be easily cultivated and should be used in the landscaping plans since it has potential as a landscape plant. Coordination of the applicant's proposed mitigation plans with the managers of endangered and threatened species is necessary.

9.5.7. References Cited.

1. Environmental Impact Study Corp. November, 1977. Barbers Point Harbor Biological Survey, Final Report.

2. Fosberg, F.R. & D. Herbst. 1975. Rare and endangered species of Hawaiian vascular plants. Allertonia 1:(1) 1-72.

3. Herbst, D. 1976. Vegetative survey of the Barbers Point Harbor area, Oahu. Final Environmental Statement, Department of the Army, U.S. Army Engineer District, Appendix B-2.

4. Mueller-Dombois, D. & W.C. Gagne. Pacific Ecosystems: A geographic analysis. Presented at the 13th Pacific Congress, 1975. Vancouver, Canada, (in press).

5. Porter, J.R. 1972. Hawaiian names for vascular plants. College of Tropical Agriculture, Hawaii Agricultural Experiment Station, University of Hawaii, Departmental Paper No. 1.

6. St. John, H. 1957. Vegetational provinces of the Pacific. Hawaiian Abstract. Pp. 56-57. In: Proc. of the 8th Pacific Science Congress, Vol. IV. Botany. National Research Council of the Philippines, University of the Philippines, Quezon.

7. _____. 1973. List and summary of the flowering plants in the Hawaiian Islands. Pacific Tropical Botanical Garden Memoir 1.

8. U.S. Department of the Interior, Fish and Wildlife Service. 1976. Endangered and threatened species, plants. Federal Register 41 (117):24524-24572.

9.6 Birds of the West Beach Area. Two general group of birds are found in the West Beach area: migratory shorebirds and introduced or exotic species (See Table 12). It is possible that the Hawaiian Owl or Pueo (Asio flammeus sandwichensis) occurs in the dry leeward regions but none was seen during Berger's study. Under Regulation 6, State Department of Land and Natural Resources, the Hawaiian Owl is identified as an endangered species on the island of Oahu. The scant native vegetation in the dry leeward areas of Oahu was destroyed so long ago that there are no records of any other endemic landbirds that may have occupied such habitat, that is, prior to 1786. There are no suitable ponds or marshes in the West Beach area to accommodate the endemic Hawaiian water birds.

9.6.1 Berger studied (12 field days) all habitats in the West Beach area during the fall of 1973. The nesting season had ended for most species and they were quiet and unconspicuous. Under such conditions it is not possible to estimate accurately the numbers of birds per square mile or other unit measurement; numbers given would be sheer guesses. All but two of these observed species (Golden Plover and Wandering Tattler) are exotic birds that have been introduced to the Hawaiian Islands. The West Beach area contains several diverse habitats (e.g., shoreline, kiawe thickets, sugarcane fields) so that an estimate of abundance (other than rare, uncommon, common, and abundant) of most species would be misleading because few of the species occupy all of these habitats. Moreover, none of the introduced bird species are of any concern in relationship to the Endangered Species Act of 1973 (16 U.S.C. Subsection 1531 et seq, 1974) and some of these species have, in the past, caused considerable damage to agricultural crops in Hawaii, and, therefore, often are serious nuisance birds.

9.6.2 The portion of the West Beach area that is proposed for development can be classified as an extensively disturbed habitat with no remaining endemic ecosystems. The Hawaiian owl may be present in the area, as well as the introduced barn owl. The vast majority of the dominant and subdominant plants (trees, shrubs, vines) consist of more than two dozen introduced species. The major plant associations include sugarcane fields, kiawe thickets, and vegetation (both aquatic and terrestrial) of the shoreline. Numerous species of introduced shrubs and vines grow along cane roads and the edges of the sugarcane fields and the kiawe thickets. These introduced plant species do not provide suitable habitat for the endemic Hawaiian birds (with the possible exception of the Hawaiian Owl, a species classified as endangered on the island of Oahu by the State's Regulation 6). The introduced birds consist of 14 species belonging to six bird families. When compared with the mainland United States, this represents a depauperate (i.e. falling short of natural size) bird fauna. As pointed out earlier, some of these species have caused serious damage to agricultural crops in the past and several other seed eaters have the potential of doing so in the future. At the same time, some species (e.g., doves, myna, white-eye, cardinals) give pleasure to many people who enjoy seeing birds around their homes; if the introduced birds were not here, the lowland areas would be virtually devoid of birds most of the year. In addition, mynas, white-eyes, and cardinals eat insects and their larvae, and, therefore, are beneficial during at least part of their annual cycle.

9.6.3 There have been no published studies for Hawaii that report on habitat modification and the resultant change in species' abundance.

TABLE 12

BIRDS OF THE WEST BEACH AREA

The sequence of bird families follows Van Tyne and Berger (1976).

Migratory Shorebirds

Family Charadriidae, Plovers, Turnstones, Surfbirds

1.	Pacific Golden Plover	(Pluvialis dominica fulva)
2.	Wandering Tattler .	(Heteroscelus incanum)

Introduced Birds

Family Ardeidae, Herons and Egrets

1.	Cattle Egret	(Bubulcus ibis)

Family Columbidae, Pigeons and Doves

2.	Spotted or Chinese Dove	(Streptopelia chinensis)
3.	Barred Dove	(Geopelia striata)

Family Sturnidae, Starlings and Mynas

4.	Common Myna	(Acridotheres t. tristis)

Family Zosteropidas

5.	Japanese White-eye	(Zosterops j. japonicus)

Family Ploceidae, Weaverbirds and Their Allies

6.	Orange-cheeked Waxbill	(Estrilda melpoda)
7.	Red-eared Waxbill	(Estrilda troglodytes)
8.	Strawberry Finch	(Amandava amandava)
9.	Ricebird or Spotted Munia	(Lonchura punctulata)
10.	Black-headed Mannikin	(Lonchura malacca atricapilla)
11.	House Sparrow	(Passer domesticus)

Family Fringillidae, Sparrows, Cardinals, and Buntings

12.	Red-crested Cardinal	(Paroaria coronata)
13.	Cardinal	(Cardinalis cardinalis)
14.	House Finch	(Carpodacus mexicanus frontalis)

Therefore, one must use his own knowledge and experience in Hawaii to predict the possible changes that would occur in the West Beach area because of the proposed development there. Most of the introduced bird species are found in residential, urban, and rural regions; none are deep forest birds, they are adapted to live in close association with man. A mature sugarcane field does not provide much suitable habitat for any of the introduced species. Consequently, if the cane fields are converted to residential and recreational (e.g., a golf course) use, there will be more available habitat for the introduced bird species and it can be anticipated that there would be an increase in the populations for nearly all of them. Because all of the birds are introduced species (and some have been pests), however, it would not be of significance whether changes in the habitat resulted in an increase, a decrease, or no change in bird populations.

9.6.4 Migratory shorebirds in the area may increase with the removal as the sugarcane and kiawe thickets and construction of lagoon, marinas, and open spaces. The Golden Plover is a common winter resident than finds golf courses and lawns (even at the State Capitol Building) to be excellent habitat during the winter months; the Tattler prefers the shoreline and will probably be found along rocky and sandy shores. The reduction of kiawe and sugarcane will probably eliminate habitat for the Hawaiian and barn owls.

9.7.1 Fauna. Table 13 contains a list of fauna on the project site and a list of fauna based on a survey of the adjacent areas (Barbers Point deep draft harbor). A review of both lists indicates that the fauna is limited to exotic species and are not considered endangered. Additionally, a review of the habitats on the project site indicates that there are no suitable feeding or breeding habitats for those species considered endangered.

9.7.2 The fauna on the project site consist of mammals common in other areas of Oahu. During the land modification phase of West Beach the land fauna such as mice, rats, feral cats, et cetera, will likely be displaced or destroyed due to the development. This is not viewed as an adverse or significant impact since these animals are considered pests.

9.8 Agricultural Considerations and Impact.

9.8.1 Land Productivity. The Land Study Bureau's detailed land classification for Oahu (Land Study Bureau, University of Hawaii, Detailed Land Classification-Island of Oahu, L.S.B. Bulletin No. 11, December, 1972) identified the master productivity rating of the project site as "A" (104 acres), "B" (418 acres), "C" (58 acres), and "E" (240 acres), with 10 acres in urban use (the Alice Kamokila Campbell property). "A" meaning that the land is of the highest productivity, "B" second highest, and so on. The 104 acres of Class A and 418 acres of Class B lands represent 0.5 percent and 1.3 percent of the total Class A and B land on the island of Oahu, respectively. State important agricultural land maps show about 266 acres of prime agricultural lands and 133 acres of other important agricultural lands.

9.8.2 Impact on Agricultural Production. Regarding this specific impact the State Land Use Commission's Decision and Order (Docket No. A76-421 dated August 22, 1977) stated:

> "The withdrawal of approximately 580 acres of sugarcane aceage will not have any adverse effect upon the agricultural production of Oahu Sugar Company, Ltd. The acreage being withdrawn are the lowest yield for Oahu Sugar. The location of the subject property, approximately 13 miles from the mill, and the rocky clay silt soil make the 580 acres among the highest operating cost-fields. That acreage represents 3% of Oahu Sugar Company's land, 1.7% of Oahu land in sugar production, and less than one half of 1% of the total cane acreage in the State. The withdrawal of the acreage from cane production would not materially affect Oahu Sugar's employment rolls. The withdrawal of these low producing and high cost fields will not be detrimental to Oahu Sugar since there is a concerted effort by Oahu Sugar to withdraw all sugar fields with low yields and high operating costs. Because of the present severe economic imbalance of supply and demand for sugar, Oahu Sugar Company is making every effort to increase production on lesser acreages and lower operating costs. In the long run, this program may stabilize prices and ensure viability of the sugar industry. Further, the fact that

TABLE 13

BARBERS POINT CHECK LIST OF FAUNA MAMMALS

Common Name	Scientific Name	Status	ES	EF	Wildlife Habitat Relative Abundance C	S	O	K	P
Feral dog, ilio	(Canidae) *Canis familiaris*	X			O		O	R	O
Feral cat, popoki	(Felidae) *Felis catus*	X			R	U			R
House mouse, iole li'ili'i	(Muridae) *Mus musculus domesticus*	X				C	R	C	
Hawaiian rat, iole	*Rattus exulans*	E				O			
Brown rat, po'o-wai	*R. norvegicus*	X				R			
Black rat, iole nui	*R. rattus*	X					R	O	O
Mongoose, iole-manakuke	(Viverridae) *Herpestes auropunctatus*	X			R	O	O	C	U

Source: Revised Environmental Impact Statement for the Barbers Point Deep Draft Harbor, prepared by M & E Pacific, Inc., June, 1978.

> the Land Study Bureau classifies certain types of soils as being rated "prime" or class "a" or class "b" for sugar cane (sic, sugarcane) production does not in or of itself establish that said lands are in fact productive and economical in that there are many other variables to consider other than just the Land Study Bureau's soil classification. Sugar production on the subject property has never exceeded 9½ tons per acre while Ewa plantation consistently has produced 15 tons per acre. Fifteen (15) tons per acre would indicate that the subject property is "prime" agricultural land, but nine and one-half (9½) tons per acre does not indicate "prime" lands for sugar production. The proposed development will have no adverse effect upon the agricultural resources of that area."

However, once converted to urban uses the land will no longer be available for agricultural uses.

9.9 Impact on Aesthetics.

9.9.1 Existing Condition. The present 1.9 miles of shoreline is the primary amenity which West Beach offers. The rock and coral outcroppings and sand dunes are predominant features along the coastline. The sugarcane beyond the rocky coast lies camouflaged below the rock and coral outcroppings. Some shoreline vegetation (morning glory, kiawe trees) are also noticeable.

9.9.2 Probable Impact on Aesthetics. Thi undeveloped coastline will be modified by the project. The view of the coastline will include a partial view of the lagoons, the marina, and the proposed resort hotels along the lagoons. Once altered, this landscape will be irretriveably changed from a natural shoreline to a modified, urbanized environment. Additionally, lands north of Farrington Highway and the H-1 Freeway (especially the elevated Makakilo residential subdivision) will be able to clearly see the West Beach development.

9.9.3 Mitigation Measures to Protect or Enhance the Aesthetics. The planning and siting of the hotels, use of landscaping and location of the lagoon openings will be given careful attention by the land planner. The scenic quality of the shoreline will remain harmonious with the development so that the view of the West Beach project will not represent a collage of buildings against the skyline.

9.10 Recreational Resources.

9.10.1 Overview of Existing Recreational Resources and Sites. The existing site is presently not a significant or major recreational area. Except for the Alice Kamokila Campbell property, the shoreline area appears to be rarely used (see discussion below on existing recreational uses). The apparent limited usage of the property is probably due to the lack of land access to the shoreline and the private property which must be crossed (the sugarcane fields are crisscrossed by roads with locked gates). Presently, the Alice Kamokila

Campbell property is used for private luaus and parties, and is not accessible to the public. The shoreline outside of the Campbell property is rocky and swimming conditions are far from ideal. Surfing sites along the shore probably exist, although no surfing was observed on several site visits. Fishing and picnicking occur on a limited basis.

9.10.2 Impact on Recreational Beach Use. The shoreline of the proposed project site stretches approximately 1.1 miles between the Alice Kamokila Campbell Estate beach and Malakole basin. This beach area borders sugar canefields and consists mainly of lava rock and relatively few sandy patches of beach. Three entrances are commonly used by beachgoers. From the north, people reach the beach either through Kahe Beach Park, following the coastline, or by permission, through the Alice Kamokila Campbell Estate. Another means of entry is through the canefield roads, which can be entered through locked gates, but for which certain employees of Oahu Sugar Company may obtain keys. The third and most commonly used entrance is from the south, via the same road that leads to Campbell Harbor.

9.10.3 The beach is not readily accessible, and apparently relatively unknown. Consequently, it is not heavily used and remains somewhat free from litter. Fresh water is not available and there is hardly any sandy beach. The shoreline is scenic and serves as a type of refuge to those who go there to fish, dive, camp, or just to get away from it all.

9.10.4 A survey of beach users was conducted to determine the number, characteristics, and reported activities of those who visit the area. Present levels of beach use are estimated to be about 6,100 visitor-days annually, or an average of less than 17 people per day visiting the beach frontage. People visiting the beach for recreation are typically male, Hawaiian or part-Hawaiian, and residents of the area including Ewa, Ewa Beach, and Waipahu. Fishing of some type was overwhelmingly the most common activity.

9.10.5 Impact on Existing Shoreline Users. At the very worst, these visits and activities would be eliminated, as they have in a number of other areas that were relatively isolated prior to develoment. As the beach frontage becomes less isolated by enhanced access, the number of people using the beach frontage will obviously increase, but by an amount that cannot be estimated with useful accuracy. But the major change that will occur is the nature of the activities in the area, for the isolation that is central to current uses would be eliminated by the project. Although such activities in isolated areas of Hawaii are increasingly rare, their very nature means that relatively few people are affected, particularly in comparison with the numbers of people directly involved in the resort project.

9.10.6 Impact on Recreational Areas and Facilities. The West Beach project will allow for easier access to the natural shoreline and bathing lagoons. Both visitors and residents will have access to the natural shoreline (except for the lagoon's openings, ducts, and wave traps for safety reasons), the proposed bathing lagoons and the Alice Kamokila Campbell property. This will mean that the recreational value of this site will increase dramatically. Additionally, such facilities as comfort stations, showers and parking will also be provided for. These

facilities and beach rights-of-way will be coordinated with the Department of Parks and Recreation, City and County of Honolulu. Public access will be provided along the entire 1.9-mile shoreline (except for the lagoons' openings, ducts, and wave traps for safety reasons). Public access, the proposed lagoons to be developed fronting the hotel/condo areas, and the project's need to comply with the City's Park Dedication Ordinance 4621 will require coordination and discussions with the City's Department of Parks and Recreation. All shoreline activities will likely be intensified and more taxing to the shoreline resources of the area. Other recreational facilities will be provided such as golf, tennis, passive activities (walking, picnicking), bicycling, et cetera. The West Beach project will have a beneficial impact on recreation, in that it will provide an increased recreational usage of this area. It will also result in the decline of fish and marine life in the nearshore waters due to the increased fishing activities.

9.11 Governmental Services and Facilities, and Utilities.

9.11.1 (a) Sewage Collection and Disposal. The development is expected to generate 2.5 mgd of wastewater. The Honouliuli Wastewater Treatment Plant first phase will be completed in 1981 and will have a capacity of 25 mgd. The implementation of this proposal must be coordinated with the Wastewater Treatment Division, Department of Public Works, City and County of Honolulu. In working with the responsible County and State agencies, the applicant will be able to acheive adequate sewage disposal for the development without adversely affecting the present users of such facilities. It is emphasized that the final approvals, sizing, connections, et cetera lies within the jurisdiction of public agencies.

9.11.1 (b) The City has acknowledged accepting the sewage from West Beach at their Honouliuli Wastewater Treatment Plant. Copies of the letters from Community Planning, Inc. (the project's retained engineering consultant firm) to the City's Department of Public Works, and the latter's letter to the State's Department of Health addressing the oversizing of the Makakilo Interceptor Sewer are found in Section 13. If the oversizing does not occur, the developer intends to construct (at his expense) a separate sewer line from the project site to the Honouliuli Wastewater Treatment Plant.

9.11.2 Availability of Potable Water. Approximately 5.5 mgd of potable water must be available to the project if the proposed concept plan is implemented. The resources in the Ewa-Waianae Water System and the Hoaeae, Kunia I and Kunia II wells have a maximum capacity of 32.85 mgd (million gallons per day), a dependable capacity of 22.6 mgd and a sustainable capacity of 17.26 mgd. The average 1979 production was 15.61 mgd. The Board of Water Supply's resources in the Ewa-Wainae area have practically reached their sustainable limit. Therefore, new sources would have to be developed to accommodate the proposed project. At this time, the State is enforcing regulations in which the State Department of Land and Natural (DLNR) oversees the use of water from the Pearl Harbor aquifer. If project plans require development of groundwater within the Pearl Harbor basin, then a permit will be

necessary under Regulation 9 of DLNR. The developer must also comply with all applicable laws and regulations relating to potable water development, including section 29, State Public Health Regulations, Chapter 49, Potable Water Systems. This means that stringent restrictions and priorities must be identified before potable water is made available for developments such as West Beach. This new regulation does recognize that there is a finite amount of potable water available and that that amount must be prudently allocated and used to preserve the integrity of the aquifer. At this time the applicant is working with the appropriate State and County agencies to determine the source and water system facilities which can be used and/or constructed for this proposed project. Construction plans for the project must be submitted to the Board of Water Supply for their review and approval. The eventual determination of potable water to be supplied will be based on decisions from these public agencies. The impact on the total potable water supply will be evaluated by these public agencies not only from the standpoint of the West Beach project, but after viewing the total needs and impact of future projects requiring water from the Pearl Harbor aquifer. The development of West Beach may be limited if the required amount of potable water cannot be received. Should this be the case, alternatives available to the developer include the desalinization of salt water or the reducing the size of the development.

9.11.2 (b) During the Draft EIS review period, several reviewers requested additional information on the availability of potable water. The project engineer provided this information:

The Ewa-Waianae water system is anticipated to change within the next five years. The Board has already designed and should construct shortly a 16-inch transmission main from its existing well in Waipahu to bolster the Kunia sources. This, however, is an interim measure to assure water in the Ewa-Waianae system until the Waianae-Nanakuli system is developed.

Both the City and State have started exploratory wells in Makaha and Waianae. It is anticipated that the area from Nanakuli to Makaha will, within the next five years, have its own water system of about 5 mgd. Then West Beach, as well as the Campbell Industrial Park, would be the only logical service area for the existing water reservoir and water mains in Farrington Highway near the project site.

It is also our understanding that Campbell Estate has hired an engineering firm to review the water demands of its Ewa lands including West Beach. An exploratory well is being drilled by Campbell Estate near Makakilo as a recommendation of that water study.

Consequently, due to the unconfirmed nature of all the present proposals of the Board of Water Supply it is impossible as well as impractical to predict the source of water for West Beach which, at the minimum, is about four years away from initial occupancy and water use.

9.11.3 Salt Water Intrusion into Fresh Water Supply. The excavation and ocean water use of the lagoons and marina will result in the infiltrating of brackish water from land into the ocean water and vice-versa. Bathen acknowledges that the extent of impact on the fresh water lens due to the infiltration of salt water is not known.
See page 72a, item (5) of paragraph 9.2.103, for further information.

9.11.4 (a) Electrical and Telephone Systems. The State Land Use Commission's Decision and Order provides the following information on the electrical and telephone systems:

> "The Customer Engineering Department of the Hawaiian Electric Company has indicated that initial electric power can be provided from the existing overhead 12,000 volt system which runs through the subject property. For the total development, the utility company will bring in two 46,000 volt line systems and construct a substation. For initial telephone service, the Outside Plant Engineering Section of Hawaiian Telephone Company has indicated that facilities would be available from the overhead system on Farrington Highway. For the total development, the project would be serviced from the existing telephone system located along the railroad right-of-way near the Barbers Point Naval Air Station."

9.11.4(b) During the Draft EIS review period, the Hawaiian Telephone Company provided the following information on the facilities which will be needed to service the project site.

> "As a matter of information, in order to provide telecommunication services to this development, it will be necessary for us to augment our existing overhead facilites between our Barbers Point Switching Center and the project site, a distance of approximately two miles. Augmentation will be accomplished by initially adding a large-sized overhead cable on existing poles located in the railroad right-of-way. Thereafter, in all likelihood, a large-sized cable will be added every three to five years during the twenty-year construction period of this development."

The proposed project will not have a significant and/or adverse impact of the electrical and telephone systems.

9.11.5 Education and Protective Services. Certain public services would be required for the population residing permanently or temporarily at the project site. Education services will be needed for the permanent residents, and police and fire protection will be required for both permanent residents and visitors. To the extent that the resort community provides its own security and fire protection, there will be less of a need for these public services. For purposes of estimating potential impact, however, it will be assumed that such private security and fire protective services will be minimal. Public educational enrollment is dependent on permanently residents at the project site. Past experience of the Department of Education indicates that enrollment can be usefully estimated based on the number of resident households, the type of housing, and the purchase price of such housing. The public expense to provide for such enrollment is further dependent upon the availability of classroom space and enrollment projections in nearby areas. Police protection is dependent upon the number and types of people present, as well as the types of activities occurring in an area.

Fire protection needs primarily are dependent upon the number and types of structures, and less dependent upon the nature of the people in the area.

9.11.5 (a) During the Draft EIS review period the Hawaii State Department of Education, commented on the public school enrollment which would likely be generated by resident families of the project. Their calculations indication that there would be approximately 120 to 250 students generated by the project. Based on current statewide student-teacher ratios, approximately 5 to 11 teachers would be required for the system to absorb that many students. Allocation of the enrollment projection by grade level gives an estimated range of 70 to 150 students in kindergarten through sixth grade, 20 to 40 in grades 7 and 8, and 30 to 60 in grades 9 through 12. The Department of Education have tentatively concluded to the applicant that it is likely that it is likely that existing facilities at Barbers Point Elementary, Ilima Intermediate, and Campbell High schools would be adequate to absorb this extra enrollment. Based on this information, the Department of Education recommended the deletion of the elementary school site indicated on page 19 of this Final EIS. This conclusion assumes there will be no substantial changes in existing firm development plans for urban communities in the area and that there are not drastic increases in birth rates among families in the area. The relatively low enrollment figures are also based on present expectations that housing prices will be fairly expensive, given the amenities and general character of the development. If sales prices were to drop substantially or if the number of types of units vary dramatically from what has been described, the enrollment projections would change accordingly.

9.11.5 (b) Fire Protection Impact. At present there is one engine company at each of the fire stations at Nanakuli and Makakilo. Tentative assessment of fire protection requirements as the result of examining existing services and discussing the nature of the project with Fire Department personnel indicates that the construction of 2,000 multi-family residential units and 7,200 units in the project would necessitate the equivalent of an additional fire station with an engine company and a hook-and-ladder company. This would require a total of 33 additional staff and appropriate equipment and buildings. Major fires in the region would require that personnel and equipment from neighboring stations also respond.

9.11.5 (c) Police Protection Impact. Based on the possible configuration developed in the discussion of sales, jobs, and incomes to be derived from the project (see Table 14), it was estimated that when fully developed, the number of people present at the project site would average about 17,500. Based on the present Oahu ratio of police employees to de facto population, (2.5 police employees per 1,000 populace), there would be a need for 44 police to cover the area, as well as patrol cars and assorted equipment. It is unlikely that other support services would be increased proportionately, but the extent of such increases is not known. Also, these impacts would be lessened by the provision of private security services at the project site.

9.11.6 Solid Waste Collection and Disposal. Presently, there is no public collection and disposal of solid wastes from the project site. Using a de facto population of 17,500 and assuming that the average person generates 3.5 pounds of solid waste per day (based on the City's Refuse Division figures); the total solid waste generated by the project would be approximately 30 tons per day. Other uses such as commercial areas, park areas, visitor facilities, et cetera may add an additional three tons of solid waste. The solid waste generated by the hotels/condos, commercial and private recreational areas, and the residential areas will be collected by private refuge companies and disposed of at a private certified landfill or at a public landfill for a fee. The location of the landfill has not been determined at this time.

9.11.7 Commercial Shopping Areas. Several shopping areas including a shopping center are planned for the proposed development. Future residents and visitors can also shop in several shopping centers located within a 20-minute driving time from the project; these shopping centers include those located in Waipahu, Waianae, Nanakuli, Waiau, and Pearl City.

9.11.8 Health Care Facilities. Health and medical care centers are located in Waianae, Ewa, and Waipahu, approximately 15 minutes (driving time) from the project site. It is likely that the project, when developed will have an ambulance station which will serve the project site (normally the ambulance station is located in the vicinity of the fire station). Health and medical centers are found within a reasonable traveling distance for normal medical care.

TABLE 14

ECONOMIC IMPACTS OF WEST BEACH PROJECT

Types of Structures	Deluxe Hotel	1st Class Hotel	2 bdrm Condo/Resort	1 bdrm Condo/Resort	3 bdrm Multifamily	2 bdrm Multifamily	2 bdrm Lo-Mid Income	Total
Possible Configuration								
Number of Units	1,000	2,600	2,700	900	900	900	200	9,200
Costs per Unit (Thousand $)	200	100	170	120	250	200	90	--
Construction Impact								
Direct Purchases (Million $)	200	260	459	108	225	180	18	1,450
Total Purchases (Million $)	497	646	1,141	269	559	448	45	3,605
Direct Income (Million $)	98	128	226	53	110	88	9	711
Total Income (Million $)	178	232	409	96	200	160	16	1,291
Direct Employment (Job-years)	2,604	3,386	5,978	1,406	2,930	2,344	234	18,882
Total Employment (Job-years)	5,330	6,930	12,234	2,879	5,997	4,798	480	38,648
Operation Impact, Annual								
Direct Sales (Million $)	63	87	27	6	--	--	--	184
Total Sales (Million $)	145	201	62	14	--	--	--	423
Direct Income (Million $)	26	37	11	3	2	2	--	81
Total Income (Million $)	45	63	19	4	3	3	--	138
Direct Jobs	1,200	1,950	378	126	90	90	20	3,854
Total Jobs	1,800	2,925	567	189	135	135	30	5,781

NOTES: Totals may not add exactly due to rounding. Dollar figures are in March, 1979 values. Multipliers are adapted from the State's interindustry model prepared by the Department of Planning and Economic Development. Construction costs include all golf course, marina, commercial, and other associated construction activities as they might be allocated to each unit's costs.

At this time the developer has not finalized the total amount of residential units to be constructed. Nor has a City, Stae, or Federal housing program been considered. Under the State Land Use Commission's condition, the developer must provide 10 percent of the total residential units for low and/or moderate income.

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9.12 Access, Traffic, and Mass Transportation.

9.12.1 Existing and Future Highway Systems. The existing highway system serving the project is shown in Figure 10. As shown, Farrington Highway is the major highway providing egress/ingress to the project. serving the project. Interstate Highway Route H-1 terminates at approximately the Honolulu boundary (east side) of the property. The property, therefore, abuts Farrington Highway. Beyond the terminus of H-1, Farrington Highway has been widened to a four lane highway up to the Nanakuli District Boundary. Since the widening of Farrington Highway is a portion of the planned widening of the entire length of Farrington Highway beyond the terminus of H-1, the future highway system serving the project and the Waianae District is the same as the existing highway system. With this major highway serving the project and the Waianae District, the influence of accessibility to the project is significant and will have a desirable effect on facility usage.

9.12.2 Traffic Volumes. Traffic volume information and data were obtained from the report "Traffic Summary, Island of Oahu 1973" of the State Department of Transportation and from the latest traffic volume counts collected by the Department. The "Traffic Summary" is a digest of current and historical data relative to vehicular traffic and travel, and includes a tabulation of the average daily traffic counts at selected stations. Traffic volumes are collected annually making it possible to compare and analyze the growth trends of traffic on the various sections of the highway system. In 1965 the traffic volume or average daily traffic on Farrington Highway was only 9,017. By 1976 the average daily traffic increased to 18,756 , representing a 108% increase within an eleven year period. Traffic volumes, therefore, have been increasing at a rate of 9.82% per year. On the basis of an increase in traffic volumes at 9.82% per year, the future traffic volume on Farrington Highway in the year 1990 should total 31,154. The traffic assignment set forth in the report "Highway Classification and Needs Study, State of Hawaii 1970-1990" of the State Department of Transportation indicates a moderate increase from 14,061 in 1969 to 23,424 in 1990. On the H-1 Freeway, the increase in traffic volumes from 1969 to 1977 has been at the rate of 8.92% per year. At this rate of increase, the future traffic volume on the H-1 Freeway for the year 1990 should total 47,070.

9.12.3 Traffic Carrying Capacity. Since there is the question of whether or not the additional traffic generated by the West Beach Resort project will have adverse effects on the major traffic arteries, it would be appropriate to investigate and determine how many additional cars can be accommodated by the main highway network as planned by the State. The major highways are Interstate Highway Route H-1 and Farrington Highway and the traffic volume capacities of only these two highways need be analyzed. As an explanation, the capacity of a highway is a measure of its ability to accommodate traffic and is represented by the maximum number of vehicles that can be carried under prevailing roadway traffic conditions. It should be emphasized that the capacity of a highway is not directly comparable to the capacity of a container or enclosed space. The capacity is a rate instead of a quantity. Farrington Highway has been classified as a principal arterial and Route H-1 as an Interstate highway, highways intended to provide good service with high

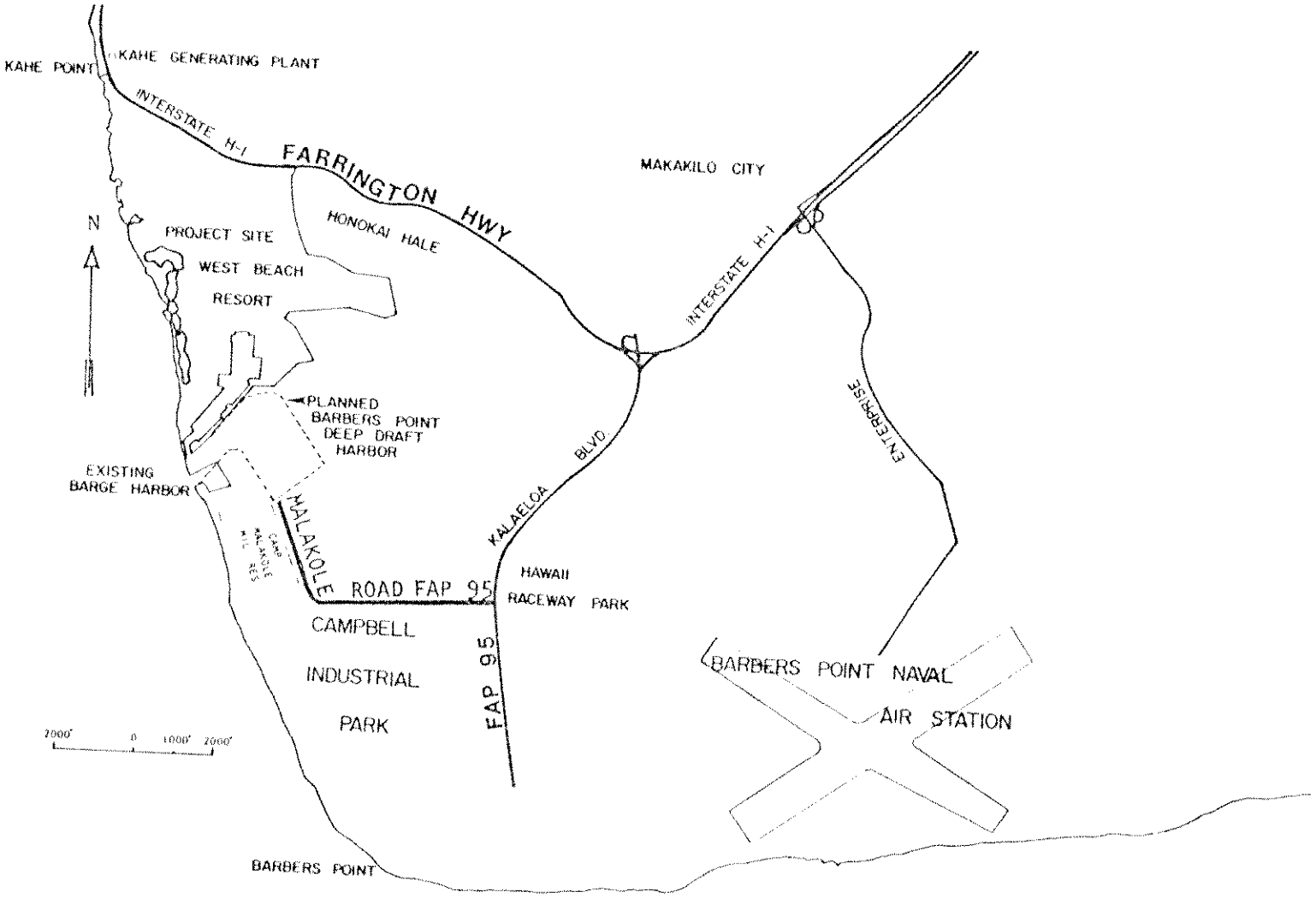

FIGURE 11. WEST BEACH - FUTURE AND EXISTING HIGHWAY SYSTEM

volumes of traffic. Using average values, the capacity of a multi-lane highway is approximately 1,275 vehicles per lane per hour in one direction at Level of Service C. The H-1 Freeway is a higher type facility and its capacity is usually a much higher value than the approximately 1,275 vehicles per lane per hour. For a multi-lane highway of this type, the largest number of vehicles that can pass a point one behind the other in a single lane, under ideal conditions, averages between 1,900 and 2,200 vehicles per hour. The lower capacity figure, however, will be used for design purposes. In 1990, excluding the traffic volume generated by the West Beach Resort project, the projected 1990 peak hour volumes in the heavy direction will be 1956 VPH for Farrington Highway and 2313 for Interstate Route H-1, based on the following factors:

		H-1 Freeway	Farrington Highway
1.	Average Daily Traffic, 1990	47,070 vehicles	31,154 vehicles
2.	Peak Hour Percentages		
	A.M. Peak	8.7%	7.3
	P.M. Peak	9.1%	8.6%
3.	Peak Hour Directional Distribution		
	A.M. Peak	55%/45%	74%/26%
	P.M. Peak	46%/54%	27%/73%
4.	Peak Hour Volumes		
	a) A.M. Peak		
	1) Heavy Direction	2,252 VPH	1,683 VPH
	2) Both Directions	4,095 VPH	2,274 VPH
	b) P.M. Peak		
	1) Heavy Direction	2,313 VPH	1,956 VPH
	2) Both Directions	4,284 VPH	2,679 VPH

9.12.4 Traffic Generated by the Proposed West Beach Project.
Henry T. Au, traffic consultant, reviewed the project description and proposed land uses. Au's analysis of traffic generated* by the proposed project is as follows:

a. The residential land use will generate a 24 hour volume of 14,112 trips and a peak hour volume of 1,186 trips. The peak hour volumes are important in that these volumes will occur at the time of the highway's peak loading condition during the morning and afternoon peak hours.

b. The commercial and restaurant uses totaling 18.3 acres will generate a daily volume of 10,980 trips and an afternoon peak volume of 1,318 trips. The peak hour volumes will occur in the morning between 9:00 to 10:00 A.M. and in the afternoon between 2:00 and 3:00 P.M., after the morning peak commuting hours and before the afternoon peak commuting hours. Since highways must be designed to meet peak commuting demands, the roadway network will be able to accommodate the traffic generated by the commercial uses of the project.

* The traffic consultant selected the most appropriate traffic generation rate which would be typical of the facility and which would provide the most reasonable volumes.

c. The 700-berth marina will generate very little traffic during the average weekday and will not add to the peak hour volume. The traffic generated by the marina will total a maximum of 700 trips per 24 hour day. This is very insignificant and a marina at that location, in lieu of other uses, will lessen the traffic congestion on the Interstate Highway Route H-1 and Farrington Highway.

d. The hotel/condominium uses will depend on tour buses as the dominant travel mode. The 24 hour volume generated by the hotel/condominium units will total 2,444 vehicular trips, consisting of 1,650 bus trips and 794 automobile trips. The peak hour volume will total 612 vehicular trips, consisting of 413 bus trips and 199 automobile trips. Since these trips are primarily for tours and excursions, these trips will be made during the off-peak hours of the highways.

e. Adequate parking in compliance with the Comprehensive Zoning Code will be provided for the project. In fact, it is the intent of the applicant to provide more parking than is required by the Code. From the standpoint of commercial success, the provision of adequate parking should not create a traffic congestion problem within or outside the project area.

9.12.5 Impact on Traffic. The traffic volumes generated by the West Beach Resort project that will affect highway capacity and which will occur at the time of the highway's peak loading condition during the morning and afternoon peak hours will be the traffic volumes generated by the residential land use. The traffic volumes generated by the other land uses will occur during the off-peak hours and therefore, will not affect the capacities of the major highways. The residential land use will generate a 24 hour volume of 14,112 trips and a peak hour volume of 1,186 trips. Using a 73%/27% directional distribution of the peak hour volume of the West Beach Resort project, approximately 866 vehicles will be added to the peak hour volumes in the heavy direction of the two major highways. The peak hour volumes in the heavy direction will total 2,822 on Farrington Highway and 3,179 on the H-1 Freeway. Since both highways have only two lanes in each direction, the total peak hour volumes will exceed the capacities of the highways at Level of Service C. At 1,275 vehicles per lane per hour in one direction at Level of Service C, the capacity of each highway in the heavy direction will be 2,550 vehicles per hour. The highways, however, will be able to accommodate the ultimate development of the project, but at Level of Service E, at a lane capacity of between 1,500 and 1,600 vehicles per hour. In actual practice, the 1990 traffic volume should be considerably less that the projected traffic volume. As an example, the respective developers will not be able to implement the two theme parks (Caneland and Kahe Point). These projects, for all practicel purposes, have been abandoned. Consequently, it is not expected that Level of Service E will be a daily occurrance, but may occur only a few days of the year. Cumulative impacts from other project were considered in the traffic analysis, along with the growth of the Ewa-Waianae area. No mitigation measures are required; the existing highway system can accommodate the project's estimated traffic.

9.12.6 Mass Transportation. Public mass transportation service, although available to Waianae and Makaha, and which will also serve the project but not within the project, is not considered adequate. Average headway is approximately 20 minutes during the morning and afternoon peak commuting hours and 30 minutes during off-peak hours. Service is available during evening hours and on Saturdays and Sundays. On Saturday and Sunday, average headway is 30 minutes for the entire day.

9.12.6 (a) Within the project itself, there is a need for public bus routes and services. It is not known whether this service will be provided by the City. The applicant, however, is considering a private transportation mode that would connect all hotel, commercial and recreational areas with strategically located public parking centers. The private internal mass transit system will be tailored to best meet the needs of visitors and residents, and interface with the public transportation for regional or long-haul trips. To minimize the interior traffic congestion, this service would operate during normal and holiday time schedules.

9.12.6 (b) Although improved public mass transportation service, with frequent and convenient service to attract riders to the use of public transportation will reduce the peak hour flow on the highway by a minimum of 41 automobiles for each bus added to the route, no reliance was made on public mass transportation service to reduce the traffic impact of the project. The public transportation service is not to be confused with the chartered public transportation service that will be used to transport the hotel guests on tours and excursions. The traffic analysis was based entirely on the use of the automobile for maximum impact, and the 24 hour volume and the peak hour volume reflect this assumption.

9.12.6 (c) Peak hour volumes govern the design of highways and during these hours, public mass transportation operates at more than full occupancy with standees accounting for approximately 50 percent of the capacity of the bus. At other hours, the traffic volumes on the highways, including mass transportation, have less of a traffic impact.

9.12.6 (d) Mass transportation, therefore, was considered as a possible mitigating factor which may mitigate in the future the adverse consequences of traffic and improve the traffic flow on the highway and street systems. If consideration had been given to the impact of mass transporttion, the 24 hour volume and the peak hour volume would have been reduced significantly.

9.12.7 Design considerations. Presently the road system is conceptual and details have not been drawn. Interchange and intersection designs and drawings showing access to West Beach from Farrington Highway are also not available. Also, curb use and median opernings can be addressed later when building sites and lot areas are established. Even roadway alignment and width may change in the final design.

9.12.8 Other modes of transportation. Because design details were not available, the traffic study did not include other modes of travel. However, such modes will likely include, pedestrian paths along the hotels, mini-buses (internal transit system), and bikeways.

9.13 Archaeological, Historical, and Paleontological Sites.

9.13.1 Historical Sites. Sites and/or structures of historical importance include the old abandoned railroad tracks going through the northern half of the West Beach site. These tracks were owned and utilized by the sugar companies to haul sugarcane and passengers to and from the Pearl Harbor area to the Waianae Coast. There is a current governmental proposal to restore these tracks and railroad cars so that the route can be retraced. This would allow residents and visitors alike to experience the train ride which was in operation in the early 1900's. The restoration of the railroad is desirable from the resort's standpoint because it would be another visitor attraction which can be readily available and within the project site. Planning efforts will likely include the restored railroad as a part of the project. Coordination by the applicant with individuals and/or organizations sponsoring this project is expected.

9.13.2 Archaeological Sites. A reconnaissance survey of the West Beach area was conducted by Barrera (1979) for the applicant. His walk-through survey found 10 archaeological sites which included four walls of recent origin and a fishing shrine in the vicinity of Farrington Highway, an L-shaped wall and World War II structures in the northwest portion of the property, and three midden sites and a circular "oven" structure along the southeastern shoreline. The findings suggest that the sites are a continuation of the archaeological site pattern and distribution of the Barber's Point Archaeological District surveyed by the Bishop Museum and the Archaeological Research Center Hawaii. A portion of the West Beach project area lies within the archaeological district. Twenty-four archaeological sites were identified in portion of the district lying on West Beach property. The Bishop Museum test excavated and dated some of the sites and indicated that a more intensive survey may yield many more sites within the archaeological district, suggesting that more sites could be found in the West Beach area. The results of the survey for the West Beach area and potential mitigation actions need to be coordinated with the State Historic Preservation Officer. The development has the potential for destroying all the sites. The Barber's Point Archaeological District was found to be eligible for inclusion to the National Register of Historic Places. Thus, work in the district involving a federal permit will require coordination with the USA Advisory Council on Historic Preservation and the State Historic Preservation Officer for their opinions concerning the project effects and potential mitigative actions. This coordination will be accomplished and any required Memorandum of Agreement developed prior to issuance of the Department of the Army permit. The work not requiring a Fedeal permit will be coordinated with the State Historic Preservation Office. Table 15 lists the significant archaeological sites and mitigative actions suggested by the archaeologist and those actions necessary to protect archaeological resources within the archaeological district. The developer will implement these recommendations and mitigative actions. Figure 12 illustrates general site locations in comparison to the development plan.

9.13.3 Paleontological Resources. Paleontology is a science which deals with the life of past geological periods as known from fossil remains. The fossils of birds (described as a flightless goose) have been found in limestone sink holes in the Barber's Point area. These

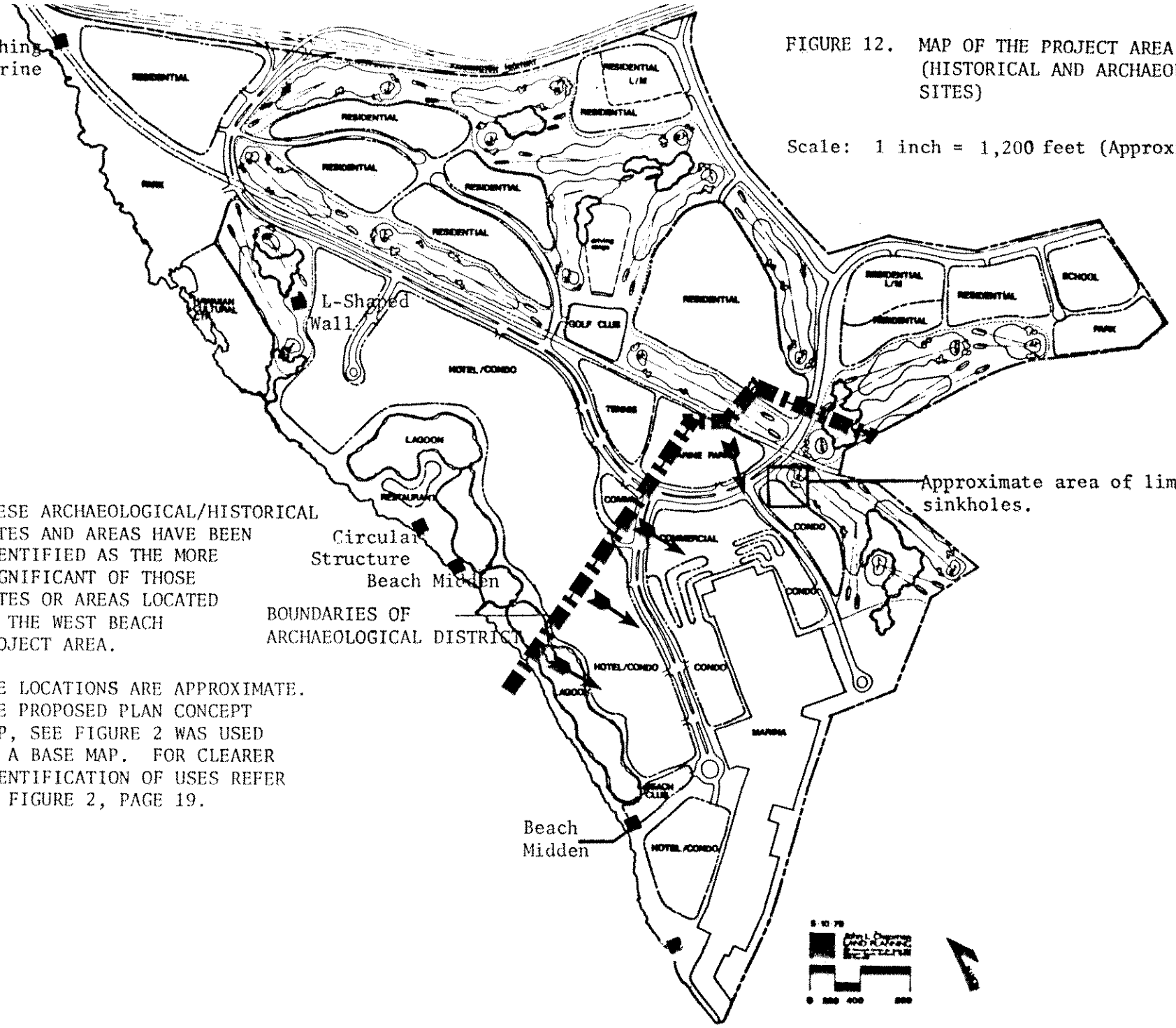

FIGURE 12. MAP OF THE PROJECT AREA (HISTORICAL AND ARCHAEOLOGICAL SITES)

Scale: 1 inch = 1,200 feet (Approximate)

NOTE: THESE ARCHAEOLOGICAL/HISTORICAL SITES AND AREAS HAVE BEEN IDENTIFIED AS THE MORE SIGNIFICANT OF THOSE SITES OR AREAS LOCATED IN THE WEST BEACH PROJECT AREA.

THE LOCATIONS ARE APPROXIMATE. THE PROPOSED PLAN CONCEPT MAP, SEE FIGURE 2 WAS USED AS A BASE MAP. FOR CLEARER IDENTIFICATION OF USES REFER TO FIGURE 2, PAGE 19.

TABLE 15

WEST BEACH SIGNIFICANT ARCHAEOLOGICAL RESOURCES

Site	Potential Damaging Action	Potential Mitigation
Fishing shrine	Residential development.	Preservation or salvage display enhancement.
L-shaped wall	Lagoon and hotel development.	Preservation or salvage display enhancement.
Stone wall (Site 1434A)	Park development.	Test pit for more information to determine value.
Beach midden, three sites	Lagoon, marina, and shoreline development.	Preservation or salvage display enhancement.
Circular structure	Lagoon and shoreline development.	Further investigations necessary to determine site value and mitigation actions.
Archaeological District 24 sites	Marina, golf course, and residential development.	Further investigations necessary to determine value and mitigation actions.
Approximately 20 sinkholes	Marina, golf course, and residential development.	Further investigations necessary to determine value and mitigation actions.

remains represent species which are extinct and previously unknown to science. Several new species may be identified from the remains. The remains represent significant paleontological finds from Hawaii. The project area will be surveyed to locate any limestone sink holes. Mitigation measures could include the salvage of fossil remains from the sink holes prior to development, if any are found on the project site.

The discovery of fossil bird bones in limestone sinks in the Barbers Point area increases the possibility of the existence of similar fossil bones in one or more of the sinkholes in the limestone formation of the Campbell Estate land. More promising sinkholes will examined to determine the presence or absence of fossil bird bones or other prehistoric material.

The first Hawaiian fossilized bird was found on the island of Hawaii in 1942 (Wetmore 1943). Not until 1971, however, were other fossil bird bones found. Mrs. Joan Aidem found fossil goose bones on Molokai that were about 25,000 years old (Stearns 1973; Olson and Wetmore 1976). Additional fossilized bird bones were found on Kauai and Oahu (Barbers Point) during 1976. These bones have not yet been studied and no technical descriptions or ages of the specimens have been published. The ages of the bones and the deposits in which they are found are of critical importance with regard to their value scientifically. For example, are they truly prehistoric in a geological sense or are the deposits of more recent times, perhaps after the first Polynesians reached the Hawaii Islands.

In addition to their intrinsic scientific value as clues to birdlife during past geological ages, aged fossil bird bones in Hawaii might enable ornithologists to understand much better the evolution and relationships of the living endemic bird species, although there is no certainty that this would be true. There is no way to make reliable predictions until after the fossil bones have been studied thoroughly by a highly competent bird paleontologist.

The developer, based on the recommendations of the archaeologist will retain qualified personnel to systematically test limestone sinks and remove fossil bones from these sinks. The fossil bones could be deposited with the Smithsonian Institute for further examination and study.

9.13.4 Railroad Renovation. There have been indications that the old O R & L Railroad will be renovated and a "train-ride" type experience along the Pearl City to Waianae area will be available. This will recreate the route taken by the trains hauling sugar cane and passengers between these points. At this time, it is not known if private or public funds will be financing the renovation. The developer is willing to contribute to the cost of renovating the old railroad if such a project is felt to provide a recreational/educational experience and add to the visitors' attractions at West Beach. Work on the railroad, whether through public or private funds will be coordinated with the State's Historic Preservation Office. Because the route travels across several properties, the developer will likely assist development and funding of the portion of the route on the West Beach site.

9.14 Socioeconomic Impacts.

9.14.1 Population Impact. The Department of General Planning, City and County of Honolulu, identified population impacts of various off-Waikiki resorts ("An Assessment of Potential Off-Waikiki Resorts on Oahu," dated August, 1978). This study provides the following information on the population impact of West Beach:

> "The impact area for the West Beach resort center is depicted as: the Waianae Coast, Central Oahu (Mililani town, Wahiawa), and Waipahu to Moanalua). It is evident that a large number of population concentrations are within the thirty minute travel time of the resort area, which is the criterion for drawing the boundary for the area."
>
> "The impact area includes a major portion of the city. Population within the area amounted to about 334,000 in 1975. With this large population, the resort development at West Beach has a very large labor pool from which employees may be drawn and any population impact generated by the development can easily be absorbed into the urban area."
>
> "Since there is a fairly large labor market within the 30-minute commuting distance of the resort, it is probable that most of the employees will be living within the impact area and the total additional population (33,000-35,000) will present a reasonable estimate of the resort's impact. This possibility will be enhanced if the City & County permits a new residential development within the impact area to complement the resort development. This does not account for unemployed living within the impact area who may seek jobs generated by the resort, or residents in the impact area who are drawn into the labor force as a result of the new job opportunities."

When fully developed, the resort is expected to generate a total additional population, including visitors, of between 33,000 and 35,300. This is about 10% of the population of the impact area (and about 4.5% of Oahu's resident population). This is significant (over 60% of the population in West Beach would be visitors) and could very well be a major factor for the intensification of new residential developments in the Ewa and central Oahu area.

9.14.2 Economic Impact. The jobs, income and sales levels attributable to the project are dependent upon the numbers and types of facilities constructed, as well as upon their promotion and operation. Tentative plans call for rather impressive amenities, which imply a high quality of construction throughout the project. One possible combination of units and construction costs is shown in the first two rows of figures in Table 14, page 110. This particular combination is not to be taken as an indication of firm commitments to build this many and these types of units, but such hypothetical details do permit a useful examination of the types and magnitudes of economic impacts that might be anticipated

in a project of this nature. Furthermore, these details are in line with current favorable marketing opportunities in the industry, and they are in accord with the general concepts planned for the project.

9.14.2 (a) Construction Phase. As shown in Table 1 (page 23) construction costs (purchases from construction contractors) for all aspects of the project may well run to nearly $1.5 billion. The impact of the construction activities will depend in part on the phasing that evolves as the project is put in place. For example, if such work occurs over a period of 10 years, then the average number of construction jobs directly provided might total about 1,900 annually. By stretching the development to 20 years, the number of jobs provided at any one time would be halved. In addition to wages and salaries, other income would accure to residents of Hawaii in the form of rent, profits, dividends, and interest. The total amount of all such income directly derived from the construction phase of the project thus would be about $700 million.

9.14.2 (b) These effects are multiplied in the State's economy as supplies and materials are purchased and income is spent. These repercussive effects result in an estimated total impact on Hawaii's economy of $3.6 billion in sales, $1.3 billion in income, and about 3,900 jobs (based on a ten-year construction timetable).

9.14.2 (c) Operational Phase. Unlike the one-shot nature of construction activities, the economic impacts of operating the project are of a fairly permanent nature, and thus may be more important to the economy. In order to estimate the magnitude of operational impacts, it is necessary to make a number of further assumptions that the future details of the project, which, if reasonable, should provide some idea of the magnitudes involved. The key assumptions about the project's operation which underlie the estimates of operational impact shown in Table 14 are as follows:

(1) One-half of the condominium resorts would be placed in hotel pool agreements.

(2) Occupancy rates in the hotel units would average 80 percent, and the condominium units in the hotel pools would average 40 percent occupancy.

(3) Hotel employment rates are estimated to be 1.2 jobs per unit in the deluxe facilities and 0.75 per unit for the first-class hotels. Condominium units in hotel pool arrangements would utilize 0.18 employees per unit. All other units in the project would utilize 0.10 employees per unit. (The figures in the first three assumptions are comparable to roughly equivalent operations currently in place in the Neighbor Islands, although there are wide ranges of experience.)

(4) Room rates for transient accommodations are assumed to average $140 for deluxe hotels, $75 for first-class hotels, $75 for 1-bedroom condominiums, and $110 for 2-bedroom condominiums. (Long-term rentals are not included in the sales figures.) Room revenues are assumed to be 80 percent and 55 percent of

total sales revenues for condominiums in pool agreements and for hotels, respectively.

9.14.2 (d) The fully developed project would be anticipated to directly employ over 3,800 people and generate about $18 million in annual revenues. Income directly generated as wages and salaries, rent, profits, dividends and interest would total about $80 million annually. The multiplier process within the State's economy would increase these annual impacts to about 5,800 jobs, $420 million in sales, and $140 million in income.

9.14.2 (e) Some perspective can be gained in assessing these figures by noting that the total job impact would be less than two percent of Oahu's present total job count. On the other hand, the number directly employed on the project would be roughly equivalent to the number of employees working in the state's sugar mills. If the project were to be constructed over a ten-year period, construction employment derived from the effort would equal about 9 percent of Hawaii's construction labor force.

(The direct economic impacts ascribed to the operation of the project allow only for activities within the project itself, and do not attribute all daily expenditures of guests to the project. Tours, meals, purchases, etc. that are made elsewhere are not counted as part of the project's impact, even though the visitors may be housed at the project site.)

9.14.3 Regional Impacts. Unlike the Kuilima or Makaha sites, the West Beach site is located within reasonable commuting distance of a fairly large population. Consequently, the off-site population impacts are not expected to be discernible. In other words, noticeable social and economic impacts would not be as likely in nearby neighborhoods, for relatively few people would move there in order to be near their employment location.

9.14.3 (a) The area of primary regional impact (within likely commuting range) is considered to be the general areas including Ewa Beach, Ewa, Waipahu, Makakilo, and the entire Waianae Coast. As shown on Figure 12 this would include Census Tracts 83 through 88 and 96 through 98. The 1977 population of this region has been estimated by the Hawaii State Census Statistical Committee to be about 76,000. As shown in Table 16 , considerable population growth has occurred and is anticipated to occur in the areas not being utilized by the military.

9.14.3 (b) Unemployment levels in the impacted region have been higher than for all of Oahu. (See Table 17.) In 1970 the total civilian labor force in the region was about 18,000, but about 5 percent were unemployed. If we assume that the labor force participation ratio remains fairly constant and that the population in the impacted region increases to about 90,000 by the time the project is in full operation, the jobs provided at the project site would amount to only 15 percent of the region's labor force. This magnitude of impact is hardly overwhelming in terms of the sense that it could take up much of the slack that would otherwise occur under conditions of an expanding labor force which already evidences a higher than average tendency to experience unemployment.

FIGURE 13

Census Tracts of Impacted Region

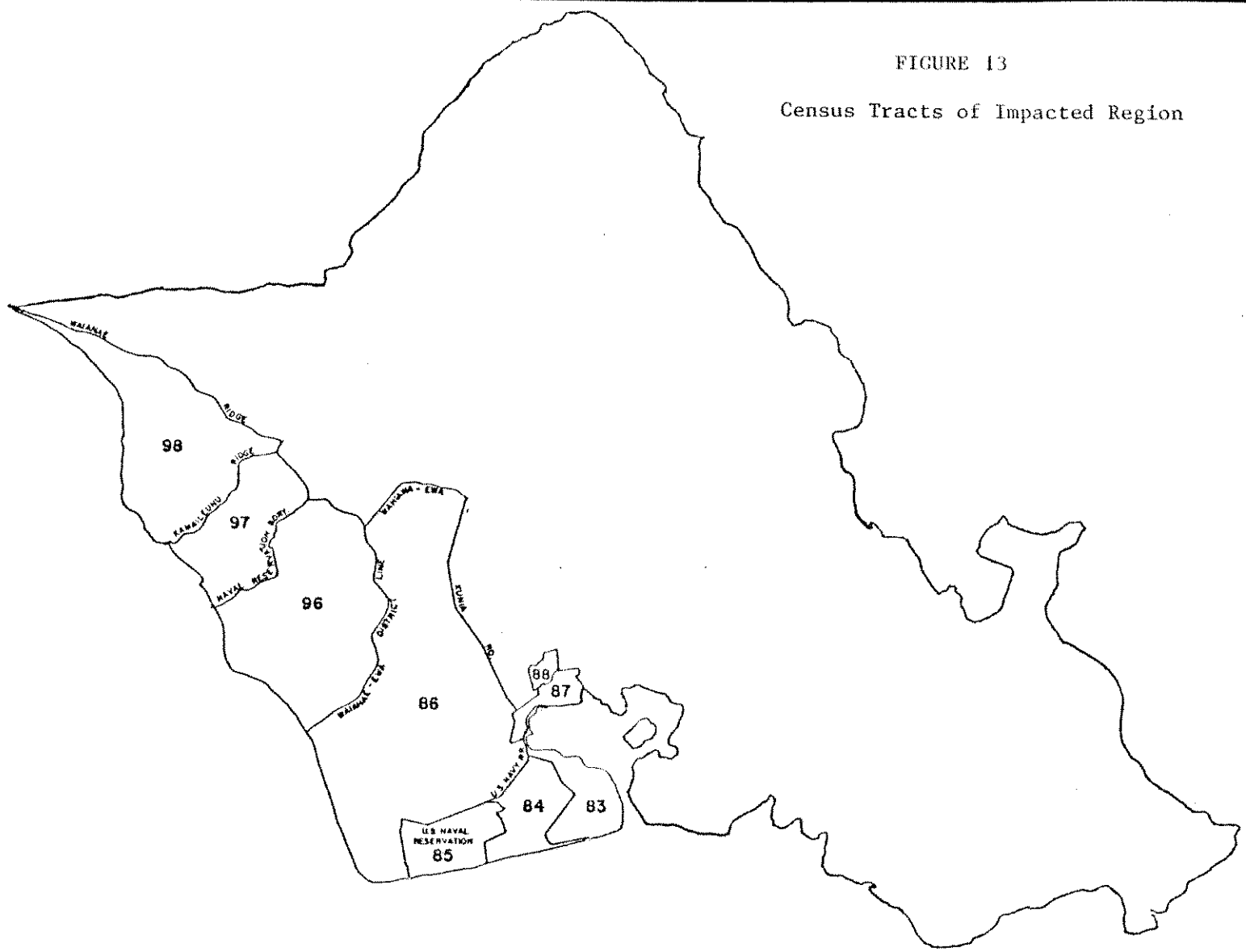

TABLE 16
Resident Population Change in Affected Areas

Census Tract	1970	1975	1985	Percentage Change 1970-1975	Percentage Change 1975-1985
83	4,759	9,092	9,009	91.0	(0.9)
87	12,705	11,678	11,720	(8.1)	0.4
88	3,429	3,491	4,835	1.8	38.5
84	7,801	7,524	9,559	(3.6)	27.0
85	3,187	3,576	3,538	12.2	(1.1)
86	8,340	10,364	13,341	24.3	28.7
96	13,654	15,112	15,744	10.7	4.2
97	6,020	8,763	9,806	45.6	11.9
98	4,403	7,152	7,972	62.4	11.5
Total	64,298	76,752	85,524	19.4	11.4

Sources: Population and Housing Unit Estimates for Oahu Census Tracts, 1970-1978, State of Hawaii Census Statistical Areas Committee, April 6, 1979.

State of Hawaii Data Book, 1978, State of Hawaii Department of Planning and Economic Development, November 1978.

TABLE 17
Unemployment by Census Tracts in Affected Areas, 1970

	Puuloa, Waipahu Census Tracts 83,87,88	Honouliuli/Ewa Beach Census Tracts 84-86	Lualualei-Makaha/Makua Census Tracts 96-98	All of Oahu
Civilian Labor Force	6,269	4,831	6,780	237,338
Unemployed	256	184	442	7,086
Percentage Unemployed	4.1	3.8	6.5	3.0

Source: 1970 Census of Population and Housing Census Tracts Honolulu, Hawaii S.M.S.A., U.S. Department of Commerce, Bureau of the Census, March 1972.

9.15 Land Use Controls and Impact.

9.15.1 Present Land Use. The West Beach project site is within the Urban district, as designated by the State's Land Use Commission. The City and County of Honolulu Interim Zoning Control Ordinance (No 77.9) identifies the site for Agriculture, Residential, Industrial and Park uses (see Figure 14). The Interim Zoning Control Ordinance Map designates industrial uses for the area surrounding the existing barge basin (site for the proposed Barbers Point deep draft harbor), and residential use for the northerly shoreline portion of the site. The Ordinance, adopted by the City Council, is a guideline until new development plans are prepared and adopted to implement the new General Plan Statement of Objectives and Policies adopted by the ity Council by Resolution No. 238, January 18, 1977. The City and County's zoning for the subject property is Agriculture and Industrial. See Table 17a, page 125a for the specific tax map key (TMK) and zoning for the site. County land use amendments and rezoning will be required. Resolution No. 238, General Plan Statement of Objectives and Policies designates the Ewa-Makakilo District (where the project is located) as a secondary urban center with a projected population of 104,000, and designates West Beach as appropriate for resort development. Portions of the property lie within the SMA (Figure 15).

9.15.2 Adjacent Land Uses. The southern boundaries of the site abut the existing Malakole barge basin. This basin is planned to be enlarged for the future Barbers Point deep draft harbor. Around and south of the basin, Campbell Industrial Park lies approximately .7 mile to the south of West Beach. The Hawaiian Electric Company's Kahe Power Plant is located .5 mile north of the project site, across Farrington Highway. The eastern boundaries of the site abut agricultural lands planted in sugarcane or lands in open space use. North of the project lie two existing residential subdivisions (Honokai Hale and Nanakai Gardens). The Barbers Point Naval Air Station lies approximately one mile southeast of the project. (See Figure 16 for location of these surrounding uses.)

9.15.3 Future Projects in the Surrounding Area. There are several projects which will occur in the in the surrounding area, these are:

a. Construction of the Barbers Point deep draft harbor. This harbor, presently in the detailed planning stage will serve as the second major harbor (next to Honolulu Harbor) for Oahu. Its development is next to the largest industrial park (Campbell) in the State, and the goods and transportation advantages will serve to reduce overland transportation costs for the central Oahu area.

b. Continued growth of Campbell Industrial Park. The industrial park will continue to grow, especially in view of the proposed harbor. Heavy and light industries are housed in the industrial park

c. Continued development of Makakilo Town. This predominantly single-family subdivision will continue to expand (several thousand units are proposed over the next 15 years).

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TABLE 17a

WEST BEACH SITE - COUNTY ZONING BREAKDOWN BY

TAX MAP KEY

Tax Map Key	Approximate Area (Acres)	Zoning
9-1-14:2 (portion)	121	Industrial
9-1-14:8	20	Industrial
9-1-15:3	165	Agricultural and Industri
9-1-15:4 (portion)	229	Agricultural
9-1-15:6	3	Agricultural
9-1-15:7	17	Agricultural
9-1-15:9	36	Agricultural and Industri
9-1-15:10	41	Residential and Agricultu
9-2-03:3	7	Agricultural
9-2-03:7	1	Preservation

THE LINED AREA WAS PART OF THE 1968 LAND USE CHANGE REQUEST FOR WEST BEACH. HOWEVER, THIS PORTION WAS NOT REDESIGNATED URBAN AND THEREFORE, IS NOT PART OF THE 640 ACRES

WEST BEACH PROJECT SITE

Scale: 1 inch = 2,000 feet

Figure 14
INTERIM ZONING CONTROL RESOLUTION EXHIBIT A2

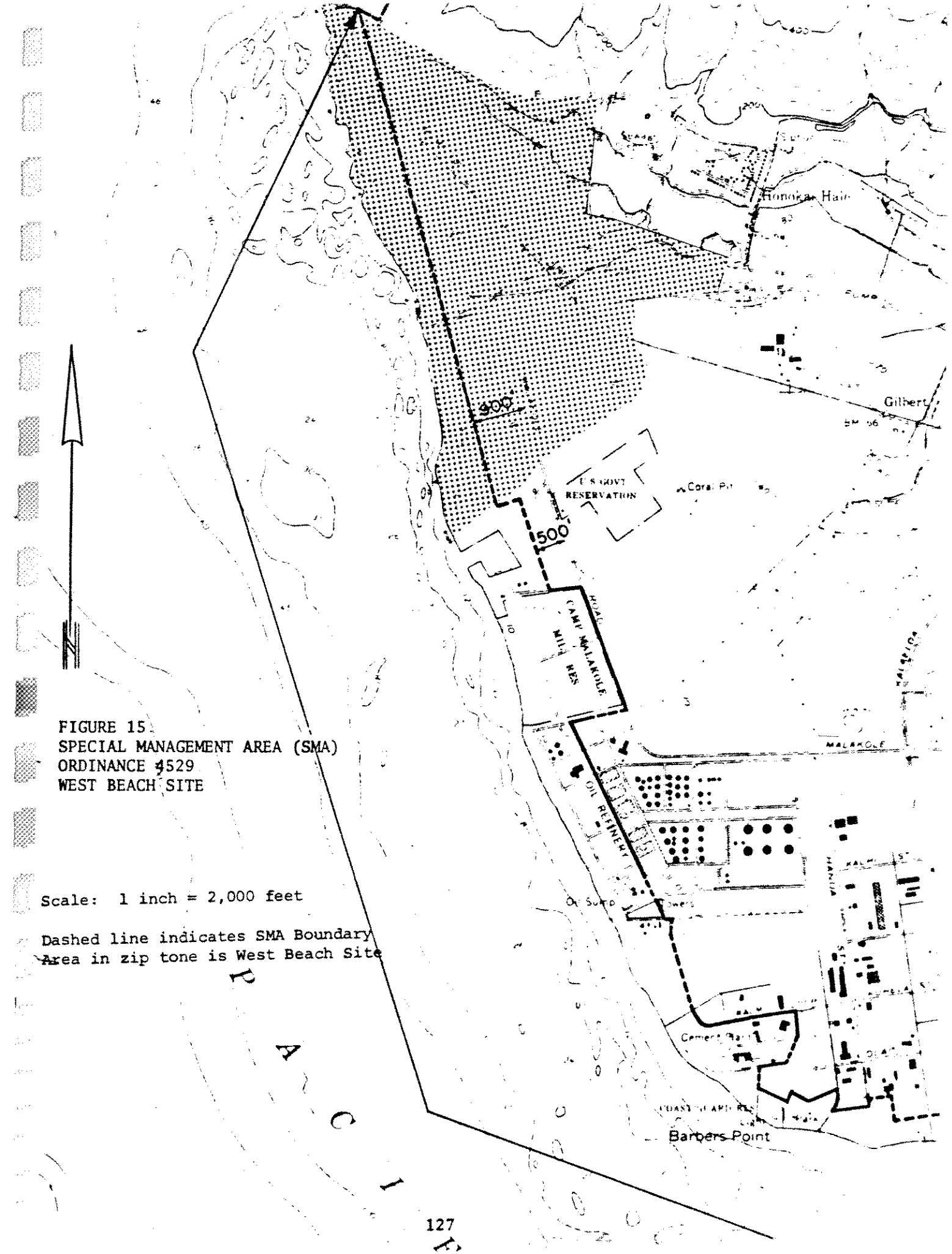
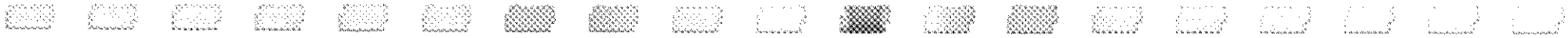


FIGURE 15
SPECIAL MANAGEMENT AREA (SMA)
ORDINANCE #529
WEST BEACH SITE

Scale: 1 inch = 2,000 feet

Dashed line indicates SMA Boundary
Area in zip tone is West Beach Site



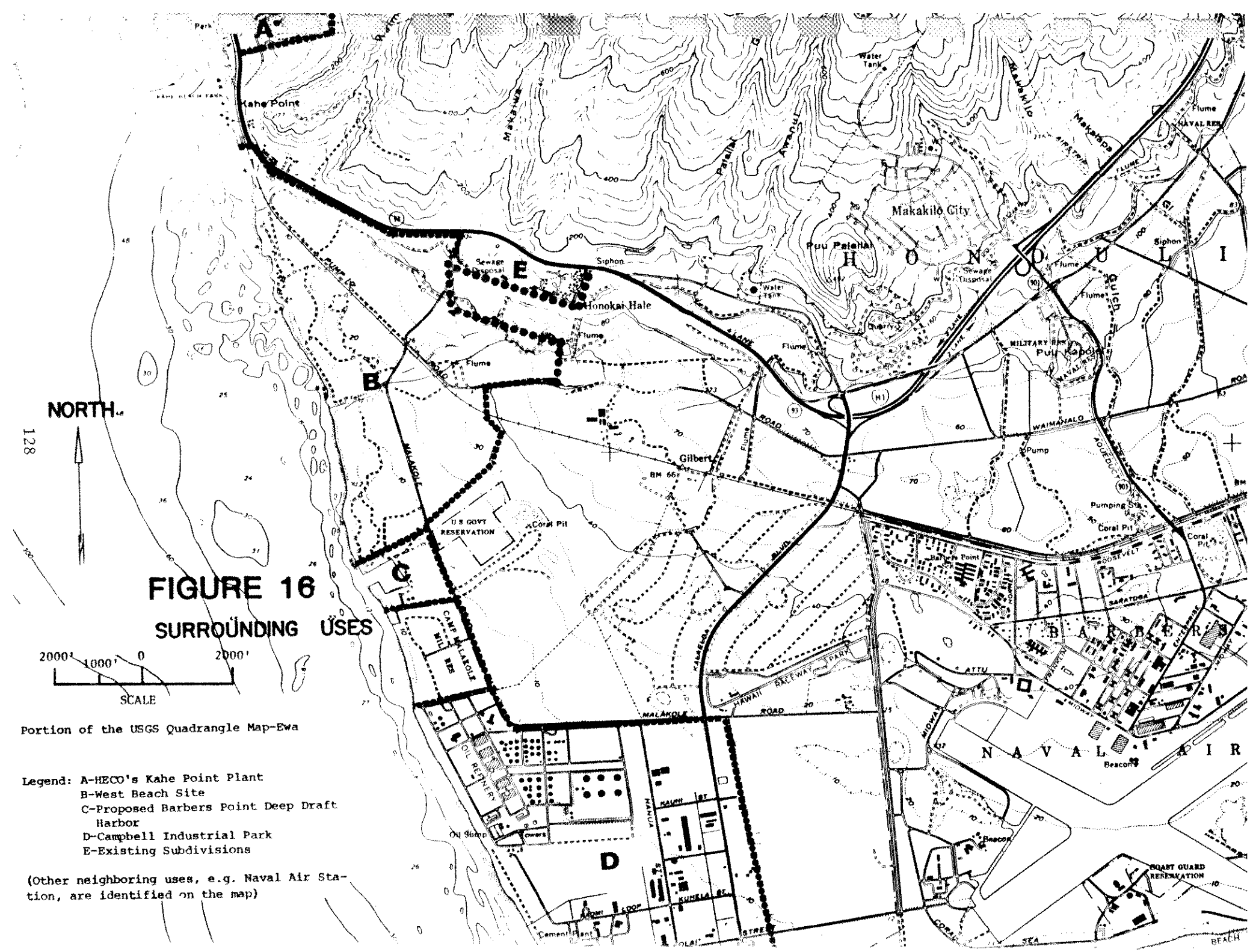


FIGURE 16

SURROUNDING USES

Portion of the USGS Quadrangle Map-Ewa

Legend: A-HECO's Kahe Point Plant
B-West Beach Site
C-Proposed Barbers Point Deep Draft Harbor
D-Campbell Industrial Park
E-Existing Subdivisions

(Other neighboring uses, e.g. Naval Air Station, are identified on the map)

d. Kahe Point Theme Park is proposed across Farrington Highway next to Kahe Valley. The theme park, still in the planning stage has been described as a project which will be similar to other theme parks on the mainland U.S. Patronage will be primarily visitors to Hawaii. Because the permits for this Park have lapsed, it does not appear to be a viable future project at this time.

e. Expansion of Hawaiian Electric Company's Kahe Generating Plant. Two additional units are envisioned to provide increased electrical power to Honolulu.

f. Improvements and operation changes at Barber's Point Naval Air Station, can change air traffic patterns in the area altering air safety hazards and noise nuisances.

g. Contingent on construction of the Barbers Point deep draft harbor, the Hawaiian Electric Company (HECO) will be constructing an 8-inch fuel oil pipeline in the old railroad right-of-way that bisects the proposed West Beach development. Additionally, should future energy economics dictate, it might be necessary to transport coal by conveyor or rail from the new deep draft harbor to Kahe Point power plant via an energy corridor along the old railroad right-of-way or around but near to the proposed development area.

h. Ewa Village is located two miles east of the West Beach site, in the Ewa town area. The landowner is the Campbell Estate, the developer, Hirano Brothers, Ltd. The information available, to date, is that the project consists of the building of approximately 4,500 to 6,000 residential units (and community facilities including retail facilities) on 675± acres of land. Access for this project is through Fort Weaver Road; the de facto population will be equivalent to West Beach (about 19,000); the sewage will be transmitted to and treated at Honouliuli Wastewater Treatment Plant. This will be residential units and the site is not located adjacent to or near the shoreline. The timing is now known; however, it is likely that the time period in which the units will be constructed will be similar to West Beach, that is, over the next fifteen to twenty years.

9.15.4 Impact on Land Uses. The proposed project will significantly alter the present land use of the project site. From its present open space and agricultural uses, the site will be transformed to a resort/residential complex with its related facilities and infrastructures. This change in land use will have impact on the immediately adjacent lands. One impact is the increased value of adjacent lands. Secondly, there is likely to be pressure (because of this increased value) to place these lands in urban uses (especially agricultural or vacant properties). Although these economic pressures will occur, it is emphasized that the State and/or local agencies having various land use controls and policies are the final decision makers in the urbanization of agricultural and conservation zoned lands. In addition, the entire Ewa region is undergoing significant land use changes and population

increases. The West Beach project is one of several major projects in the area; many minor projects (less than 1,000 housing units) are also planned. Limiting factors such as availability of public services, potable water, governmental land use controls and regulations, sewerage facilities, transportation systems, environmental quality standards, population policies, and economic factors play primary roles in restricting all projects and even forcing a "no action" alternative for some. Finally, cumulative and secondary impact will reflect not only the effects of West Beach but relates to ongoing growth and other projects in the region. Such impacts are readily foreseen, these are: population increases, population density increases, withdrawal of agricultural and conservation lands, increased expenditures of public monies for public works and services, highway improvements, increased environmental pollution due to population increases and densities, added social stress, increased revenues in form of property, sales, and income taxes, and so on. Each of these impacts are related to population growth and stress based on the present highly urbanized society and attitudes. No one project in the Ewa-Pearl City region will singularly create these impacts. The patterns of growth are well established in today's society, that is, physical development of land is necessary to provide fundamental housing economic benefits to the society and individual and that economic benefits create excess funds which result in reinvestment in similar physical development. Such economic benefits are vital in our urbanized society to provide other necessities and standards to which our Western culture has achieved. Therefore, it is part of this need which is attained through the growth of this region and others like it.

9.15.5 Continued urbanization in the region will create a conflict between air field operations at Barber's Point Naval Air Station and industrial activities at Campbell Industrial Park. Urban encroachment increases human conflicts, exposing more people to noise nuisances and inconveniences, air traffic safety hazards and industrial pollutants. The nature of military operations at the Naval Air Station can change quickly, depending upon national and civil defense needs. Thus air traffic patterns over the area does and will result in aircraft flights over urbanized areas. At present, the lack of human populations surrounding the immediate area of naval air station is compatible with air tield operations. Noise complaints are frequently reported from the Makakilo and Ewa Beach communities. The number of complaints will increase with the addition of more urban areas around the air station.

9.15.6 Preliminary evaluation of the proposed West Beach resort with the objectives and policies of the coastal management zone (CZM). During the Draft EIS review period, several reviewers requested that the DEIS include an evaluation of how the proposed West Beach Resort would effect the objectives of the coastal management zone. At this time, the details and design have not been completed; subsequently this preliminary evaluation is based on the project's concept and the maximum allowable density. While some objectives of the coastal management zone (CZM) can be evaluated, others (in the area of project design) cannot be answered because of the unavailability of the descriptive action. The CZM must be applied for and approved at some point along the approval and permit process; subsequently, a more detailed plan and design will be available and the project's consistency with the CZM can be evaluated more accurately. The objectives of the CZM are found in the Shoreline Protection Act of 1975 (Chapter 205A, Hawaii Revised Statutes).

Sub-paragraph 205A-25, Special management area policy.

(1) Maintain the undeveloped portion of the special management area of the State where needed for recreation, scenic, educational and scientific uses in a manner that protects resources and is of maximum benefit to the general public.

The West Beach shoreline is undeveloped. It will be modified to include a marina and bathing lagoons. The existing shoreline and the proposed marina and lagoons will be available to the general public and the existing shoreline will be more easily accessible to the public for recreational, scenic, and possibly educational and scientific uses.

(2) Encourage public and private agencies to manage the natural resource within the State in a manner that avoids or minimizes adverse effects on the environment and depletion of energy and natural resources to the fullest extent.

The proposed project will be constructed to minimize adverse environmental impacts. However, some adverse impacts will occur and cannot be avoided. The project will result in a consumption of energy, and human and natural resources; this consumption is counterbalanced by man's economic and recreational benefits that will derive from the proposed resort.

(3) Protect the shorelines of the State where needed from encroachment of man-made improvements and structures.

It is not felt that the West Beach shoreline "needs" to be protected. A listing of the shoreline areas which "need" to be protected is not available.

(4) Encourage the definition and development of operational criteria and standards for the special management area which lead toward progressive enhancement of the relationship between mankind and the natural environment.

(This policy is addressed to regulating governmental agencies and appears to be inappropriate for the applicant.)

(5) Carry out a program of intergovernmental and private-public interaction and coordination on the special management area planning and management.

(This is addressed to the regulating governmental agency.)

(6) Encourage citizen participation in the planning process for the special management area so that it continually embraces more citizens and more issues.

This is addressed to the regulating governmental agency. Current procedures for review of applications and public review and hearing (held by the City Council), and the governmental agency (Department of Land Utilization, City and County of Honolulu) will be provided for at the appropriate time when the applicant files for his SMA permit. This will come after zoning has been completed.

Sub-paragraph 205A-26, Guidelines.

(1) All development in the special management area shall be subject to reasonable terms and conditions set by the authority in order to ensure:

(A) Adequate access, by dedication or other means to publicly owned or used beaches, recreation areas, and natural reserves is provided to the extent consistent with sound conservation principles.

Public access (though not detailed) will be provided.

(B) Adequate and properly located public recreation areas and wildlife preserves are reserved.

The development will dedicate to the County approximately 65+ acres for park use. As indicated above, public access the the remaining shoreline area will be provided. There are no wildlife preserves in the area.

(C) Provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon special management area resources.

The sewage generated by the project will be transmitted and treated at the Honouliuli Wastewater Treatment Plant.

(D) Alterations to existing land forms and vegetation except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of earthquake.

As discussed in the EIS, the proposed project will attempt to minimize or eliminate impact on water resources, floods, sedimentation, and water quality. The impact on scenic resources must be evaluated when the development's buildings are located and designed.

(2) No development shall be approved unless the authority has first found:

(A) That the development will not have any substantial adverse environmental or ecological effect except as such adverse effect is clearly outweighed by public health and safety. Such adverse effects shall include, but not be limited to, the potential cumulative impact of individual developments, each one of which taken in itself might not have a substantial adverse effect and the elimination of planning options;

(This is addressed to the regulating governmental agency for evaluating the project.)

(B) That the development is consistent with the findings and policies set forth in this part.

These were reviewed above.

The remaining subsection (3) were addressed to the regulating authority for minimizing environmental impacts.

(3) The authority shall seek to minimize, where reasonable:

(A) Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough, or lagoon.

(B) Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the special management area and the mean high tide line where there is no beach.

(D) Any development which would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast.

(E) Any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agriculture uses of land.

9.15.7 State Functional Plans. The State of Hawaii has prepared, in draft and final forms, twelve functional plans. These functional plans are extentions of the State's General Plan. Specific implementation actions are outlined and information relating to current concerns are addressed. These plans were reviewed to determine if they relate to the West Beach project; and if so, the type of recommendation/guidance the plans' provide. Each plan (except for Water Resources which was unavailable) was reviewed and evaluated below.

DRAFT STATE EDUCATION PLAN & DRAFT STATE HIGHER EDUCATION PLAN

Both do not address resort/residentail developments. They relate to their respective school systems, their growth and goals. Office procedure (records in a computer system), target groups, personnel developments, and school sites are discussed; none directly involves the project site (West Beach) or the development.

STATE HOUSING PLAN

Relating to the Ewa District, the Plan states:

"The development plans expect that Ewa will develop into a second urban center. Therefore, the area will absorb an increasing amount of residential and community activity. The present industrial area is expected to expand mauka and a major resort area is planned for West Beach. The existing communities of Makakilo and Ewa Beach will be protected and enhanced.

There do not appear to be any conflicts between the proposed project file and the County intentions for Ewa. The projects file proposes 5,050 additional units for Ewa by 1985 resulting in an increase in population for the development plan area from 31,600 to 45,900 people (45% increase). The population estimate is, nearly identical to the County's estimated population of 45,700 people for the area in 1985."

West Beach will provide low/moderate income housing (10 percent of the total residential units). Additionally it will provide employment at various skill levels of for the increasing population of the Ewa district.

STATE HEALTH PLAN

This Plan identifies the need to provide adequate health and medical care facilities for the visitors (i.e. resort areas). Additionally the need to provide adequate health services for workers (especially immigrants) who may have or be more susceptible to diseases. The project site is located in an area where health and medical care (emergency and routine) is available within a twenty (20) minute driving time. Also, the Department of Health requires health clearances for food-handling workers.

Although not identified as a project to be included in the service area for the Honouliuli Wastewater Treatment Plant, the Honouliuli WTP does include the additional population increase expected in the Ewa district (which includes the West Beach projections).

DRAFT STATE CONSERVATION LANDS PLAN

This relates to conservation lands and does not address this project site.

DRAFT STATE AGRICULTURAL PLAN

The Plan acknowledges the loss of prime agricultural lands to resort uses. It notes that resort uses compete for water, labor and capital and place restrictions on vital agricultural activities and uses. Because portions of this site are considered prime agricultural land and because its present use (a portion of the site) is in sugar cane cultivation, the project cannot be considered in conformance with the objectives of this Plan.

DRAFT STATE HISTORIC PRESERVATION PLAN

The Historic Preservation Plan, reviews the procedures and identifies areas were archaeological salvaging or preservation are desirable. Procedures for resort sites include preparing an archaeological survey, and preserving sites considered of value, and coordination of salvaging and preservation with the State Historic Sites Office. In this regard, the West Beach project has or will follow these procedures.

DRAFT STATE TRANSPORTATION PLAN

Identifies the Ewa/Makakilo area as an area which will require new roadways and improvements to existing roadways as population increases. The Plan discusses the need for efficent movement of goods and people. It is felt that the project is consistent with this plan policy because of the new roads and interchange and intersection plans with Farrington Highway. An internal bus system and transport of visitors via buses, being a self-contained resort, will result in less use of the private automobile.

STATE RECREATIONAL PLAN

The State Recreational Plan reviews the demands and actions that need to be taken to fulfill the existing and future recreational demands. Specifically, in the Ewa District, the Plan acknowledges the rapid growth of the Distr and finds that: "Development to receive new populations should be accompanied by the provision of adequate recreation facilities and programs." Because the project is providing for park dedication as well as turning over the northern portion of the shoreline area to the Department of Parks and Recreation for beach park use, it is felt that the project is consistent with the objectives of the Recreational Plan. The maintenance and construction of comfort stations and playground apparatus must still be addressed by the responsible agency; however, the developer is providing the land, public right-of-way to the bathing lagoons and existing shoreline, and other private recreational activities which will be available to the public.

THE STATE ENERGY PLAN

The State Energy Plan identifies the need to conserve fuels (through physical design planning) for resort areas. Specific information on projects do not relate to or address the West Beach project site. Other policies and objectives are broad and relate to energy conservation and use of energy sources other than the fossil fuels. Subsequently, the project is not directly addressed in the Plan. During the review of the Plan, it was noted that the location of the project is in an existing servce area for electrical energy and is located near the Kahe Power Plant. Also, the project site is in an area which receives one of the highest amount of solar radiation on the island. The retained planner/architect will consider energy saving devices and instrallations. Because of the increasing cost of energy, the energy savings incorporated into the paln will be a considerable cost reduction as well as a conservation action. The movement of visitors from the airport to the site and back, and from the site to other locations will be largely through buses; this will reduce the amount of private automobiles on the site and along the transportation system.

THE STATE TROURISM PLAN

The State Tourism Plan identifies and analyzes four (4) issues related to the visitor industry in Hawaii. These are (1) economic projections, (2) physical resources, (3) manpower, and (4) public revenues and costs. Various issues facing the visitor industry are addressed along with specific reviews and evaluations of existing and planned resorts. The Plan identifies the planned resorts and the general "problems" or impacts which the resort may generate. These planned resorts were considered because the County in which it is located designated these resorts or resort areas. Specifically, on West Beach, the Plan expresses concern in the following areas: (1) significant alteration of the physical environment; (2) instrusion on the presently unobstructed view of the ocean; (3) loss of agricultural land; (4) further stimulation of urbanization; (5) demands for public recreational facilities. The Plan further comments on the objectives and policies of resort development and how each resort should consider conformance with and provide for adequate public facilities, infrastructure, environmental conditions, and acceptable social impacts. The Plan does not support or indicate unacceptability of resort areas. It does provide discussions on conflicts and benefits which will possibly occur as a result of the County's designation of resort areas. It is felt that this EIS has attempted to detail these impacts and identify mitigation measures.

10. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The proposed project will result in the establishment of a new resort on the island of Oahu. The plan, as proposed would make this resort complex only second to Waikiki in terms of hotel units available. The resort complex will also provide some 1,600+ housing units for permanent residents. Alteration of the shoreline will result in some nearshore degradation of the water quality; however benefits will include the construction of a recreational marina, and two bathing lagoons which will increase the recreational usage of the 1.9 mile shoreline. If the land were to remain in its present use, the comparable impacts are as follows:

(1) the land would be agriculturally productive versus an elimination of agriculture as proposed by project plans;

(2) the land would produce less economic revenue versus the resort proposal, this economic revenue would be reflected in the larger number of employees by the resort versus the agricultural use, the additional tax and property revenue from resort uses, and the greater expenditure and profit from resort uses;

(3) environmental quality will be adversely affected, this is the case in any situation where urbanization occurs; however, the mitigation measures proposed throughout the report will be incorporated into the design plans where necessary. In the final analysis, the actual impact of West Beach will be dependent on the implementation of these mitigation measures, the final size and unit count of the West Beach project, the management of the resort complex.

11. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

Resources in various forms will be committed permanently to this proposed project if implemented. Human resources such as monies, time, and effort will be expended. Once time is expended (for planning, construction) it is irretrievable. However, work is compensated with monetary payment for these services. Construction material and sand (the amount undetermined at this stage) will be used. These materials can be recycled; however, the project will utilize these resources on a long-term basis. Shoreline and view planes will be permanently altered. Because that change is one from green agricultural fields to an urbanized landscape, many people judge the impact as being adverse, this affect is unavoidable. Urbanization, once implemented, normally commits the land use to an equal or more intensive future use. Once completed, it is very likely that the land will be committed to this or a higher future use.

12. PUBLIC INVOLVEMENT

12.1 Public Involvement Program

(a) On June 26, 1979, a Notice of Intent to prepare a Draft Environmental Impact Statement (DEIS) was published in the Federal Register by the Corps of Engineers. On July 20, 1979, the Corps issued a separate public notice informing the public that it had received a permit application for the proposed project and requesting comments from the public. These comments were considered in developing the scope of the DEIS. No scoping meetings were held with the general public. Coordination concerning the scope of the DEIS was based on the participating of government agencies in the county, state and federal governments. Technical reports prepared by the developer's consultants were used to provide a baseline of environmental information on which to base environmental impact analyses. The reports were provided to government agencies that had the expertise in managing the resources for their review and comments (see following Table 18).

(b) Upon preparation of the DEIS, a public notice was issued summarizing the facts of the case and announcing the availability of the DEIS. If a public hearing is requested, it will be held after the completion of the DEIS. If a public hearing is held, a separate public notice will be issued announcing the date, time and location of the hearing at least 30 days prior to the hearing date.

(c) The State EIS process calls for the circulation of an EIS Preparation Notice for the proposed project prior to the preparation of the document (DEIS). Procedures require that the EIS Preparation Notice (a brief document which describes the general nature of the project and broadly discusses the potential impacts) be filed with the State Environmental Quality Commission (EQC) for publication in the EQC Bulletin. Within thirty (30) days from the publication date of the Bulletin, interested persons and agencies must request status as a "consulting party." As a "consulting party," the agency receives a copy of the Preparation Notice, reviews, and provides comment on the document within 30 days of receipt. In this case, the EIS Preparation Notice was circulated to various agencies (governmental and private) who were known to have interest in the project. The circulation and review of the Preparation Notice, also called the "Consultation Period" was initiated in April 23, 1979 and ended June 8, 1980.

Pages 139 to 182, are reproduced copies (½ size) of responses received and disposition to those responses (as required by State EIS procedure). Pages 183 to 185, are responses that required no dispositions.

From June 8, 1979 to March, 1980, a series of technical studies were prepared (see pages 10 and 11) for this DEIS. These studies were provided to the Corps of Engineers, Office of Environmental Quality Control, and the Department of Land Utilization. These offices in turn, distributed the studies to governmental agencies having expertise in that specific area.

The intent of this procedure was to insure that there were no major items omitted in these technical studies. Additionally, if there were critical areas of concern, the study could be revised prior to the preparation of the DEIS. The agencies who reviewed these studies are identified on Table 18.

TABLE 18

REVIEWING AGENCIES - TECHNICAL REPORTS FOR WEST BEACH

Technical Report Subject	Reviewing Agency
AVIFAUNA	City and County of Honolulu Department of Land Utilization Board of Water Supply Fire Department Department of General Planning Police Department Department of Transportation Services State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Environmental Center, University of Hawaii Federal U.S. Fish and Wildlife Service National Marine Fisheries Service
BOTANICAL	City and County of Honolulu Department of Land Utilization Board of Water Supply Department of General Planning Fire Department Police Department Department of Transportation Services State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Environmental Center, University of Hawaii Also sent by the State to: Bert Y. Kimura (interested party) Federal U.S. Fish and Wildlife Service National Marine Fisheries Service
MACROBIOTA	City and County of Honolulu Department of Land Utilization Department of General Planning Board of Water Supply Department of Public Works Department of Transportation Services

TABLE 18 (Continued)

Technical Report Subject	Reviewing Agency
TRAFFIC	City and County of Honolulu Department of Land Utilization Department of Transportation Services Department of General Planning Police Department Department of Public Works Board of Water Supply State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Department of Transportation Environmental Center, Unversity of Hawaii Federal Federal Highway Administration
SOCIOECONOMIC IMPACT	City and County of Honolulu Department of Land Utilization Department of Public Works Board of Water Supply Department of Parks and Recreation Office of Human Resources Department of Housing and Community Development State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Department of Planning and Economic Development Environmental Center, University of Hawaii Federal Environmental Protection Agency Department of Housing and Urban Development Department of Health, Education, and Welfare
AIR QUALITY	City and County of Honolulu Department of Land Utilization Department of General Planning Department of Public Works Deparment of Parks and Recreation Department of Transportation Services Police Department Board of Water Supply

TABLE 18 (Continued)

Technical Report Subject	Reviewing Agency
TRAFFIC	City and County of Honolulu Department of Land Utilization Department of Transportation Services Department of General Planning Police Department Department of Public Works Board of Water Supply State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Department of Transportation Environmental Center, Unversity of Hawaii Federal Federal Highway Administration
SOCIOECONOMIC IMPACT	City and County of Honolulu Department of Land Utilization Department of Public Works Board of Water Supply Department of Parks and Recreation Office of Human Resources Department of Housing and Community Development State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Department of Planning and Economic Development Environmental Center, University of Hawaii Federal Environmental Protection Agency Department of Housing and Urban Development Department of Health, Education, and Welfare
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TABLE 18 (Continued)

Technical Report Subject	Reviewing Agency
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TABLE 18 (Continued)

Technical Report Subject	Reviewing Agency
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TABLE 18 (Continued)

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TABLE 18 (Continued)

Technical Report Subject	Reviewing Agency
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AIR QUALITY	City and County of Honolulu Department of Land Utilization Department of General Planning Department of Public Works Deparment of Parks and Recreation Department of Transportation Services Police Department Board of Water Supply

TABLE 18 (Continued)

Technical Report Subject	Reviewing Agency
MACROBIOTA (Continued)	State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Environmental Center, University of Hawaii Federal U.S. Fish and Wildlife Service National Marine Fisheries
STORM RUNOFF	City and County of Honolulu Department of Land Utilization Board of Water Supply Department of Public Works Department of General Planning Department o Transportation Services State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Department of Health Environmental Center, University of Hawaii Federal U.S. Fish and Wildlife Service National Marine Fisheries Service Environmental Protection Agency
NOISE	City and County of Honolulu Department of Land Utilization Department of General Planning Department of Transportation Services Police Department State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Department of Health Environmental Center, University of Hawaii Federal U.S. Naval Base, Pearl Harbor Environmental Protection Agency Federal Aviation Administration

TABLE 18 (Continued)

Technical Report Subject	Reviewing Agency
TRAFFIC	City and County of Honolulu Department of Land Utilization Department of Transportation Services Department of General Planning Police Department Department of Public Works Board of Water Supply State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Department of Transportation Environmental Center, Unversity of Hawaii Federal Federal Highway Administration
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AIR QUALITY	City and County of Honolulu Department of Land Utilization Department of General Planning Department of Public Works Deparment of Parks and Recreation Department of Transportation Services Police Department Board of Water Supply

TABLE 18 (Continued)

Technical Report Subject	Reviewing Agency
AIR QUALITY (Continued)	State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Department of Health Environmental Center, University of Hawaii Department of Transportation Also sent by the State to: American Lung Association of Hawaii Federal Environmental Protection Agency Department of Health, Education, and Welfare
ARCHAEOLOGICAL SURVEY	City and County of Honolulu Department of Land Utilization Department of General Planning Department of Public Works Department of Transportation Services State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Environmental Center, University of Hawaii Also sent by the State to: Bernice P. Bishop Museum Federal State Historic Preservation Officer Interagency Archaeological Services, National Park Service
LAGOON AND MARINA STUDIES	City and County of Honolulu Department of Land Utilization Department of General Planning Department of Public Works Department of Transportation Services Department of Housing and Community Development State of Hawaii Office of Environmental Quality Control Environmental Quality Commission Department of Land and Natural Resources Department of Health Department of Planning and Economic Development

TABLE 18 (Continued)

Technical Report Subject	Reviewing Agency
LAGOON AND MARINA STUDIES (Continued)	State of Hawaii (Continued) Department of Transportation Environmental Center, University of Hawaii Federal National Marine Fisheries Service U.S. Fish and Wildlife Service Environmental Protection Agency Fourteenth Coast Guard District U.S. Naval Base, Pearl Harbor

Each agency was given thirty (30) calendar days to review and provide comments on these Draft Technical Reports. There responses are not reproduced in this DEIS; but will be made available at the Environmental Quality Commission's office, Office of Environmental Quality Control, Department of Land Utilization, and the U.S. Army Corps of Engineers office (see contact person for COE). The comments were reviewed and the reports amended were necessary.

REGION IX
450 Golden Gate Avenue
P.O. Box 36003
San Francisco, California 94102

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
AREA OFFICE
300 ALA MOANA BLVD., RM. 3318, P.O. BOX 50007
HONOLULU, HAWAII 96850

April 27, 1979

IN REPLY REFER TO:
9.ISS (Johnson/
546-5554)

Mr. F. J. Rodriguez, President
Environmental Communications Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: Environmental Assessment/Determination
Proposed West Beach Resort Project
Honouliuli, Oahu, Hawaii

Upon our review of the subject document it was noted under Section 2.04 that 10% of the housing will be aimed at low and moderate income groups.

If the developer plans to use HUD-assisted housing programs in the West Beach project, the EIS must satisfy HUD requirements and procedures to avoid the preparation of a second EIS by HUD.

Please contact Frank Johnson on our staff if you have any questions.

Sincerely,

Alvin K. H. Pang

Alvin K. H. Pang

139

MAY 2 1979

F. J. RODRIGUEZ,
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

May 10, 1979

Mr. Alvin K. H. Pang
Department of Housing and Urban Development
300 Ala Moana Boulevard, #3318
P.O. Box 50007
Honolulu, Hawaii 96850

Dear Mr. Pang

Subject: West Beach Resort Project/EIS Preparation Notice

The developer has advised us that the housing portion of the project will not likely involve the use of HUD funds or assistance. We are fully aware that a second EIS document may be necessary should HUD monies or assistance be sought at a later date.

Your comments are appreciated.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Corps of Engineers
Environmental Quality Commission

1152 BISHOP BUILDING, SUITE 508 • P.O. BOX 536 • HONOLULU, HAWAII 96809 • TELEPHONE (808) 521-8381

GE[illegible]NTOSH
GOVERNOR

CHARLES G CLARK
SUPERINTENDENT

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P O BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

April 30, 1979

Mr. F. J. Rodriguez, President
Environmental Communications, Inc.
P.O. Box 536
Honolulu, HI 96809

Dear Sir:

SUBJECT: West Beach Resort, Honouliuli, Oahu
EIS Preparation Notice

We have reviewed the environmental assessment document for the subject project and offer the following comments for your consideration.

Revise page 18, 4.04 (c) to read ... Education - The State Department of Education estimates that when fully developed (15 development years), the planned resort would generate approximately 140 to 270 K-6 students. These students are currently planned to be accommodated at Makakilo or Barbers Point Elementary Schools. The capacity of Makakilo and Barbers Point are subject to other planned housing projects in the area. In the event a new elementary school is required, its cost is estimated to be approximately $3.5 million at current cost.

Revise page 21, 4.13 to read ... Impact on Schools - The State Department of Education has indicated there is sufficient capacity at Ilima Intermediate and Campbell High schools to accommodate students generated by the project. The elementary level students are tentatively scheduled to be accommodated at Makakilo or Barbers Point Elementary schools. Both Makakilo and Barbers Point Elementary Schools are subject to enrollment increases from other planned housing projects in the area. An elementary school will be required in the project site in the event that enrollment increases exceed estimates.

Thank you for the opportunity to review and comment on the West Beach EIS. Should you have any further questions, please call Mr. Howard Lau at 548-5704.

Sincerely,

CHARLES G. CLARK
Superintendent

CGC:HL:jl
cc: Leeward District

AN EQUAL OPPORTUNITY EMPLOYER

MAY 4 1979

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F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

May 10, 1979

Charles G. Clark, Superintendent
Department of Education
State of Hawaii
P.O. Box 2360
Honolulu, Hawaii 96804

Dear Mr. Clark,

Subject: West Beach Resort Project/EIS Preparation Notice

Thank you for your response to the above-referenced EIS Preparation Notice. The information on school facilities available for the proposed project will be incorporated into the EIS document.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Robert N. Anderson, Ph.D.

1152 BISHOP BUILDING, SUITE 508 • P O BOX 536 • HONOLULU HAWAII 96809 • TELEPHONE (808) 521-8361

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

WALLACE MIYAHIRA
DIRECTOR AND CHIEF ENGINEER

ENV 79-127

May 4, 1979

Mr. Fred J. Rodriguez
Environmental Communications Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: EIS Preparation Notice for the West Beach Project

We are responding to your letter of April 20, 1979, requesting comments on the proposed subject project. Our comments are as follow.

1. The expected population and/or the equivalent population should be given so that wastewater flows can be evaluated.

2. The basis for wastewater flows of 2.7 mgd should be documented. In this regard, a preliminary sewage master plan for the entire development should be prepared showing the locations of major trunk and interceptor sewers, pump station(s), the proposed temporary treatment plant, and tributary districts contribution. If a sewage master plan cannot be developed within the time frame of the EIS, a separate EIS for the proposed sewer system may be necessary.

3. Since sewer service for the facilities around the proposed Barbers Point deep-draft harbor may be routed to the Makakilo Interceptor Sewer, it is imperative that coordination be established with the State Department of Transportation and the Campbell Estate.

4. The Makakilo Interceptor Sewer, which will convey wastewater from the proposed development(s) to the Honouliuli WWTP, was not designed to handle the flows from any developments west of Makakilo and Honokai Hale subdivision. Serious consideration is being given to advancing the construction of the proposed interceptor to 1980. It behooves, therefore, that the design average and peak flows from the development and other activities

MAY 11 1979

be forwarded to the Division of Wastewater Management as soon as possible. If the interceptor has to be enlarged, the additional cost can be construed to be an adverse economical impact.

5. The proposed temporary treatment plant will not be operated or maintained by the City if it is retained on a stand-by basis.

6. A preliminary stormwater management plan (master Plan) is desirable for the entire development and should be submitted to the Drainage Section of the Division of Engineering for conceptual approval before acceptance of the EIS.

7. We endorse the concept of using the golf course and other open spaces for the retention of stormwater.

8. Direct discharge of stormwater into the open ocean should be avoided if possible. In this connection, consideration should be given in the construction of an intercepting waterway mauka of the beach/condominium, running parallel to the proposed major roadway and discharging into the marina.

9. The cost of refuse collection and disposal, whether private, municipal, or both, should be identified. The total cost of municipal collection and incineration for the 1975-76 fiscal year was $41.42 per ton.

Very truly yours,

WALLACE MIYAHIRA
Director and Chief Engineer

cc: DLU
WWM (Planning Branch)
Engineering (Drainage Section)

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 11, 1979

Mr. Wallace Miyahira, Director & Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Miyahira,

Subject: West Beach Resort Project/EIS Preparation Notice

We have received your letter of May 4, 1979, regarding the above-referenced EIS Preparation Notice. In reviewing your comments, we have found that many will have to be coordinated with the consulting engineering firm, Community Planning, Inc. We have forwarded a copy of your letter to them for their review and action. They should be contacting your office in the near future on matters such as the sewage master plan (especially in regard to item #4), and the stormwater master plan. As for the other concerns addressed in your letter, please be assured that our technical consultants now working on these specific areas will review your concerns and discuss them in their technical report. Where appropriate, we will address these individual points in the EIS document.

Thank you for your concern and early response.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Environmental Quality Commission
Department of Land Utilization
Corps of Engineers
Community Planning, Inc.
M.J. Chun/G.L. Dugan
K.H. Bathen

1152 BISHOP BUILDING, SUITE 508 • P O BOX 536 • HONOLULU HAWAII 96809 • TELEPHONE (808) 521-8381

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Advisory Council On Historic Preservation

1522 K Street NW.
Washington D.C.
20005

Reply to: P. O. Box 25465
Denver, Colorado 80225

May 7, 1979

Mr. F. J. Rodriguez
President
Environmental Communications, Inc.
1152 Bishop Building, Suite 508
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

On April 26, 1979, the Council received a copy of the environmental assessment for the proposed West Beach Resort Project in Honouliuli, Hawaii. In reviewing this document, we note that although it was prepared in accordance with state laws, it is a precursor to an environmental impact statement that will be prepared to obtain necessary Federal permits. In light of this our comments will address some of the Federal requirements for environmental documents.

As you may know, preparation of an environmental statement in compliance with the National Environmental Policy Act also involves fulfilling the requirements of Federal preservation laws. Chief among these laws is Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f, as amended, 90 Stat. 1320), which requires the identification and consideration of cultural properties prior to the issuance of a Federal license or the initiation of a Federal project. The process of fulfilling the responsibilities of the Preservation Act are set forth in the Council's regulations, "Protection of Historic and Cultural Properties" (36 CFR Part 800). The preliminary steps in this regulation, during which cultural properties are identified, their significance is evaluated, and potential project effects are analyzed, should be carried out in consultation with the Hawaii State Historic Preservation Officer. The statements on pages 19 and 20 of the environmental document seem to reflect an awareness of the need to consider cultural properties. For your information in carrying out these tasks, however, we enclose a copy of the regulations.

MAY 10 1979

We look forward to receiving information on the West Beach Resort Project, and if necessary working with the licensing agency, Department of the Army, and your agency to offer the comments of the Council. If we can be of assistance in this matter, please contact Michael C. Quinn at (303) 234-4946.

Sincerely,

Louis S. Wall
Chief, Western Office
of Review and Compliance

Enclosure

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

May 10, 1979

Mr. Louis S. Wall, Chief
Western Office of Review and Compliance
Advisory Council on Historic Preservation
P.O. Box 25085
Denver, Colorado 80225

Dear Mr. Wall,

Subject: West Beach Resorts Project/EIS Preparation Notice

We have received your letter of May 7, 1979, regarding the above-referenced project. As stated in the Environmental Assessment document, we are in the process of conducting various studies on the project site. Included in these studies is an archaeological/historical reconnaissance survey. We will provide a copy of your comments and attachment to the consultants preparing the survey.

We will, in the EIS document, discuss the measures taken to comply with the National Historic Preservation Act of 1966. Thank you for expressing your concern in this matter.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
William Barrera (w/encl.)

1132 BISHOP BUILDING, SUITE 508 • P.O. BOX 536 • HONOLULU, HAWAII 96809 • TELEPHONE (808) 521-8391

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

FRANK F. FASI
MAYOR

GEORGE S. MORIGUCHI
CHIEF PLANNING OFFICER

DGP4/79-1228(CT)

May 7, 1979

Mr. F. J. Rodriguez, President
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Environmental Impact Statement Preparation Notice
for the West Beach Resort Project, Ewa, Oahu
Comments Requested April 20, 1979

We offer the following comments.

Need for Resort Facilities (Section 2.02)

Discussion in this section should relate to the State of Hawaii Tourism Functional Plan and indicate other existing and proposed resort development on Oahu.

Need for Residential Development

It is indicated that "The need for the residential dwelling units is based on the economic viability of the proposed resort complex" (Section 2.05). Subsequent discussion, however, indicates that the economic success of the project depends on residential development "to defray high front end costs and place the project in a desirable cash flow position."

Accordingly, the proposed types and sales prices of the housing units should be indicated, and the potential market for these units should be discussed in the light of competitive development at Makakilo, Village Park, Gentry-Waipio, Mililani, and Waiau. The cumulative impact of these developments, plus West Beach, on General Plan allocations and the need for water and other utilities should be discussed. Discussion should be in two parts: excluding the 170 acres which the Land Use Commission did not rezone to urban use; and your ultimate proposed development (Exhibit 3).

MAY 9 1979

Proposed Interchange at Farrington Highway

It is indicated that " . . . future traffic requires adequate entry and exit points onto Farrington Highway via a planned highway interchange to be developed at the applicant's cost" (Section 2.09).

The relationship of the proposed interchange and the proposed Barbers Point interchange should be discussed, and a map showing the location of these two proposals should be included.

Drainage

It is indicated that "the proposed development will increase storm water runoff by 27%" (Section 3.26). The ultimate fate of drainage from the project area should be shown in the impact statement. The impact of sediments and other pollutants on the quality of receiving waters should be discussed. Soil erosion should be quantified.

Impact of Proposed Marina

Estimates of groundwater leakage into the proposed marina should be provided. The cumulative impact of this leakage and the leakage from the proposed deep-draft harbor (4.0 mgd) on groundwater resources in the area should be discussed.

Land Use Considerations

Of particular interest to us will be the section on land use. We agree that land use concerns must be given priority and detailed discussion in the EIS.

Thank you for affording us the opportunity of reviewing your preparation notice.

Sincerely,

GEORGE S. MORIGUCHI
Chief Planning Officer

GSM:fmt

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ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 10, 1979

Mr. George S. Moriguchi, Chief Planning Director
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Moriguchi,

Subject: West Beach Resort Project/EIS Preparation Notice

Thank you for your early comments on the above-referenced EIS Preparation Notice. We have reviewed your comments and find that each of the areas where you have expressed concern will be covered by one of the technical consultants working on the project. As indicated in the Environmental Assessment, these technical consultants will be preparing their respective reports over the next several months. Copies of your comments have been distributed to these consultants to insure coverage of these items in their analyses.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Control
Corps of Engineers
R.N. Anderson
H.T. Au
M.J. Chun
G.L. Dugan
K.H. Bathen

1152 BISHOP BUILDING, SUITE 508 • P O BOX 536 • HONOLULU, HAWAII 96809 • TELEPHONE (808) 521-8391

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University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

Office of the Director

May 8, 1979

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96807

Dear Mr. Rodriguez:

The Environmental Center of the University of Hawaii does not, in general, participate in the preparation stage of the Environmental Impact Statement process. We have taken this position so as not to be in conflict with our later review responsibilities, nor in apparent competition with private consultants.

We are available for consultation on an informal basis although formal review will be limited to the EIS document.

Yours truly,

Doak C. Cox
Director

DCC/df

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MAY 1 4 1979

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

May 16, 1979

Dr. Doak C. Cox, Director
Environmental Center
University of Hawaii at Manoa
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Dear Dr. Cox,

Subject: West Beach Resort Project/
EIS Preparation Notice

We have received your letter of May 8, 1979, in which you provide the reasons behind the Environmental Center's position in not participating in the preparation stage of the EIS. This is regrettable, especially since the Center retains the services of many academic personnel whose comments would prove to be useful in the preparation of the EIS document. This is not to say that the University personnel would be competetive with private consultants since the selection of technical consultants has already been made. The comments from other scholars in the same fields however, would provide further direction of the potential areas of concern which your group always expresses at the EIS stage; we would like to incorporate all relevant points of view as early as possible in the Draft EIS.

It has been our experience that the Environmental Center provides such specific comments on the EIS document as well as the technical studies, that a detailed response often cannot be prepared within the two week period alloted by law (Chapter 343, HRS). For example, if the Center commented on the identification of insects in the project site where no substantial work was performed, would we then be expected to realistically obtain a bug specialist, do field surveys and prepare a technical report to add to our EIS within a two week period (of which one week is needed for those responses received late and the printing of the revised document)? Perhaps amongst your staff there are feelings that many EIS documents are inadequate; but you do recognize stringent time limits under which an "adequate response" must be given.

It is our position that this can be eliminated to the extent possible, with your cooperation, if the Center provides relevant comments early in the preparation stage so that there is not only time enough to consider an adequate response, but time to do any required field work necessary, should this be the case.

1132 BISHOP BUILDING, SUITE 508 • P.O. BOX 936 • HONOLULU, HAWAII 96809 • TELEPHONE (808) 521-8381

We ask that you reconsider your position, and would be happy to meet with you or your staff in further elaboration of our position should it be necessary.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: Department of Land Utilization
Environmental Quality Commission
Corps of Engineers

FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

1455 S. BERETANIA STREET, ROOM 305
HONOLULU, HAWAII 96814

FRANK F. FASI
MAYOR

B. K. AIU
CHIEF

May 9, 1979

Mr. F. J. Rodriguez, President
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: West Beach Resort Project

We concur with the statements referred to under B (4.15), page 21.

Sincerely,

Anthony J. Lopez

ANTHONY J. LOPEZ
Acting Fire Chief

AJL:SWGT:eya

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MAY 11 1979

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

May 11, 1979

Mr. Anthony J. Lopez, Acting Fire Chief
Fire Department
City & County of Honolulu
1455 South Beretania Street, #305
Honolulu, Hawaii 96814

Dear Mr. Lopez,

Subject: West Beach Resort/EIS Preparation Notice

Thank you for your letter of May 9, 1979 responding to the above-referenced EIS Preparation Notice. Your concurrence with the statements under Section B (4.15) on page 21 of the Environmental Assessment is noted, and we will include this information in the EIS.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
R.N. Anderson

1132 BISHOP BUILDING, SUITE 508 • P.O. BOX 536 • HONOLULU HAWAII 96809 • TELEPHONE (808) 521-6391

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 523-4161

FRANK F. FASI
MAYOR

EDWARD Y. HIRATA
MANAGING DIRECTOR

BARRY CHUNG
DIRECTOR

MYRA M. TAKABAKI
DEPUTY DIRECTOR

May 9, 1979

Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Gentlemen:

Subject: West Beach Resort Project
Environmental Impact Statement
Preparation Notice

We have reviewed the Environmental Impact Statement Preparation Notice for the West Beach Resort Project.

The notice indicates that housing will be provided for the elderly and the low- and moderate-income groups. Ideally, these units should be disbursed throughout the project. The environmental impact statement should contain a description of the method which will be used to distribute these units.

We would be interestad in assisting the developer in developing the elderly and low- and moderate-income housing.

Thank you for forwarding the preparation notice for our review and comments.

Very truly yours,

Richard Nagasawa

Richard Nagasawa

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MAY 11 1979

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 11, 1979

Mr. Richard Nagasawa
Department of Housing & Community Development
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Nagasawa,

Subject: West Beach Resort Project/EIS Preparation Notice

Thank you for your letter of May 9, 1979 responding to the above-referenced EIS Preparation Notice. We have reviewed your letter and have sent a copy to the developer for his review. At this time, the development plan is still only preliminary, thus the housing portion of the project is not detailed. Over the next several months, we must anticipate that the development plan will be more specific, and we will then incorporate this information into the EIS. Thank you for your interest in this matter.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
R.N. Anderson

1152 BISHOP BUILDING, SUITE 506 • P.O BOX 536 • HONOLULU, HAWAII 96809 • TELEPHONE (808) 521-8381

GEORGE R. ARIYOSHI
GOVERNOR

RICHARD L. O'CONNELL
DIRECTOR

TELEPHONE NO.
548-6915

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
OFFICE OF THE GOVERNOR
550 HALEKAUWILA ST
ROOM 301
HONOLULU, HAWAII 96813

May 10, 1979

Mr. Fred Rodriguez
Environmental Communications, Inc.
P.O. Box 536
Honolulu, HI 96809

Dear Mr. Rodriguez:

SUBJECT: EIS PREPARATION NOTICE FOR WEST BEACH RESORT PROJECT, EWA, OAHU

We have reviewed the subject preparation notice and offer the following comments for your consideration in preparing the environmental impact statement.

DESCRIPTION OF THE PROJECT

Because of the Land Use Commission reclassifying only 660 acres from agriculture to urban, what portions of the total project will be constructed within the 660 acres or phase I?

CUMULATIVE IMPACTS

The impact statement should consider the cumulative environmental impact of this project and all other major proposed projects in the Ewa plain.

GROUND WATER SUPPLY

Thorough consideration should be given to the project's impact on the ground water aquifer due to removal of caprock to form the marina and artificial lagoons. Will the size, yield, and quality of the ground water aquifer be affected by the removal of caprock? If so, to what extent?

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PAGE 11 (3.25)

The notice states, "No data is available on the quality of surface water runoff for this project." However, there are publications available that present data and information on the quality and quantity of surface runoff such as Use of a Runoff Environmental Performance Standard in Land Use and Resource Management for Urbanizing Hawaiian Watershed by Michael Munekiyo, Water Pollutants in Urban Runoff by Gail Boyd and James Sartor and others.

PAGE 12 (3.26)

The LUC decision and order indicates storm runoff will be discharged into the ocean at a controlled rate within natural drainageways and, if necessary, within improved channels. Because channelization is a possibility, we recommend discussion of its impact.

PAGE 12 (3.27)

To avoid sedimentation in the harbor project, the developer proposes that drainage be discharged to injection wells, sink holes, or ponds. Coordination with the Department of Health and Board of Water Supply is recommended to develop measures to prevent contamination of ground waters.

PAGE 14 (3.28)

Although the preparation notice considers littoral drift, consideration should also be given to the possibility of beach erosion elsewhere along the coast caused by alteration of the coastal area by the project's artificial lagoons and marina.

PAGE 15 (3.33)

Mitigation of air quality impacts should also include a reduction in development as a means of reducing excessive emissions.

PAGE 19 (4.04)

The West Beach development proposes to use Honouliuli wastewater treatment plant. However, according to the Honouliuli Wastewater Treatment Plant EIS, West Beach is not part of the Honouliuli service area and has not been included in the design capacity of this system. If the developer must provide a sewage treatment plant, a discussion of the treatment plant and its impact should be included in the EIS.

PAGE 21 (4.12)

The preparation notice compares the recreational facilities with Magic Island and Ala Moana Beach; however, both of these are public parks funded by state and local governments. Does West Beach also intend to provide recreational facilities for the public such as golf courses, tennis courts, and beaches? Or, will these amenities be for private use only?

PAGE 24 (4.23)

In discussing water supply, it is suggested that the pertinent findings and recommendations of the State Water Commission's report be incorporated in the EIS.

STATE POPULATION FIGURES

Consideration must be given to the State's latest revised population figures, Series II-F.

We trust that these comments will be helpful to you in preparing the environmental impact statement.

We thank you for the opportunity to participate in the consultation process. If you have any questions regarding these comments, please do not hesitate to contact us.

Sincerely,

Richard L. O'Connell
Director

cc: Dept. of Land Utilization

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ENVIRONMENTAL COMMUNICATIONS INC.

May 16, 1979

Mr. Richard L. O'Connell, Director
Office of Environmental Quality Control
Office of the Governor
550 Halekauwila Street, #301
Honolulu, Hawaii 96813

Dear Mr. O'Connell,

Subject: West Beach Resort Project/
EIS Preparation Notice

We have recieved your letter of May 10, 1979, on the above-entitled EIS Preparation Notice. As you are aware, our technical consultants are now preparing their individual reports for the proposed project. We will send a copy of your letter to the appropriate technical consultants, so that they will include discussion of these concerns as it relates to the necessary permit requirements in their respective reports. Additionally, we note that these concerns are planned to be considered in the EIS document.

Thank you for your comments.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Community Planning, Inc.
Alfred A. Yee & Associates, Inc.
K.H. Bathen
M.J. Chun/G.L. Dugan
R.N. Anderson
B.D. Root

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

May 15, 1979

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

VERNE C. WAGLE, M.D.
DEPUTY DIRECTOR OF HEALTH

HENRY N. THOMPSON, M.A.
DEPUTY DIRECTOR OF HEALTH

JAMES S. KUMAGAI, PH.D., P.E.
DEPUTY DIRECTOR OF HEALTH

TADAO ITAPPU
DEPUTY DIRECTOR OF HEALTH

In reply, please refer to:
File: EPHS-SS

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: Environmental Impact Statement Preparation Notice for the Proposed West Beach Resort Project

We are very much concerned about the adverse impact of urban development of lands adjacent to Campbell Industrial Park. The development of Campbell Industrial Park was based on its relative isolation. The maintenance of existing agricultural lands and open space serves as a necessary buffer between existing residential communities and the noise and air pollution generated by industrial activities in Campbell Industrial Park. The removal of this existing buffer through urban development as proposed by the subject request will accentuate the problems and costs of industries in meeting air quality and noise requirements as mandated by Federal and State regulations.

We submit the following comments for your consideration:

1. Industrial activities in Campbell Industrial Park already have difficulty in meeting noise and air quality requirements. Urban development of lands adjacent to Campbell Industrial Park will adversely affect the viability of the industrial park without more stringent pollution control requirements; not only in regard to existing industrial activities, but also in regard to its ability to accommodate future industrial development. The development of the deep-draft harbor will encourage further expansion of Campbell Industrial Park. The deep-draft harbor itself will create activities which will generate noise which may be incompatible with the proposed residential development.

2. In addition, Campbell Industrial Park has been considered as an appropriate site for a resource recovery facility in the future because of its existing industrial land use designation and relative isolation. The proximity of the proposed project with a planned resident population of 10-15,000 could adversely affect the realization of the resource recovery facility project. It is already anticipated that a request will be made to reduce air quality requirements in order for the resource recovery facility to be constructed and operated. Increasing the

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resident population in adjacent areas to Campbell Industrial Park will not support considering the tradeoffs of relaxing air quality requirements in favor of resource recovery facility involving incineration.

3. Drinking water: Pages 24 and 25 address the impacts on the groundwater resources for the affected area. It is advocated in the text that studies be conducted to quantify the effects of additional withdrawal of groundwater. It is imperative that these studies be performed prior to further evaluation of the proposed project.

Yours truly,

Brian H. Choy
for JAMES S. KUMAGAI, Ph.D.
Deputy Director for
Environmental Health

cc: Department of Land Utilization
Environmental Quality Commission

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 21, 1979

Mr. James S. Kumagai, Deputy Director
Environmental Health
State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Kumagai,

Subject: West Beach Resort Project
EIS Preparation Notice (EPHS-SS)

Thank you for your response of May 15, 1979, with respect to the above-entitled document. We have reviewed your concerns and note that we have identified these specific problem areas in the Environmental Assessment document. Discussion on the compatibility of the surrounding land uses with the proposed project will be provided in the EIS document.

We will identify the prescribed land uses permitted under the prevailing land use designations granted to date by the State Land Use Commission and appropriate County agencies in future requests. It is hoped that the land uses can be compatible with the anticipated land uses your letter describes in items 1 and 2. As required by the Department of Health regulations and applicable CZC ordinances, compliance with levels or standards of environmental quality is applicable for all involved parties: Resort and Industrial. Competing land uses must be evaluated in terms of their compatibility and compliance with environmental standards on an equal basis; the applicant will do so to the extent required to meet the Federal, Department of Health, and County requirements.

Additionally, specific items relating to air quality, noise and water quality will also incorporate concerns about the impact of industrial residents of West Beach. Discussion on alternatives, mitigation measures and impact on land uses will also be included.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
B.D. Root
R.A. Bathy
R.N. Anderson Campbell Estate Chun/Dugan

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HAWAIIAN ELECTRIC COMPANY, INC.

Box 2750 / Honolulu, Hawaii 96840

May 16, 1979

JOHN C. McLAIN, Ph.D.
MANAGER, ENVIRONMENTAL DEPARTMENT

ENV 2-1
General
NV/G/NV

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: EIS Preparation Notice and Environmental Assessment for the Proposed West Beach Resort Project

Thank you for the opportunity to review the EIS Preparation Notice and Environmental Assessment for the proposed West Beach Resort Project. Several members of the Hawaiian Electric Company's staff have reviewed these documents and have the following to offer:

Hawaiian Electric Company takes no position for or against the proposed project; however, as owner and developer of generating facilities in Kahe Valley, which is in close proximity to the proposed development, we feel the following points should be made and evaluated in the EIS.

We chose the Kahe Valley in 1960 due to its remote location in order to make it more environmentally acceptable and to provide a degree of exclusion and protection for the public. Further, the location of the site provided for the egress of major transmission lines in an unobtrusive manner since they would cross agricultural lands and relatively undeveloped mountainous terrain.

Since Kahe Unit 1 went into service in April 1963, we have constructed a total of five units with a total capacity of 497 MW, making Kahe the largest generating station on our system. Currently, a sixth, 141 MW unit is scheduled to go into service in late 1980, and we plan to continue to add generation in the valley in the future. Concomitant with the development of additional generation will be additional transmission lines out of the valley. Obviously, my point is that the Kahe Generating Station is still in the development stage and will continue to develop for many years to come. In view of this, some discussion of the interaction of the West Beach development and future generation development should be contained in the EIS in order to show that the two developments are compatible and that the company's ability to meet future electrical demands for generation development in Kahe Valley will not be compromised.

MAY 18 1979

Fuel oil for the Kahe Generating Station is supplied from the Campbell Industrial Park area and, therefore, the West Beach Development would be located directly between the station and its fuel source. Some provisions should be made, therefore, for an energy corridor between the Kahe Generating Station and the harbor-refinery development in Campbell Industrial Park. As a minimum, such a corridor should accommodate the existing fuel oil pipeline and perhaps one or two other pipelines along the present Malakole Road alignment, to the railroad right-of-way, and ultimately along the existing easement. Should construction of the deep draft harbor at Barbers Point come to fruition, an ultimate alignment within the OR&L right-of-way will probably be required.

Due to the current uncertainty of fuel supplies, provisions should be made for an energy corridor to handle our worst case situation, the transport of coal, by conveyor or rail. For such an energy corridor, a minimum of 25' to 30' of right-of-way would be required with access available for maintenance at all times and allowance made for suitable set backs for the installation of landscapign to reduce impact. Our requirements for an energy corridor have been discussed in depth with representatives of the Campbell Estate and State and local government.

Section 4.25 of the Environmental Impact Assessment discusses the supply of electrical power to the proposed development. Undoubtedly, some change in load growth patterns for the area will occur and will require additional transmission and distribution facilities. Provisions for these facilities should be incorporated into your development plans. It is possible that some of these requirements could be combined with the energy corridor requirements discussed above.

Section 3.32 indicates that the Kahe Generating Station contributes a relatively significant amount of sulfur oxides to the air and that winds may carry these pollutants from Kahe to the proposed development site four to five percent of the time. No indications is presented in the Environmental Impact Assessment as to what is meant by relatively significant amounts. In late 1980 when Kahe Unit 6 becomes operational, the entire station will be converted to burn fuel oil with the sulfur content of 0.5% or less. At that time, National Ambient Air Quality Standards will not be exceeded at any point on private lands and, therefore, "significant amounts of sulfur oxides" will not occur in the proposed area.

I should point out that much of the above information was previously provided to the State Planning Commission at a public hearing held on April 12, 1977 on rezoning for the West Beach Development.

If I can be of further assistance to you, please call me on 548-6880.

Yours truly,

J. C. McC...

JCMc:cm

F. J. RODRIGUEZ
President

ENVIRONMENTAL
COMMUNICATIONS
INC.

May 21, 1979

Mr. John C. McCain, Manager
Environmental Department
Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840

Dear Mr. McCain,

Subject: West Beach Resort Project
EIS Preparation Notice

Your letter of May 16, 1979 with respect to the above-referenced document has been received and reviewed by my staff. We are now in the process of preparing the technical reports for the proposed project. The comments raised in your letter indicate a position of concern that could create problems for future Kahe expansion. The applicant's position is that the proposed land uses currently under review are permissable under the site's underlying land use designation granted by the Land Use Commission. As West Beach moves forward through the various permit applications, the review process will provide full and adequate recourse for the concerns your office has expressed. We are confident that as a public utility, Hawaiian Electric Company will meet all environmental requirements imposed and continue to perform as a good neighbor. We will also be providing a copy of your letter to the landowner for their files.

Thank you for the information provided and your concerns.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Community Planning, Inc.
K.N. Anderson
B.D. Root
Campbell Estate

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DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET

ROBERT R. WAY
DIRECTOR

TE4/79-1196

May 16, 1979

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: Your Letter of April 20, 1979 Regarding
West Beach Resort Project

We have reviewed your Environmental Assessment for the proposed West Beach Resort Project and offer the following comments:

1. The analysis of the anticipated automobile trips that will be generated and the impact of this additional traffic on existing facilities should be expanded to include demand/capacity relationships for the peak-hour periods for all critical intersections servicing the project.

2. An analysis of anticipated bus patronage and the impact of this additional ridership on existing services should also be included in the report (City bus service for the proposed development would depend on availability of equipment and operating funds).

3. A discussion on mitigating measures to minimize the impact of the project on the surrounding street system during construction should also be included in the report.

Thank you for offering us this opportunity to review and comment on the project.

Very truly yours,

ROBERT R. WAY
Director

cc: DLU

MAY 21 1979

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

May 21, 1979

Mr. Robert R. Way, Director
Department of Transportation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Way,

Subject: West Beach Resort Project
EIS Preparation Notice

We have received your letter of May 16, 1979, on the above-entitled document. At this time, we are in the process of preparing the technical studies for the proposed project; a copy of your letter will be sent to the traffic consultant for his review and incorporation of your concerns into his report. Additionally, this discussion will be included in the EIS document.

Thank you for your comments.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Community Planning, Inc.
Henry T. Au

155

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

May 17, 1979

REF. NO.: APO-441

Mr. F. J. Rodriguez
Environmental Communication, Inc.
P. O. Box 536
Honolulu, HI 96809

Dear Mr. Rodriguez:

We have reviewed the environmental assessment for the West Beach project.

The assessment indicates further studies are warranted to determine the project's probable impact on the groundwater aquifer and on the water supply of the area. We would like to have access to these studies as they become available.

We suggest that the archaeological survey be appended to the draft EIS so that both can be reviewed at the same time.

Very truly yours,

SUSUMU ONO, Chairman
Board of Land and Natural Resources

MAY 24 1979

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 22, 1979

The Honorable Susumu Ono, Chairman
Board of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono,

Subject: West Beach Resort Project
EIS Preparation Notice
Ref. No. APO-441

Thank you very much for your letter of May 17, 1979, regarding the above-indicated EIS Preparation Notice. We note your specific concerns on (1) the impact on the groundwater aquifer and water supply; and (2) the archaeological survey. Because we are preparing the EIS document for the Federal National Environmental Policy Act (NEPA) as well as the State's Chapter 343, HRS, requirements, the EIS document will be limited to the environmental impacts, and at this time, no technical support studies are planned to be appended to the document. Instead, we plan to make these studies available for review to various interested agencies. Therefore, we will provide, at the time the EIS becomes available, the technical studies which you have requested (under separate cover for your staff's use).

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
W. Barrera
M. J. Chun/G.L. Hagan

156

GEORGE R. ARIYOSHI
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF SOCIAL SERVICES AND HOUSING
HAWAII HOUSING AUTHORITY
P. O. BOX 17907
HONOLULU, HAWAII 96817

FRANKLIN Y. K. SUNN
EXECUTIVE DIRECTOR

WILLIAM A. HALL
ASSISTANT EXECUTIVE DIRECTOR

IN REPLY REFER

May 17, 1979

TO 0-158.1/1214

Mr. F. J. Rodrigues
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodrigues:

Subject: West Beach Resort Project
EIS Preparation Notice

Thank you for the opportunity to comment on this project. This is a rare opportunity for the private sector to supplement the efforts of government in providing housing for the "gap group." This "gap group" is the low-moderate income group that normally furnishes the labor necessary for projects of this nature.

We wish to point out that there is a great need for the type of housing within the reach of this income group. Therefore, we ask that the percentage for low-moderate income housing be increased to a minimum of 20%. Much if not most of the land development cost for these homes can be defrayed by the increase in land value when resort zoning is granted. If the people of Hawaii are to indeed benefit in a development such as this, then positive steps should be taken to provide positive results.

Thank you again for this opportunity to comment on this project.

Sincerely,

FRANKLIN Y. K. SUNN
Executive Director

cc: DSSH

MAY 22 1979

ENVIRONMENTAL
COMMUNICATIONS
INC.

May 22, 1979

Mr. Frankling Y.K. Sunn, Executive Director
Hawaii Housing Authority
Department of Social Services and Housing
State of Hawaii
P.O. Box 17907
Honolulu, Hawaii 96817

Dear Mr. Sunn,

Subject: West Beach Resort Project
EIS Preparation Notice
Ref. No. 0-158.1/1214

We are in receipt of your letter dated May 17, 1979, regarding the above-referenced project. Please be informed that we have provided a copy of your letter to the project developer for his review. It is our understanding that at this preliminary stage of the project, the developer must review your request of 20% for low to moderate income housing at West Beach. Much of the decision will stem from financial committments and the outcome of a cost-benefit study.

Thank you for your comments.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE
Hawaii Division
Box 50206
Honolulu, Hawaii 96850

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA

May 18, 1979

IN REPLY REFER TO
HEC-HI

Mr. F. J. Rodriguez, President
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: West Beach Resort Project, Environmental Impact Statement Preparation Notice

Agency comments on the subject EIS Preparation Notice were requested by your letter of April 20, 1979.

In general, we encourage the expansion of sections in the EIS which address auto and highway improvement related impacts of the West Beach Resort development.

Please consider the following comments when developing the project Draft EIS:

1. Pages 15-16, Section 3.34, Project Impact on Ambient Air Quality, and Section 3.35, Further Studies and Evaluations Required Relating to Ambient Air Quality.

   We concur with the need for a detailed air quality study to determine present and future air pollution levels. The study methodology should be referenced in the EIS.

2. Page 16, Section 3.36, Noise Evaluation, and Section 3.37, Further Studies and Evaluation of Noise Impact.

   Any evaluation of noise impact should also consider sensitive receptors outside the project area which may be adversely affected by increased vehicular traffic; i.e., Honokai Hale Subdivision adjacent to FAP Route 93, Farrington Highway.

3. Page 18, Section 4.04(a), Costs Due to Government, Transportation.

   The $9 million cost estimate for additional laneage on Interstate Route H-1 and Federal-Aid Primary Route 93 should be referenced with respect to a base year for construction and source. "Government" should be identified; i.e., City and County of Honolulu, State of Hawaii, Federal or a combination.

-more-

MAY 21 1979

Mr. F. J. Rodriguez, President
May 18, 1979
Page 2

4. Page 22, Section 4.17, Transportation, Impact on the Highway System.

The traffic analysis is restricted to only a limited segment of Farrington Highway adjacent to the proposed West Beach Resort area. This analysis should be expanded to include impacts on Route H-1 between Palailai Interchange and Kunia Interchange and on Farrington Highway northeast of Palailai Interchange.

The existing Route H-1, 4-lane divided freeway between Palailai Interchange and Kunia Interchange will be severely burdened by newly generated/attracted West Beach Resort traffic. This 4-lane facility must also accommodate traffic from the proposed Barbers Point Deep Draft Harbor, the rapidly growing Makakilo residential area and Campbell Industrial Park.

We are very concerned with the lack of firm commitments from the State, City and County and/or Developer to implement obviously required improvements of Federal-aid Highway System facilities; i.e. FAP 93 and H-1, to assure proper levels of service and to maintain required highway safety standards.

Finally, the two "interchanges" of Farrington Highway with the proposed West Beach access roads, shown by Exhibit 3, do not conform to design standards promulgated by the American Association of State Highway and Transportation Officials (AASHTO). Adherence to AASHTO design standards is mandatory for improvements on Federal-aid Highway System routes.

We appreciate the opportunity of commenting on the EIS Preparation Notice and look forward to receiving the Draft EIS.

Sincerely yours,

Ralph T. Segawa
Division Administrator

By: H. Kusumoto
H. Kusumoto
Assistant Division Administrator

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

May 21, 1979

Mr. Ralph Segawa, Division Administrator
Federal Highway Division, Region Nine
Hawaii Division
U.S. Department of Transportation
P.O. Box 50206
Honolulu, Hawaii 96850

ATTENTION: Mr. H. Kusumoto

Dear Mr. Segawa,

Subject: West Beach Resort Project
EIS Preparation Notice (Ref. No. HEC-HI)

We have received your letter of May 18, 1979, responding to the above-referenced EIS Preparation Notice. At this time, we are preparing the air quality, noise and traffic studies for the proposed project. Consultants have been retained to do the required monitorings of the existing conditions and provide analyses of the project's impact in these areas. We are sending copies of your letter to them so that your concerns can be appropriately addressed in their technical studies as well as the EIS document.

Your comments on the highway system are well taken, and we recognize that the traffic generated from the project could, along with several other projects in the vicinity, create a potentially significant impact on the highway system. It is our intent to study the present and future traffic conditions of the highway system. In doing this we hope to coordinate our plans with the transportation agencies of the County, State and Federal governments. As required, the planning, design and construction will meet the applicable standards.

Thank you for the information provided and your concern in these areas.

Yours very truly,

F. J. Rodriguez

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Community Planning, Inc.
B.D. Root, H.T. Au, R.A. Darby, R.N. Anderson

1152 BISHOP BUILDING, SUITE 558 • P.O. BOX 536 • HONOLULU, HAWAII 96809 • TELEPHONE (808) 521-8391

STATE OF HAWAII

James R. Carras

May 18, 1979

STP 8.5444

Mr. F. J. Rodriguez
President
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: EIS Preparation Notice
West Beach Project

Thank you very much for giving us the opportunity to review and comment on the above-captioned notice. After reviewing the preparation notice, we have the following comments to make:

1. Page 22 -- The discussion should be expanded to include the traffic impacts to Farrington Highway and Interstate Route H-1 between Campbell Industrial Park and Kunia Road.

2. The planned marina development will accommodate approximately 700 boats, roughly equivalent in capacity to the Ala Wai Boat Harbor. From the shoreline seaward, the boat traffic is expected to use the outer edge of the proposed Barbers Point Harbor entrance channel away from the expected deep-draft harbor traffic. The Department of Transportation has no objections to this arrangement. However, continued close coordination between the Water Transportation Facilities Division and the developers should be maintained as more detail plans become available.

3. On Page 26, paragraph 5.02, states that the existing Malakole barge basin will be enlarged for the proposed Barbers Point Harbor is not exactly true. A commercial harbor basin will be excavated further inland while the barge basin will remain as a wave trap to attenuate some of the wave energies entering the harbor.

MAY 23 1979

4. The boundaries of the proposed Barbers Point Harbor as shown on Exhibit 10 are inaccurate. The first phase of the harbor development will encumber a total of 246 acres. The ultimate plan is projected to have an area of about 330 acres (see enclosed plan).

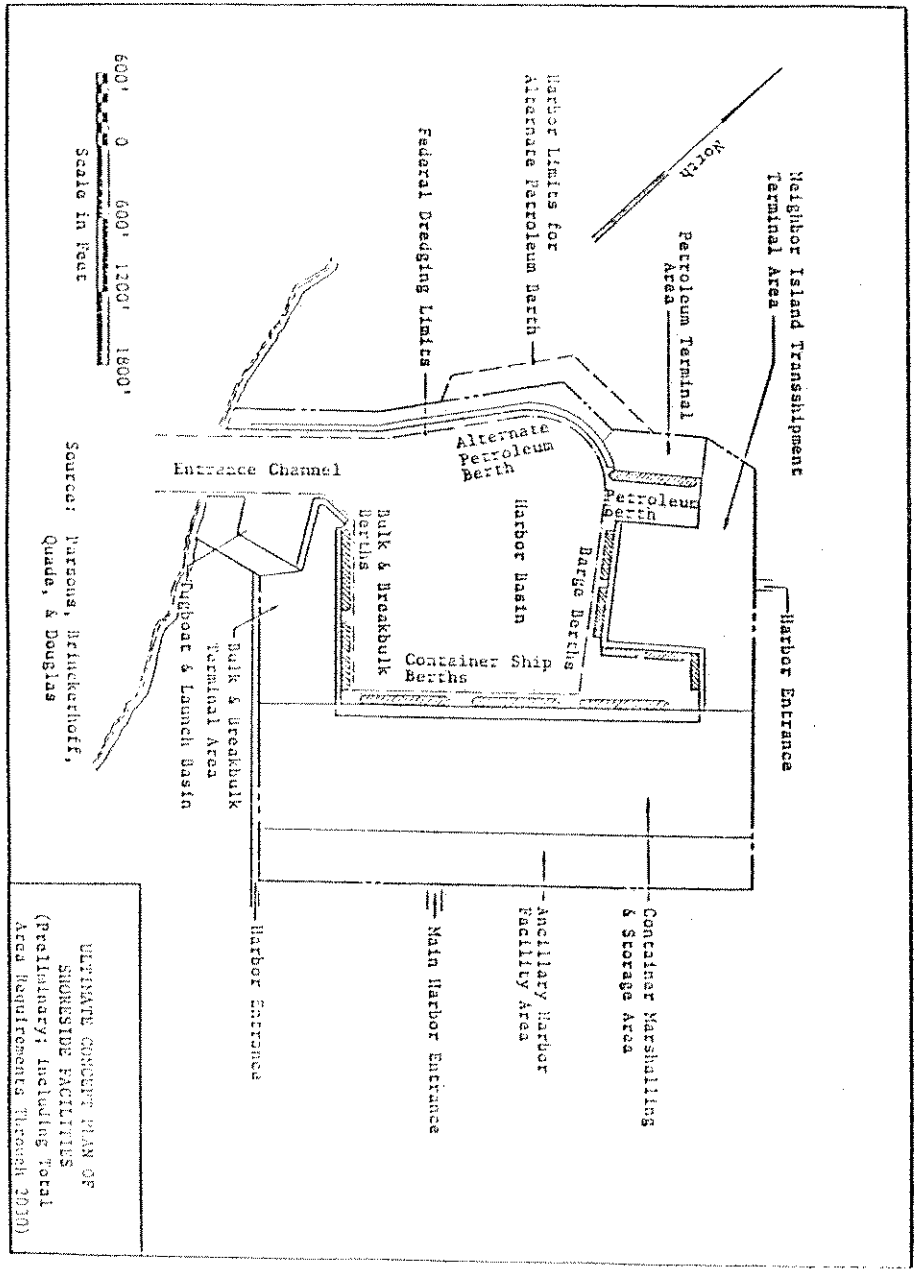
We note that the environmental assessment suggests many more studies need to be conducted. We concur with that view and will reserve further comments until the environmental impact statement has been prepared and ready for our review.

Very truly yours,

Ryokichi Higashionna

Ryokichi Higashionna

Enclosure



ENVIRONMENTAL COMMUNICATIONS INC.

F. J. RODRIGUEZ
PRESIDENT

May 24, 1979

The Honorable Ryokichi Higashionna, Director
Department of Transportation,
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Higashionna,

Subject: West Beach Resort Project
EIS Preparation Notice (Ref. No. STP 8.5444)

Thank you for your letter of May 18, 1979, relating to the above-entitled EIS Preparation Notice. In response to the items listed in your letter, we would like to provide the following dispositions:

1. The traffic study now being prepared will identify and discuss the impact of the traffic generated by the proposed project on the adjacent highway system.

2. As the plans for the marina are developed, the developer's retained engineering and planning consultants will coordinate specific work items with the Water Transportation Facilities Division.

3.) We appreciate this clarification and will make the necessary
4.) corrections in the EIS document.

The information and comments provided in your response are appreciated and will be incorporated into the EIS document.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Community Planning, Inc.
Alfred A. Yee & Associates, Inc.
J. Chapman
H. Au

1152 BISHOP BUILDING, SUITE 508 • P. O. BOX 536 • HONOLULU HAWAII 96809 • TELEPHONE (808) 521-8391

DEPARTMENT OF PARKS AND RECREATION

CITY AND COUNTY OF HONOLULU

FRANK F. FASI
MAYOR

RAMON DURAN
DIRECTOR

May 18, 1979

Mr. J. F. Rodriguez
Environmental Communications, Inc.
1152 Bishop Building, Suite 508
Honolulu, Hawaii 96813

Dear Mr. Rodriguez:

SUBJECT: ENVIRONMENTAL ASSESSMENT FOR THE WEST BEACH RESORT DEVELOPMENT HONOULIULI, EWA, HAWAII

We have reviewed the Environmental Assessment for the West Beach Resort Development and have the following comments and recommendations.

The size of this project will have a significant impact on our public park facilities in this area, and the need to provide adequate recreational facilities to serve the development is very important. Our major concerns for the development are:

1. On the basis of the available information, a community or district type recreational park will be required to serve the project's "active" recreational needs. Although a 10-acre park site is shown on Exhibit 3, we feel the size, location and configuration do not appear adequate. The park should be more centrally located within the project's residential area. The size and configuration of the park site would require further evaluation. There is also a need to determine whether the park is to be publicly or privately operated.

2. The City has always expressed interest in the Alice Kamokila Campbell area for a public beach park. In an earlier discussion with the applicant, a proposal was made by him to maintain the lagoon and the former Kamokila Campbell residence area as a private park and to dedicate the waterfront land between this area and Kahe Point to the City for public beach park purposes. The report does not clearly address this matter.

3. Because two miles of shoreline are being affected by the development, public beach rights-of-way must be established and spaced to provide the public with adequate access to the shoreline and transit along the shoreline. Locations of these rights-of-way points should be defined in the detail planning of the development.

4. Exhibit 2 shows the project area to extend beyond the Honokai Hale and Nanakai subdivisions. The City is presently operating a 5.88-acre park adjacent to these subdivisions. There is no mention of this in the report.

5. We are pleased that coordinated planning efforts will be made with concerned organizations regarding the railroad/bikeway easement through the project.

6. The proposed lagoon to be developed fronting the hotel/condo areas and the project's need to comply with the City's Park Dedication Ordinance 4621 will also require discussions with our Department.

Thank you for allowing our Department to comment on this assessment.

Warm regards,

Sincerely,

RAMON DURAN, Director

RD:ls

cc: West Beach Resorts

MAY 24 1979

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ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 24, 1979

The Honorable Ramon Duran, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Duran,

Subject: West Beach Resort Project
EIS Preparation Notice

Your response of May 18, 1979, to the above-entitled EIS Preparation Notice has been received this date. We appreciate your concern about the park and recreational areas planned for the proposed development. Your letter has brought out many specific items which remain to be resolved by the developer and his retained planning consultant.

At this time, the development is still being reviewed in terms of concepts, and the locations for various activities (including park and recreational areas) have not been finalized. Additionally, we are awaiting the results of various field surveys (i.e., vegetation, fauna, archaeological) which may also change the land uses for the development plan. This being the case, we have not addressed ourselves to specific work items, rights-of-way, park management et cetera.

The planner and the developer will receive a copy of your letter for their review and action. Then, as the plans become more detailed, coordination with you and your staff will take place.

We hope that these details will be available at the time of the preparation of the EIS so that each of your concerns may be addressed.

Thank you for your comments on this matter.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Community Planning, Inc.
Alfred A. Yee & Associates, Inc.
R. Anderson
J. Chapman

1162 BISHOP BUILDING, SUITE 508 • P. O. BOX 536 • HONOLULU, HAWAII 96809 • TELEPHONE (808) 521-8381

162

Hawaiian Railway Society

A Chapter of the
National Railway Historical Society

P. O. Box 1096
Waipahu, Hawaii 96797

May 20, 1979

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii, 96809

Subject: Environmental Assessment for the
Proposed West Beach Resort Project

Dear Mr. Rodriguez:

Our Board has reviewed the subject program. We are indeed pleased that the project contemplates making use of the railroad facility; we are directing our efforts toward realizing an operating unit.

Within the subject Assessment, jacket "E-3" contains Exhibit 3 detailing the complete project layout. It shows a 4-lane divided highway crossing the railroad track after exiting Farrington Highway; it further shows a road crossing the track to gain access to tennis courts, some town house units, school and park.

We are anxious to confer with you regarding the two road intersections "at grade", since some traffic control techniques will be required for safe train passage.

Some consideration may want to be given to a station or other means of boarding and detraining in order to permit "residents and visitors alike to experience the train ride" along the 12-miles of existing trackage with the contemplated additional 3-miles toward Waipahu.

We are looking forward to a close mutual association as the historic railroad again becomes a reality on Oahu.

Very truly yours,
HAWAIIAN RAILWAY SOCIETY

Theodore A. Gibson, Secretary

cc: Dept. of Land Utilization
City and County of Honolulu
600 Kapiolani Blvd., Room 301
Honolulu, Hawaii, 96813

MAY 22 1979

The Hawaiian Railway Society, a non-profit educational corporation, is dedicated to preserving the history of railroading in Hawaii. Contributions are tax deductible

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 22, 1979

Mr. Theodore W. Gibson, Secretary
Hawaiian Railway Society
P.O. Box 1090
Waipahu, Hawaii 96797

Dear Mr. Gibson,

Subject: West Beach Resort Project
EIS Preparation Notice

We have received your letter of May 20, 1979 responding to the above-referenced EIS Preparation Notice. Your concern and willingness to work with the developer on the restoration of the historic railroad is appreciated. At this time, the project is still in a preliminary planning stage and the specific improvements within the property have not been finalized. As the plan becomes more detailed, the retained planning and engineering consultants will meet with your organization to review the plans for the historic railroad. Although this may be done several months from now, we appreciate your early concerns and response in this matter.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Community Planning, Inc.
John Chapman

1052 BISHOP BUILDING, SUITE 508 • P. O. BOX 536 • HONOLULU, HAWAII 96809 • TELEPHONE (808) 521-8391

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P. O. BOX 50167
HONOLULU, HAWAII 96850

ES
Room 6307

May 21, 1979

Mr. F. J. Rodriquez
Enviromental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Re: West Beach
Resort Project
Ewa, Island of
Oahu.

Dear Sir:

We have reviewed the EIS Preparation Notice for the referenced project. As designed, the development will have a significant impact on the shoreline area. Such impacts could include, but not be limited to alteration of long-shore transport, and currents, and disturbance to exsisting coastal fish and wildlife habitat. Each of these possibilities must be thoroughly discussed in the EIS. Furthermore all possible alternatives to the proposed project must be explored in detailed.

At this time, the prime concern of the Service involves project impact on endangered species of plants and animals, and effects on nearshore fish and wildlife habitat. Two plants proposed for listing as endangered are known to occur in the project vicinity; one of these; Gossypium tomentosum Nutt. was not mentioned in your report.

Regarding the proposed lagoon construction, we recommend that you thoroughly investigate potential water circulation therein, and the effects of construction on nearshore marine processes and ecosystems. This area has the most luxuriant coral reef on Oahu. However, it already is being adversely affected by siltation from land base construction and thermal effluent. Furthermore, the offshore area is known to support a popular fishery. The possible effects on the marine enviroment of increased pollutant discharge resulting from project construction and maintenance on the marine enviroment must be evaluated.

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

MAY 22 1979

We realize that project plans are tenative. We recommend that in the addition to the above you consider the following:

1. The lagoons be located such that with the exception of inlet & outlet, the beachrock and dune areas remain undisturbed.

2. Storm water discharges from upland development be discharged into settling basins or routed through the proposed sewage collection system for subsequent offshore disposal.

3. Extreme care be taken to prevent erosion both during and after project construction.

4. Use of the fertilizers be minimized to prevent organic pollution of the nearshore coral reef.

We appreciate the opportunity to provide comments. Please contact us if we can be of further assistance.

Sincerely yours,

Maurice H. Taylor
Field Supervisor
Division of Ecological Services

ENVIRONMENTAL COMMUNICATIONS INC.

F. J. RODRIGUEZ
PRESIDENT

May 22, 1979

Mr. Maurice H. Taylor, Field Supervisor
Division of Ecological Services
Fish and Wildlife Service
U.S. Department of the Interior
300 Ala Moana Boulevard
P.O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Taylor,

Subject: West Beach Resort Project
EIS Prepartion Notice
Ref. No. ES Room 6307

Thank you for your comments dated May 21, 1979 regarding the above-referenced project. Your concerns will be transmitted to the technical consultants with expertise in botany, marine biology, water quality and oceanography. We feel their scope of work will cover your concerns on the endangered species of plants, lagoon construction, impact on marine flora and fauna, stormwater discharge and erosion. Copies of your letter will be sent to these various consultants so that any specific concerns will be addressed in their respective reports.

We appreciate the information provided and your comments in this area.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
K.H. Bathen
W.P. Char
A.J. Berger
P.K. Bienfang
M.J. Chun/G.L. Dugan
Alfred A. Yee & Associates, Inc.
Community Planning, Inc.

[illegible] BUILDING, SUITE 508 • P.O. BOX [illegible] • HONOLULU, HAWAII 96813 • TELEPHONE (808) 521-[illegible]

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96813

May 21, 1979

FRANK F. FASI, Mayor

YOSHIE H. FUJINAKA, Chairman

DAE GOON PANG, Vice Chairman

HYOKICHI HIGASHIONNA

HERBERT R. JUBINSKY

WALLACE S. MIYAHIRA

ROBERT A. SOUZA

CLAUDE T. YAMAMOTO

KAZU HAYASHIDA
Manager and Chief Engineer

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

YOUR LETTER OF APRIL 20, 1979, ON THE ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE WEST BEACH RESORT PROJECT

We have the following comments:

1. The developer must submit an overall water master plan for approval. The master plan must address all on-site and off-site water facilities, including source, storage reservoirs, and transmission mains.

2. We can not, at this time, guarantee water for the project from our proposed Honouliuli Well source. An EIS is being prepared for the Honouliuli Well field. Since we must limit pumpage from the Pearl Harbor basin, discussions are under way among the Board of Water Supply, Campbell Estate, Amfac, and Oahu Sugar Company to reach an agreement with Oahu Sugar Company to cease pumpage of some of its sources on a gallon-for-gallon basis so that Honouliuli Well field can be developed without further increase in pumpage from that basin. In turn, arrangements would need to be made to replace Oahu Sugar Company's potable quality water with non-potable water acceptable for irrigation. We recommend that the developer contact us or Campbell Estate so he can be included in the arrangement to develop the source for his project.

3. Paragraph 4.23 mentions the present irrigation of 580 acres of cane land at West Beach with 5.8 mgd of potable water. This water is brackish and can not be considered for domestic use unless it is demineralized.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

MAY 29 1979

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ENVIRONMENTAL COMMUNICATIONS INC.

May 30, 1979

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

Dear Mr. Hayashida,

Subject: West Beach Resort Project
EIS Preparation Notice

Your letter of May 21, 1979 relating to the above-indicated EIS Preparation Notice has been received. In response to your comments on the proposed project, we are providing the following information:

1. The engineering consultant firm, Community Planning, Inc. will be preparing the water master plan and addressing the potable water requirements and facilities needed for the West Beach Resort Project. This being the case, we are providing a copy of your letter to Community Planning Inc. for their information and action. We expect that their engineers will be in contact with you and/or your staff in the near future.

2. At this time the developer and engineering consultant firm are coordinating efforts for potable water with Campbell Estate. Because this is a critical requirement, please be assured that there will be coordination with the Board by the developer and his retained engineering firm. When the potable water requirements and sources are planned, we will indicate this information in the EIS document.

3. We recognize that the water being used for irrigation (5.8 mgd) is not potable. On page 25, paragraph 4.24, sentence 6 states: "Additionally, while the total water demands are less than the present usage (for sugarcane cultivation), it should be emphasized that the water used for irrigation is not suitable for drinking."

Thank you for your comments on this Preparation Notice.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Community Planning, Inc.
John Chapman
M. Chun/G. Dugan

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University of Hawaii at Manoa

Joint Institute for Marine and Atmospheric Research (JIMAR)
2525 Correa Road • Honolulu, Hawaii 96822
Cable Address: UNIHAW

May 18, 1979

Mr. F. J. Rodriguez
Environmental Communications, Inc.
1153 Bishop Building, Suite 508
P.O. Box 536
Honolulu, HI 96809

Dear Mr. Rodriguez:

Subject: Environmental Assessment for West Beach Resort Project

I will respond mainly to the tsunami problem in the area of the proposed resort development. On pages 9 and 10 you indicate this will be covered.

The best available information on the predicted 100-year tsunami is now in the hands of the Corps of Engineers in the form of mapped coastal High Hazard Zones. Historical information about previous tsunamis is available from us and others.

There are further tsunami considerations in the form of federal regulations under the Federal Insurance Act. These are applicable under the emergency program which at present exists on Oahu and in more detailed form under the regular program soon to be implemented.

Sincerely,

Harold G. Loomis

cc: J. Miller, Environmental Center, UH
DBED, Honolulu
John Bathen, DLU

AN EQUAL OPPORTUNITY EMPLOYER

MAY 22 1979

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ENVIRONMENTAL COMMUNICATIONS INC.

May 22, 1979

Mr. Harold G. Loomis
Joint Institute for Marine & Atmospheric Research
University of Hawaii at Manoa
2525 Correa Road
Honolulu, Hawaii 96822

Dear Mr. Loomis,

Subject: West Beach Resort Project
EIS Preparation Notice

We are in receipt of your response dated May 18, 1979, with respect to the above-entitled EIS Preparation Notice. Your references to available data on the tsunami problem in the area are noted. At this time, we are in the process of studying this area of concern; we will incorporate the information and discuss the impact of tsunamis on the development in the EIS document.

Thank you for the information provided.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
K.H. Bathen
Alfred A. Yee & Associates, Inc.

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LIFE OF THE LAND
A GROUP FOR ENVIRONMENTAL RESEARCH AND ACTION

May 22, 1979

Mr. F.J. Rodriguez, President
Environmental Communications, Inc.
1152 Bishop Building, Suite 508
P.O. Box 536
Honolulu, HI. 96809

Dear Mr. Rodriguez:

Attached are Life of the Land's comments on the Environmental Assessment for the Proposed West Beach Resort Project. We wish remain a consulted party and look to reviewing your EIS. You have noted many problems which need further research and discussion in the assessment we hope these will be adequately covered in your EIS. Thank-you for consulting us on this project.

Sincerely,

Dee Dee Letts
Administrator

cc DDL
DLU
Waianae Neighborhood Board

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MAY 23 1979

404 PIIKOI STREET HONOLULU HAWAII 96814 TELEPHONE 521 1300

WEST BEACH ASSESSMENT

Residential Development: Only 10% of the housing units are aimed at low and moderate income while a significantly higher % of our residents fit into this category. We propose that this figure be raised to 25-30% to more adequately reflect the housing needs of Hawaii. Housing should do more than provide shelter, strategically located it might motivate those residents to better themselves through social and economic self-improvement. This locale would offer such and environment.

Coastal Impacts: We are very concerned of this projects impact on the coastal zone:

1)"excavation of a marina basin and channel from the limestone substrate may release groundwater into the basin and channel." PG.9
2) the effects of lessrecharge water due to development
3) increases in storm water runoff and errosion by 27%, where does this 27% go now? recharge for Pearl Basin?
4) impact marine channel will have on ocean currents
5) high concentrations of toxic materials and bacterial growth from refinery operations has already resulted in fish kills fronting the study site.

We trust that further research in these areas will be as thorough as indicated in the assessment.

Air Quality: Would like to see the EIS address the projects impact on the ambient air quality in conjunction with air pollutants emmited from certain industries in Campbell Industrial Park and Hawaiian Electric Company's Kahe Generating Station and vice versa.

Health and Medical Services: This document does not accurately report the health and medical services available in the area. Residents of Ewa, Makakilo and Waianae have repeatedly requested better medical facilities. In view of the residential expansion in Mililani and surrounding areas (Central Oahu) and the transient and residential population associated with this study site this area is long over due for a full service Hospital.

Air Traffic: The extension of the accident potential zone of Barbers Point Naval Air Station warrents further consideration. Let us not brush over on paper what may avert a major tragedy in the future.

(1)

Traffic: The assessment states that most traffic would be during off peak hours but does not address possible commuter traffic due to on-site residential development.

Sewage: We feel a permanent land management system should be installed to recycle the wastewater rather then connecting to Honouliuli when it is completed.

Part II Water

The accompanying pages are enclosed as a general discussion of the critical water situation in the Pearl Basin. The critical nature of the situation was emphazied by the report of the State Water Commission which agreed that the area was probably being overpumped and recommended application of Chapter 177- the State Groundwater Use Act.

Availability of water from the pllaned Honouliuli wells is not certain-especially to the extent of 9 mgd.;testing and EIS will be required and even then long-term effects will be most difficult to estimate.

The development of West Beach will not only require importation of high quality water, which will likely mean removal of sugarcane acreage now using this water from production, but also the elimination of sugarcane irrigation at West Beach will mean little if any recharge to caprock water in that area. In other words, up to approx. 10 mgd now available for cane irrigation may no longer be available and additional deterioration in quality of Pearl Basin groundwaters is likely.

As the assessment implies much more work on availability of potable water and impacts on agriculture and general water quality is necessary. (See Attached)

Leeward Oahu water resources consist of the waters from the Honolulu groundwater basin (Kaimuki to Red Hill) and the Pearl Harbor basin (Red Hill to the Waianae mountains, including Ewa and up toward Mililani Town). Misdevelopment and/or over-development of these waters (approx. one half of all Oahu developable groundwater) has been recognized as a problem since the beginning of the century. In a study done for the BWS in 1974, John Mink, consulting hydrologist, concluded that the groundwaters of the Honolulu and Pearl Harbor areas had been overpumped by about 10% for about 10 years.

"In reality a negative balance has become established in both the Honolulu and Pearl Harbor regions, in recent years, which if allowed to continue will in the long run cause deterioration in the quality of water withdrawn from the groundwater aquifers... Unless draft is controled, heads will continue to fall, spring flow will decrease and worsen in quality and general disequilibrium will prevail."

In letters to U.S. Environmental Protection Agency in July 1973, both Oahu Sugar Co. and the Honolulu BWS presented conclusions similar to those of the Mink study.

"Hydrologists who have studied the Pearl Harbor water basin are in accord that it has reached, or nearly so, the safe yield point. In view of the salinity problems we are experiencing, we conclude that it has exceeded the safe yield point, at least in certain portions of the basin." - Oahu Sugar Co.

"The information indicates that the natural input is already in a precarious balance with present groundwater withdrawals." - BWS

These statements find further support in the initial findings of the Residence Times of Basal Groundwaters study now being conducted by the WRRC. The specific figures for the Pearl Basin in 1974 were as follows (from Mink).

Input	Natural flow recharge -	200mgd
	pumped (sugar) infiltration	30mgd
	Waiahole infiltration	15mgd
	total recharge	245mgd
Use	BWS	60mgd
	Military	20mgd
	Springs	44mgd
	Plantations	140mgd
	total use	264mgd
Debit	Approx. 20mgd (or 10% of natural recharge).	

For the years 1975-77 average pumpage from Pearl Basin basal groundwaters was up to 285.6 mgd. This is well above Visher and Mink's estimate of maximum safe withdrawl (230 mgd at 85%) and that of Bowles (215 mgd at 85%). It is also well above that of the BWS "in-house" hydrologist Chester Lao who estimates maximum safe withdrawal at a seemingly high 270mgd.

It seems the BWS should be making every effort to cut back water use in Leeward Oahu rather than continuing to guarantee sufficient water for additional development. The BWS has stated that the 5 mgd for West Beach will come from water currently being used by Oahu Sugar Co. or water which they

will develop. But given the overpumping already occuring in the Pearl Basin, new water development by Oahu Sugar seems unlikely. And with Oahu Sugar Co. already leading a marginal existence and depending completely on tax payer subsidies, scale of operations can be the all important variable in maintaining the economic viability of this agribusiness. Cutting back acreage because of less water availability may be tantamount to cutting sugar agribusiness throats. In other words the West Beach project may threaten to provoke an over-all decrease in income to the State and jobs available to Oahu's people. Such implications of any announced agreement between BWS, Campbell Estate, and Horita Corp. should be but have not been subjected to close scrutiny in official approval of West Beach development plans.

An additional complicating factor involving Oahu Sugar Co. and water was the recent BWS request to the BLNR to release 4 mgd of Waiahole ditch waters, presently being used by Oahu Sugar in the Honouliuli area, to the BWS to supply waters needed for present and additional Windward urbanization. Not only would this have meant an additional substantial cutback on water availability to Oahu Sugar Co., but it would also have resulted in approximately 2 mgd less high quality recharge to the Pearl Basin groundwaters, thus exaccerbating the already excessive Leeward groundwater withdrawal situation. The request was refused by the BLNR on May 22, 1978.

The BWS is presently planning an additional water development for Leeward Oahu - its new Honouliuli Wells which the BWS "hopes" will produce 4.5 to 9 mgd. The BWS is currently preparing the EIS for this project. These new wells will draw water from the already overdrawn Pearl Basin groundwaters, will almost certainly have eventual adverse effects on other more makai wells, and is the equivalent of reverse Russian roulette - priming the pump until the well runs dry. The record low water levels experienced in Leeward Oahu wells last summer and now should not be blamed completely on the drought. The same trend was patently apparent back in 1973 and it was for this reason that new pumps capable of greater lift were installed at the Halawa shaft a few years ago. Furthermore, periodic droughts are typical and thus "normal" for Oahu and the rest of Hawaii and they should have been accounted for in responsible planning.

West Beach is not the only water demand increase on Leeward Oahu water resources which has approved zoning for development and for which water availability appears doubtful without the creation of major hydrologic problems, fantastically increased economic burdens for the general public, home water use rationing, and/or the severe curtailment of the viability of any type of agriculture on Oahu. Planned developments in the Waianae area alone - which must import most of its water from the Pearl Basin area - numbers approximately 3000 units or 15,000 persons if we consider only those which already have appropriate urban zonings. This plus the Kahe Point Amusement Park, additions to the Hawaii Electric Co. plant at Kahe, expansion at Campbell Industrial Park, and the possibility of the Barbers Point deep draft harbor will result in a demand for 6-7 additional mgd. Planned urban development

in the Pearl Basin which already has all appropriate zonings will create an additional demand of 5.5 mgd in the next few years and the planned Mililani expansion (which already has BWS approval) would add another 1.6 mgd demand.

All together these additional developments (which refer only to projects of 25 lots or units or more) will result in an additional water demand of 19 mgd (approx.) in the very near future.

West Beach	5
Waianae to Barbers Point	6-7
Approved Pearl Basin	5.5
Mililani expansion	1.6
	approx. 19 mgd.

If we add this to existing draft in the Pearl Basin we get a projected Pearl Basin groundwater withdrawal (or area demand) of 304 mgd in the next several years. This is approx. 75 mgd over the consensus as to what is a safe withdrawal in this area.

The BWS has stated that brackish water purification as well as exchange of sewage effluent for high quality drinking water currently used for sugar cane irrigation will solve any problems of demand till well past the year 2000. On closer examination this does not appear to be the case. Even if sufficient sewage effluent were available (which it is not) for exchange, only approx. 50 mgd of domestic quality water could be obtained from water currently used for sugar irrigation in leeward Oahu. An additional 20 mgd from sugar might be blended with high quality water to bring it up to domestic quality. Both together would amount to 70 mgd - not even enough to satisfy existing or already committed over pumpage. (75 mgd). If to this we add 20 mgd brackish caprock water that might be reclaimed through reverse osmosis (with 8 million dollar plant investment and at 40-50 cents per thousand gallons production cost - 1975 prices) we would only have a slight, if any, excess domestic quality water for urban development beyond that which has already been completely approved for the next several years.

Another source mentioned as an alternative for future supply is the springs and streams which currently flow into Pearl Harbor. But with Pearl Harbor already a near cesspool, these are the only waters currently flushing out or minimizing adverse effects on the Harbor. And with the fantastic urban growth of recent years around the harbor, Pearl Harbor appears as the major recreational and possibly economic resource for the area if it can ever be cleaned up. Diverting the spring and stream waters, however, would be tantamount to a death blow to the quality of harbor waters, fish, etc.

No matter how we look at it, the water for West Beach is simply not available without recourse to new technologies (effluent recycling) or without taking it away from other uses (existing agriculture). The BWS recently approved wells for the Gentry-Waipio development (2.5 mgd) on the basis that such pumpage would result only in an additional 1% overdraft of Pearl Basin waters.

There are few projects which would not come within this scope of "fuzziness" of the BWS. With the qualified exception of the North Shore, the same is true as regards water supply for any other area of Oahu beyond the next few years.

For those who say - "there's plenty of water, it's just a matter of cost" - we might suggest - "there's plenty of housing, it's just a matter of cost". Who can afford it?

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 24, 1979

Ms. Dee Dee Letts, Administrator
Life of the Land
404 Piikoi Street
Honolulu, Hawaii 96814

Dear Ms. Letts,

Subject: West Beach Resort
EIS Preparation Notice

We have received your letter of May 22, 1979, commenting on the above-referenced EIS Preparation Notice. Your comments have been reviewed and we would like to provide the following dispositions:

1. Low and moderate income housing units. We are providing the developer of the project with a copy of your letter and our response. Ultimately, it would be his decision to provide low and moderate income housing (greater than 10%) as part of the project. At this time, it would seem that the cost of the homes will be based on the cost benefit analysis and later, upon the type of financial assistance available for such homes. Although it is desirable to provide housing units at this income level, no firm commitments can be provided at this time.

2. Coastal impacts. Items identified as those needing studies are being reviewed by our technical consultants. These items will be addressed in the technical support reports and the EIS document.

3. Air quality. The air quality study now being prepared will contain information and discussion on the project's impact on ambient air quality and the impact of surrounding pollution sources (i.e., Kahe Electrical Plant and Campbell Industrial Park) on the project site.

4. Health and medical services. The Environmental Assessment document did not provide much information on this subject. The socioeconomic study now being prepared will contain discussion on the availability of health and medical services for the project.

5. Air traffic. We would concur with you that the principal concern is to avoid a major air tragedy. The proposed project will be

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planned so that uses will be compatible within a reasonable margin of safety.

6. Traffic. This aspect will be studied as part of the traffic impact report.

7. Sewage. This is desirable not only from the standpoint of water conservation, but such an alternative would lessen the cost of water consumed by the project. However, the full use of wastewater is dependent on the availability of an economically viable technology and acceptability of such uses by governmental agencies.

8. Water. The information provided on the water situation in Pearl Basin is being provided to our water quality consultants for their review.

Thank you for expressing your concerns in these specific areas.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Community Planning, Inc.
Alfred A. Yee & Associates, Inc.
J. Chapman
R. Anderson
H. Au
K. Bathen
M. Chun/G. Dugan
B. Root

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

WALLACE MIYAHIRA
DIRECTOR AND CHIEF ENGINEER

ENV 79-143

May 22, 1979

Mr. Fred J. Rodriguez
Environmental Communications Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: Additional Comments on the EIS Preparation Notice for the West Beach Project

In addition to the comments we made in our letter ENV 79-127, dated May 4, 1979, we wish to add the following:

1. A potential HPOWER site is being considered within the Campbell Industrial Park north of Malakole Road which might impact on the proposed West Beach development. Additional information is contained in the attached EIS Preparation Notice for HPOWER, including a location map (page 16, Figure A) of the industrial park site.

2. Item 9 of our May 4, 1979 comments should be amended to read - "The cost of refuse collection and disposal, whether private, municipal, or both, should be identified. The total cost of municipal collection and incineration for the 1978-79 fiscal year is expected to be $48.48 per ton."

Very truly yours,

for WALLACE MIYAHIRA
Director and Chief Engineer

Attach.
cc: Dept. of Land Utilization
Div. of Refuse Collection & Disposal

MAY 29 1979

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ENVIRONMENTAL COMMUNICATIONS INC.

F. J. Rodriguez
President

May 30, 1979

Mr. Wallace Miyahara, Director & Chief Engineer
Department of Public Works,
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Miyahara,

Subject: West Beach Resort Project
EIS Preparation Notice

We have received your additional comments on the above-mentioned EIS Preparation Notice. With regard to your first item on the HPOWER site, we have noted that the HPOWER site (identified on page 16, Figure A, of the EIS Preparation Notice for HPOWER) is below the planned Barbers Point Deep Draft Harbor. This location in the Campbell Industrial Park area, as well as the condition that the HPOWER facility conform with the applicable environmental considerations (as stated in your EIS Preparation Notice), is unlikely to present any conflicts with the West Beach Resort Project. Your concern on this matter is appreciated. We will, of course, be available to meet with you and your staff on the future planning anticipated, and any subsequent impacts.

Item 2 of your letter requests that an updated figure on municipal collection and incineration ($48.48 per ton in 1978-1979 fiscal year) replace that which was provided in your earlier letter of 4 May. We will comply with this request.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
John Chapman

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BERNICE P. BISHOP MUSEUM

P.O. Box 6037, Honolulu, Hawaii 96818 • Telephone 847-3511

May 22, 1979

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P.O. Box 556
Honolulu, Hawai'i

Dear Mr. Rodriguez:

The following are Mr. Aki Sinoto's comments on the Environmental Assessment for the Proposed West Beach Resort Project, Honouliuli, Ewa, Island of Oahu:

p. 19 4.06 Paleontological Considerations

The paleontological remains at Barbers Point are not "fossils of birds"; rather, they are bones from fossil birds. The term "fossil birds" is used to denote extinct species of birds, as distinguished from species that are present today.

Flightless geese are only one of the many types of birds represented in the remains; other types include petrels, Hawaiian hawks, owl rails, Hawaiian honey creepers, passerines (i.e., finch bills), and Hawaiian ravens.

The avifaunal remains represent not only extinct species but also species that exist today in other areas with totally different environments (e.g., petrels, shearwaters). In addition to salvage, mitigation measures should include some preservation to insure that undisturbed deposits are available for future research, since more advanced techniques of field recovery and analysis may be developed.

p. 19 4.07 Archaeological Significance

line 5: "history" should be changed to "prehistory"
"casual" should read "causal"
line 7: "impact" can be determined to be imminent destruction, according to plans for development that will alter most of the area.
lines 13 - 14: It is premature to say that "salvage...will be an appropriate mitigative action."

p. 19 4.08 Historical Sites

Mr. Aki Sinoto's affiliation is not "West Beach"; he is with the Department of Anthropology, Bernice P. Bishop Museum.

Mr. Sinoto's statements refer to archaeological sites with archaeological significance. Since "historical" usually implies the post-contact period, Mr. Sinoto's comments about prehistoric sites should be included under item 4.07, Archaeological Significance.

p. 20 4.08 (cont'd.)

Limestone sinks with avifaunal remains are clearly significant. See attached statement from Dr. Storrs Olson of the Smithsonian Institution. This region has been declared eligible to the National Register, not nominated to it. This statement should be under item 4.06, Paleontological Considerations.

MAY 24 1979

p. 20 4.08 Historical Sites

An additional area that may be of historical importance is Kamokila Campbell's property.

p. 20 4.09 Impact on Historical Sites

Does this section also include archaeological (i.e., prehistoric) sites? If so, this must be clarified; if not, there should be a separate section on impact on archaeological sites.

We appreciate the opportunity to comment on the Environmental Assessment for West Beach. Please call me or Mr. Aki Sinoto if you have any questions.

Sincerely,

Bonnie T. Clause

Bonnie T. Clause
Administrative Assistant
for Contract Archaeology

btc
encl.

associated with archaeological remains. Now that we know the importance of the birdbone deposits, it is necessary to test all sinkholes in the project area to assure that all such deposits have been located. Location of all birdbone deposits will then allow a more realistic evaluation of the need for and scope of paleontological salvage. We also recommend preservation for Site B6-22, the large sinkhole in Area D, and the sites around the perimeter of B6-22. Preservation would assure future availability of a data bank, as new methods and techniques for analysis evolve. Consultation with Dr. Storrs Olson is needed to obtain more specific information about the significance of the bird-bone material, and for specific recommendations about salvage and/or preservation. Dr. Olson is an avian paleontologist with the Smithsonian Institution. His statement attesting to the significance of the bone is as follows:

> The various limestone sinks on the raised reef at Barbers Point, Oahu, contain probably the most extensive fossil avifauna in Hawaii with many new species endemic to the island. Such fossils have not and probably cannot be found anywhere else on the island. Furthermore, the nature of the preservation is such as to insure that virtually complete skeletons can probably be assembled for most species. Thus, there is much highly significant and totally new biological and paleontological information that can be obtained only at the Barbers Point site.
>
> Destruction of any of the potential fossil sinks would result in the loss of many specimens, some possibly unique since one sinkhole might contain species absent in another. Also, the fauna of one sinkhole might not be coetaneous with that of another, the age of a deposit being determined by when a sinkhole first formed. Therefore, an investigation of the faunas of different sinks might show changes in species composition and changes in morphology within a species through time. Finally, it would also be desirable to retain some sinks intact as fossil "banks" should some new technique or different information be desired in the future. The fossil deposits at Barbers Point are a unique and irreplaceable resource.

Our rough estimates of time and cost of testing sinkholes for birdbone deposits and for archaeological and paleontological salvage in construction-impact areas have been submitted to the U.S. Army Corps of Engineers.

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

May 24, 1979

Dr. Aki Sinoto, Archaeologist
Bernice P. Bishop Museum
P.O. Box 6037
Honolulu, Hawaii 96818

ATTENTION: Ms. Bonnie T. Clause

Dear Mr. Sinoto,

Subject: West Beach Resort Project
EIS Preparation Notice

We have received your comments of May 22, 1979, on the above-entitled EIS Preparation Notice. After reviewing your detailed comments on the historical, archaeological and paleontological sections of the Environmental Assessment, we would like to provide the following dispositions:

1. Reference to your items p. 19 4.06 Paleonotological Considerations, p. 19 4 07 Archaeological Significance, p. 20 4.08, p. 20 Historical Sites, and p. 20 4.09 Impact on Historical Sites.

   We appreciate the information and clarification in these areas. Recognizing the need to be as accurate as possible in reference to these subjects, we are providing a copy of your letter to the archaeological consultant for his review. Upon his review, research and advice, we will make appropriate revisions and discuss them in the EIS document.

2. Reference to your item p. 19 4.08 Historical Sites.

   The section in which incorrect statements occurred were quoted directly from the State's Land Use Commission's Decision and Order. If these are significant errors, it would be appropriate to correct the information through the Land Use Commission.

Thank you for your comments.

Yours very truly,

F. J. Rodriguez

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
W. Barrera
A. Berger

1132 BISHOP BUILDING SUITE 508 • P.O. BOX 536 • HONOLULU HAWAII 96809 • TELEPHONE (808) 523-8391

GEORGE R. ARIYOSHI
Governor

HIDETO KONO
Director

FRANK SKROVANEK
Deputy Director

DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

Kamamalu Building, 250 South King St., Honolulu, Hawaii • Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

May 22, 1979

Ref. No. 9068

Mr. F.J. Rodriguez
President
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: Environmental Impact Statement Preparation Notice for the Proposed West Beach Resort Project, Honouliuli, Oahu

Our comments on the subject EIS preparation notice are as follows:

1. The Development Plan for the subject project (Exhibit E-3) should reflect the location of proposed development increments 1 and 2. Furthermore, all discussion in the text of the EIS should indicate applicability to increments 1 and 2. The Land Use Commission approved only reclassification of the first 10-year increment of development (640 acre area); the remaining 170 acres is still in the Agricultural District, and it is unknown whether these areas will ever be developed at this time. Therefore, when discussing the total development, the developer should separately identify impacts of the two phases.

2. The EIS should include discussion of the conformity of the proposed project with both State Plan objectives, policies, and priority directions and the Coastal Zone Management Program objectives and policies. Since the proposed project requires both Federal and State agency actions, it is subject to consistency and compliance requirements of the National and State CZM Programs.

3. Because of the known archaeological significance of the area, at a minimum, a walk through survey of the area should be made, and location of possible historic sites provided; the EIS should include a map of these sites as well as a discussion of their significance and proposed actions to preserve information or sites.

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MAY 24 1979

4. Further elaboration on the following areas should be provided: long term agricultural impacts of the proposed resort development; impacts on urbanization of the Ewa area; impacts on water resources of the area; compatibility with the proposed deep draft harbor project; compatibility with AICUZ.

5. The EIS should also further address the availability of various utilities: sewage, drainage, etc., for the proposed development.

6. The Land Use Commission reclassification of the area required that 20 acres of Kamakila Campbell property would be open to the public and that public access would be provided to the shoreline and natural lagoon areas. The EIS should discuss how these commitments will be met.

7. Traffic impacts of the proposed development should be further discussed, particularly in light of various other developments proposed for the area such as the Kahe Theme Park, Deep Draft Harbor Project, etc. Further clarification should be provided regarding the level E service presently existing.

8. Further discussion should be provided regarding the need for the proposed residential development in light of existing vacant residential zoned, General Planned, and other vacant urban land in the area.

9. The petitioner's commitment to the LUC to make available approximately 10% of the residential units to moderate and lower income families should be discussed.

10. The EIS should address the conformance of the proposed resort development with the proposed Tourism Functional Plan.

11. The EIS should address the pros and cons of the proposed resort development of the area, in comparison with alternative resort destination sites at Queens Beach, Waikiki, Makaha, Kuilima, etc.

12. The EIS should discuss how the developer proposes to provide buffer areas as required by the LUC approval of the reclassification of the subject property.

Sincerely,

Hideto Kono

HIDETO KONO

cc: Dept. of Land Utilization
Office of Environmental Quality Control

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 24, 1979

The Honorable Hideto Kono, Director
Department of Planning & Economic Development
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

ATTENTION: Frank Skrivanek

Dear Mr. Kono,

Subject: West Beach Resort Project
EIS Preparation Notice (Ref. No. 9068)

We have reviewed your letter of May 22, 1979 commenting on the above-referenced EIS Preparation Notice. At this time, we are preparing the technical support studies which will provide the bulk of the information and principal research data from which the EIS will be prepared. Because we are in this early stage, much of the comments which DPED has provided can be addressed in the individual technical reports being prepared. Copies of your letter will be sent to the appropriate technical consultants so that these items can be reviewed and addressed in their respective reports, and subsequently, the EIS document. Where your comments indicate that elaboration is needed (items 1, 2, 6, 9 and 12), we plan to discuss as fully as possible; (although specific work items may not be defined).

Thank you for your comments and concerns.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Community Planning, Inc.
J. Chapman
R. Anderson
H. Au
W. Barrera

1152 Bethel Building, Suite 508 • P. O. Box 536 • Honolulu, Hawaii 96809 • Telephone (808) 523-8191

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UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. Box 50004, Honolulu, HI 96850

May 23, 1979

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: Environmental Assessment/Determination - Proposed
West Beach Resort Project, Honouliuli, Oahu

The Soil Conservation Service advocates the preservation of prime agricultural lands. We are concerned about development of an additional 580 acres of prime agricultural land in this area of Oahu.

Although this area is a relatively small percentage of the 55,563 acres of prime agricultural land on Oahu, nevertheless, these small acreages must be considered on a long-term basis.

The continued encroachment by urbanization on prime agricultural lands will result in either agriculture being lost entirely in this part of the island or forcing agricultural operations to poorer lands that have lower production capability, require higher energy costs, and have more erosion hazard potential.

The agricultural industry has been steadily losing land to urbanization. The point is not whether these lands are needed for sugarcane, but whether there will be an option in the future to use prime agricultural lands to grow crops. Urbanizing the area will virtually eliminate this option.

We believe it is important to evaluate the adverse effect that the loss of prime agricultural land will have on the area, the county, and the state.

Sincerely,

Jack P. Kanalz
State Conservationist

MAY 24 1979

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 24, 1979

Mr. Jack P. Kanalz, State Conservationist
Soil Conservation Service
U.S. Department of Agriculture
P.O. Box 50004
Honolulu, Hawaii 96850

Dear Mr. Kanalz,

Subject: West Beach Resort Project
EIS Preparation Notice

We have received your letter of May 23, 1979 on the above-entitled EIS Preparation Notice. The position of the Soil Conservation Service (SCS) is noted and as indicated in the Environmental Assessment we will be evaluating the loss of agricultural lands as an impact of the proposed development.

The continued use of agricultural lands for purposes or crops other than the traditional sugar and pineapple have been studied and discussed in many previous areas of Hawaii. It still remains that no single landowner can economically cultivate large tracts of agricultural lands in competition with imported vegetable crops due to high costs for labor and land. Until this problem can be solved, lands will continue to be redesignated for other uses.

Thank you for your comments.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
R. N. Anderson
M. J. Chun/G.L. Dugan

HEADQUARTERS
FOURTEENTH NAVAL DISTRICT
[illegible]
PEARL HARBOR HAWAII 96860

REPLY REFER TO:
002:202:ry
Ser 1086

Environmental Communications, Inc.
1152 Bishop Building, Suite 508
P. O. Box 536
Honolulu, Hawaii 96809

Attention Mr. F. J. Rodriguez

Gentlemen:

Your letter of 20 April 1979 requested comments on the Environmental Impact Statement (EIS) preparation notice for the proposed West Beach Resort Project near NAS BARPT. Your initial document mentions the potential noise and accident potential impacts on the proposed development from aircraft in the vicinity. These two elements need to be given in-depth treatment in the EIS.

The Navy has expended considerable time and money at NAS BARPT in an effort to be a good neighbor. By altering flight paths, curtailing hours of operations and upgrading facilities, noise and accident potential impacts on surrounding lands have been minimized.

The residual impacts, however, will still affect the facilities proposed for West Beach. The accident potential zone criteria published in the January 1977 Federal Register is of special significance when high density development is proposed. High density development also magnifies the problem associated with noise. A recent review by NAS BARPT of the noise environment in the Ewa plains area, in light of current air operations at Honolulu International Airport and NAS BARPT, would indicate a need for on-site noise measurements by the developer at the West Beach site. Such measurements would assist in determining the most environmentally compatible development scheme and the requirements for sound attenuation of buildings to meet habitability standards.

The Navy believes that the West Beach development can be compatible with the accident potential environment and noise environs from Honolulu International Airport and NAS BARPT aircraft operations if proper land use planning is exercised and if sound attenuation is incorporated in the building designs.

Sincerely,

J. K. CARL
Lieutenant Commander, CEC, USN
Deputy District Civil Engineer
By direction of the Commandant

Copy to:
COMPACNAVFACENGCOM
CO NAS BARPT

MAY 23 1979

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 24, 1979

Lieutenant Commander J.W. Carl
Deputy District Civil Engineer
Headquarters, Fourteenth Naval District
P.O. Box 110
Pearl Harbor, Hawaii 96860

Dear Lieutenant Commander Carl,

Subject: West Beach Resort Project
EIS Preparation Notice
Ref. No. 002:202:ry Ser 1086

Thank you for your letter of May 23, 1979 relating to the above-referenced EIS Preparation Notice. We share your belief that the West Beach development can be compatible with the Barbers Point Naval Air Station operations if the proper noise mitigation measures and land use planning are implemented. Toward this end, we are providing copies of your letter to the noise and land planning consultants so that these concerns can be appropriately discussed and coordinated with your staff in these respective areas.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
J. Chapman
R. Darby

1152 BISHOP BUILDING, SUITE 508 • P.O. BOX 510 • HONOLULU HAWAII 96809 • TELEPHONE (808) 521-8351

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DEPARTMENT OF THE NAVY
NAVAL AIR STATION
BARBERS POINT, HAWAII 96862

00L:AA:fe
Ser

25 MAY 1979

Mr. F. J. Rodriguez, President
Environmental Communications Inc.
1152 Bishop Building, Suite 508
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Following comments provided as requested by your letter of April 30, 1979:

a. Paragraph 3.36 - Noise Evaluation. The Navy has an ongoing program to monitor aircraft noise generated by NAS Barbers Point aircraft. However, in addition to our aircraft, Honolulu International Airport (HIA) aircraft also overfly the West Beach Resort area and NAS Barbers Point. Many people in this area attribute noise caused by HIA aircraft to Navy aircraft. Request that you monitor noise at the site and determine the occurrence of HIA versus NASBARPT aircraft contributing to the noise levels.

b. Paragraphs 5.04 and 6.01 - Accident Potential Zone and Alternatives. An alternative design plan within the project area should be developed whereby the hotels and other high density facilities are relocated outside the Accident Potential Zone. Golf courses, parks, marina support facilities and open areas are generally compatible land uses within Accident Potential and high noise zones.

Sincerely,

FRED W. DEW
LT, CEC, USN
Staff Civil Engineer
By direction of the
Commanding Officer

Copy to:
COMFOURTEEN
COMPACNAVFACENGCOM

MAY 25 1979

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 25, 1979

Lieutenant Fred W. Dew
Staff Civil Engineer
Department of the Navy
Naval Air Station
Barbers Point, Hawaii 96862

Dear Lieutenant Dew,

Subject: West Beach Resort Project
EIS Preparation Notice
Ref. No. 00L:AA:ie, Ser 814

We are in receipt of your comments dated May 23, 1979, with respect to the above-referenced EIS Preparation Notice. As your concerns have been also voiced by Headquarters, Fourteenth Naval District (reference letter: 002:202:ry, Ser 1086), we are providing your office with a copy of that letter and our response to same. Perhaps in the future, BPNAS and Fourteenth Naval District can coordinate their review of this project so that all correspondence received will by under one agency (Department of the Navy); duplication of comments/responses therefore being avoided.

Thank you for your comments on this matter.

Yours very truly,

F. J. Rodriguez

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Campbell Estate
J. Chapman
R. Darby

1152 BISHOP BUILDING, 1001 SIR • P.O. BOX 536 • HONOLULU, HAWAII 96809 • TELEPHONE (808) 521-8301

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UNIVERSITY OF HAWAII

Water Resources Research Center

May 24, 1979

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: Review of EIS Preparation Notice - West Beach Project

Thanks for sending the subject notice for our review. We would like to suggest the following points for your consideration:

1. P. 3, §2.01 refers to Exhibit 2, which does not show several items, e.g., Farrington Highway is not marked.

2. Exhibits 2, 4, & 5 should include a graphical scale similar to the one shown in Exhibit 1.

3. Exhibits 1, 2, etc. should be marked as Figure 1, 2, etc.

4. P. 3, §2.03 Travel distance from Honolulu International Airport should also be given in miles; the rest should also be given in miles.

5. Irrigation water quality samples in the project area should be taken now to clarify the question on high chloride content in irrigation water. If the chloride content meets the domestic water standard, then the EIS can claim no severe impact on domestic water supply. On the other hand, EIS should address the impact on water supply.

6. The development of storm drainage systems and lagoons should follow the concept described in the report "Innovative approaches to storm water designs to protect our beach and coastal waters from sedimentation" - DOWALD, DOLANR, State of Hawaii.

7. According to Civil Defense Tsunami Inundation Map 9, the project area would be inundated in the west of Malakole Road and the Pump 10 Road.

We will keep your notice for future references.

Sincerely,

Yu-Si Fok, Professor
WRRC Faculty EIS Review Coordinator

YSF:gk
cc: Dr. M. Chun
Mr. H. Gee
Dr. N. Saxena

2540 Dole Street · Honolulu, Hawaii 96822

MAY 30 1979

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

May 30, 1979

Professor Yu-Si Fok
Water Resources Research Center
University of Hawaii at Manoa
2540 Dole Street
Honolulu, Hawaii 96822

Dear Professor Fok,

Subject: West Beach Resort Project
EIS Preparation Notice

We have this date, received your letter of May 24, 1979 commenting on the aforementioned EIS Preparation Notice. We have reveiwed your concerns and are hereby providing the following responses:

Response to items 1 through 4: We find that these changes are subjective (i.e., graphic scale, figures instead of exhibits) and that our references are not incorrect.

Response to item 5: As stated on page 25, paragraph 4.24, the impact on potable water and chloride contents will be addressed.

Response to item 6: We will obtain copies of the cited documents and provide them to the appropriate engineering and technical consultants.

Response to item 7: More detailed information and discussion on tsunami inundation will be provided in the EIS document.

Thank you for your comments.

Yours very truly,

F. J. Rodriguez

F. J. Rodriguez

EJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Community Planning, Inc.
Alfred A. Yee & Associates, Inc.
K. Bathen
M. Chun/G. Dugan

"REPRESENTING ALL THE PEOPLE OF WAIPAHU"

WAIPAHU

Waipahu Community Association

HONOLULU SAVINGS AND LOAN BUILDING
94-227 WAIPAHU DEPOT STREET
WAIPAHU, HAWAII 96797

TELEPHONE 677-4986

June 8, 1979

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

SUBJECT: ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED WEST BEACH RESORT PROJECT

The Waipahu Community Association has the following questions and comments regarding the above named subject:

Page 3, 2.03 - Is there some plan for providing public transportation for employees and residents in this project?

Page 5, 2.08 - We feel that 10 acres of park area is inadequate for the number of people expected to reside there.

Page 8, 3.11 - An Oahu Sugar Co. field supervisor has recently stated, "With the advent of drip irrigation, marginally productive cane land has virtually disappeared." Because of agricultural advancements, fields of low yield today may well be "prime" in the future.

Page 17, 4.02 - Full-time employment for 7200 workers seems exceedingly high. How many of these jobs would be a direct result from resort employment?

Page 18, 4.04 - Will installation of water system and sewer lines be borne by the city for the residential area? (b, d)

- Does this mean that a fire station and police substation would be placed in this area? (e) Services in District III are already inadequate. Will the city be able to afford the necessary increases without further jeopardizing present residents?

Page 22, 4.17 - Would the developer really construct an interchange system?

JUN 12 1979

COMPRISING OF
Crestview/Seaview Association, D. O. E. - Leeward District, Friends of Waipahu Cultural Garden Park, Harbor View Neighborhood Association, Leeward Community College, Oahu Sugar Company, Robinson Heights Association, Waikani Neighborhood Association, Waikani Rise Association, Waipahu Advocates for the Elderly, Waipahu Businessmen's Association, Waipahu Highlands Association, Waipahu Jackrabbits, Waipahu Recreation Advisory Council, Waipahu Recreation Center

Page 3, 2.03 - We are particularly concerned with this subject and would like to see a detailed discussion in the EIS regarding land use alterations and possible conflicts.

Page 50, D - The Waipahu Community Association would like to be listed in the consultant list under private agencies.

Page 43 - What source is Table R-5 based on?

Exhibit 3 - Throughout the EA, proposals are frequently "subject to change." To what extent do you anticipate changes to the proposed development?

Thank you for the opportunity to comment. We appreciate the extra time given to us to respond.

Yours very truly,

C. O. "Andy" Anderson
President

ifc

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ENVIRONMENTAL
COMMUNICATIONS
INC.

June 13, 1979

Mr. C.O. Anderson, President
Waipahu Community Association
Honolulu Savings and Loan Building
94-229 Waipahu Depot Road
Waipahu, Hawaii 96797

Dear Mr. Anderson,

Subject: West Beach Resort Project
EIS Preparation Notice

We have received your letter dated June 8, 1979, with respect to the above-mentioned project. After reviewing your organization's comments and concerns, we would like to provide the following responses:

Page 3, 2.03 Presently, there are no plans for providing public transportation for future employees and residents in this development. It is assumed that as the project develops and achieves a mass transit ridership need, the City's "TheBus" system will service the project area. Additionally, there is under consideration by the project planner, a private bus transportation system which would provide shuttle service within the project (page 23, 4.18).

Page 5, 2.08 There will be several recreational areas within the West Beach development besides the proposed 10-acre community park. Reference should be made to page 20, 4.11, of the Environmental Assessment.

Page 8, 3.11 Economic study of the land indicates that its agricultural viability is marginal. The State Land Use Commission has designated this land "Urban" and subsequently, the landowner and developer have focused their planning efforts toward this end.

Page 17, 4.02 This information is presently being prepared and will be included in the EIS document.

Page 18, 4.04 The developer will pay a pro-rata cost for the water system and sewer lines; this holds true for the entire development and not only for the resort area. It is anticipated that the cost of a fire station will be a public cost; it does not appear to us that the provision of an additional fire station would jeopardize present residents.

[illegible] BUILDING, SUITE 508 • P. O. BOX 536 • HONOLULU, HAWAII 96809 • TELEPHONE (808) 521-8891

Page 22, 4.17 As stated, "Any increases in highway volume can be accommodated with an accelerated program by the developer to construct an interchange system if required to serve the two access points on Farrington Highway when the project is completed."

Page 26, 5.03 This is so stated in the Environmental Assessment; refer to the last four sentences in section 5.03, page 7.

Page 30, D. The Environmental Impact Statement document will include the Waipahu Community Association as an organization which will be consulted in the preparation of the EIS. Additionally, the Association will receive a copy of the EIS document for further review and comments.

Page 48, The source is identified on page 47 of the Environmental Assessment.

Exhibit 3. The Environmental Assessment and EIS process are initiated early in the planning stages of a proposed project. The intent of this early procedure is to identify environmental problems and if possible, mitigate adverse impacts by altering the development plans or using other alternatives. The "subject to change" indication is provided to make the reviewer aware that such plans are not firm, and flexibility in terms of uses and design are still being considered. From that standpoint, the reviewer of the EIS document can determine if the development plans have evolved to reflect significant adverse environmental concerns.

We appreciate your comments and participation in the review process. Thank you for your interest.

Yours very truly,

F. J. Rodriguez

FJR/dhk

cc: West Beach Resorts
Department of Land Utilization
Environmental Quality Commission
Corps of Engineers
Robert N. Anderson
John Chapman

United States Department of the Interior
FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P. O. BOX 50167
HONOLULU, HAWAII 96850

IN REPLY REFER TO
#5302

June 19, 1979

F.J. Rodriguez
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

We appreciate the opportunity to comment on your Environmental Assessment for the proposed West Beach Resort Project.

Section B, 3.20 - 3.22 are of particular interest to us as it addresses two plants proposed for listing as endangered which may occur on the project site. Completion of planning and construction for a project of this scope will be of such duration that one or both plant species may be listed during the interim. If any Federal presence (including the issuing of permits and funding as well as direct action) are involved it would be incumbent on the Federal agency to determine whether formal Section 7 Consultation in compliance with the Endangered Species Act of 1973 and Amendments of 1978 will be required, and to initiate that consultation.

The Fish & Wildlife Service is currently conducting a botanical survey of the Ewa Plain, including the project site. Information being generated by this survey may be of use to you in preparing the Environmental Impact Statement. We trust, as noted in Section B, 3.22, that all necessary coordination and consultation will be instituted in compliance with the Endangered Species Act of 1973 and Amendments of 1978.

Sincerely yours,

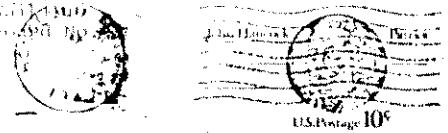
Eugene Kridler
Coordinator
Endangered Species Office

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

JUN 20 1979

Scott D. Hamilton, Jr.
Chairperson, Waikiki
Neighborhood Board No. 9



Mr. F. J. Rodriquez
President
Environmental Communications Inc.
P.O. Box 536
Honolulu, HI, 96809

Re: West Beach
EIS Notice.

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MAY 4 1979

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Waikiki Neighborhood Board No. 9 May 1, 1979
c/o Waikiki-Kapahulu Library
400 Kapahulu Ave., Hon. HI 96815

Attn: Re: West Beach EIS

This Board has to comment at this time on the Subject Preparation Notice but definitely wishes to receive the EIS when available. Our Board had Messrs. Borita and Boughtailing briefing us on West Beach at one meeting. New officers to be selected June 5th, and I can get to you, if you call him: 471-3942, or to the successor Chairman.

Aloha,

Chairperson, 1977-79

GEORGE R. ARIYOSHI
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 119, HONOLULU, HAWAII 96810

HIDEO MURAKAMI
COMPTROLLER

MIKE N. TOKUNAGA
DEPUTY COMPTROLLER

LETTER NO. (P)1449.9

MAY 4 1979

Mr. F. J. Rodriquez
President
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriquez:

Subject: Environmental Assessment/Determination
Proposed West Beach Resort Project
Honolulu, Oahu

Thank you for this opportunity to review and comment on the subject project.

We have determined that the project will not have any adverse environmental impact on any existing or planned facilities serviced by our department.

However we would appreciate if we be provided with a copy of the approved EIS.

Very truly yours,

TEUANE TOMINAGA
Acting State Public Works Engineer

MAY 8 1979

GEORGE R. ARIYOSHI
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1428 SOUTH KING STREET
HONOLULU, HAWAII 96814

May 8, 1979

Mr. F. J. Rodriguez, President
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

The Department of Agriculture has reviewed the "Environmental Assessment for the Proposed West Beach Resort Project" and has no specific comments to offer at this time. However, we are most concerned with the issues of conflicts and questionable compatibility of adjacent uses, and how it relates to agricultural use in the vicinity of the subject property. It is the position of this Department that development of the subject property should not jeopardize the present and future viability of such agricultural uses.

We shall appreciate the opportunity to review the EIS as it is developed.

Many thanks,

JOHN FARIAS, JR.
Chairman, Board of Agriculture

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POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

May 11, 1979

Mr. F. J. Rodriguez, President
Environmental Communications Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: Your letter of April 20, 1979 relating to West Beach Resort Project

At this time, the Honolulu Police Department has no significant comments to the above-captioned project.

If there are changes, please contact the Research and Development Division at 955-8121.

Sincerely,

FRANCIS KEALA
Chief of Police

By
EARL THOMPSON
Assistant Chief of Police

DC:es

MAY 17 1979

HAWAIIAN TELEPHONE COMPANY

P.O. BOX [illegible] • HONOLULU, HAWAII 96811 • TELEPHONE [illegible] 536 [illegible] • CABLE: TELEHAWAII

HERMAN S. L. HO
NETWORK PLANNING & ENGINEERING [illegible]

May 17, 1979

Mr. F. J. Rodriguez, President
Environmental Communications Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

West Beach Resort Project

We have reviewed the Environmental Impact Statement Preparation Notice for the above-mentioned project and have no comments to offer.

Thank you for the opportunity to review this document.

Sincerely,

MAY 18 1979

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

PROJECT OFFICES

WAIMEA OFFICE
P. O. BOX 175
KAMUELA, HAWAII 96743

KEAUKAHA OFFICE
P. O. BOX 831
HILO, HAWAII 96720

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96805

PROJECT OFFICES

MAUI OFFICE
P. O. BOX 27
KAHULUI, MAUI 96732

MOLOKAI OFFICE
P. O. BOX 198
HOOLEHUA, MOLOKAI 96729

KAUAI OFFICE
P. O. BOX 332
LIHUE, KAUAI 96766

May 11, 1979

Environmental Communica-
tions, Inc.
1152 Bishop Street, Suite 508
Honolulu, Hawaii 96809

Gentlemen:

SUBJECT: West Beach Resort Project
Environmental Assessment

The Department of Hawaiian Home Lands has reviewed the Environmental Assessment prepared by your firm for the subject project and has no comments to make at this time.

We thank you for the opportunity to comment on this project.

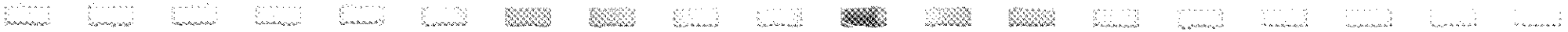
Sincerely yours,

Georgiana K. Padeken

Georgiana K. Padeken
Chairman

DGW:jm

MAY 18 1979



12.2 DEIS Mailing List. The following is a list of agencies which will be receiving a copy or copies of the DEIS for review.

Federal Agencies	No. of Copies Sent
OCE, HQDA (DAEN-CWO-N)	4
POD, U.S. Army Corps of Engineers	6
Environmental Protection Agency, Region IX	5
Department of Commerce:	
Washington, Deputy Assistant Secretary for Environmental Affairs	2
Region, Secretarial Representative, Region IX	6
National Marine Fisheries:	
Regional Director, SW Region, National Marine Fisheries Service, NOAA	1
Director (Hawaii), National Marine Fisheries Service	1
Advisory Council on Historic Preservation:	
Executive Divrector, Advisory Council on Historic Preservation	1
Western Office	1
Department of the Interior:	
Assistant Secretary, Program Policy, Office of Environmental Project Review	20
Area Administrator, U.S. Fish and Wildlife Service	2
District Chief, Water Resources Division, U.S. Geological Survey	1
Director, Hawaii Office, National Parks Service	1
Department of Health, Education, and Welfare, Regional Office	1
Department of Housing and Urban Development:	
Regional Admistrator, Region IX	1
Director, Housing and Urban Development (Hawaii, American Samoa, Guam)	1

Federal Agencies	No. of Copies Sent
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Office of the Secretary, Coordinator, Environmental Quality Activities	1
State Executive Director, Agricultural Stabilization and Conservation Service	1
State Conservationist, Soil Conservation Service	1
Department of Transportation:	
Federal Highway Administration, San Francisco	2
Administrator (Hawaii), Federal Highway Administration	1
Commander, 14th Coast Guard District	1
U.S. Navy:	
Commandant, 14th Naval District	1
Commander, Naval Air Station, Barbers Point	2

State Agencies	No. of Copies Sent
Environmental Quality Commission	3
Office of Environmental Quality Control	3
Department of Accounting and General Services	1
Department of Agriculture	1
Department of Defense	1
Deparment of Education	1
Department of Hawaiian Home Lands	1
Department of Health	1
Department of Land and Natural Resources	3
Department of Land and Natural Resources, State Historic Preservation Officer	1
Department of Planning and Economic Development	1
Department of Social Services and Housing	1
Department of Transportation	3

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Department of Human Resources	1
Department of Land Utilization	5
Department of Parks and Recreation	1
Department of Transportation Services	1
Mass Transit Division, Department of Transportation Services	1
Board of Water Supply	1

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Water Resources Research Center	1

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Hilo Regional Library	1
Wailuku Regional Library	1
Lihue Regional Library	1
Ewa Beach Community School Branch Library	1
Waianae Branch Library	1
Waipahu Branch Library	1
University of Hawaii, Hamilton Library, Hawaiian Collection	1
State Archives	1
LRB Library	1
Municipal Reference Center	1
Leeward Community College Library	1
Windward Community College Library	1

REVISED

Community and Other Interested Organizations	No. of Copies Sent
Paul Friesema, Associate Professor Center for Urban Affairs, Northwestern University	1
Sierra Club, Hawaii Chapter	1
Mr. Kelley Dobbs, Greenpeace Foundation	1
Life of the Land	1
Ewa Neighborhood Board	1
Waianae Neighborhood Board	1
American Lung Association, Hawaii Chapter	1
Conservation Council for Hawaii	1
Audubon Society	1
Shoreline Protection Alliance	1
Bishop Museum	1
Bert Kimura, Leeward Community College	1
Ewa Estates Community Association	1
Puuloa Hawaiian Civic Club	1
Ewa Beach Community Association	1
Ewa Beach Merchant's Association	1
Makakilo Community Association	1
Campbell Estate	1
Ken Takahashi	1
Waipahu Businessmen Association	1
Waikiki Neighborhood Board No. 9	1
Hawaiian Railway Society	1
Waipahu Community Association	1
Hawaiian Telephone Company	1
Hawaiian Electric Company, Inc.	1
Joint Institute for Marine & Atmospheric Research University of Hawaii at Manoa	1

13. REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE DRAFT EIS REVIEW PERIOD

The Draft EIS review period officially began on July 8, 1980. Two (2) weeks prior to that date, most of the Draft EISs had been sent to the reviewing agencies. The State requires that the Draft EIS be reviewed in thirty (30) days; their deadline for comments was August 7, 1980. The Federal review calls for 45 days; their deadline for comments was August 18, 1980 (the EISs for Federal review were sent out before June 20, 1980).

A total of forty (40) letters were received on the Draft EIS prior to August 22, 1980. Those letters that were received after August 22, have not been included because time was not available for their letters to be answered and included in the text of the Final EIS. These late responses will be answered as soon as possible.

Of the forty letters, seven (7) were letters having no comments on the Draft EIS; the remaining thirty three (33) letters were reviewed and responsed too. Pages 192 to 195 are reproduced (½ size) copies of the letters requiring no responses. Pages 196 and 197 (Table 19) identifies the agencies commenting, the date of the letter, the date the letter was received at Environmental Communications, Inc., and the pages on which the letter and return response are provided on in the Final EIS. Pages 197 to 287 are reduced size copies of the comments received and the responses to those comments (immediately after the comments). Finally, pages 288 to 293 are attachments which were used to several letters.

Major Concerns of the Comments

Several comments were repeatedly made by various governmental agencies. Because of their importance, these major comments and dispositions to those comments, are provided below.

1. Lack of detailed information; especially in relationship to the marina, lagoons, buildings, and construction items.

   Reply: The EIS is a generic document. Federal EIS regulations do allow for supplemental documents which will detail the project and allow for further review by cooperating and interested agencies. (Federal regulation 40 CFR Parts 1500-1508, November 29, 1978, subsection 1502.9.) This process is also called tiering; that is, a project is first discussed broadly, then specific issues are addressed as the project is developed.

2. Availability of potable water, sewage treatment, adequate highway system.

   Reply: These subjects are elaborated upon in the text of the Final EIS.

3. Land use incompatibility, land use plans (State and County), coastal zone management, ciguatera toxin, tsunamis, and traffic.

   Reply: These subjects are included in the text with the addition of ten or more pages.

ASCS UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE

GEORGE R. ARIYOSHI
GOVERNOR

DONALD A. BREMNER
Chairman

This material is returned to you in response to your request.

TELEPHONE NO.
(808) 548-6915

HONOLULU, HAWAII 96813

June 16, 1980

SERVATION

JUN 18 1980

Dear Reviewer:

Attached for your review is an Environmental Impact Statement (EIS) that was prepared pursuant to both the National Environmental Policy Act of 1969 (Public Law 91-190) and Chapter 343, Hawaii Revised Statutes:

Title: West Beach Resort
Location: Honouliuli, Ewa District, Oahu
Classification: Agency Action

Your comments or acknowledgement of no comments on the EIS are welcomed. Please submit your reply to:

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Your comments must be received or postmarked by: August 7, 1980. If you have no further use for this EIS, please return it to the Commission.

Thank you for your participation in the EIS process.

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United States Department of the Interior

NATIONAL PARK SERVICE

HAWAII STATE OFFICE
300 ALA MOANA BLVD., SUITE 6305
BOX 50165
HONOLULU, HAWAII 96850

IN REPLY REFER TO:

L7621

June 19, 1980

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

We have reviewed the Draft Environmental Impact Statement for the Proposed West Beach Resort, located at Honouliuli, Ewa District, Oahu, and have no comments. The EIS is being returned for your use.

Sincerely yours,

Thomas A. Ogi

Thomas S. Ogi
Acting State Director

Enclosure

COMMENTS WHICH REQUIRE NO RESPONSE

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

COMMANDER (dpl)
Fourteenth Coast Guard District
Prince Kalanianaole Federal Bldg.
300 Ala Moana Blvd.
Honolulu, Hawaii 96850

16450
23 June 1980

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Sir:

The Coast Guard has reviewed the West Beach Resort proposal and has no objection or constructive comments to offer at the present time.

Sincerely,

J. F. OTRANTO
Commander, U. S. Coast Guard
District Planning Officer
Fourteenth Coast Guard District
By Direction of the District Commander

GEORGE R. ARIYOSHI
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 119, HONOLULU, HAWAII 96810

MIDEO MURAKAMI
COMPTROLLER

MIKE M. TOKUNAGA
DEPUTY COMPTROLLER

LETTER NO. (P)1706.0

JUN 24 1980

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement
for the West Beach Resort

Thank you for this opportunity to review and comment on the subject project.

The project will not have any adverse environmental effect on any existing or planned facilities serviced by our department.

Very truly yours,

RIKIO NISHIOKA
State Public Works Engineer

MI:jm

COMMENTS WHICH REQUIRE NO RESPONSE

BUILDING DEPARTMENT

CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

HOWARD M. SHIMA
DIRECTOR AND BUILDING SUPERINTENDENT

PB 80-443

June 26, 1980

State of Hawaii
Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: West Beach Resort Project
Environmental Impact Statement

We have reviewed the E.I.S. for the above project and have no comments to offer.

Thank you for the opportunity to comment on this project.

Very truly yours,

HOWARD M. SHIMA
Director and Building Superintendent

AF:vk
cc: J. Harada

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GEORGE R. ARIYOSHI
GOVERNOR

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

VALENTINE A. SIEFERMANN
MAJOR GENERAL
ADJUTANT GENERAL

THOMAS S. ITO
BRIGADIER GENERAL
DEPUTY ADJUTANT GENERAL

HIENG

30 JUN 1980

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

West Beach Resort
Honouliuli, Ewa District, Oahu

Thank you for sending us a copy of the "West Beach Resort" Environmental Impact Statement. We have no comments to offer at this time. The enclosed document is returned for your use.

Sincerely,

JERRY M. MATSUDA
Captain, HANG
Contr & Engr Officer

Enclosure

COMMENTS WHICH REQUIRE NO RESPONSE

United States Department of the Interior

NATIONAL PARK SERVICE
WESTERN REGION
450 GOLDEN GATE AVENUE, BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

IN REPLY REFER TO:

L7621 Hawaii
(WR) REQ

July 3, 1980

Director
Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Sir:

We have reviewed the draft environmental impact statement for the proposed West Beach Report, Honouliuli, Ewa District, Island of Oahu, Hawaii (ER 80/653). The proposed project will not affect any existing or potential units in the National Park System. Since it is outside our area of jurisdiction and expertise, we offer no further comment.

Sincerely yours,

John S Adams

for Bruce M. Kilgore
Associate Regional Director, Resource Management and Planning, Western Region

195

Year of the Visitor

JUL 15 1980

COMMENTS WHICH REQUIRE NO RESPONSE

PARSONS, hawaii
550 PAIEA STREET • HONOLULU, HAWAII 96820
MAILING ADDRESS: P. O. Box 29909 Honolulu, Hawaii 96820

LETTER OF TRANSMITTAL

DATE: August 22, 1980 | JOB NO.:
ATTENTION:
RE: West Beach Resort

TO: Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

GENTLEMEN:

WE ARE SENDING YOU [X] Attached [ ] Under separate cover via _____ the following item
[ ] Shop drawings [ ] Prints [ ] Plans [ ] Samples [ ] Specifications
[ ] Copy of letter [ ] Change order [ ] _____

COPIES	DATE	NO.	DESCRIPTION
1	June 1980		Draft EIS for Proposed West Beach Resort

THESE ARE TRANSMITTED as checked below:
[ ] For approval [ ] Approved as submitted [ ] Resubmit ____ copies for approval
[ ] For your use [ ] Approved as noted [ ] Submit ____ copies for distribution
[ ] As requested [ ] Returned for corrections [ ] Return ____ corrected prints
[ ] For review and comment [ ] _____
[ ] FOR BIDS DUE _____ 19 _____ [ ] PRINTS RETURNED AFTER LOAN TO US

REMARKS: Per your request, the attached is returned for your use. We have no comments on the EIS to offer at this time. Thank you for the opportunity to respond.

COPY TO: CF, RF

SIGNED: [signature]

If enclosures are not as noted, kindly notify us

TABLE 19

LIST OF AGENCIES COMMENTING ON THE DRAFT EIS FOR WEST BEACH

	Agency	Date of Comment	Date Received	Page No. of Comment/ Response in FEIS
1.*	Department of Accounting & General Services, Division of Public Works	06/24/80	06/30/80	193
2.	Oahu Civil Defense Agency, City & County of Honolulu	06/20/80	06/30/80	193
3.*	U.S. Department of the Interior, National Park Service	06/19/80	06/30/80	192
4.	U.S. Department of Commerce, National Oceanic & Atmospheric Administration	06/26/80	06/30/80	199-201
5.	Department of Education, State of Hawaii	06/24/80	06/30/80	201-202
6.*	State Department of Defense, Office of Adjutant General	06/30/80	07/02/80	194
7.	Hawaiian Electric Company, Inc.	06/30/80	07/02/80	202-205
8.*	Building Department, City & County of Honolulu	06/26/80	07/02/80	194
9.	Police Department, City & County of Honolulu	06/25/80	07/02/80	205-206
10.*	U.S. Coast Guard, Department of Transportation	06/23/80	07/09/80	193
11.*	U.S. Department of the Interior, National Park Service	07/03/80	07/15/80	195
12.	U.S. Department of Agriculture, Soil Conservation Service	07/15/80	07/18/80	206-207
13.	Department of Land & Natural Resources, State of Hawaii	07/16/80	07/24/80	208-210
14.	Board of Water Supply, City & County of Honolulu	07/15/80	07/24/80	210-212
15.	Department of Parks & Recreation, City & County of Honolulu	07/14/80	07/24/80	212-213
16.	Department of Transportation, Federal Aviation Administration	07/18/80	07/24/80	214-215

* = Indicates agency sent letter indicating no comments on Draft EIS.

TABLE 19

LIST OF AGENCIES COMMENTING ON THE DRAFT EIS FOR WEST BEACH

	Agency	Date of Comment	Date Received	Page No. of Comment/ Response in FEIS
17.	University of Hawaii, Water Resources Research	07/17/80	07/28/80	215-217
18.	Department of Transportation Services, City & County of Honolulu	07/25/80	08/04/80	217-219
19.	Department of General Planning, City & County of Honolulu	07/30/80	08/04/80	220-223
20.	Hawaiian Telephone	07/31/80	08/06/80	224
21.	Office of Environmental Quality Control, State of Hawaii	08/01/80	08/06/80	225-232
22.	University of Hawaii, Environmental Center	08/07/80	08/11/80	233-244
23.	Department of Planning & Economic Development, State of Hawaii	08/06/80	08/11/80	245-248
24.	U.S. Department of Transportation, FHWA, Region Nine	08/05/80	08/11/80	248-251
25.	Department of Health, State of Hawaii	08/05/80	08/11/80	251-252
26.	Department of Land Utilization, City & County of Honolulu	08/08/80	08/11/80	254-259
27.	American Lung Association	08/07/80	08/11/80	259-262
28.	Department of Housing & Community Development, City & County of Honolulu	08/07/80	08/11/80	263
29.	Department of Transportation, State of Hawaii	08/04/80	08/11/80	264-265
30.	Naval Base Pearl Harbor, Headquarters	08/07/80	08/11/80	266-267
31.	U.S. Department of Commerce, National Marine Fisheries Service, Southwest Region	08/07/80	08/13/80	267-269
32.	U.S. Department of Commerce, Assistant Secretary for Policy	08/05/80	08/13/80	270
33.	U.S. Department of Commerce, Environmental Data & Information Service	07/29/80	08/13/80	270-271
34.	U.S. Department of Commerce, National Ocean Survey	07/28/80	08/13/80	272
35.	Life of the Land	08/07/80	08/15/80	273-274
36.	Department of Health & Human Services, Public Health Service	08/11/80	08/15/80	276-277
37.	Advisory Council on Historic Preservation	07/29/80	08/19/80	277-278
38.	U.S. Environmental Protection Agency, Region IX	08/15/80	08/19/80	279-284
39.	Bishop Museum	08/08/80	08/19/80	284-287
40.*	Parsons, Hawaii	08/22/80	08/27/80	195

* = Indicates agency sent letter indicating no comments on Draft EIS.

OAHU CIVIL DEFENSE AGENCY

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE: 523-4121

FRANK F. FASI
MAYOR

JOHN BOHN
ADMINISTRATOR

June 20, 1980

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, HI 96813

Dear Sir:

In reference to your letter of June 16, 1980 requesting comments on the proposed West Beach Resort development, the following is submitted: -

- There are no apparent adverse effects from the standpoint of Civil Defense planning caused by the development of the proposed West Beach Resort.

- The proposed West Beach Resort site at Honouliuli, Ewa District, Oahu, is within the 100 year flood plain shown on the preliminary copy of National Flood Insurance Program Map Panel No. 150001 0130 A. It is recommended that the Department of Land Utilization, as lead agency of the Flood Insurance Program, be asked for comments in this respect.

Sincerely,

JOHN BOHN
Administrator

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ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

September 2, 1980

Mr. John Bohn, Administrator
Oahu Civil Defense Agency
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Bohn:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT PROJECT

Thank you for your June 20, 1980, comments on the Draft EIS for the proposed West Beach Resorts project.

We will incorporate your statement regarding Civil Defense planning into the Final EIS: "There are no apparent adverse effects from the standpoint of Civil Defense planning caused by the development of the proposed West Beach Resort."

Regarding your second comment on the flood plain; we will acknowledge in the Final EIS that portions of the West Beach Resorts site are within the 100 year flood plain. We will conform with the mandatory regulations of the flood insurance program as it pertains to the project site and buildings.

We appreciate your concerns on these matters.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLU
DLNR
OEQC
EQC
COE
WBR

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
ENVIRONMENTAL RESEARCH LABORATORIES
Joint Institute for Marine and
Atmospheric Research (JIMAR)
U. of Hawaii / 2525 Correa Road
Honolulu, Hawaii 96822

June 26, 1980

Environmental Quality Commission
550 Halekauwila St. Room 301
Honolulu, Hawaii 96813

Re: Draft EIS, West Beach Resorts, Oahu

Dear Sir:

My remarks are confined to the treatment of "tsunamis" in the DEIS. These are mentioned, as far as I could tell, only on p. 51 and on pp. 61-62. Paragraph 9.2.25 does not make sense as written. There is no basis given for the statements in 9.2.26 or in 9.2.73. The importance of the run-up to the 19-foot level or to a distance of 3700' inland is not stated in the DEIS. Similarly on p. 62, what is the effect of the current velocities, which "could increase by an order of magnitude" (over what?)?

There is no statement in the DEIS about the way this development would accommodate the tsunami danger. In fact, the danger is not sufficiently quantified, nor is the land use in the Coastal High Hazard Zone specific enough, so that one could comment intelligently on the matter.

Sincerely,

Harold G. Loomis
Tsunami Specialist
JIMAR

HGL:ky
cc: Dr. D. Cox, Environmental Center, UH

JUN 30 [illegible]

199

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

September 2, 1980

Mr. Harold G. Loomis, Tsunami Specialist
U.S. Department of Commerce
National Oceanic & Atmospheric Administration
Environmental Research Laboratories
University of Hawaii
2525 Correa Road
Honolulu, Hawaii 96822

Dear Mr. Harold G. Loomis:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT PROJECT

We have received your comments of June 26, 1980, regarding the Draft EIS for the proposed West Beach Resorts project.

In response to your comments on tsunami, we have asked our oceanographic consultant, Dr. Karl Bathen, to provide the appropriate response. Dr. Bathen states that: "The subject of tsunami run-up is substantially dependent upon the final project developed topography -- which remains unspecified at the original writing and at this date to make more detailed comments impossible. This should be about the limit of the E.I.S. statement at this time."

Dr. Bathen has made revisions to various portions of subsections 9.2, which clarifies the information provided on tsunami hazards. These corrections as they will appear in the Final EIS are enclosed. Corrected page 51 - 9.2.23, 9.2.25, 9.2.26 and pages 61 & 62 - 9.2.73 are enclosed.

Regards to your second comment on tsunami danger to the development; we have asked the retained engineering company, Community Planning, Inc., to review this matter. Their response is that at this time because no specific site plans have been developed, they cannot identify the extent of tsunami danger to the development's buildings. Community Planning also indicates that it is probable that the height of the building's living areas will be elevated so that it lies above the level of tsunami flooding.

We appreciate your concerns on this matter.

Very truly yours,

F. J. Rodriguez

FJR/lka
Enclosures
cc: DLNR
DLU
OEQC
EQC
COE
WBR

9.2.23 Included in potential extreme conditions is the case of tsunami occurring at the site coastline. Historical data and analyses of these data by past investigators have provided a range of tsunami wave heights, run-up areas affected and dates of past events for the Barbers Point to Maili Point area has been ten feet. The project site lies between these two points.

9.2.24 Recorded events date from 1819 to the present. Particularly severe tsunamis occurred in 1837, 1877, 1923, 1946, 1952, 1957, 1960, and 1964. Tsunami wave heights along the site coastline are recorded for 1946, 1952, 1957 and 1960. They range from 20 feet in 1946 off Nanakuli, four miles north of the project, to three feet in 1952 at Kahe Point, one mile north of the project. The mean tsunami height in the area has been eleven feet.

9.2.25 Past tsunami investigators have employed historical records (Hilo case) and probability methods to estimate the return of a tsunami 1.5 times as large as any historical tsunami. These estimates give the probability such a tsunami may occur within a defined period of time. A 20-foot tsunami, for example, might be exceeded by a 30-foot tsunami within a period of 164 years. In the case of a repeat 20-foot tsunami the probabilities were estimated as 0.05 of having another tsunami in 1.6 years, 0.5 in 21.5 years, and 0.95 within 93 years for the Hilo case.

9.2.26 In the case of the project site, tsunami run-up on land will be a function of tidal elevation and coastal set-up existing at the time of the tsunami, plus final site land topography, slope and roughness. Using past study results of theoretical maximum run-up for coastal areas it was estimated that a 10-foot tsunami occurring at a high tide of +3.0 feet above mllw, in the absence of any coastal set-up, would produce a run-up to the 19-foot elevation. This estimate assumes a terrain roughness approximately equivalent to the existing site conditions. Such a tsunami run-up would flood inland as little as 150 feet at the north border of the site and as much as 0.5 miles in the north and central site coastal areas, and 0.7 miles inland at the site south border.

9.2.27 The final lagoon landscaping and the inland development character and grading will determine the site tsunami run-up potential. The facilities adjacent to both the lagoons and the potential marina/deep draft harbor bordering the southern edge of the project, will have to be properly elevated or protected from the possibility of damaging run-up during a tsunami. The lagoons, being at and connected to sea level, with a minimal berm for protection, will likely be flooded by tsunami of even modest magnitude. This would negatively impact the lagoons by delivering both a degraded quality of water and coastal sediments to the lagoons during flooding.

9.2.28 Alternatives for Controlling Lagoon Water Quality. It was determined during the lagoon planning that properly sized one-way ducts, connecting the lagoon with the coast, would not significantly inhibit the coastal tidal prism from entering the lagoon. Flushing rates between 30% to 90% of the lagoon volume per day would result, averaging 1/2 the lagoon volume per day during the year. The concepting plan for a wave trap indicated that up to 10 times either lagoon volume can be trapped daily and delivered to the lagoons for even modest 2-foot high coastal waves. Proper design of a run-up ramp, wave trap entrance and one to two-acre holding pond would be imperative.

will provide for adequate maneuverability, absorption of wave energy, and an uninhibited flow of water entering and leaving the marina daily. Specifically, the NW side of entrance channel and basin of the deep draft harbor must be provided with effective wave absorbers in order to keep wave action inside the harbor basin within acceptable limits. Such an arrangement may reduce wave height arriving from the northeasterly direction.

9.2.71 The proposed typical maximum sized marina is basically rectangular in configuration with a dogleg length of approximately 3,100 feet (3,750 feet including the entrance channel) and widths of approximately 350 to 775 feet. Weak periodical variations in wind, barometric pressure, or entrance surge and surf conditions will produce seiches in the marina, particularly if these variations are of a period length corresponding to one of the natural periods of the marina. When oscillation of the free surface, or seiche, occurs the surface will in effect oscillate back and forth across, or along, the marina with periods dependent upon basin geometry and depth. These oscillations will have periods between 5.3 to 12.8 minutes along the marina length, and 0.6 to 1.3 minutes across the marina width. Amplitudes of vertical motion may be up to a few inches similar to those seiche oscillations presently observed in most shallow Hawaiian embayments.

9.2.72 The local periods for tsunamis are very similar to the periods calculated for the 35-acre basin shape provided. The result in this case is that severe problems of seiching in the marina could occur during tsunamis. Further, it has been reported that the configuration of the Barbers Point deep draft harbor would produce harbor oscillations in a "pumping mode" (single entrance node) with a maximum period of 13.3 minutes, again very similar to the marina. These neighboring basins might thus tend to share seiching energy producing undesirable marina oscillations. Changing the marina dimensions would help limit this potential problem but not eliminate seiches in the marina. Any energy fluctuation, particularly those with periods of 12.7 minutes or less, will produce seiche activities in the marina. Periods of oscillation (i.e. basin shapes) similar to periods for tsunamis, coastal surge (as an observed 4 minute period surge off Ala Moana reef), or storm surf will be avoided to minimize resonate oscillations in the marina.

9.2.73 Tsunami run-up on land is a function of the coastal bathymetry, tidal elevation, and the coastal storm or surf set up existing at the time of the tsunami. The land topography, slope and roughness (or resistence to flow) also determines the amount of flooding that can occur. Past study results of the theoretical maximum run-up in a coastal area in Hawaii, estimate that a 10-foot tsunami occurring at the existing site (existing roughness for undeveloped agriculture land), during a maximum tide of +3.0 feet above mean lower low water and the absence of any coastal set-up, would produce run-up to approximately the 19-foot elevation on land. This would flood up to 3,700 feet landward at the proposed marina site. However, the final grading and development around the marina will determine the run-up potential. The marina entrance area and seaward most basin will likely receive tsunami flooding for even a tsunami of modest magnitude. The surrounding lands, however, can be given some protection with sufficiently high marina sides and grading. Proper elevation and protection would help limit the risk of run-up damage.

The complete marina, however, will likely be flooded by 10-foot tsunamis. Current velocities in the marina during tsunami flooding could increase considerably (several times in strength) over normal tidal exchange flows for short periods of time (5 - 10 minutes). Design of the structures in the marina will consider this event. The marina and coastal waters would also be negatively impacted by the poor quality of water exchanged during tsunamis due to changes in movement of coastal and harbor sediments and the resulting increase in suspended loads.

9.2.74 Impact of Lagoon, Marina and Storm Discharged Water on Site Coastal Conditions. Each lagoon contains between 17 to 33 million gallons of water for 7 to 11 surface acre lagoons. In that the minimum desired flushing rate, established by the biological criteria of minimizing phytoplankton biomass increases, was established as 2 1/2 times each lagoon volume per day, the coastal waters may be expect to receive up to 83 million gallons of lagoon discharged water per day at two possible locations. Table 2, presented and discussed earlier, summarizes estimates of the yearly range in the quality of the water leaving the north and south lagoons. The south lagoon, however, may discharge 33 to 50 mgd into the project marina, and the balance (50-33 mgd) to the coastal waters.

9.2.75 The north lagoon water will exit about 400 feet north of the central point of the site coastline, i.e. approximately 1500 feet north of the central lagoon wave trap intake area. It has not been specified at this time whether this discharge would be surface or subsurface. Similarly, the south lagoon may discharge its output (or excess over the discharge to the marina) about 2000 feet south of the common central intake area, i.e. about 1800 feet from the site's southern border. The north lagoon discharged water could be routed to the marina, though the distance and head loss makes this unpractical. The limiting case considered here is that two 83 mgd discharges (i.e. 11 acre lagoons) would exist 3500 feet apart, one just north of the site central coastline point and the second towards the site's southern border. This was considered because of the construction phasing may find both lagoons completed before the marina is constructed.

9.2.76 The quality of the water exiting the lagoons is expected to be lower in salinity (1 o/oo), slightly warmer (0.5°C), and more nutrient-rich than the receiving coastal waters throughout the year. As such it will be slightly buoyant. If discharged through a subsurface duct it would attempt to rise, rapidly mixing with the receiving waters before reaching the surface. Only an increase in nutrients, primarily nitrogen, should be identifiable beyond 300 to 400 feet of the discharge point. The limiting case, however would be when the exiting waters were discharged at the surface via a channel across the shoreline. In this case the exiting water would tend to remain toward the surface, quickly spreading both seaward and along the coastline in the direction of the prevailing longshore and/or tidal current. If highly nutrient ladened, the discharge water is expected to retain its increased nutrient identification longer, extending both seaward and down the shoreline. However, its thermal and saline characteristics would not likely be found beyond 400 to 600 feet from the point of discharge.

GEORGE R. ARIYOSHI
GOVERNOR

CHARLES G. CLARK
Superintendent

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

June 24, 1980

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Sir:

SUBJECT: Environmental Impact Statement
West Beach Resort

Our review of the subject EIS indicates that the proposed 1,680 residential units will generate the following student enrollment:

SCHOOL	GRADE	APPROXIMATE ENROLLMENT
Barber's Point Elementary	K-6	70 - 150
Ilima Intermediate	7-8	20 - 40
Campbell High	9-12	30 - 60

The West Beach Development Plan sets aside 6.9 acres for an elementary school. As the number of residential units has been revised downward from the original estimates, the K-6 student enrollment no longer justifies retention of the school site. Therefore, we recommend deletion of the elementary school site.

Should there be any questions, please contact Mr. Howard Lau at 548-5704.

Sincerely,

for CHARLES G. CLARK
Superintendent

CGC:HL:jl
cc: Leeward District
Mr. Edward Matsushige
Mr. James E. Edington

JUN 30 1980

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

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

Dear Mr. Clark:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT PROJEC

Thank you for your comments of June 24, 1980, regarding the Draft EIS for the proposed West Beach Resort project.

The final EIS will include the information provided on school enrollment. Additionally, we will delete the elementary school site as recommended. As various phases of this project master plan are developed and supplemented, we will continue to remain in touch with your office to advise the latest information.

We appreciate your review and information relating to the impact on public schools.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLU
DLNR
OEQC
EQC
COE
West Beach Resorts

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HAWAIIAN ELECTRIC COMPANY, INC.
Box 2750 / Honolulu, Hawaii / 96840

June 30, 1980

JOHN C. McCAIN, Ph.D.
MANAGER, ENVIRONMENTAL DEPARTMENT

ENV 2-1
NV/G

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Comments on Draft Environmental Impact Statement for the Proposed West Beach Resort, Honouliuli, Ewa District, Oahu

Thank you for the opportunity to review the draft EIS for the proposed West Beach Resort. Several members of the staff of the Hawaiian Electric Company reviewed this EIS, and we offer the following comments:

1. Page 20, Para. (6) Utilities - It is not planned to place HECO's transmission lines underground in the development area unless the developer will pay for the cost. This should be explained.

2. Page 25, Table 2, Comparison of Alternate Impacts - For the Significant Resources "Power" under the heading "Total Development", the entry should read "Require two 46,000 volt lines and a probable Substation."

3. Pages 125 and 129, Para. 9.15.3 Future Projects in the Surrounding Area - A subpara. "g" should be added that states in essence that contingent on construction of the Barbers Point deep draft harbor, HECO will be constructing an 8" fuel oil pipeline in the old railroad right of way that bisects the proposed West Beach development. Additionally, should future energy economics dictate, it might be necessary to transport coal by conveyor or rail from the new deep draft harbor to Kahe via an energy corridor along the old railroad right of way or around but near to the proposed development area.

4. Page 77, Para. 9.3.13 - A statement is made that air pollution model predicted 3- and 24-hour average concentrations of sulfur dioxide which exceed State Ambient Air Quality Standards (SAAQS). It should be noted in the final EIS that HECO has

applied for variance to the State Ambient Air Quality Standards and that these standards are not health and welfare standards as are the Federal Standards. The State has recognized the need for a revision of SAAQS and is in the process of proposing such review which would bring the State's standards more into line with the Federal Standards.

If you have any questions, please call me at 548-6880.

Yours truly,

John C McCain

JCMc:cm

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL COMMUNICATIONS INC.

September 2, 1980

John C. McCain, Ph.D, Manager
Environmental Department
Hawaiian Electric Company, Inc.
Box 2750
Honolulu, Hawaii 96840

Dear Dr. McCain:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT PROJECT

We have received and reviewed your letter of June 30, 1980, commenting on the Draft EIS for the proposed West Beach Resorts project.

Below, dispositions to your comments are provided:

1. The Final EIS will acknowledge that the developer will finance the the cost of HECO's underground transmission lines.

2. This change will be made in the Final EIS. The corrected page 25 is being enclosed.

3. Page 129 will be corrected to include item g. This addition will read "g. Contingent on construction of the Barbers Point deep draft harbor, the Hawaiian Electric Company (HECO) will be constructing an 8-inch fuel oil pipeline in the old railroad right-of-way that bisects the proposed West Beach development. Additionally, should future energy economics dictate, it might be necessary to transport coal by conveyor or rail from the new deep draft harbor to Kahe Point power plant via an energy corridor along the old railroad right-of-way or around but near to the proposed development area."

4. The additional information provided has been incorporated into the Final EIS. A revised page 77 is enclosed for your information.

We appreciate your review and concerns on this matter and hope that our revisions are satisfactory.

Very truly yours,

F. J. Rodriguez

F. J. Rodriguez

FJR/lka
Enclosures
cc: DLNR
DLU
OEQC
EQC
COE
WBR

TABLE 2

COMPARISON OF ALTERNATIVE IMPACTS

SIGNIFICANT RESOURCES	BASE CONDITION AVAILABILITY	TOTAL DEVELOPMENT	REDUCED DEVELOPMENT	NO ACTION
Social Profile				
Ewa District Population	1978-169,000 persons. Population rate of growth 28I between 1970-1978.	Increase population by 33,000-35,300 persons by 2000.	Increase less than Total Development.	No change from base condition.
Closest Urban Community	Honokai Hale			
Sewage	Honouliuli STP	Estimated average daily flow-2.5 mgd.	Less than 2.5 mgd average daily flow.	No change from base condition.
Water	Pearl Harbor, Waianae Makaha resources. Dependable capacity 38 mgd. Sustained capacity 29 mgd. Annual consumption 29 mgd.	Maximum daily demand 5.5 mgd.	Less than 5.5 mgd.	No change from base condition.
		Potential saltwater intrusion into freshwater supply.	Same as Total Development	No change from base condition.
Power	12,000 volt systems	Require two 46,000 volt lines and a probable Substation.	Possibly less than Total Development needs.	No change from base condition.
Education	Barber's Point Elementary, Ilima Intermediate, Campbell High School. School enrollments are declining.	Estimated 275 students. 100-200 - kindergarten to sixth grade. 40-70 - grades 7-8 50-90 - grades 9-12 Need 12 new teachers. Possible construction of a new elementary school.	Possible less than Total Development.	No change from base condition.
Fire Protection	Makakilo Fire station Manakuli Fire station Long-term increase with development of urban zoned areas.	New fire station with engine and hook-and-ladder companies. 33 additional staff.	Possible less than Total Development.	No change from base condition.
Police Protection	Waianae Police station	Need 37 personnel, possible use of private security service.	Possible less than Total Development.	No change from base condition.
Commercial Shopping Centers	Ewa Beach, Waimalu, Waipahu, Pearl Ridge.	Create a new shopping center.	Create a new shopping center.	No change from base condition.
Health Care Facilities	Within 15 minutes of project site at Waianae, Ewa and Waipahu.	Unknown increase in out patient care.	Unknown increase in out patient care.	No change from base condition.
Traffic	1976-Average daily traffic-18,756 Farrington Highway, 1990-Average daily traffic Farrington Highway-31,154 H-1 Freeway-47,070 Farrington Highway capacity: 1,275 cars per lane per hours. H-1 Freeway capacity: 1,900-2,200 cars per lane per hour. 1990 Peak hour traffic: Farrington Highway 1,956 VPH H-1 2,313 VPH.	Residential traffic generation-14,114 trips/per day. Marina - 70 trips/per day. Commercial traffic generation-12,298 trips/day. Hotel/condominium traffic generation 2,444 trips/per day. Peak hour traffic generation: Residential - 1,186 VPH. Commercial - 1,318 VPH (afternoons). Estimated highway level of service 1,500-1,600 vehicles per hour per lane.	Possibly less than Total Development.	No change to base condition.
Recreation	Access restricted, use of area limited. Low use for camping, fishing, surfing.	Access unrestricted, use of area unlimited Recreational diversity increased: Fishing Surfing Swimming Picnicking Tennis Golf Bicycling Boating Create 73 acres of boating and swimming area with marina and lagoons.	Level of recreational development, shoreline access and area use could be limited depending upon permitted uses and final development layout.	No change to the base condition.
Land Use Issues				
Zoning	[illegible]	[illegible]	[illegible]	[illegible]

d. Kahe Point Theme Park is proposed across Farrington Highway next to Kahe Valley. The theme park, still in the planning stage has been described as a project which will be similar to other theme parks on the mainland U.S. Patronage will be primarily visitors to Hawaii.

e. Expansion of Hawaiian Electric Company's Kahe Generating Plant. Two additional units are envisioned to provide increased electrical power to Honolulu.

f. Improvements and operation changes at Barber's Point Naval Air Station, can change air traffic patterns in the area altering air safety hazards and noise nuisances.

g. Contingent on construction of the Barbers Point deep draft harbor, the Hawaiian Electric Company (HECO) will be constructing an 8-inch fuel oil pipeline in the old railroad right-of-way that bisects the proposed West Beach development. Additionally, should future energy economics dictate, it might be necessary to transport coal by conveyor or rail from the new deep draft harbor to Kahe Point power plant via an energy corridor along the old railroad right-of-way or around but near to the proposed development area.

9.15.4 Impact on Land Uses. The proposed project will significantly alter the present land use of the project site. From its present open space and agricultural uses, the site will be transformed to a resort/residential complex with its related facilities and infrastructures. This change in land use will have impact on the immediately adjacent lands. One impact is the increased value of adjacent lands. Secondly, there is likely to be pressure (because of this increased value) to place these lands in urban uses (especially agricultural or vacant properties). Although these economic pressures will occur, it is emphasized that the State and/or local agencies having various land use controls and policies are the final decision makers in the urbanization of agricultural and conservation zoned lands. In addition, the entire Ewa region is undergoing significant land use changes and population increases. The West Beach project is one of several major projects in the area; many minor projects (less than 1,000 housing units) are also planned. Therefore, it would appear that rather than setting a trend for development of these lands, the West Beach project is paralleling that same path to urbanization. Limiting factors such as availability of public services, potable water, governmental land use controls and regulations, sewerage facilities, transportation systems, environmental quality standards, population policies, and economic factors play primary roles in restricting all projects and even forcing a "no action" alternative for some. Finally, cumulative and secondary impact will reflect not only the effects of West Beach but relates to ongoing growth and other projects in the region. Such impacts are readily foreseen, these are: population increases, population density increases, withdrawal of agricultural and conservation lands, increased expenditures of public monies for public works and services, highway improvements, increased environmental pollution due to population increases and densities, added social stress, increased revenues in form of property, sales, and income taxes, and so on.

stacks, air pollution models predict that when the wind blows from Kahe toward West Beach, State of Hawaii AQS for 3 and 24-hour periods could be exceeded. The Hawaiian Electric Company has applied for variance to the State Ambient Air Quality Standards. These standards are not health and welfare standards as are the Federal Standards. In a letter dated, June 30, 1980, commenting on the DEIS for the proposed West Beach Resort project, HECO stated that the State has recognized the need for a revision of the State Ambient Air Quality Standards and is in the process of proposing such review which would bring the State's standards more into line with the Federal Standards. There seems to be little or no chance, however, that future sulfur dioxide levels at West Beach will ever exceed Federal Ambient Air Quality Standards.

9.3.14 Particulates. Particulates are any kind of non-gaseous airborne material that can be trapped and weighed on collector filters. From Table 8, the most significant producers of particulates in Hawaii are industrial sources which have the potential to create airborne material as the result of process losses. Any time a manufacturing process causes raw materials to undergo physical or chemical changes, such process losses can occur. In the proposed West Beach area, the primary process industries are steel and cement making at Campbell Industrial Park. These industries are small, however, and their particulate emissions are tightly controlled by installed engineering control devices. A look at Table 9 indicates that the Kahe Power Plant and the oil refineries at Campbell Industrial Park are the most prolific producers of particulates among significant stationary sources in the project area. When other smaller fixed sources in the Campbell Industrial Park are considered, the emissions of particulates from this area are probably equal to or even greater than emissions from the Kahe Power Plant.

9.3.15 Judging from measurements at the Department of Health air quality monitoring station at Barbers Point, particulate concentrations in the West Beach area presently exceed the allowable State of Hawaii 24-hour AQS about once per year. This is most likely the result of a combination of smoke and dust from sugarcane harvesting and fixed source emissions from Campbell Industrial Park.

9.3.16 Scheduled construction projects within and near West Beach are expected to cause increased fugitive dust emissions during the period of construction. Future industrial developments such as the planned resource recovery facility will undoubtedly increase total particulate emissions in the West Beach area, but the contribution from canefield burning will be diminished. Any new particulate sources in the area will be required to meet stringent performance standards using the most effective technological control devices available. Emissions from new sources are, therefore, likely to be small, and particulate air quality should continue to meet all Federal AQS and most State of Hawaii AQS (with exceedance of the 24-hour standard not likely more than once a year).

9.3.17 Carbon Monoxide. Carbon monoxide is an odorless, colorless, tasteless gas that causes adverse human health effects by limiting the capability of human red blood cells to absorb and distribute oxygen to other body organs. Carbon monoxide poisoning can cause dizziness, headaches, and similar symptoms. Very high concentrations can produce fatalities.

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1455 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96814 AREA CODE [808] 955-8111

FRANK F. FASI
MAYOR

FRANCIS KEALA
CHIEF

OUR REFERENCE SC-JS

June 25, 1980

Mr. Donald A. Bremner, Chairman
Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Bremner:

Subject: Draft Environmental Impact Statement of June 1980 relating to West Beach Resort Project

The Honolulu Police Department has reviewed the Draft Environmental Impact Statement for the Proposed West Beach Resort.

We concur with the statement that there will be a need for more police protection. However, the number of police personnel needed should be amended to forty-four, based on our current ratio of 2.5 police employees per one thousand populace. The commitment to provide private security will alleviate this need to some extent.

As stated in the draft, the bus system is presently inadequate for this area, and hence the majority of people will drive, thus increasing traffic. The environmental impact statement should address the question of how the H-1 and/or Farrington Highway can accommodate more vehicles.

Except for the previous topics mentioned above, we have no other comments. If we can be of further assistance, please contact the Research and Development Division at 955-8121.

Sincerely,

FRANCIS KEALA
Chief of Police

By
EARL THOMPSON
Assistant Chief of Police

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

September 2, 1980

Chief Francis Keala
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, Hawaii 96814

Dear Chief Keala:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT PROJECT

We have received and reviewed your letter of June 25, 1980 on the proposed West Beach Resorts development.

The Final EIS will include the information on the current police personnel ratio of 2.5 police employees per one thousand people. Subsection 9.11.5. (c) on page 109 will be revised to read: "Police Protection Impact. Based on the possible configuration developed in the discussion of sales, jobs, and incomes to be derived from the project (see Table 14), it was estimated that when fully developed, the number of people present at the project site would average about 17,500. Based on the present Oahu ratio of police employees to de facto population (2.5 police employees per 1000 populace), there would be a need for 44 police to cover the area, as well as patrol cars and assorted equipment. It is unlikely that other support services would be increased proportionately, but the extent of such increases is not known. Also, these impacts would be lessened by the provisions of private security services at the project site."

We note that the impact of the project on Farrington Highway H-1 has been discussed on pages 111-115. For your information, we are providing your department with a copy of Henry T. Au's Traffic Impact Study.

We appreciate your concerns on this matter.

Very truly yours,

F. J. Rodriguez

FJR/lka
Enclosures

cc: DLU
DLNR
OEQC
EQC
COE
WBR

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United States Department of Agriculture
Soil Conservation Service
P. O. Box 50004
Honolulu, Hawaii
96850

July 15, 1980

Mr. Donald A. Brenner, Chairman
Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Brenner:

Subject: Draft EIS - West Beach Resort, Honouliuli, Oahu, Hawaii

The Soil Conservation Service advocates the preservation of prime agricultural lands. Approximately two-thirds of the 640 acres is prime agricultural land. Most of the remaining acres is land of agricultural importance.

We feel that continued encroachment of urbanization on prime agricultural lands will tend to force agriculture on to poorer lands with lower production capability, higher energy costs and more erosion hazard potential.

For this reason, we re-emphasize our comments of May 23, 1979:

> The agricultural industry has been steadily losing land to urbanization. The point is not whether these lands are needed for sugarcane, but whether there will be an option in the future to use prime agricultural lands to grow crops. Urbanizing the area will virtually eliminate this option.
>
> We believe it is important to evaluate the adverse effect that the loss of prime agricultural land will have on the area, the county, and the state.

Sincerely,

JACK P. KANALZ
State Conservationist

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

Mr. Jack P. Kanalz, State Conservationist
U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 50004
Honolulu, Hawaii 96850

Dear Mr. Kanalz:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT PROJECT

We have received and reviewed your letter of July 15, 1980, commenting on the Draft EIS for the proposed West Beach Resort project.

The Draft EIS (pages 2, 13, 26, 105, and 131), clearly identifies the loss of the prime agricultural lands (266 acres) and other important agricultural acreages. The West Beach project will result in the loss of prime agricultural lands (as identified by the State Department of Agriculture); 104 acres of Class A lands (as identified by the Land Study Bureau), and 418 acres of Class B lands. According to the total acreage of Class A (very good) land on Oahu, the 104 acres in West Beach represents less than 0.5%; the Class B (good) acreage represents less than 1.3% of the total Class B land on Oahu.

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The land is classified Urban by the State Land Use Commission and designated Urban-Resort by the County's General Plan. State and County objectives and policies identify the need to maintain prime agricultural land for agricultural uses. However, as stated above, the West Beach project will result in the loss of prime agricultural lands. During the State Land Use Commission's 1977 hearings, Oahu Sugar Company provided testimony which was summarized in the Land Use Commission's Decision and Order, as follows:

"27. The withdrawal of approximately 580 acres of sugarcane acreage will not have any adverse effect upon the agricultural production of Oahu Sugar Company, Ltd. The acreage being withdrawn are the lowest yield acreages for Oahu Sugar. The location of subject property, approximately 13 miles from the mill, and the rocky clay silt soil make the 580 acres among the highest operating cost-fields. That acreage represents 3% of Oahu Sugar Company's land, 1.7% of Oahu land in sugar production, and less then one-half of 1% of the total cane acreage in the State. The withdrawal of acreage from cane production would not materially affect Oahu Sugar's employment rolls. The withdrawal of these low producing and high cost fields will not be detrimental to Oahu Sugar since there is a concerted effort by Oahu Sugar to withdraw all sugar fields with low yields and

high operating costs. Because of the present severe economic imbalance of supply and demand for sugar, Oahu Sugar Company is making every effort to increase production on less acreages and lower operating costs. In the long run, this program may stabilize prices and ensure the viability of the sugar industry. Further, the fact that the Land Study Bureau classifies certain types of soils as being rated "prime" or class "a" or class "b" for sugar cane production does not in and of itself establish that said lands are in fact productive and economical in that there are many other variables to consider other than just the Land Study Bureau's soil classification. Sugar production on the subject property has never exceeded 9 1/2 tons per acre. Fifteen (15) tons per acre would indicate that the subject property is "prime" agricultural land, but nine and one-half (9 1/2) tons per acre does not indicate "prime" lands for sugar production. The proposed development will have no adverse effect upon the agricultural resources of the area."

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLU
DLNR
OEQC
EQC
COE
WBR

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMABU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

July 16, 1980

REF NO.: APO-1861

Environmental Quality Commission
550 Halekauwila Street, Rm. 301
Honolulu, Hawaii 96813

Gentlemen:

We have reviewed the draft EIS for West Beach Resort. Our comments follow:

Historic Sites

On November 5, 1979 we provided Mr. Richard O'Connell our review of Mr. William Barrera, Jr.'s archaeological report of this area in which we made recommendations for further work.

Since Federal permits are required for this project, Federal regulations as set forth in 36 CFR 800 must be met. These regulations require that plans and decisions affecting cultural resources must be coordinated with this office, the Keeper of the National Register, and the Advisory Council on Historic Preservation. This is particularly necessary in the case of mitigation measures, such as those contemplated in Table 15 (p. 118), of the draft.

Marine Biota and Environment

Because of the lack of information on West Beach marine communities, we suggest extending the November 1979 baseline study to a year-round survey in order to reflect seasonal changes in the communities.

Until the marina configuration is finalized, effects such as flushing rate, infiltration rate of nitrogen-rich ground water, et al. cannot be firmly assessed.

Routing the two existing storm drains into the marina will have mixed results. On the one hand, the marina will serve as a basin for sediment; on the other, salinity in the marina will change radically whenever it rains.

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In other respects, the draft EIS adequately addresses mitigation measures necessary to protect the marine environment.

Plants

The project area includes one section with a large population of the endangered plant, Euphorbia skottsbergii var. Kalaeloana. If this section cannot be preserved, we recommend that development of this section be deferred until the population is successfully reestablished elsewhere.

Water

Our primary concern is that development of the marina not increase saltwater intrusion into basal groundwater. Another concern is that groundwater seepage into the marine environment be minimized.

If project plans require development of groundwater within the Pearl Harbor basin, then a permit will be necessary under Regulation 9 of this department.

Wildlife

Under Regulation 6 of our Division of Fish and Game, the Hawaiian Owl is endangered on the island of Oahu (p. 100).

Very truly yours,

SUSUMU ONO, Chairman
Board of Land and Natural Resources and
State Historic Preservation Office

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

Chairman Susumu Ono
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Chairman Ono:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORTS PROJECT

We have received and reviewed your comments of July 16, 1980 on the abovementioned Draft EIS. We would like to provide the following dispositions to your comments:

1. Historic Sites. We recognize that plans and decisions on the historic and archaeological studies and affecting the Barbers Point Archaeological District must be coordinated with the State Historic Preservation Officer, Keeper of the National Register, and the Advisory Council on Historic Preservation. This coordination will be accomplished and any required Memorandum of Agreement developed prior to issuance of the Dept. of the Army permit.

2. Marina Biota and Environment.

2.a. Regarding the November, 1979 baseline study on the marine biota. In light of your interest in the scope of the environmental sampling effort, we thought some additional information describing the context of the study might be helpful. The analysis of pertinent environmental literature of the area, although identifying useful data pertaining to either side of the West Beach shoreline, revealed a total void of data pertaining specifically to the coastal region afronting the West Beach project. It was the specific intent of the 1979 baseline survey program to improve this situation by acquisition of this unique data set, particular to the region in question. Admittedly, the program will not provide an exhaustive ecological study; it will, however, provide the first pieces of environmental data which deal with specifically with the area in question. In this context we feel the effort made had particular merit.

It was recognized that, as with any solitary sampling/analysis effort, the degree to which typical conditions and/or concurrent seasonal or meteorological variability were described, was unknown. Such refinements in our understanding of this marine environment were not excluded by the effort; in fact, if the need for description of temporal, spatial and climatic variability become necessary, the proposed effort constitutes the initial data block of such an effort. It is felt, however that responsibility for such an escalated effort should be prudently assessed with consideration for the anticipated impacts of developments on the West Beach project per se.

2.b. Marina configuration. As stated on page 14, item (g) of the DEIS, technical verification studies on the marina configuration, flushing rate, infiltration rate of nitrogen-rich groundwater, navigational circulation, et cetera must still be prepared. We note that the developer is giving serious consideration to significantly reducing the size of the marina. We acknowledge that, at this time, because detailed plans are lacking, these aspects cannot be fully assessed. However, it should be emphasized that technical verification studies will be prepared and marina design finalized and reviewed prior to the issuance of the COE permit, or the filing for any local permits.

Please be assured that at the appropriate time the retained consultants will be approaching regulating governmental agencies to coordinate the marina's plans.

2.c. Sedimentation effects to the nearshore communities will be minimized by conducting dredging operations in the dry, and by the construction of settling basins inland of the lagoon and marina basins to trap portions of the surface runoff. The most pronounced effects to the nearshore coral communities will occur in the regions adjacent the entrance channel to the marina. Decreased size and diversity of coral communities are expected to result from the increased sedimentation, turbidity (decreased water clarity), and decreased salinity that will likely be associated with this region.

3. We concur with your comment that development of the areas in which Euphorbia is located be deferred until the population is successfully re-established elsewhere.

4.a. At this time the developer is seriously considering a significant reduction (50%) of the marina. As the marina design is finalized and the technical verification studies prepared, a groundwater hydrologist will be consulted to make an evaluation of saltwater intrusion into basal groundwater. Based on his evaluation the developer will adhere to the applicable regulations and laws which relate to the adverse impacts of saltwater intrusion and groundwater seepage.

4.b. We concur with the statement, "If the project plans require development of groundwater within the Pearl Harbor basin, then a permit will be necessary under Regulation 9 of this department."

5. Wildlife. We will acknowledge that the Hawaiian Owl is, under Regulation 6, an endangered species on the island of Oahu.

Thank you for your comments.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLU
EQC
OEQC
COE
WBR

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA
HONOLULU, HAWAII 96843

FRANK F. FASI, Mayor
YOSHIE H. FUJINAKA, Chairman
DAT QUON PANG, Vice Chairman
RYOKICHI HIGASHIONNA
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WALLACE S. MIYAHIRA
ROBERT A. SOUZA
CLAUDE T. YAMAMOTO

KAZU HAYASHIDA
Manager and Chief Engineer

July 15, 1980

Mr. Donald A. Bremner
Chairman
Environmental Quality Commission
Room 301
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Mr. Bremner:

Subject: Your Letter of June 16, 1980
on the Environmental Impact
Statement for West Beach Resort

We have the following comments:

1. Section 5.4(a) Issues to be Resolved

The effects of water resource development must be determined within the constraints of the Pearl Harbor Ground Water Control Area.

2. Section 7.2(a)(9) Lagoons

Penetration of the marina 3,000 feet inland will increase discharge through the caprock and increase sea water degradation of caprock water.

Also, flushing of 5 times the water volume of the lagoons will carry off the caprock water that much faster.

A marina penetrating not more than 1,000 feet from the shoreline would be less damaging.

3. Section 9.11.2 Availability of Potable Water

This section must be revised to the following:

a) The resources in the Ewa-Waianae Water System and the Hoaeae, Kunia I and Kunia II wells have a maximum capacity of 32.85 mgd, a dependable capacity of 22.6 mgd and a sustainable capacity of 17.26 mgd. The average 1979 production was 15.61 mgd.

b) Our resources in the Ewa-Waianae area have practically reached their sustainable limit. Therefore, new sources would have to be developed to accommodate the proposed development and the developer should indicate how he plans to do this.

4. Construction plans for the project must be submitted for our review and approval.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

September 2, 1980

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 FOR THE PROPOSED WEST BEACH RESORT

We have received and reviewed your comments of July 15, 1980, on the Draft EIS for the proposed West Beach Resort project. The comments on potable water (items 1, 3a, and 3b) were referred to the consulting engineers at Community Planning, Inc. (CPI). In response to your comments on potable water, CPI provided the following information.

The Board's comments reflect the present-day situation. However, the Ewa-Waianae water system is anticipated to change within the next five years. The Board has already designed and should construct shortly a 16-inch transmission main from its existing well in Waipahu to bolster the Kunia sources. This, however, is an interim measure to assure water in the Ewa-Waianae system until the Waianae-Nanakuli system is developed.

Both the City and State have started exploratory wells in Makaha and Waianae. It is anticipated that the area from Nanakuli to Makaha will, within the next five years, have its own water system of about 5MGD. Then West Beach, as well as the Campbell Industrial Park, would be the only logical service area for the existing water reservoir and water mains in Farrington Highway near the project site.

It is also CPI's understanding that Campbell Estate has hired Walter Tagawa & Associates to review the water demands of its Ewa lands including West Beach. An exploratory well is being drilled by Campbell Estate near Makakilo as a recommendation of that water study.

Consequently, due to the unconfirmed nature of all the present proposals of the Board of Water Supply it is impossible as well as impractical to predict the source of water for West Beach which, at the minimum, is about four (4) years away from initial occupancy and water use. Also, it will require a period of 12-18 years to fully complete the project as presently envisioned with total coordination with BWS on an incremental basis.

TELEPHONE (808) 521-6391

The Board should be assured at this time that the developer and/or his agents will meet with the Board prior to rezoning to discuss and resolve the water source issue. At that time the Board of Water Supply, Oahu Sugar Company, and the Navy should have finalized their plans to properly utilize the water resource in the Pearl Harbor Basin.

Item 2 of your letter, under the subheading Lagoons, is somewhat misleading because two of the three paragraphs (the first and third) relate to the marina. In response to your concerns in this area, we note that the developer is seriously considering a significant reduction of the marina (50 percent or more). This will result in less inland penetration. Also, at the technical verification stage (on the marina and bathing lagoons), a groundwater hydrologist will be retained so that the impact of saltwater intrusion into the basal groundwater can be determined. Based on his evaluation, the developer will adhere to the applicable regulations and laws which relate to the adverse impacts of saltwater intrusion and groundwater seepage.

We appreciate your comments in this area.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLNR
DLU
OEQC
EQC
COE
WBR

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

FRANK F. FASI
MAYOR

RAMON DURAN
DIRECTOR

July 14, 1980

Mr. Donald A. Bremner, Chairman
Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Bremner:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT
WEST BEACH RESORT DEVELOPMENT
HONOULIULI, EWA DISTRICT, OAHU

We stated in our letter to the Environmental Communications, Inc., dated May 18, 1979, that the size of the West Beach Resort Development is significant and listed a number of major recreational concerns needed to be resolved.

The EIS does not address our concerns made to our review of the Environmental Assessment of the development.

Thank you for allowing our Department to review and comment on the EIS for the West Beach Resort Development.

Warm regards.

Sincerely,

RAMON DURAN, Director

RD:lm

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

Mr. Ramon Duran, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Duran,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

We have received and reviewed your letter of July 14, 1980, on the Draft EIS for the proposed West Beach Resort project. Your letter indicated that the questions raised in your May 18, 1980 letter (reproduced on page 161 of the Draft EIS) were not addressed. To correct this, we provide the following dispositions to your comments of May 18, 1980.

1. The land planner will be making adjustments to the land plan after the EIS process is completed. At that time, your Department will be contacted for input into this land use plan. There are four (4) areas which will be available to the public for park activities. As shown on Figure 3, page 19 of the Draft EIS, there is a park located on the extreme northern shoreline portion of the site. This area will be turned over to the City to be utilized as a beach park. This appears to be a logical extension of the existing Kahe Point Beach Park. The second park area is around the natural lagoons of the former Alice Kamokila Campbell estate. This area, called the Hawaiian Cultural Center (refer to Figure 3) will be operated privately, but will be open to the public for various occasions. The third area is the shoreline from the southern end of the Hawaiian Cultural Center to the end of the southernmost lagoon. The developed bathing lagoons and the existing shoreline (except for the lagoon entrances and wave traps, for safety reasons) will be available for public use, but managed and maintained by the developer. Finally, the park site at the east end of the project was planned as a community park primarily for the residential neighborhood. This community park would be turned over to the City. Other recreational facilities (e.g. golfing, commercial recreational areas) will be available to the public at a fee or admission cost.

2. This comment is discussed above.

3. As indicated under item 1, the land use planner has not drawn a detailed land plan for the proposed development. Please be assured that public access to the shoreline will be incorporated into the proposal. We recognize that shoreline access is needed along the entire 1.9 mile shoreline and will coordinate plans with your Department to provide these access corridors.

4. The Final EIS will make note of the 5.88-acre park adjacent to Honokai Hale and Nanakai subdivisions.

5. No response required.

6. This will be so indicated in the Final EIS.

Thank you for your comments. The EIS document is based on a concept of the resort development based on the highest density allowable under the State Land Use Commission's approval. The developer recognizes that detailed engineering and planning is still required, and has indicated to us that as each aspect of the development is planned, the regulating governmental agency will be contacted so that plans for the project can be finalized after the agencies' concerns have been addressed.

Very truly yours,

F. J. Rodriguez

FJR/ika

cc: DLU
DLNR
OEQC
EQC
COE
WBR

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

July18, 1980

PACIFIC-ASIA REGION
P. O. BOX 50109
HONOLULU, HAWAII 96850

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Thank you for providing the Federal Aviation Administration an opportunity to review the Draft Environmental Impact Statement for the proposed West Beach Resort in the Ewa district of Oahu.

We note that the EIS references aircraft noise nuisance and offers potential mitigating measures; these are to:

1. Limit air traffic to confined corridors and heights over the developments.

2. Insulate residential and hotel/condominium units.

With respect to the foregoing measures, the following comments are offered. Three standard instrument approaches to Honolulu International Airport are aligned with the proposed development. They authorize flight as low as 2200 feet above the proposed development. Aircraft noise generated by these procedures would probably be below 60 LDN, which is well below the 65 LDN level at which essentially no aircraft noise complaints are expected, but such noise may be a nuisance to community activities. In this regard, the extensive outdoor living habits of Hawaii's residents should be noted.

The second mitigating measure suggests insulation for hotel/condominium units. This is, of course, a valid measure, but one which could require doors and windows to remain shut. Thus, the natural advantage of a superior climate is diminished.

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Thank you for the opportunity to comment on the EIS and let me know if I can be of further assistance.

Sincerely,

R. O. ZIEGLER
Director

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

September 2, 1980

Mr. R. O. Ziegler, Director
Department of Transportation
Federal Aviation Administration
Pacific-Asia Region
P.O. Box 50109
Honolulu, Hawaii 96850

Dear Mr. Ziegler:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORTS PROJECT

We have reviewed your agency's comments, dated July 18, 1980, on the Draft EIS for the proposed West Beach Resort project. The two comments will be incorporated into the Final EIS. Specifically, we will make the following revisions.

Subsection 9.4.5., page 91. After the last sentence, the paragraph will continue and state: "During the Draft EIS review period, the Federal Aviation Administration (FAA) commented that although the noise level from aircraft is below the 65 LDN level at which essentially no aircraft noise complaints are expected, such noise may be a nuisance to outdoor community activities. Because the proposed resort plans many outdoor oriented activities (e.g. swimming, sunbathing), noise from aircraft will be more noticeable."

Table 3, page 30 (Last line). After the last line, the following will be included: "However, it was noted by the FAA that the insulation of residential and/or hotel/condominium units will result in the loss of the natural advantage of a superior climate (i.e. wind, sunlight)."

Thank you for your comments.

Very truly yours,

F. J. Rodriguez

FJR/ika

cc: DLU
DLNR
OEQC
EQC
COE
WBR

215

UNIVERSITY OF HAWAII

Water Resources Research Center

17 July 1980

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, HI 96813

Subject: West Beach Resort

Gentlemen:

We have reviewed the EIS on the West Beach Resort and submit the following comments:

1. Since the proposed project has 1.9 miles of shoreline, it would be desirable to indicate compliance with the regulations of the Coastal Land Protection Act.

2. Elaborate details has been submitted on the issues of air pollution, tsunami, lagoon flushing, noise pollution, etc., and yet one paragraph (9.11.2) has been allowed for a very controversial item; the availability of potable water. Since there are stringent restrictions on water in the Pearl Harbor Basin, what will be the impact of this resort development, the proposed deep-water harbor development, and other developments being proposed? The resultant of all these water demands must be met by sources other than from the Pearl Harbor Basin. Are there other alternatives available other than desalinization?

3. In reference to Section 9.8.2 "Impact on Agricultural Production." There will be an impact of taking this land out of production for other crops, since sugarcane growing is not the only use for prime agricultural land. Even though sugarcane is low yielding on this particular area, other types of farming may be possible. Once this land is converted to urban usage, agriculture in any form is no longer feasible.

Thank you for allowing us to review and comment on the EIS.

Sincerely,

Henry K. Gee
Acting WRRC EIS Coordinator

HKG:jm

cc: Y.S. Fok
E.T. Murabayashi

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

Mr. Henry K. Gee, EIS Coordinator
Water Resources Research Center,
University of Hawaii
2540 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Gee,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

Thank you for your comments dated July 17, 1980 on the above mentioned Draft EIS. We have reviewed your concerns and would like to provide the following dispositions.

1. Evaluation of the proposed project with the regulations of the Coastal Land Protection Act. The Draft EIS evaluates the proposed project on the highest density allowed under the State Land Use Commission's approval (to an Urban designation). The Draft EIS is a generic document, that is, no specific details are available because it is the concept of the resort project that is under review. Specific land use plans, marina and lagoon design, type and number of structures, building height, and infrastructure plans have not been developed to a final detail stage. The EIS process is being conducted now because it is the intent of the process to allow the earliest possible review of the project prior to commitment. In this regard we felt that a review of the objectives of the Coastal Zone Management Act (Chapter 205-A, Hawaii Revised Statutes) was premature especially when the reduced size of the project would likely result in lesser environmental impacts. The objectives and policies of the Coastal Zone Management Act will be addressed at a future point in the governmental approval and permit process (since Federal permit action is required). At that point, the proposed project would be better defined, and such an evaluation more accurate. However, many reviewers have requested that such a review be included in the EIS document. Subsequently, we have reviewed the objectives and policies set forth in Chapter 205-A, HRS, and have provided a preliminary evaluation of of the project's concept to these objectives and policies. We still find that this effort is premature; in many instances our evaluation identifies only the procedure the developer intends to follow to comply with the stated objectives.

2. Potable water availability. Potable water concerns are addressed on pages 2, 14, 20, 25, 29, and 107, not in just one paragraph

(9.11.2) as indicated in your letter. The engineering consultants, Community Planning, Inc., has provided the following information on the availability of potable water.

The Ewa-Waianae water system is anticipated to change within the next five years. The Board (Board of Water Supply) has already designed and should construct shortly a 16-inch transmission main from its existing well in Waipahu to bolster the Kunia sources. This, however, is an interim measure to assure water in the Ewa-Waianae system until the Waianae-Nanakuli system is developed.

Both the City and State have started exploratory wells in Makaha and Waianae. It is anticipated that the area from Nanakuli to Makaha will, within the next five years, have it's own water system of about 5 MGD. Then West Beach, as well as the Campbell Industrial Park, would be the only logical service area for the existing water reservoir and water mains in Farrington Highway near the project site.

It is also our understanding that Campbell Estate has retained Walter Tagawa & Associates to review the water demands of its Ewa lands including West Beach. An exploratory well is being drilled by Campbell Estate near Makakilo as a recommendation of that water study.

Consequently, due to the unconfirmed nature of all the present proposals of the Board of Water Supply it is impossible as well as impractical to predict the source of water for West Beach which, at best, is about four (4) years away from initial occupancy and water use.

The developer will meet with the staff of Board of Water Supply prior to rezoning to discuss and resolve the water source issue. At that time, the Board of Water Supply, Oahu Sugar Company, and the Navy should have finalized their plans to properly utilize the water resource in the Pearl Harbor Basin.

You also inquire about other alternatives for potable water besides desalinization. There are other alternatives, more sophisticated and expensive. However, the most desirable source is from the present groundwater sources. If potable water cannot be obtained from the existing or future groundwater sources, the developer must seriously reconsider other all other alternatives to obtaining potable water.

3. Agricultural uses. There is, throughout the Draft EIS (pages 2, 13, 26, 105, and 131) statements which clearly identify the

loss of the prime agricultural lands (266 acres) and other important agricultural acreage. Concerns have been expressed as to the agricultural land loss. Initially, these concerns were based on the loss of sugarcane acreage; few comments are now expressed on the general agricultural losses (i.e. other potential crops) are being expressed. The preparation of the Draft EIS did not include a technical study of the agricultural productivity of the land. This is due to the fact that the parcel is designated Urban at the State level and the General Plan (City and County of Honolulu) identifies the future use of the land for Urban-Resort. The reason for not discussing the productivity of the lands lost to Agriculture was, simply stated, not a valid requirement due to the change in State and General Plan land use designations. The newly cited Urban uses have placed an intrinsic value greater than is normally attributed for agricultural lands.

The West Beach project will result in the loss 266 acres of prime agricultural lands (as identified by the State Department of Agriculture). On a different classification (Land Study Bureau), 104 acres of Class A lands (productivity is rated very good) and 418 acres of Class B lands (productivity is rated good) are within the West Beach project site. These acreages represents less that 0.5% and 1.3%, respectively, of the total Class A and B lands on Oahu.

Thank you for your comments on this Draft EIS.

Very truly yours,

F. J. Rodriguez

FJR/lka
Enclosure
cc: DLNR
DLU
OEQC
EQC
COE
WBR

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

FRANK F. FASI
MAYOR

DIRECTOR
TE6/80-18

July 25, 1980

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Your Letter of June 16, 1980 Regarding Draft Environmental Impact Statement for the Proposed West Beach Resort

We present the following comments on the draft EIS:

1. We have experienced various curb use problems from commercial, bus, and passenger loading activities in the Waikiki resort area. This report should address this problem and proposed solutions.

2. The spacing of the proposed median openings on the divided roadway section appears to be too short. The street system should be carefully planned and designed to provide convenience and optimum traffic service.

3. A private internal mass transit system should be tailored to best meet the needs of residents and interface with public transportation for regional or long-haul trips.

4. The section on access to the project site implies that two major highways, Highway Route H-1 and Farrington Highway, serve the area. This is erroneous and very misleading. Farrington Highway in this area is only an extension of Route H-1 which terminates at Palalai Street. The report should be amended to clarify this point.

5. The projected traffic volumes for 1990 are not referenced to any control point which makes evaluation very difficult.

6. The methodology used to develop traffic generation factors should be included in the study.

7. The traffic impact study should also address all modes of travel including pedestrian and bicycle activities of this proposed resort area as related to the existing and future transportation system.

We thank you for providing us this opportunity to review and comment on the project.

Very truly yours,

AKIRA FUJITA
Acting Director

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

September 2, 1980

Mr. Akira Fujita, Acting Director
Department of Transportation Services,
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujita,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

We have received and reviewed your Department's letter dated July 25, 1980, on the above mentioned Draft EIS. To provide a response to your comments, we have consulted both the project engineers at Community Planning, Inc., and the traffic consultant, Henry T. Au. Responses to your comments are provided, on an item by item basis, below.

1. & 2. Items 1 and 2 refer to details of final design. Curb use and median openings can be addressed later when building sites and lot areas are established. Even roadway alignment and width may change in the final design. Probable solutions may be designated areas or traffic lane for loading and limited median openings. It is noted that, unlike Waikiki, these problems can be resolved in the final design of the roadways.

3. We concur with your comment: "A private internal mass transit system should be tailored to best meet the needs of residents and interface with public transportation for regional or long-haul trips."

4. From a planning and traffic standpoint, the term "access" has a broader meaning and denotes whether a site is easily accessible from existing street and highway systems or from roadways that can be properly developed, in other words, access routes. The term "access" is often misunderstood as ingress and egress to the project site. Under the broader meaning, the project, therefore, is served by two major highways, Interstate H-1 and Farrington Highway. For ingress and egress to the project site, there is only one highway facility, Farrington Highway, servicing the project site. This clarification will be included in the Final EIS.

5. The report cited: "Highway Classification and Needs Study, State of Hawaii 1970-1990," is the reference for this information. It is assumed that the report refers to the general corridor of Interstate H-1, and not to a specific control point.

6. Traffic generation is defined as the total number of trips that start or end in a particular area within a given time period. As such, the particular area has boundaries, and therefore, only those vehicles crossing the boundaries are counted. There may also be a substantial number of trips that will emanate from or be destined for the different generators within the development, but these internal trips conducted within the particular area are not generated trips with respect to external origins. In some instances, such as the Central Business District, the number of internal trips usually is substantial, but these trips would not be included in trip generation. The same is true of a residential neighborhood where trips would not be counted so long as these trips did not cross the boundary lines.

   If an attempt is made to reach a high level of accuracy, the process becomes quite complex and because of the unpredictability of the numerous variables, the results obtained are usually either too low or too high. Furthermore, in most cases, the variability typical within a particular land use does not warrant this high level of analysis. It is more appropriate to choose a trip generation approach that is simple and yet be reasonably accurate.

   Specifically, the State Department of Transportation have indicated that the residential trip rates used in the traffic impact report are reasonable. The trip generation rate used for the commercial land uses was 600 trips per acre. This is higher than the typical (mainland) shopping centers which range from 30 to 392 trips per acre. In a shopping center there are usually four or five days of the year when the traffic generation rate may be as high as 3,500 trips per acre. However, these are not typical conditions and it would not be practical nor economically feasible to design or provide for this high level of service, resulting in substantial excess capacity during all but a few days of the year. The traffic generated by the hotel/condominium uses was based on 0.35 trips per unit in a 24-hour period. The traffic consultant selected the most appropriate traffic generation rate which would be typical of the facility and which would provide the most reasonable volumes. This is a matter of judgment subject to disagreement by others.

7. Because the design details have not been prepared, the other modes of travel were not included in the traffic study. As the details are prepared, the engineering consultants will contact your Department for roadway requirements and other transportation requirements.

Thank you for your comments.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLU
DLNR
OEQC
EQC
COE
WBR

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

FRANK F. FASI
MAYOR

GEORGE S. MORIGUCHI
CHIEF PLANNING OFFICER

DGP6/80-1740(CT)

July 30, 1980

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Draft Environmental Impact Statement for the Proposed West Beach Resort, dated June, 1980
Comments Requested, June 16, 1980

We offer the following comments.

The Proposed Action

There seems to be some inconsistency in describing the proposed action.

"The plan envisions hotel/condominiums 7,520 units (109 acres), residential 1,482 units (97.9 acres), low/medium density residential 198 units (12.4 acres), . . ." (p. 16, Item 7.2(a)).

"Total residential condominium units (1,680 total) is estimated to cost $210 million (1980 value)" (p. 22, Item 7.2(a)(11)).

Table 14 Economic Impacts of West Beach Project lists the following possible configuration (p. 110).

Deluxe Hotel	1,000	units
1st Class Hotel	2,600	"
2 bdrm Condo/Resort	2,700	"
1 bdrm Condo/Resort	900	"
Subtotal	7,200	units
3 bdrm Multifamily	900	units
2 bdrm Multifamily	900	"
2 bdrm LO-Mid Income	200	"
Subtotal	2,000	units
Total	9,200	units

"The proposal is to develop a self-contained destination resort providing full services and amenities, to include approximately 6,945 resort units, 1,764 residential units in various densities ranging from 8 to 40 units per acre, . . ." (Traffic Impact Statement for West Beach Resort Project, by Henry Tuck Au, undated, p. T-1, Item 3).

Traffic

Even with the lower number of units, as indicated above, it is projected that the highways can accommodate the ultimate development, but at Level of Service E. The EIS does not indicate that Level of Service E is an undesirable situation.

Section 5.4 Issues to be Resolved (pp. 14-15) should include the designs of the two proposed "interchanges" of Farrington Highway with the proposed West Beach access roads (see Letter May 18, 1979, from Federal Highway Administration to Environmental Communications, Inc., pp. 157-158).

Shoreline Access

The EIS indicates that the project will improve access to the existing shoreline area (p. 15). However, it is later indicated that "people will be kept clear of the lagoon entrance and exit tidal channels or ducts, and the wave trap run-up ramp" (p. 69, Item 9.2.102.4).

While the EIS does not indicate what length of shoreline is thus affected, this seems to involve a considerable portion of the 1.1 miles of shoreline at West Beach. The EIS should quantify this.

The improvement of access to the shoreline will be more than offset by restrictions to the shoreline and by the increased long-shore currents which will make swimming dangerous.

Littoral Processes

The impact of the lagoon-related construction on littoral drift is discussed in the EIS, but the impact of the breakwater proposed north of the marina entrance channel on longshore littoral drift is not considered. After the lagoon and marina designs are complete, a revised discussion of impacts should be included.

Sewerage

The EIS indicates that

> "The total project sewage will be conveyed via gravity flow to a pump station to be located in the hotel/ condominium area. The sewage is then pumped up to and along the old railraod right-of-way for an approximate distance of 10,000 feet. The sewage will then be transported by gravity flow along the old railroad right-of-way for a distance of 10,000 lineal feet to the proposed Makakilo interceptor sewer, connecting at that point for final transport to Honouliuli Sewage Treatment Plant" (p. 20, Item 7.2(a)(3)).

The Department of Public Works' response of May 4, 1979, to the EIS Preparation Notice indicated that the Makakilo Interceptor Sewer was not designed to handle the flows from any development west of Makakilo and Honokai Hale subdivision, and that if any enlargement of the Makakilo Interceptor Sewer is required, the additional cost can be construed to be an adverse economic impact. The EIS, however, does not indicate what this additional cost might be and who will pay it.

Drainage

The EIS contains a one-paragraph discussion on drainage in the chapter describing the proposed action (p. 20, Item 7.2(a)(5)). The technical report on environmental conditions by Bathen is likewise brief. It indicates that the routings of the two intermittent streams, Waimanalo and Makaiwa gulch, will change entirely and that a portion of the storm runoff may be routed to the proposed marina with a portion of the runoff from the northern section of the project being routed to the coastline.

The EIS should indicate what specific drainage system facilities are proposed, including location of drainage channels, siltation ponds or lagoons, and the ultimate fate of drainage from the project (see DGP comments of May 7, 1979, on EIS Preparation Notice, p. 144).

If runoff from the northern portion of the project is routed to the coast, there will be stress on the coral community at the point of discharge. Bienfang and Brock indicate that present water quality data describe a "pristine, unperturbed coastal region" (Bienfang, Paul K. and Brock, Richard E., Predevelopment Reconnaissance of the Water Quality and Macrobiota Conditions Affronting the West Beach Coastline, Oahu, Hawaii, January 1980, p. 20).

Housing

The EIS should indicate what segment of the present housing market is expected to be served by the proposed project, based on projected housing costs. This could be one of the criteria for allocation of scarce water resources for development.

Agriculture

The discussion in the EIS (pp. 103-105) seems to indicate that sugar is the only viable agricultural use possible on these lands. The response to the comments of the Soil Conservation Service on the loss of prime agricultural lands states:

> "The continued use of agricultural lands for purposes or crops other than the traditional sugar and pine-apple has been studied and discussed in many previous areas of Hawaii. It still remains that no single landowner can economically cultivate large tracts of agricultural lands in competition with imported vegetable crops due to high costs for labor and land. Until this problem can be solved, lands will continue to be redesignated for other uses" (EIS, p. 177).

We are not aware of any recent studies confirming the EIS consultant position. If any reports are available, they should be listed.

Air Quality

The EIS indicates that "Federal Air Quality Standards have been set at levels below which known adverse effects are expected to occur" (p. 73). This seems to be erroneous. Air quality standards indicate levels which could result in adverse effects if they are exceeded; State standards are generally lower because we expect better air quality in Hawaii.

Thank you for affording us the opportunity of reviewing the impact statement.

Sincerely,

GEORGE S. MORIGUCHI
Chief Planning Officer

GSM:ws

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

Mr. George S. Moriguchi, Chief Planning Officer
Department of General Planning,
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Moriguchi,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

We have received and reviewed your letter of July 30, 1980, commenting on the above mentioned Draft EIS. Our response includes input from the various technical consultants. Dispositions are provided on an item by item basis, below.

1. The Proposed Action. During the preparation of the technical studies (over a one year period) the developer was reviewing various options in the total number of units and unit mix. Although the unit number/mix differs in the reports cited, we feel that the difference is not significant to warrant a change in the impacts as described in the technical reports or the Draft EIS.

2. Traffic. In response to your comments on the undesirability of Level of Service E, the traffic consultant, Henry T. Au, provided this response:

   What is not understood and even many traffic and transportation engineers are not familiar with it, is that the capacity of a highway is a rate instead of a quantity and is not directly comparable to the capacity of a container or enclosed space. The capacity of a highway, therefore, is a variable and can be affected by a number of factors. Until the publication of the "Transportation & Traffic Engineering Handbook, 1976," the capacity of the traffic facility, heretofore, has never been fully explained. This clarification is now set forth on page 309 of the "Handbook".

   That the calculated or existing capacity is very conservative and the actual capacity will be considerably higher is substantiated by past and present traffic volumes. It should be emphasized that traffic volumes used for establishing the numerical values for the capacities of the different types of roadways were determined from studies of many highways under a variety of conditions. Thus, it would be impossible to state that the volume measured or calculated is the absolute maximum that could

be carried, inasmuch as maximum volumes observed at different times at one point will show a range of values. The capacity values, therefore, should be considered as the average maximum and need to be adjusted to actual roadway conditions inasmuch as there are too many variables.

The traffic analysis used the worst case condition for maximum impact. The traffic projections assumed a continuation of a high level of activity and growth in the Waianae and Ewa Districts which is very unlikely. Also, no reliance was made on mass transportation or other mitigating measures to reduce the impact of the project. Thus, in actual practice, the 1990 traffic volume should be considerably less than the project traffic volume. As an example, the respective developers will not be able to implement the two theme parks (Caneland and Kahe Point). These projects, for all practical purposes, have been abandoned. Consequently, it is not expected that Level of Service E will be a daily occurrence, but may occur only a few days of the year.

Regarding your comments on the need for designs for the two proposed interchanges: The Draft EIS is a generic document based on the highest density allowable for the resort project. No detailed plans have been drawn at this time. This is consistent with the intent of the EIS process to allow comments to be made prior to a commitment for a specific action. Present plans for the Farrington Highway interchange and at-grade intersection indicate only a conceptual scheme. Detailed plans will be prepared at a later date to conform to the applicable Federal and State standards.

3. Shoreline Access. Because of the possibility of accidents in the lagoon entrance and exit tidal channels or ducts, and the wave trap run-up ramps) the public will be advised to keep out of these areas. The currents and/or mechanisms utilized in these areas warrant safety precautions be taken.

   Because the final lagoon size, shape, and specific location have not been finalized, it would be premature to quantify the amount of shoreline affected. Additionally, if the project is reduced in size it is likely that the bathing lagoon(s) will be smaller.

   Comment: "The improvement of access to the shoreline will be more than offset by restrictions to the shoreline and by the increased long-shore currents which will make swimming dangerous." We concur with this comment.

4. Littoral Processes. The last project concept reviewed by the oceanographic consultants did not contain a marina breakwater extending seaward of the site coastline. The marina entrance channel intersects the much larger Barbers Point Harbor channel landward of the coastline. Thus the subject of littoral drift in that area was not included. We note, however, that the earlier marina concepting work did at one time consider seaward extending breakwaters. If the final design again includes such a breakwater the oceanographic consultants agree that the subject of littoral drift around the marina entrance will require evaluation in the design phase.

5. Sewerage. The City has acknowledged accepting the sewage at their Honouliuli Treatment Plant. Attached are copies of letters from Community Planning, Inc. to the City's Department of Public Works and their subsequent letter to the Department of Health which addresses the oversizing of the Makakilo Interceptor Sewer. The developer proposes to bear the cost of the oversizing. If the Makakilo Interceptor Sewer is not oversized, the Developer intends to construct (at his expense) a separate sewer line from West Beach to the Honouliuli Wastewater Treatment Plant.

6. Drainage. Although the details of final design are incomplete at this time, it is the engineer's intent that the 200±-acre golf course will be designed for retention of storm runoff. However, runoff from storms exceeding the retention capacity will overflow into the Marina as is the present practice today at the Ala Wai Small Craft basin, Keehi Lagoon, Honolulu Harbor, and Kaneohe Bay.

   Paul Bienfang, the biological oceanographic consultant, provides the following discussion on your comments relating to the impact on the coral community at the point of stormwater discharge.

   The most pronounced effects of groundwater infiltration and storm runoff to the nearshore coral communities will occur in the regions adjacent the entrance channel to the marina. Decreased size and diversity of coral communities are expected to result from the increased sedimentation and turbidity (decreased water clarity) that will likely be associated with this region. This information will be included in the Final EIS.

7. Housing. At this time the developer does not know the specific segment of the present housing market to be served by the project.

8. Agriculture. There are, throughout the Draft EIS (pages 2, 13, 26, 105, and 131), statements which clearly identify the loss

of prime agricultural lands (266 acres as defined by the State's Department of Agriculture). Concerns have been expressed as to the agricultural land loss. Initially these concerns were based on the loss of sugarcane acreage; when that issue was resolved, the comments focused on the potential of other crops being cultivated. The preparation of the Draft EIS did not include a technical study of the agricultural productivity of the land. This is due to the fact that the parcel is designated Urban at the State level and the General Plan (City and County of Honolulu) has designated the use as Urban-Resort. The reason for not discussing the productivity of the lands lost to Agriculture was, simply stated, not a valid requirement due to the change in Land Use and General Plan designations. The newly cited Urban designations have placed an intrinsic value greater than is normally attributed for Agricultural lands.

   The West Beach project will result in the loss of prime agricultural lands (266 acres) and other important agricultural lands (133 acres) as defined by the State's Department of Agriculture. Under the Land Study Bureau's classification, 104 acres of Class A lands (rated very good for crop production) and 418 acres of Class B lands (rated good for crop production) are within the West Beach site. These amounts respectively represents 0.5 percent and 1.3 percent of the total Class A and B lands on the island of Oahu.

9. Air Quality. The air pollution consultant, Barry Root, has reviewed your comment and the statement in the air quality report and Draft EIS. Root indicated that the statement made was correct; your comment indicates a misreading of the statement.

We appreciate your comments and hope that these responses will clarify the discussions included in the Draft EIS.

Very truly yours,

F. J. Rodriguez

FJR/lka
Attachments

cc: DLU
DLNR
OEQC
EQC
COE
WBR

HAWAIIAN TELEPHONE
GTE

Herman S.L. Hu
Network Planning
& Engineering Director

July 31, 1980

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Commissioners:

Draft EIS for West Beach Resort
Honouliuli, Ewa District, Oahu

We have reviewed the subject Draft EIS and offer the following comments for consideration and incorporation into the Final EIS.

In paragraph (6) Utilities on page 20 of the Draft EIS, it is stated that "Utilities will be underground to enhance the environment." We are in agreement with this and will design our telecommunication cable and wiring systems within the development accordingly. However, in compliance to our tariffs, the developer will be required to provide at his cost, all of the necessary underground supporting structures (trenching, ducts, manholes and other required fixtures) to accommodate our cable and wiring facilities.

As a matter of information, in order to provide telecommunication services to this development, it will be necessary for us to augment our existing overhead facilities between our Barbers Point Switching Center and the project site, a distance of approximately two miles. Augmentation will be accomplished by initially adding a large-sized overhead cable on existing poles located in the railroad right-of-way. Thereafter, in all likelihood, a large-sized cable will be added every three to five years during the twenty-year construction period of this development.

Alternatives to the periodic addition of cable will continue to be studied, and if any alternative proves to be economically feasible, it will be implemented.

Thank you for the opportunity to review and comment on this EIS. Should you have any questions, please call me at 546-7733.

Sincerely,

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F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

September 2, 1980

Mr. Herman S. L. Hu
Network Planning and Engineering Director
Hawaiian Telephone
P.O. Box 2200
Honolulu, Hawaii 96841

Dear Mr. Hu:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORTS PROJECT

We have received and reviewed your letter dated July 31, 1980 on the abovementioned Draft EIS. Below we have specifically responded to each of your comments.

1. Regarding your second paragraph on the cost of undergrounding utilities. The cost for undergrounding the utilities will be financed by the developer. This will be acknowledged in the Revised EIS.

2. Regarding the third and fourth paragraph of your letter on the augmentation of existing overhead telephone facilities. We recognize that new facilities such as described in your letter will be needed. We will include this information in the Revised EIS.

Thank you for your comments.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLU
EQC
OEQC
DLNR
COE
WBR

GEORGE R. ARIYOSHI
GOVERNOR

RICHARD O'CONNELL
DIRECTOR

TELEPHONE NO.
548-6915

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

550 HALEKAUWILA ST.
ROOM 301
HONOLULU, HAWAII 96813

August 1, 1980

MEMORANDUM

TO: Addressees (see below)

FROM: Richard L. O'Connell, Director
Office of Environmental Quality Control

SUBJECT: Environmental Impact Statement, West Beach Resort, Ewa District, Oahu

We have reviewed the subject statement and have prepared the enclosed comments for your consideration.

It should be noted that if the proposed project involves the use of state lands (e.g. marina entrance and lagoon appurtenances), acceptance of the EIS by the Governor would be required. Therefore, upon acceptance by state and county agencies, five copies of the revised EIS should be filed with this Office for action by the Governor, if appropriate.

We hope the enclosed comments will be helpful to you in preparing the revised EIS.

Addressees: Director, DLNR
Director, DLU
District Engineer, US Army COE

Enclosure

cc: Environmental Communications, Inc.
EQC

GEORGE R. ARIYOSHI
GOVERNOR

RICHARD O'CONNELL
DIRECTOR

TELEPHONE NO.
548-6915

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

550 HALEKAUWILA ST.
ROOM 301
HONOLULU, HAWAII 96813

August 1, 1980

COMMENTS ON
WEST BEACH EIS

DRAINAGE (page 20, par. 7.2 (a)(5))

It is stated that drainage from peak storms (50 and 100 year events) will drain to the marina after detention on the golf course while drainage from storms of lesser intensity will be absorbed by percolation into the ground. It seems unrealistic to expect all storm drainage (except 50 and 100 year events) to percolate to the ground. Considering the finding elsewhere in the EIS that surface drainage entering the marina would have significant adverse effects on marina water quality, a surface drainage plan should be developed which routes all drainage away from both the lagoons and the marina except for extreme (50 and 100 year) events. This matter should receive more discussion in the EIS.

OFF-SITE COSTS (page 22, par. 7.2 (a)(12))

The EIS indicates the breakdown of costs (Table 1) for the proposed project. Off-site costs are mentioned in the text but are not included in the table. What amount of public funds will be expended as a result of this project? What off-site costs will be paid by the developer?

MARINA SOURCE WATERS (page 53, par. 9.2.38)

What measures will be taken to insure that no sewage will be discharged from boats to the marina? Will sewers and pumpouts be provided to each boat slip?

PAGE 54, par. 9.2.41

It does not seem reasonable to add together inflows to the marina, the coastal water equivalent of the tidal prism of the marina (22.8 mg) and contributions from the adjacent lagoon (21 to 33 mg) and infiltration (4 mg). These inflows cannot all occupy the same tidal prism space. It would be more logical to reduce the coastal water input by the amount of any flows entering from other sources. (This also applies to par. 9.2.64)

POTENTIAL IMPACTS (page 59, par. 9.2.65)

Little discussion is presented in the EIS on the environmental conditions expected within the marina. Under some circumstances the marina waters could apparently contain up to 100 times the nitrate levels cited as inducing "considerable biostimulation." Considering the poor flushing characteristics of the marina, excessive algal populations could be present. Further discussion of this subject is warranted and should include consideration of the longitudinal variation of water quality conditions within the marina rather than making the unrealistic assumption of a completely mixed system.

AIR QUALITY (page 75, par. 9.3.11)

"The most recent tabulation of air pollutant emissions by type and source category on Oahu is presented in Table 8." Table 8, page 76, is outdated. We refer you to the HPOWER EIS, Table IV-14, page IV-24 for more recent data.

AIR POLLUTANT LEVELS (page 75, par. 9.3.9)

The EIS indicates that present air pollutant levels must be estimated based on data from nearby monitoring stations, short term on-site measurements and air pollution dispersion modeling. However, there are no nearby representative monitoring stations and no original measurement or modeling data is presented for the major pollutants, sulfur dioxide and particulates. Considering that the project site is surrounded by major air pollution sources to the north (power plant), to the east (field burning and cane haul roads), and to the south (Campbell Industrial Park),

air quality must be considered an important environmental consideration. This depth of the air quality analysis presented is not commensurate with the importance of this environmental consideration and further detailed analysis, especially dispersion modeling of sulfur dioxide and particulates is needed.

SULFUR DIOXIDE (page 75, par. 9.3.12)

The EIS states, "Sulfur dioxide emissions from Campbell Industrial Park area do not appear to be a problem since sulfur dioxide concentrations at Barbers Point air quality monitoring station are well within allowable standards." This is a questionable conclusion since this monitoring station is on the opposite side from project of major nearby sources. The City and County of Honolulu EIS on the HPOWER project indicates that existing sulfur dioxide sources in Campbell Industrial Park are probably causing violations of both Federal and State air quality standards under certain conditions at the present time. Dispersion modeling of existing and projected Industrial Park sulfur dioxide sources for impact on the project is needed to properly evaluate air quality.

Such modeling could determine, for example, the combined effect on short-term SO_2 concentrations at the project site from all existing SO_2 sources in Campbell Industrial Park and the following proposed sources: Conoco refinery, Hawaiian Oil and Refining Corp., HIRI refinery addition, HPOWER project, Ocean Minerals Co., as well as vessels in the deep draft harbor.

ODORS (page 82, par. 9.3.28)

There should be discussion of the possible impact of odors from disposal of marina dredge spoil. Since the EIS is not clear as to the disposal of this dredged material, it is assumed that the spoil will be dried on land which may create an odor and pest problem. This also applies to spoils from the nearby deep draft harbor.

NOISE (page 92, par. 9.4.7)

This EIS contains the statement, "The compatibility of the proposed development with the operation of the NAS will have to be discussed between local and state permitting agencies and the NAS representatives." This subject should

be reviewed in depth in this EIS.

NOISE FROM STREET SYSTEM (page 95, par. 9.4.12)

"Internal street system noise is unlikely to exceed $L_{dn}75$, and hence, the interior residential lots can be developed to HUD and other federal noise criteria." Does this statement take into account noise contributions by aircraft? What mitigating measures would be needed to meet the HUD $L_{dn}65$ criteria if the street noise is at $L_{dn}75$?

ENDANGERED SPECIES (page 100, par. 9.6.2)

The statement that, ". . . the Hawaiian owl, a species not classified as threatened or endangered," is inaccurate. The Hawaiian owl is classified as endangered for Oahu and is listed on the State's endangered species list.

AGRICULTURAL CONSIDERATIONS (page 108, par. 9.8)

What will be the impact on sugarcane harvesting operations that degrade air quality (burning and haul road traffic) of developing residential units at a down-wind location?

SALT WATER INTRUSION (page 107, par. 9.11.3)

"Bathen acknowledges that the extent of impact on the fresh water lens due to infiltration of salt water is not known." We note that Dr. Bathen's expertise is not in the field of ground water hydrology, but rather in ocean engineering. Appropriate expertise should be applied to this important matter to determine how much salt water intrusion will occur. In addition, when discussing the impact of salt water intrusion, consideration should be given to the cumulative impact of salt water intrusion due to Barber's Point Harbor, Ewa Marina community, and this project. Since each of these projects propose to reduce the area of caprock which prevents ground water from flowing into the ocean, and since the availability of fresh water is a serious concern in this area, this subject should receive more attention in the EIS.

GOVERNMENTAL SERVICES AND FACILITIES AND UTILITIES (page 107, par. 9.11)

No firm plans are described to obtain 5.5 mgd of potable

water and to dispose of 2.5 mgd of sewage. Therefore, the impact of these important project features cannot be assessed and the EIS is, accordingly, seriously deficient in this respect.

SOLID WASTE (page 109, par. 9.11.6)

No data is presented on the amount of solid waste to be generated by the project and the impact on available disposal facilities.

TRAFFIC (page 111, par. 9.12.3)

A prime concern with respect to cumulative project impacts is related to traffic. With the West Beach Resort, H-1 traffic for the year 1990 should total 47,070 vehicles. With Ewa Marina, Makakilo, Palehua, Barbers Point Harbor, Ewa Village and Waianae traffic, the present carrying capacity of H-1 will be exceeded. Therefore, the assertion that, " there is a question of whether or not the additional traffic will have adverse effects on the major traffic arteries . . ." seems inappropriate. The traffic problem becomes crucial when, as the EIS points out, ultimate development of West Beach Resort results in Level of Service E for traffic, even disregarding increases due to other projects. This is the lowest service level for traffic as defined by the Department of Transportation. What mitigation measure will be taken to avoid this capacity problem? Has this matter been coordinated with the Department of Transportation? An expanded discussion is warranted to include cumulative impacts and mitigation measures.

UNEMPLOYMENT LEVELS (page 122, par. 9.14.3)

We recommend that unemployment data more recent than 1970 be used.

FUTURE PROJECTS (page 125, par. 9.15.3)

The EIS should also include Ewa Marina Community and Ewa Village as projects proposed in the area so as to accurately reflect changes due to proposed actions and land uses in the Ewa plain.

IMPACT ON LAND USES (page 129, par. 9.15.4)

"No one project in the Ewa-Pearl City region will

singularly create these impacts." As previously mentioned, this project alone will create significant traffic congestion which does not reflect other proposed projects. Consequently, we find that the cited statement is unwarranted.

Further, the EIS states, "The physical development of land is necessary to provide fundamental housing economic benefits to the society and individual and that economic benefits create excess funds which result in reinvestment in similar physical development." What are "fundamental housing economic benefits?" How do they create excess funds? Is reinvestment in similar physical development a desirable result?

TABLE 14 (page 110)

The table reflects 200 low to moderate income units. However, the text gives few details regarding how this will be accomplished. Has this proposed project feature been formally offered to state or county housing authorities? If the proposed project is reduced in size, will the low to moderate income housing remain?

POLICIES

The EIS lacks discussion of how the proposed action relates to Coastal Zone Management policies, the State Plan, the General Plan, and the Special Management Area.

MARINA

The potential conflict of recreational vessels and commercial vessels in the same entrance channel is a matter of concern. Have separate entrance channels been considered? Has the State Department of Transportation been consulted regarding the use of a single channel? A discussion on these matters is warranted.

CIGUATERA

The leeward coast has been plagued with outbreaks of ciguatera toxin poisoning of fish. Although its origin is unknown, it has been speculated that dredging of harbors may be a possible contributing factor. Because the Ewa area is known for its rich fishing grounds, we recommend discussion of this matter.

TECHNICAL STUDIES

AIR QUALITY TECHNICAL SUPPORT STUDY

PARTICULATES (page 7)

The analysis of existing particulate emissions from sugarcane burning uses data from fields located at some distance from the project site. This analysis should also consider the impact of burning fields located adjacent to the project site which will have more significant effects.

Further discussion is needed of the compatibility of residential development downwind of sugarcane harvesting activities and the long range impact on the viability of such agriculture.

PAGE 18

The statement, "No emission data is available for the planned resources recovery facility," is no longer accurate. (See HPOWER EIS.)

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

Mr. Richard L. O'Connell, Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. O'Connell,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

Presently we are reviewing the procedural requirements for the EIS to be accepted by the Governor. In this regard we have written to Donald Bremner, Chairman of the State's Environmental Commission, regarding the Commission's interpretation of the need for the Governor's acceptance of the EIS. We will follow the required procedure if the Governor's acceptance is mandated.

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Your Office's comments of August 1, 1980 have been reviewed by various technical consultants. Their responses have been incorporated into the dispositions provided below.

1. Drainage. Although the details of final design are incomplete at this time, it is the engineer's intent that the 200±-acre golf course will be designed for retention of storm runoff. However, runoff from storms exceeding the retention capacity will overflow into the marina. Hotel-condominium sites will be graded to drain storm runoff away from the lagoons.

2. Off-site costs. Public funds for this project will not be used directly; indirect use of public funds as discussed in paragraph 7.1 (12), page 22 of the Draft EIS. The developer's major off-site costs include the interchange and intersection connections along Farrington Highway, oversizing of the Makakilo interceptor sewer line, other sewage lines and facilities cost, and water development and facilities cost (on a pro-rata basis).

3. Marina Source Waters. Boat sewage is a management matter and is governed by State and Federal laws and regulations (i.e. holding tanks). Compliance with these laws and regulations is mandated. It is our understanding that raw sewage cannot be discharged from the boats to the marina. The specific number of sewers and pumpouts to be included in the marina will depend on governmental requirements, ability to enforce the laws, and advanced planning.

4. Page 54, par. 9.2.41. Essentially any amount of water can be added to the marina providing sufficient head is applied to insure an inflow condition (one way). The total of these inflows can be greater than the normal (i.e. in the absence of inflows) tidal prism for the marina, thereby creating a constant outflow condition of the marina entrance. This outflow will, however, still exhibit tidal like characteristics with changes in water depth and exit velocity dependent upon head changes induced by both the inflows and daily varying tidal prism head. The daily net exchange flow from the marina may thus vary from assymetric inflows and outflows, to an outflow only, with this outflow varying in flow strength according to the prevailing tidal conditions at the marina entrance, the prevailing winds at the surface, and the prevailing infiltration flow. Perhaps the author of the comment is unfamiliar with the potential physical responses or the nature of tidal prisms under these conditions.

5. Potential Impacts (page 59, par. 9.2.65). It is agreed that the marina water will be at times nitrogen rich and likely experience "considerable biostimultation". The one way flow, or flushing from the marina is expected to be better than any existing inland harbor in Hawaii but be insufficient to prevent algal growth. Thus, for impact purposes the longitudinal variations of algal populations are of less consequence than the mix of water exiting the marina daily and impacting the coastal area.

6. Air Quality (page 75, par. 9.3.11). Table 8, page 76, has been replaced with updated data. This data was not available at the time the air quality study was prepared, nor was it available at the time when the Draft EIS for West Beach was being prepared.

7. and 8. Air Pollutant Levels (page 75, par. 9.3.9) and Sulfur Dioxide (page 75, par. 9.3.12). These two comments state in essence that a more elaborate measurement and modeling study should be carried out in order to evaluate present and future levels of particulates and sulfur dioxide at the present site. While that may be a desirable undertaking, it should not be incumbent on the developer of this particular project to solely finance such an expensive study. The purpose of the EIS is to describe the impact that a proposed project is likely to have on its surrounding environment. As stated in the air quality study, the expected particulate impact of this project will be limited to fugitive dust emissions during construction. Once the project is completed both particulate and sulfur dioxide emissions will be negligible.

As noted in the study, there are several planned developments in the Campbell Industrial Park and the Hawaiian Electric Company is planning an expansion of the Kahe Power Plant. Each of these projects will be required to meet PSD (Prevention of Significant Deterioration) Standards that should insure maintenance of air quality within allowable standards at the project site. It is the responsibility of the developer of each of those projects to carry out monitoring and/or modeling efforts sufficient to prove that such standards can be met, but it is unfair to expect that a comprehensive study for all of them be done by preparers of the West Beach EIS.

9. Odors (page 82, par. 9.3.28). Dredging the lagoons and marina will be conducted in the "dry". Stockpiling is not expected to be a problem since the coral fill is to be used at the golf course and residential locations.

10. Noise (page 92, par. 9.4.7). Aircraft noise contributions, ranging from 50 to 55 L_{dn}, were considered. At traffic noise levels of 65 to 75 L_{dn}, these aircraft noise levels would not materially add to the L_{dn} values generated by traffic.

11. Noise from Street System (page 95, par. 9.4.12). At traffic noise levels of L_{dn} 75, mitigation measures required would be similar to those discussed in paragraph 9.4.10 for lots fronting Farrington Highway. However, the use of mitigation measures suggested in paragraph 9.4.12 would be more appropriate for limiting internal street system noise to levels below L_{dn} 65.

12. This comment was also made by the State Department of Land and Natural Resources. The Final EIS will identify the Hawaiian Owl as endangered for Oahu and will acknowledge that it is on the State's endangered species list.

13. Agricultural Considerations (page 103, par. 9.8). This comment addresses the problem of particulate emissions from sugarcane burning and harvesting activities.

Reference 7 to the technical study (air quality) contains over 200 pages of discussions regarding the problem of sugarcane field burning and air quality. The three fields depicted in Figures 9 through 11 are extracted from that reference to show expected downwind particulate concentrations from typical field burning activities in the plantation adjacent to the proposed project. The technical study clearly states that based on the data shown in the figures it is likely that particulates from cane burning could cause the State of Hawaii (but probably not Federal) short-term AQS to be exceeded within the project area. For any given home site within the project, this would not likely

to happen more than once per year since the nearest upwind field would be burned only about once every two years.

Placing a residential/resort development downwind from sugarcane harvesting activities will not in itself create an adverse impact on the viability of agriculture if care is taken to burn nearby fields only under the meteorologically favorable conditions described in Reference 7. It is highly likely, however, that at least some future residents of the project may be motivated to complain about smoke and dust from agricultural activities. If the state control agency were to act on these complaints to the point where the burn-before-harvest practice became illegal, this would constitute a severe financial burden to the major agricultural concerns involved in sugarcane growing on Oahu.

The problem of residents living downwind from sugarcane burning is not unique to the West Beach area, however, and for the present it appears that the state is not considering an all out ban on sugarcane burning. It seems unlikely that a few complaints from West Beach will alter that situation.

14. Salt Water Intrusion (page 107, par. 9.11.3). Dr. Bathen's experience is in oceanography and environmental studies (not ocean engineering per se). (This will be corrected on page 192 of the Draft EIS.) The limit of ground water hydrology used (by both Bathen and Bienfang) was applied to just infiltrating rates and quality of infiltrating water entering the lagoons and marina.

At this time the developer is seriously considering a significant reduction (50 percent) of the marina. As the marina design is finalized and the technical verification studies prepared, a groundwater hydrologist will be consulted to make an evaluation of saltwater intrusion into basal groundwater. Based on his evaluation, the developer will minimize probable adverse impacts. The developer will adhere to the applicable regulations and laws which relate to the adverse impacts of saltwater intrusion, and groundwater seepage.

15. Governmental Services and Facilities and Utilities (page 107, par. 9.11). Regarding potable water, the project engineer responds as follows:

The Ewa-Waianae water system is anticipated to change within the next five years. The Board (Board of Water Supply) has already designed and should construct shortly a 16-inch transmission main from its existing well in Waipahu to bolster the Kunia sources. This, however, is an interim measure to assure water in the Ewa-Waianae system until the Waianae-Nanakuli system is developed.

Both the City and State have started exploratory wells in Makaha and Waianae. It is anticipated that the area from Nanakuli to Makaha will, within the next five years, have its own water system of about 5 MGD (million gallons per day). Then West Beach, as well as the Campbell Industrial Park, would be the only logical service area for the existing water reservoir and water mains in Farrington Highway near the project site.

It is also our understanding that Campbell Estate has hired Walter Tagawa & Associates to review the water demands of its Ewa lands including West Beach. An exploratory well is being drilled by Campbell Estate near Makakilo as a recommendation of that water study.

Consequently, due to the unconfirmed nature of all the present proposals of the Board of Water Supply it is impossible as well as impractical to predict the source of water for West Beach which, at the minimum, is about four (4) years away from initial occupancy and water use.

The developer and/or his agents will meet with the Board prior to rezoning to discuss and resolve the water source issue. At that time the Board of Water Supply, Oahu Sugar Company, and the Navy should have finalized their plans to properly utilize the water resource in the Pearl Harbor Basin.

Regarding your comments on sewage, the project engineer responds:

The City has acknowledged accepting the sewage at their Honouliuli Treatment Plant. Attached are copies of letters from Community Planning, Inc. to the City's Department of Public Works and their subsequent letter to the Department of Health. If the Makakilo Interceptor Sewer is not oversized, the Developer intends to construct (at his expense) a separate sewer line from West Beach to the Honouliuli Wastewater Treatment Plant.

16. Solid waste (page 109, par. 9.12.3). Using a de facto population of 17,500 and assuming that the average person generates 3.5 pounds of solid waste per day (based on the Refuse Division's figures); the total solid waste generated by the project would be approximately 30 tons per day. Other uses such as commercial areas, park areas, visitor facilities, et cetera may add an additional three tons of solid waste. The solid waste will be collected by private refuge companies and disposed of at a private certified landfill or at a public landfill for a fee. This information will be incorporated into the Final EIS.

17. Traffic (page 111, par. 9.12.3). Level of Service E is not the lowest service level for traffic, there is a Level of Service

F, which is the lowest service level. What is not understood and even many traffic and transportation engineers are not familiar with it, is that the capacity of a highway is a rate instead of a quantity and is not directly comparable to the capacity of a container or enclosed space. The capacity of a highway, therefore, is a variable and can be affected by a number of factors. Until the publication of the "Transportation & Traffic Engineering Handbook, 1976," the capacity of the traffic facility, heretofore, has never been fully explained. This clarification is now set forth on page 309 of the "Handbook".

That the calculated or existing capacity is very conservative and the actual capacity will be considerably higher is substantiated by past and present traffic volumes. It should be emphasized that traffic volumes used for establishing the numerical values for the capacities of the different types of roadways were determined from studies of many highways under a variety of conditions. Thus, it would be impossible to state that the volume measured or calculated is the absolute maximum that could be carried, inasmuch as maximum volumes observed at different times at one point will show a range of values. The capacity values, therefore, should be considered as the average maximum and need to be adjusted to actual roadway conditions inasmuch as there are too many variables.

The traffic analysis used the worst case condition for maximum impact. The traffic projections assumed a continuation of a high level of activity and growth in the Waianae and Ewa Districts which is very unlikely. Also, no reliance was made on mass transportation or other mitigating measures to reduce the impact of the project. Thus, in actual practice, the 1990 traffic volume should be considerably less than the project traffic volume. As an example, the respective developers will not be able to implement the two theme parks. These projects, for all practical purposes, have been abandoned. Consequently, it is not expected that Level of Service E will be a daily occurrence, but may occur only a few days of the year.

Cumulative impacts from other projects and the growth of the Ewa-Waianae area were considered. No mitigation measures are required; the existing highway system can accommodate the project's estimated traffic.

18. Unemployment Levels (page 122, par. 9.14.3). At the time of the preparation of the socioeconomic study, no reliable data on unemployment was available. If the information from the 1980 census (preliminary) becomes available before completion of the Final EIS, the new data will be incorporated into the Final EIS.

19. Future Projects (page 125, par. 9.15.3). The Ewa Marina Community does not have an Urban land use designation and the State Land Use Commission has not given their approval on the present Urban land use request from the developers. We feel it would be premature to consider it a "future" project. The Ewa Village project will be recognized as a future project.

20. Impact on Land Uses (page 129, par. 9.15.4). We disagree with your comment in the first paragraph under this heading. The traffic impact was based on estimating the percentage of future growth and then adding the impact of traffic generated by West Beach.

    "Fundamental housing economic benefits," is generally the sum of the purchaser's investment, the construction industries' labor and material costs, the developer's profit, and the landowner's sale and/or lease of land. These monies create "profit" (excess funds) to the developer, landowner, material suppliers, et cetera, which is sometimes reinvested in other physical developments which can again be sold to a buyer. If the physical development provides housing, construction employment, taxes, et cetera, it is desirable for the economic welfare of the community.

21. Table 14 (page 110). At this time the developer has not finalized the total amount of residential units to be constructed. Nor has a City, State, or Federal housing program been considered. Under the State Land Use Commission's condition, the developer must provide 10 percent of the total residential units for the low and/or moderate income. If the number of residential units is decreased, the number of units provided under this condition will also decrease.

22. Policies. New sections under 9.15 will be added to discuss the consistency of this project with the State Plan, the General Plan, and the Coastal Zone Management policies (these are similar to the Special Management Area policies).

23. Marina. If it is determined during the design stage (including discussions with the Harbors Division and Corps of Engineers) that interference problems with commercial traffic using the deep draft harbor is likely, a separate entrance to the marina would appear to be the most likely solution.

24. Ciguatera. Attached is the information/discussion on ciguatera from Dr. Paul Bienfang. This discussion will be included in the Final EIS.

25. Air Quality Technical Support Study. A response to Particulates was provided in item 8 of this letter.

    The technical study and Final EIS has been revised to include a reference to the HPOWER EIS (which was published nine months after the technical study on air quality was completed).

We appreciate your comments and hope that our response provides your Office with a greater understanding of the proposed project's scope and impacts. The Final EIS will include revisions/additions based on your comments.

Very truly yours,

F. J. Rodriguez

FJR/lka
Attachments

cc: DLNR
DLU
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Office of the Director

August 13, 1980

RE:0312A
Supplement to RE:0312

Mr. Donald Bremner
Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Bremner:

West Beach Resort
Honouliuli, Ewa District, Oahu

The Environmental Center's letter of August 7, 1980, regarding the above cited DEIS inadvertently omitted the names of those responsible for the Center's review.

In order to acknowledge the valuable contribution of these reviewers, we are enclosing their names at this point.

They are: Donald Bell, Finance; Bryce Decker, Geography; Harold Loomis, JIMAR; Penelope Canan, Sociology; Edwin Fujii, Economics; Samir Ahmed, Civil Engineering; Larry Olson and Bertell Davis, Anthropology; Reginald Young, Engineering; and Hank Banner, HIMB. Persons assisting from the Environmental Center include Doak Cox, John Sorensen, Barbara Vogt, Elizabeth Winternitz, and Colleen Brady.

We are sorry for this omission and hope this addition can be appended to our letter.

Yours very truly,

Doak C. Cox
Director

DCC/cu

cc: OEQC
Colonel Alfred Thiede, Corps of Engineers
Environmental Communications ✓
Contributors

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Office of the Director

August 7, 1980

RE:0312

Mr. Donald Bremner
Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Bremner:

West Beach Resort
Honouliuli, Ewa District, Oahu

Although the DEIS appears to be comprehensive in covering most of the environmental impacts that could be expected to occur because of the proposed project, our reviewers note that inconsistencies and lack of cohesion within the document that we believe should be remedied before the final plans for the project are completed. For example, some information presented in the DEIS seems insufficient to make adequate judgments or appears contradictory to current literature. Although we recognize that the lead time necessitated by large development projects like West Beach require that many decisions are based on conceptual plans, recent revisions in the EIS system provide for later appendems which may be of some help in the preparation of an EIS for a project like West Beach.

As the DEIS states on page 16:

> "Since specific details (i.e. architectural design, exact location of uses, engineering plans) have not been prepared, the discussion of alternatives and environmental impacts are based on project conceptual designs."

Although it is commendable that environmental impacts are being considered early in the design stage, the conceptual nature of the design makes it difficult to assess the overall adequacy of the discussion of environmental impacts. EQC regulations require that an EIS contain; a "summary (of) technical data; diagrams; and other information necessary to permit an evaluation of potential environmental impact(s)..." (1:42 "Content Requirements") This DEIS is significantly lacking in this sense. For example, heights, locations, number, and design of condominium, hotel and commercial buildings are not provided. This makes it difficult to realistically discuss the environmental impacts resulting from these buildings in terms of impacts on archaeological and paleontological resources, on aesthetics, on traffic, and on botanical resources, etc. This holds true as well for failure to identify the layout and features of the parks, the golf course, the residential development, the lagoons and marina.

AN EQUAL OPPORTUNITY EMPLOYER

One example of inconsistencies found in the DEIS regards the impact area generated by the development. Under Socioeconomic Impacts (page 120) reference is made to the DPED publication "An Assessment of Potential Off-Waikiki Resorts" concerning the impact area for West Beach. However, this area of impact is not consistent with the area of primary regional impact mentioned on page 122 under Regional Impacts, although both estimates are based on commuting time from the source of impact. The discrepancy is again evident when the DEIS's map of the impacted area (page 123, Figure 13) is compared to DPED's map in the quoted "Assessment of Potential Off-Waikiki Resorts." What method of analysis was used for computing the "likely commuting range" in the West Beach DEIS? If a source is used as a reference, such as the "Assessment of Potential Off-Waikiki Resorts", then corresponding and consistent data should be used throughout the DEIS or an explanation given for the apparent conflict.

Areas which appear to require further discussion are as follows:

THE MARINA AND LAGOON SYSTEM

Tsunamis

The tsunami hazard is discussed in the draft EIS on page 51 and pages 61-62, and in the following supplementary documents:

Summary of Technical Input...Lagoon Concept (pages 42-45)
Summary of Technical Input...Marina Concept (pages 36-39)
Environmental Conditions...Two Lagoons and a Marina (pages 47-53)
Evaluation of Marina Concepts (pages 23-40).

The discussions in the several documents, although differing in length and detail, are consistent with each other. Among them, they include results of a historical-frequency analysis, resonance-analysis, possible runup heights and extents of inundation, comments as to how the effects of tsunamis might or should be minimized, and in the EIS (page 62) a statement that the design of marina structures "will consider" the increased current velocities resulting from tsunamis.

The historic tsunamis and their runup heights on which the historical-frequency analysis is based are indicated, but otherwise the nature of the analysis is not indicated except that it depends in some manner on the tsunami history at Hilo.

No reference is made to:

a) the runup height-frequency analysis made by the Corps of Engineers Waterways Experiment Station (Houston et al., Technical Report H-77-16, 1977) for Hawaiian coastal places, including places in the immediate vicinity of the proposed development;

b) the 100-year runup height for the vicinity based on the WES work;

c) the 100-year inundation limits in the vicinity that has been estimated for the Corps of Engineers and incorporated in a map prepared for adoption by the National Flood Insurance Program of the Federal Emergency Administration; or even

d) the National Flood Insurance Program and the effects of its adoption on land-use and design in the project area.

We call attention to the 26 June 1980 comments on the tsunami hazard by H.G. Loomis, Joint Institute for Marine and Atmospheric Research. Some of his negative criticisms would be met if the results of the Corps of Engineers work were substituted for or added to the results now reflected in the Draft EIS. However, estimates should be made, and presented in the EIS or supplements, of the expectable effects of the tsunami on the proposed development including, specifically, the expected extent of 100-year inundation (and inundation with other average reaction interval of concern), the effects of their flooding on proposed structures, expectable current velocities in the marina and its channel, and the effects of these velocities on boats as well as structures in the marina.

As indicated:

> It is expectable that different results will follow from the use of different methods of frequency analysis and runup events. However, because the methods used by the Corps of Engineers will have official status unless they can be shown to be less reliable than some alternative, the results of the Corps of Engineers work should be compared with the results in the draft EIS, and reasons should be shown for referring to the latter if they are to be used for prediction and design in the project area.

The EIS, or a supplement to it, should discuss the extent to which the development will comply with the National Flood Insurance Program, means to assure compliance where special means will be required, and any variances that will have to be sought.

Environmental Conditions and Impacts

Another important consideration not addressed in the West Beach DEIS is the possibility of a ciguatera outbreak as a result of construction activities for the lagoons and marina. We would like to reiterate the comments made by Hank Banner (Zoology/Hawaii Institute for Marine Biology) in his recent review for the Environmental Center on the proposed Ewa Marina Community development concerning the possibility of this occurrence.

> "The occurrence of ciguatoxin, a paralytic neurotoxin, in the flesh of fish has been linked to the production of toxin in an apparently widespread tropical dinoflagellate, Gambeirediscus toxicus, that lives as benthic epiphyte on attached algae. It has been postulated that when certain yet-unknown ecological parameters exist, the dinoflagellate, normally in spare occurrence, will produce such a massive bloom that it will inject enough citiguatoxin into the food web of the coral reef habitat as to render most fishes, both the herbivores that feed upon the limu and incidentally on the dinoflagellates, and the carnivores that feed upon the herbivores, strongly toxic to the humans eating them."

Recent literature as well as studies conducted at the Hawaii Institute of Marine Biology have cited the incidence of ciguatera outbreaks in the Pacific. Epidemics in the atolls of Hao in the Tuamotos and in the Gambier Islands, as well as on Oahu at the Waianae, in the small boat harbor in 1978 occurred, following construction and improvement activity.

Dr. Banner goes on to state, "While no predictions can be made, it is possible that through the dredging of channel to the shoreline from deeper water, the construction of the breakwaters, and more likely, the discharges from dredging the marine waterways at the (Ewa Marina Community) site could cause a marked increase in toxicity of edible reef fishes. This is not a prediction but the consideration of a possibility." As in the case of the Ewa Marina Community proposal, we feel this consideration should be included in the final decision regarding the marina development.

NOISE

We call attention to the following comments supplied by Duke Perriera, Mechanical Engineering, University of Hawaii:

> The high traffic noise levels will almost assuredly cause an abundance of complaints, and in fact may have an affect on the retail cost of the residential units. This problem may be minimized if a sound barrier were constructed along Farrington Highway. One way of constructing such a barrier would be to locate a three to four hundred foot green belt in this area or similarly locate the proposed golf course in this vicinity. Using acoustic considerations the golf course could then be designed to absorb or be a barrier for most of the traffic noise. Similar considerations should be made in the earlier planning stages concerning interior traffic noise, especially noise generated in the high traffic flow corridors and along the bus routes that will be developed.
>
> A consideration not mentioned in the report is the affect of the vehicular noise on the current residents in the area immediately surrounding the proposed site. I have no idea of the number or location of these residents and am assuming that they exist. Since these residents do not have the option of moving into this area and many of these people may be accustomed to a less noisy environment than that to which they will be forced to endure they should be considered throughout the planning and development stages of this project.

BOTANICAL SURVEY

The concern shown by the West Beach developers regarding preservation of the two proposed endangered plant species found in the project area (Euphorbia skottsbergii var. kalaeloana and Gossypium sandwicense) is commendable. As the DEIS states, the only known remaining populations of the Euphorbia species are restricted to the project site. To help insure its survival, we recommend the employment of maintenance personnel experienced in the cultivation of these plants.

The DEIS states on page 98 that: "In order to preserve the Euphorbia species, the applicant proposes to...leave the area where the plants are located as it is and employ them as a buffer zone between the deep draft harbor and the industrial complex that will be built around it." The applicant then states this buffer could be used to block the view of the industrial area. However, the use of these plants as a visual buffer seems impractical in view of the fact that the Euphorbia are only ½ to 1 meter tall.

The DEIS goes on to state that: "If it is impossible to change the configuration of the project plan, then as many of the plants as can be moved should be used for the landscaping or perhaps moved to the woods that are planned for the golf course." Although the intent to preserve the Euphorbia species is admirable, this proposal may not be practical for several reasons: 1. Euphorbia is not a particularly attractive plant in an ornamental sense, as it loses most of its leaves during the summer; 2. Euphorbia prefers the more open areas where it is exposed to full or partial sun thus a wooded area would not be an appropriate habitat; and 3. It is not yet known whether Euphorbia can be successfully transplanted.

AGRICULTURAL CONSIDERATIONS AND IMPACT

Agricultural Productivity

Quoting the Land Use Commission's Decision and Order (page 103) as an authority over the Land Study Bureau in discussing the impacts of the West Beach development on agriculture seems inappropriate, particularly as the source of information for the LUC findings are not given. The LSB's classification stands as the greater authority on the subject. That sugar may now prove less economical than elsewhere on this acreage does not address the possibility of agricultural production here for other types of agriculture, now or in the future. Further, Waianae residents have expressed the preference for jobs in agriculture rather than in the visitor industry. Effects of taking 522 acres of prime agricultural land out of agriculture should not be understated.

RECREATIONAL RESOURCES

Beach Park

The DEIS does not provide any descriptive text regarding the 67.7 acre beach park represented on figure 3 of the DEIS (page 19). Will this park be public or private? Will it be developed and maintained by the developer, the State, the City and County, or some combination thereof? More information on this proposed park including a description of the park facilities, and the proposed timetable for park development would be appropriate.

Marina

The DEIS states on page 21 that the marina will be available for public use. Approximately what percentage of the slips will be available for such use? Will the marina be open to boats not berthed there? Will the developer or public agencies, i.e. Department of Transportatio be responsible for the long term maintenance of the marina?

Cultural Park

Greater detail about the cultural park than provided on page 16 would be very useful. Will admission be charged? What sort of ammenities will the park offer? Will it be tourist oriented?

Recreational Beach Use

As the Environmental Center mentioned earlier in our review of the Socioeconomic appendix, it is not accurate to measure recreational value solely in accordance with the number of those benefited. As stated previously, in the sense that the relatively isolated characteristic of the beach contributes to its high recreational utility, the benefit per person decreases with the number of persons. The value to residents of lost recreational resources over time can be very high. Furthermore, current literature indicates that the loss can be several times cited. (see John Krutilla, Anthony Fisher, Economics of Natural Environments) The final EIS should make this distinction clear.

Lagoon Maintenance

In the event that lagoon waters do not flush adequately, thereby resulting in the need for a pumping system, who will be responsible for maintenance of the system?

GOVERNMENTAL SERVICES AND FACILITIES, AND UTILITIES

Sewerage

The DEIS states on page 20 that sewerage will be conveyed to the proposed Makakilo Interceptor Sewer, and from there to the proposed Honouliuli Waste Water Treatment Plant. The DEIS further states on page 101: "It is emphasized that the final approvals, sizing, connections, et cetera lies within the jurisdiction of public agencies." Yet the letter from the City and County, Department of Public Works on page 141 of the DEIS indicates the Makakilo Interceptor Sewer, as designed, cannot accommodate flows from West Beach. Has the developer achieved coordination with the City and County on this issue?

TRAFFIC

Models of Predictions for Trip Projections

The development at West Beach will generate and attract some unknown number of trips per day which need to be estimated. These trips will require different traffic generators within the development (hotels, schools, dwelling units, commercial units, etc.). The DEIS report provides an approximate estimate of 27,400(?) auto trips per day without any explanation of the method or accuracy of estimation. A trip generation model based on the socioeconomic, locational and land-use characteristics of the development should be included in the final EIS as an appendix. The predicted distributions of zonal population, employment, activities, and land-uses for the design year should be used as input. The output number of trips must be converted to number of vehicles by splitting these trips among the available modes (automobiles and mass transit) based in part upon the characteristics of these modes, and in part upon the characteristics of travellers.

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The DEIS study indicates that the increased number of vehicle trips generated by the development of West Beach can be accommodated by Farrington Highway but at "Level of Service E" (page 114). Since that level of service yields unstable traffic operations, i.e. stop-and-go conditions, as well as excessive delays leading to increased air pollution and energy consumption, it appears thatthe DPED's study (An Assessment of Potential Off-Waikiki Resorts) should be used as the authority. That study estimated that two additional lanes of highway would be needed if West Beach was fully developed. The failure to mention the possible need for additional lanes of roadway appears to be a significant omission in the transportation analysis.

Modes of Transportation

The traffic impact report states that "less than 5 percent of the person trips by the tourists will be made by automobile. Approximately 95 percent of all person trips will be as bus passengers". (page T-19) The rationale for this projection appears to be based on the statement on page T-18 that the expected majority of the tourists will arrive from Japan. Since automobiles are driven on the left side of the road in Japan in contrast to the right side in the United States, the assumption is made in the DEIS that the majority of the tourists will depend on some form of chartered bus system. The basis for this claim is not substantiated by any data in the DEIS or by the State Tourism Study or the DPED study, "An Assessment of Potential Off-Waikiki Resorts". What source of information was used for this assumption? The indicated price of West Beach accommodations indicates that a high income group is being targeted for the resort. On what basis has it been verified that this income group will prefer buses to other forms of transportation, i.e. private vans or limousine service? The assumption of four person trips per person day (page T-19) appears inconsistent with the notion of a self-contained resort complex and 95% travel by bus.

ARCHAEOLOGICAL IMPACTS

Table 15 on page 118 of the DEIS lists potential impacts on archaeological resources and potential mitigative measures. However, there is no indication which measures are actually being considered. Will the final EIS indicate which sites will be impacted and which measures will be implemented?

We note the existence of the Barber's Point Archaeological District in the West Beach project area. As this archaeological district is eligible for inclusion in the National Register, the DEIS states on page 116 that: "work in the district involving a federal permit will require coordination with the USA Advisory Council on Historic Preservation and the State Historic Preservation Officer". Does the developer also plan to coordinate work which does not require a Federal permit in the archaeological district, through these offices?

Our reviewers found the Archaeological field report adequate. However, as we indicated in our previous review, there are two site descriptions which appear insufficient. Those are sites number 1434A and 1430. Please refer to Appendix I for further discussion. We are enclosing it again for your reference.

Paleontological Impacts

The DEIS states on page 116 that: "the more promising sinkholes will (be) examined to determine the presence or absence of fossil bird bones or other prehistoric material." What criteria will be used to determine those sites which are "more promising"? It appears that a systematic approach for testing the limestone sinks needs to be developed and employed. Then a realistic interpretation can be made regarding the amount of fossils present and their condition of preservation. Further, disposition of all fossil materials should be considered prior to excavations. Specifics should be arranged as to who will study the remains and make the necessary interpretations. (see Appendix II)

Socioeconomic Impacts

Page 1 of the Analysis of Selected Socioeconomic Inputs of West Beach Development states that the project tentatively "would include about 7,200 resort units and about 2,000 residences, including 200 for low to moderate income families." Although we applaud the foresight of such planning, we note that the letter on page 139 of the DEIS indicates that no HUD monies will be available. Who will be eventually responsible for ensuring that these units will be allocated for low income families - the developer or the city and county? Will any provisions be included that allow for buyback or other measures to insure continued ownership by low to moderate income groups? Discussion in the final EIS should also include where these units will be located as well as the expected socioeconomic impacts from such inclusion.

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CONFLICTS WITH SURROUNDING LAND USES

Conflict with the Barbers Point Naval Air Station

We would like to point out that national defense needs supercede the rights of future residents of West Beach. It should be noted that in times of national emergency, air traffic may be substantially increased. The DEIS states on page 92 that compatability of West Beach with the Naval Air Station will have to be discussed between the local and state permitting agencies and with the Naval Air Station. This seems to miss the point of defense requirements which are independent of jurisdictional responsibilities of the State and City and County permitting agencies.

Conflict with Campbell Industrial Park and Kahe Generating Station

The DEIS does not indicate how the seeming conflict of stated excesses (pages 73-82) in various pollutants and the West Beach development will be resolved. If development of West Beach adversely affects the viability of the industrial park, this must be considered as a cost associated with the West Beach development.

We appreciate the opportunity to comment on this extensive document and hope our remarks are useful in the final preparation of the document.

Yours very truly,

Doak C. Cox
Director

DCC/cu

Enclosures

cc: OEQC
Environmental Communications √
Harold G. Loomis, JIMAR
Penelope Canan, Sociology
Edwin Fujii, Economics
Samir Ahmed, Civil Engineering
Bryce Decker, Geography
Don Bell, Finance
Larry Olson, Anthropology
Bertell Davis, Anthropology
Duke Perriera, Mechanical Engineering
Barbara Vogt, Environmental Center
Elizabeth Winternitz, Environmental Center
Colleen Brady, Environmental Center

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26 October 1979

MEMORANDUM

TO: Barbara Vogt, Environmental Center

FROM: Bertell D. Davis, Department of Anthropology

RE: Review of -- West Beach, Oahu: An Archaeological Survey

A number of questions are raised by the West Beach, Oahu: An Archaeological Survey report which are not sufficiently considered in the report's present format. The main problem arises from inferences of significance which seem based more on assumptions in the absence of an explicit framework for making such assessments. Those recommendations which then follow do so essentially unsupported. To gain some appreciation of the setting and the recorded sites, I visited the study area. The following observations and comments are offered in the context of wider research interests in the nature of human settlement and environmental change in the Barbers Point region.

In general, the basic field report seems quite adequate and it is unlikely that major remains were overlooked by the survey team. The site descriptions are concise and the map locations clear, as I was able to relocate many of the sites without great difficulty. The fishing shrine, Site 1433, was particularly impressive.

Regarding Site 1434A, however, a fuller description of especially the kind of historic debris present would have been more desirable. This refuse includes an array of modern bottles, jars and jugs; rusted tin cans and other metal fragments; and the remains of dog, cat, mongoose, sea-bird, and the introduced oyster Crassostrea gigas Thunberg. In addition, I observed a fragment of probable nineteenth century bottle glass, several pieces of shoe leather with numerous eye holes for lacing common with turn-of-the-century high-top shoes, and scattered indigenous shellfish remains. The shellfish include Cellana (opihi), Nerita (pipipi), Cyprasa and Conus, all commonly occurring in prehistoric and early historic Hawaiian middens. To be sure, recent extensive dumping could be the source of this earlier material as well as it is of the modern trash. The shellfish could be equally recent as they are still present along this coast. But this has not been demonstrated, except by reference to information obtained from local informants. What is not clear from the report is whether the site itself is of recent origin and how recent that may be, or if the modern trash merely represents reuse of an earlier but deteriorated structure.

This is an important distinction, since the structural remains themselves and possible subsurface deposits could be of early historic or even prehistoric date. Reference to an 1873 survey map by W.D. Alexander shows the study area is located in a former land division called Waimanalo within the ahupua'a of Honouliuli. Although no settlement is indicated on the map, the Ewa-Waianae tax role for 1855 shows that eight households at Waimanalo were assessed for taxes that year. Moreover, records of the Division of Land Management show that a two-acre parcel at Waimanalo, being Apana 10 of Royal Patent (School) Grant No. 31, was set aside for the Board of Education in 1852. This lot and two others at Kualakai and Papaanea were eventually abandoned by the turn of the century. Finally, a letter (L.C.A.-Royal Patent files) dated 15 August 1847 from A. Keliiahunui to Keoni Ana (Minister of Interior) reports that two Europeans wanted to lease his leased kula land in Waimanalo, Ewa, as a ranch and residence. Although this was probably inland of the present survey area, it is unlikely that there was no association between Keliiahunui's land and a coastal settlement.

Given a broader research perspective, the inference and following recommendation that Site 1434A is "...of such recent vintage that no further research is deemed necessary" (p. 14) is clearly unacceptable. Although the observations and documents cited above do not demonstrate that this site is significant, they do demand better grounds for making such assessments. Small-scale test excavations would recover sufficient data on which a final decision could be reliably made.

My second comment regards the interpretation of Site 1430 with its adjacent sinkhole, and how this may relate to other sinkholes in the area as possible sites for extinct bird remains. First of all, recent work by Sinoto (1976: Cultural Resources Survey; 1978: Archaeological and Paleontological Salvage) and by Davis (1979: Progress Report on Excavations of Inland-Zone House Sites) at Barbers Point indicates that the lack of cultural debris on the surface or the "crudeness" of the surviving structure are not a priori conditions for inferring either a temporary occupation or a low level of research value. This is particularly so in this case where the debris of habitation may have been discarded in the adjacent sinkhole. Moreover, to demonstrate that a particular house site was a temporary shelter or a permanent dwelling is of importance to understanding the overall settlement, especially when there are few other possible house sites in the vicinity.

As for the possibility of the sinkhole being a repository of extinct bird remains, there is little arguement. But not all such sinks tested by Sinoto yielded these remains. Thus to consider an either-or choice between salvaging or preserving this and an unknown number of other sinkholes is unwarranted on the data available. I must heartily agree with Berger's (1979: Birds of West Beach) recommendation that the sinkholes be selectively tested before any large-scale excavations be undertaken.

Site 1430 should therefore be tested 1) to determine the presence or absence of subsurface cultural material associated with the structure on the surface, and 2) to determine the presence or absence of cultural refuse and-or extinct bird remains in the sinkhole.

My final comment regards the recommendation to accept those recommendations set forth by the Corps of Engineers and the Department of Transportation for Survey Area IV. I am in basic agreement with this. At such time, however, new data which is becoming available should be taken into consideration when developing the scope-of-work.

Bertell D. Davis

cc: State Historic Preservation Office
Patricia Beggerly

University of Hawaii at Manoa

Department of Anthropology
Porteus Hall 346 • 2424 Maile Way
Honolulu, Hawaii 96822

October 26, 1979

MEMORANDUM

TO: Barbara Vogt, Environmental Center

FROM: Larry G. Olson, Archaeology

RE: Review of West Beach, Oahu: An Archaeological Survey
and
Birds of West Beach, Ewa, Oahu, Region
Statement of possible fossil bird sites

The purpose of the above cited appendix and addendum was two fold. 1) to determine the presence or absence of archaeological and historical sites, and 2) to assess the possible impact on the development project on any cultural values that might be located.

The archaeological survey was mandated (as a stipulation by the State Land Use Commission) and was undertaken in 1979. For assistance in reviewing the archaeological work completed in the West Beach area, Mr. Bertell D. Davis, Department of Arthropology, University of Hawaii, was consulted as he has extensive experience and knowledge of the Barbers Point area. His comments are attached to this report.

The West Beach project area has been throughly and satisfactoril surveyed. Recommendations set forth by Chiniago Inc., Andrew Berger and Bert Davis are generally agreed upon excluding the following comments: Site 1433 (fishing shrine) is the only site which justifies a salvage excavation or preservation. Excavation of several midden sites (2721, 1473 & 1438) which have already undergone test pit excavation, indicate that further archaeological work would probably not contribute significantly to our knowledge of the Hawaiian pre-history in that area.

Of major concern for the West Beach area is the possibility of fossil bird bones in limestone sinks. Berger's recommendations are accepted with the following modifications: 1) a systematic approach to testing the limestone sinks needs to be developed and employed: 2) realistic evaluation of the

interpretations of the amount of fossils present and their condition of preservation need to be made. How much of what is needed before a species can be identified and is their enough data available to justify salvage excavations of selected limestone sinks;and 3) disposition of all fossil material should be throughly considered prior excavations. Specifics should be arranged as to who will study the remains and make the necessary interpretations. Otherwise, collections of this nature have the tendency to remain boxed on someone's shelf with no further action.

If you need any further comments or assistance from me concerning the West Beach area, please do not hesitate to contact me.

F. J. RODRIGUEZ,
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

September 2, 1980

Dr. Doak Cox, Director
Environmental Center, University of Hawaii
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Dear Dr. Cox,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

We have received and reviewed your comments of August 7, 1980 on the above mentioned Draft EIS. Our responses include information received from the various technical consultants.

In response to your preface on the inconsistencies of the Draft EIS and the conceptual nature of the described action, we feel that it is the intent of the EIS to be prepared prior to the commitment of a specific action. This takes priority over the identification of detailed plans. If detailed plans were completed, the EIS process would not represent a project with broad alternatives and would not be as "open" to comments provided by reviewers. This is why the developer chose to prepare a series of technical studies and complete the EIS prior to spending several hundred thousand dollars to prepare detailed plans and drawings. If the EIS system is to be effective, specific objectives and consistent requirements (i.e. project description) should be provided so that the developer or preparers of the EIS can clearly follow the law and/or regulations. This issue on early EISs versus specific details should perhaps be followed through with the State Environmental Quality Commission. It is also noted tht Federal EIS regulations provide for supplemental material to be prepared and filed for projects for which a generic EIS was prepared. The Corps of Engineers have indicated that the Department of the Army permit would not be issued unless these details have been prepared, reviewed, and approved.

As for the inconsistencies, we find that the specific one cited was not significant since both the socioeconomic report and the DPED publication were based on the same location of the project; the magnitude of the project (which differed) was not an important factor. Also, the "lack of cohesion" within the document is an opinion; the document was compiled from various technical reports which were edited or included almost in its entirety into the EIS. The Federal EIS requirements call for the "scoping" of technical reports, which, in effect is the summation of important data into the EIS. This streamlines the EIS (the Federal EIS requirement highly recommends that the document be less than 150 pages) and sometimes result in a terse discussion of a subject. Much of the excessive discussion provided in other EISs is eliminated. The following of the Federal EIS requirement is acknowledged in the front portion of the Draft EIS.

TELEPHONE (808) 521-8391

Responses to your specific comments are provided below.

THE MARINA AND LAGOON SYSTEM

Tsunamis. (Response from Dr. Karl Bathen.) The final site topography is yet to be established. Both the final elevations and terrain roughness will establish runup heights on land. In absence of a final development plan, an attempt was made to roughly quantify the extent of runup on the existing terrain. It showed tsunami runup will be a problem. Final work will include, the Corps of Engineer's waterways experiment station (WES) work and 100-year runup height along with the National Flood Insurance Guidelines. We suggest that a local tsunami expert aid the West Beach project in this work during the design stage. Further work in absence of the final site topography and terrain characteristics would not seem meaningful at this time. The potential problem is, however, acknowledged.

Environmental Conditions and Impacts (Ciguatera). Attached is the information/discussion on ciguatera from Dr. Paul Bienfang. This discussion will be included in the Final EIS.

NOISE

A buffer area between Farrington Highway and the residenial areas will be provided. Specific noise mitigation measures are best handled during the project design phase. As recommended in the noise report, acoustical consultants should be retained during the project design phase.

BOTANICAL SURVEY

(Response from Winona Char, botanical consultant.) The buffer zone would be composed of the existing kiawe forest in that area with transplanted Euphorbia skottsbergii var. kalaeloana ('akoko) plants beneath the kiawe trees. The kiawe trees would thus be used as a visual screen.

Euphorbia loses most of its leaves during the dry summer months in response to the lack of sufficient water, however, if it is watered regularly it will retain its leaves. Plants which were transplanted during the summer months to the nursery at Honolulu Botanic Gardens (Foster Garden) quickly produced new leaves and retained their foliage during the summer months. We have observed a plant near the Standard Oil Refinery which is always green. It is growing along side a chain-link fence next to an unpaved road. The surface of the unpaved road is regularly watered to keep the dust down. The water drains off the road and some waters the Euphorbia.

The State and Corps of Engineers are studying habitat requirements and transplant methods for successful propagation of the plants. The findings of this study will be useful in propagating Euphorbia as landscape material for West Beach. The botanist consultant is involved with the

Corps' study and it is expected that she will be retained to assist and/or manage the Euphorbia nursery.

Euphorbia will grow in a wooded area if it is not dense. Euphorbia does very well in an area with open canopy, that is the canopy of the adjacent trees are not touching.

AGRICULTURAL CONSIDERATIONS AND IMPACT

Agricultural Productivity. The total acreage of prime agricultural land is not 522 as stated in your letter. The State Department of Agriculture has classified 266 acres of the total project site as "prime agricultural lands".

There are, throughout the Draft EIS (pages 2, 13, 26, 105, and 131), statements which clearly identify the loss of prime agricultural lands. The preparation of the Draft EIS did not include a technical study of the agricultural productivity of the land. This is due to the fact that the parcel is designated Urban at the State level and the General Plan (City and County of Honolulu) has designated the use as Urban-Resort. The reason for not discussing the productivity of the lands lost to Agriculture was, simply stated, not a valid requirement due to the change in Land Use and General Plan designations. The newly cited Urban designations have placed an intrinsic value greater than is normally attributed for Agricultural lands.

The West Beach project will result in the loss of prime agricultural lands (266 acres) and other important agricultural lands (133 acres) as defined by the State's Department of Agriculture. Under the Land Study Bureau's classification, 104 acres of Class A lands (rated very good for crop production) and 418 acres of Class B lands (rated good for crop production) are within the West Beach site. These acreages represent 0.5 percent and 1.3 percent of the total Class A and B lands, respectively, on the island of Oahu.

RECREATIONAL RESOURCES

Beach Park. There are four (4) areas which will be available to the public for park activities. As shown on Figure 3, page 19 of the Draft EIS, there is a park located on the extreme northern shoreline portion of the site. This area will be turned over to the City to be utilized as a beach park. This appears to be a logical extension of the existing Kahe Point Beach Park. The second park area is around the natural lagoons of the former Alice Kamokila Campbell estate. This area, called the Hawaiian Cultural Center (refer to Figure 3) will be operated privately, but will be open to the public for various occasions. The third area is the shoreline from the southern end of the Hawaiian Cultural Center to the end of the southernmost lagoon. The developed bathing lagoons and the existing shoreline (except for

the lagoon entrances and wave traps, for safety reasons) will be available for public use, but managed and maintained by the developer. Finally, the park site at the east end of the project was planned as a community park primarily for the residential neighborhood. This community park would be turned over to the City. Other recreational areas (e.g. golf course, commercial recreational areas) will be available to the public at a fee or admission cost.

Marina. Details on the marina size, number slips, and management policies have not been determined at this time.

Cultural Park. See comment above on Beach Park. At this time no other details of the type park, activities, et cetera been provided.

Recreational Beach Use. Robert N. Anderson, the socioeconomic consultant reviewed that comment and provides the following information.

With respect to the statement by the Environmental Center concerning recreational use of the beachfront, we remain bewildered by the apparent desire of the Environmental Center to place value on recreational utility. The Center is referring to a text that reflects the thinking of personnel in the early 1970's at Resources of the Future, a private policy research firm in Washington, D.C. To borrow a phrase from this text, any attempt to place a value on the existing nature of the isolated shoreline was not undertaken "...in our computations because there are no currently known techniques or methodology whereby one might do so." Unfortunately the statement is essentially as valid as it was in this 1975 publication.

We chose a very direct procedure of describing the recreational experiences presently occurring, and suggested that they would be displaced by something different and likely involve far more people. We would not even hazard to speculate on the value of the two types of recreational experience, either on a per-person or on an aggregate basis.

Two basic techniques have been used in the past as crude attempts to measure the values of outdoor recreational experiences such as these. One is a theoretic willingness to pay, and the other is based on travel costs to and from the site. Both techniques suffer from the same defect of giving weight to the ability to pay which is obviously inappropriate as a criterion in allocating public resources.

GOVERNMENTAL SERVICES AND FACILITIES, AND UTILITIES

Sewerage. The City has acknowledged accepting the sewage at their Honouliuli Treatment Plant. Attached are copies of letters from Community Planning, Inc. to the City's Department of Public Works and their subsequent letter to the Department of Health.

TRAFFIC

Models of Predictions for Trip Projections. Responses to both comments under this heading were provided by Henry T. Au, the traffic consultant.

Traffic generation is defined as the total number of trips that start or end in a particular area within a given time period. As such, the particular area has boundaries, and therefore, only those vehicles crossing the boundaries are counted. There may also be a substantial number of trips that will emanate from or be destined for the different generators within the development, but these internal trips conducted within the particular area are not generated trips with respect to external origins. In some instances, such as the Central Business District, the number of internal trips usually is substantial, but these trips would not be included in trips generation. The same is true of a residential neighborhood where trips would not be counted so long as these trips did not cross the boundary lines.

If an attempt is made to reach a high level of accuracy, the process becomes quite complex and because of the unpredictability of the numerous variables, the results obtained are usually either too low or too high. Furthermore, in most cases, the variability typical within a particular land use does not warrant this high level of analysis. It is more appropriate to choose a trip generation approach that is simple and yet be resonably accurate.

The purpose of an impact statement is primarily to include those elements that are pertinent to the evaluation that would lead a decision maker to determine what significant environmental impacts he must consider. References should be made to significant impacts as distinguished from ordinary effects. This is in line with the objectives for the preparation of an impact statement, otherwise an environmental assessment is not required. For this reason, an impact statement should not be conducted as a theoretical research project.

The adequacy of information in an impact statement for use to allow a decision maker to judge the importance of traffic and environmental consequences and cost of the project must be tempered in favor of being practical. Although it is desirable to adopt a comprehensive viewpoint, the time involved and the expense for making a complete or more thorough analysis is uneconomical and in most cases unnecessary. Furthermore, unless the amount of data and supporting data is significant, the final results may be of very little importance in influencing the ultimate decision. More information than is necessary makes the review much more difficult and the reviewer must perform a time consuming and laborious analysis that will discourage a thorough critical review of the impact statement.

The judgment as to how deep an EIS must go and what it must contain has been a matter of considerable controversy. Even with judicial decisions,

it is still difficult to determine in a comprehensive way what is required to fulfill the requirements of an impact statement. Science is integrated into the environmental process and scientific and technological judgment must be made in an environmental impact evaluation. There is no magical formula or mode that will take the place of technical skill, foresight and judgment. Until such time a more scientific method is established, professional judgment combined with scientific evidence and facts is the best available method of evaluating and predicting significant environmental consequences.

The estimate of 27,400 trips per day was only a preliminary estimate made without benefit of a detailed traffic impact statement at the time application was filed with the Land Use Commission in 1977 for redesignation of the property from "Agricultural" to "Urban". The estimate of 27,400, however, is very close to the final estimate of 28,236. The explanation of the method and breakdown of the 24-hour volumes are set forth in the detailed Traffic Impact Statement prepared in August, 1979.

What is not understood and even many traffic and transportation engineers are not familiar with it, is that the capacity of a highway is a rate instead of a quantity and is not directly comparable to the capacity of a container or enclosed space. The capacity of a highway, therefore, is a variable and can be affected by a number of factors. Until the publication of the "Transportation & Traffic Engineering Handbook 1976", the capacity of a traffic facility, heretofore, has never been fully explained. With this clarification, one will have a clearer and better understanding of the explanations of capacity contained in the "Highway Capacity Manual 1965".

That the calculated or existing capacity is very conservation and the actual capacity will be considerably higher is substantiated by past and present traffic volumes. It must also be emphasized that traffic volumes used for establishing the numerical values for the capacities of the different types of roadways were determined from studies of many highways under a variety of conditions. Thus, it would be impossible to state that the volume measured or calculated is the absolute maximum that could be carried, inasmuch as maximum volumes observed at different times at one point will show a range of values. The capacity values, therefore, should be considered as the average maximum volume and need to be adjusted to actual roadway conditions inasmuch as there are too many variables.

Air pollution caused by the project has been taken into account and quantified under worse case condition with the highways operating at level of service E. No attempt, therefore, was made to minimize the traffic impact of the project.

Modes of Transportation. The question could also be asked. On what basis is it assumed that the tourists will actually be of the high

income group and that they would prefer private vans or limousine service? Surveys of mainland cities indicate that for conducted tours and excursions and for hotels located in the outlying districts, transportation of tourists is predominantly by means of a chartered bus system regardless of the income of the group. In European cities, chartered bus system service is practically the only means of transportation for tourists. Each bus is provided with a guide who is able to speak several languages to explain the various aspects of the tour in the language understandable to the tourists.

There is also every justification to believe that the same situation will apply to the West Beach Resort project and that chartered bus service will be practically the only means of transportation for the tourists. The drivers of vans and limousines are neither tour guides nor are they fluent in the Japanese language to be able to communicate with the tourist.

The assumption of four person trips per person day was used as the worst case condition to determine maximum impact. This is not likely to occur.

ARCHAEOLOGICAL IMPACTS

The recommendations of the archaeologist (cited in Table 15, page 118), have been reviewed and will be implemented by the developer. Because the specific site plan is not available, the Final EIS cannot indicate the sites that will be impacted by the proposed structures and infrastructure.

The archaeologist has recommended that the work which does not require a Federal permit be coordinated with the State Historic Preservation Office.

William Barrera reviewed Appendix I; he found nothing to indicate that Davis found the description (of site 1430) to be inadequate.

RESPONSE TO LARRY OLSON'S COMMENTS

Although it had been standard practice among Hawaiian archaeologists in the past to write off midden deposits as insignificant because of an absence of impressive artifactual materials or because of uncertainty regarding the sorts of information which might be present, this approach has long since fallen into disfavor. The object of archaeologists today is to understand the total range of adaptation to a particular ecosystem, and our studies now include investigations at sites which would appear to the casual observer to be "marginal" and "probably insignificant".

Regarding the future study of the potential fossil bird remains in the limestone sinks: the approach Mr. Olson describes would be a part of any competent researcher's plan.

COMMENTS OF BERTELL D. DAVIS

Based on Mr. Davis' comments, Barrera has indicated that a test pit or two in the structure (Site 1434A) will be recommended.

As indicated above, the developer will implement the recommendations of the archaeologist.

Paleontological Impacts

The developer, based on the recommendations of the archaeologist will retain qualified personnel to systematically test limestone sinks and remove fossil bones from these sinks. The fossil bones could be deposited with the Smithsonian Institute for further examination and study.

Socioeconomic Impacts

At the present time, the developer has not finalized the total amount of residential units to be constructed. Nor has a City, State, or Federal housing program been considered. One condition of the State Land Use Commission is that the developer must provide 10 percent of the total residential units for low/moderate income.

CONFLICTS WITH SURROUNDING LAND USES

Conflict with the Barbers Point Naval Air Station

Discussions on the noise levels and potential aircraft accident zones are taking place between the Department of the Navy and the landowner, Campbell Estate. Their lands, including Ewa Marina and West Beach, are involved, subsequently, they are taking the lead in examining these concerns. Further coordination with the Department of the Navy and federal authorities will be necessary during the land use planning stage. The developer understands and acknowledges the military mission of the air base and will work closely with the Navy to work out a suitable solution to any conflicts.

Conflict with Campbell Industrial Park and Kahe Generating Station

Environmental awareness has become an important aspect in our society. Industrial areas are no longer given a "license" to pollute the air, or create a noisy or hazardous environment in the name of economic and employment benefits. Specifically, the standards set by the Campbell Estate, the landowner and developer of Campbell Industrial Park, are high. The road system is well designed, the industries are governed by Estate rules even in regards to the buildings' appearance and landscaping. Each industry must comply individually with air quality and noise regulations. The point is that a resort

adjacent to the industrial park can be compatible because it is incumbent upon each development to maintain "their pollution" within prescribed standards of acceptance. A buffer zone is being provided between the proposed deep draft harbor; this is more for aesthetic purposes rather than safety. The storage of hazardous material must comply with existing governmental laws and regulations.

Thank you for your comments. We hope that we have clarified the information in the Draft EIS, and that the revisions within the Final EIS document reflect the comments offered by your reviewers.

Very truly yours,

F. J. Rodriguez

FJR/lka
Attachments

cc: DLNR
DLU
OEQC
EQC
COE
WBR

Honolulu, Hawaii 96804

August 6, 1980

Ref. no. 1516

Mr. Richard L. O'Connell
Director
Office of Environmental Quality
Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. O'Connell:

Subject: Draft Environmental Impact Statement for the Proposed West Beach Resort, Honouliuli, Oahu

We have reviewed the subject draft EIS and offer the following comments for your consideration.

1) In our May 22, 1979, letter to Mr. Rodriguez of Environmental Communications, Inc., which outlined our comments in response to the subject EIS Preparation Notice, we recommended that a thorough assessment be prepared on the potential conformity of the proposed project with pertinent provisions of The Hawaii State Plan and the Hawaii Coastal Zone Management Program. We believe this information and analysis would be beneficial since the proposed project requires both Federal and State agency approvals, such as the Federal CZM Consistency Certification which is determined through coordination with this agency.

   In our review, we note that no attempt has been made within the submitted draft EIS to incorporate this type of analysis. Further, no review has been given to material and conclusions incorporated within pertinent State functional plans, as was suggested by the City and County of Honolulu, Department of General Planning Preparation Notice comment that the EIS include a discussion on the need for resort facilities at West Beach as identified by the State Tourism Functional Plan (see letter from Department of General Planning to Mr. Rodriguez, dated May 7, 1979; page 144).

2) In general, we note a general lack of adequate footnoting within the draft EIS to reference specific numerical figures and analytical conclusions involving a number of important factors such as visitor hotel room requirements, recreational vessel berthing demands, residential housing needs, highway corridor capacities, etc. Although this type of information may be found in technical reports developed in conjunction with the subject EIS, Section 1:43 of the State Regulations governing Environmental Impact Statements, specifically states, in part, that:

   > "Care should be taken to ensure that the Statement remains an essentially self-contained instrument capable of being understood by the reader without the need for undue cross reference."

   Further, as this agency has not received a considerable number of the Technical Reports for West Beach, as identified within Table 18 (pages 134 to 138), we find it difficult to render a complete review of the potential environmental, social and economic impacts which may result from the proposed project.

3) In numerous sections of the draft EIS, there are indications that the applicant is not fully aware, nor has firmly concluded, how proposed activities will impact the environment or community. A substantial number of these conditions involve critical concerns such as the potential impact of the proposed 700-slip recreational harbor on the pristine Waianae coastal environment; potential conflicts with the commercial deep draft harbor at Barbers Point; potential dangers inherent in low flying aircraft and impact of above standard noise levels resulting from the resort's proximity to Barbers Point Naval Air Station; or the resulting traffic generation on Farrington Highway which may cause that roadway corridor, and connecting roadway segments, to operate at below design capacities, etc.

   As an example, on page 69, section 9-2.102., the applicant concludes:

   > "Technical evaluation of the lagoons and marina showed that some important site specific data are missing, particularly site data on ground water infiltration rates and water quality, nearshore circulation and coastal wave climates. Project design phase will obtain site specific field data. Until that time, evaluation of impacts must be considered approximate."

May we recommend that the final EIS on the proposed project be prepared following a more in-depth and thorough assessment of the numerous factors which may directly or indirectly relate to and/or impact upon existing environmental and social conditions.

4) In the State Land Use Commission's (LUC) Decision and Order, which reclassified the lands within the proposed West Beach Resort Development from Agricultural to Urban designation, Order No. 4 states:

> "That the Petitioner use his best efforts to obtain government participation or assistance to make at least 10% of the approximate total of 2,000 residential units available to moderate and lower income families." (LUC Petition Docket No. A76-421, p. 37)

With reference to the above, we note on page 22 of the draft EIS that the applicant states that for the residential condominium units, "the developer will seek funding from conventional financial sources; no public monies will be directly utilized." Further, according to Table 1 (p. 23), only 1,680 residential units are proposed to be developed, programmed within the 3rd and 4th five-year construction phase.

We believe the applicant has an obligation to highlight within the final EIS the numerous LUC Order items which are contained within the land use reclassification petition. An effort should be made to identify how the applicant will comply with, or mitigate, those specific agreements.

5) We have specific concerns with regard to the proposed marina and enclosed swimming lagoons:

a) With reference to the marina design model which serves to identify potential recreational and water quality requirements, has active human use of the marina been taken into consideration? Elements which seem essential may include vessel travel patterns and congestion, impact of small boats (particularly limited manueverability of sailing craft), and the daily flushing of vessel bilges, engines, and sanitary facilities.

b) What is the estimated demand for recreational vessel berthing facilities along the Waianae Coast, and how does the development of the Waianae Small Boat Harbor relate to the proposed West Beach Marina?

c) An alternative plan or proposal should be incorporated within the design of the West Beach Marina should the Barbers Point deep draft entrance channel be determined to be incompatible for recreational vessels.

d) Has an adequate assessment been made regarding the possible development and spread of ciquatera and other marine toxins which may result from proposed dredging activities at West Beach? The island of Oahu, and particularly the Waianae Coast, continues to experience significant outbreaks of ciquatera poisoning of fish stocks following near-shore coral substrate dredging activities, similar to that proposed in the West Beach development.

e) Various impacts related to the public use of the proposed marina and lagoon facilities need to be evaluated. One matter of considerable importance involves the question of ownership and restricted public entry. In this regard, it is important to note that LUC Petition Order No. 5 states, in part, that:

> "the Petitioner make such amenities as the ... small boat harbor and launching ramp available for public use." (LUC Petition, Docket A76-421, p. 37)

While Order No. 6 identifies:

> "that beach access right-of-ways to the entire shoreline and particularly to the natural lagoons adjoining Alice Kamokila Campbell's former estate be provided and maintained for public use." (LUC Petition, Docket A76-421, p. 37)

To conclude, we believe that the Draft EIS for the West Beach Resort has not adequately addressed or has not considered a significant number of critical impacts and issues. We recommend that the applicant refine the document by providing appropriate data and analyses which are directly related to the concerns and issues we have raised.

Thank you for the opportunity to review and comment upon this matter.

Sincerely,

Hideto Kono

cc: Mr. F. J. Rodriguez
Environmental Communications, Inc.

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

Mr. Hideto Kono
Department of Planning & Economic Development
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Kono:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

We have received and reviewed your letter of August 6, 1980, commenting on the Draft EIS. (Reference Number 1916.) As stated on page 1 of the Draft EIS, "The DEIS format follows federal regulations promulgated by the President's Council of Environmental Quality (40 Code of Federal Regulations Parts 1500-1508); additionally, the DEIS was coordinated with the State of Hawaii, Office of Environmental Quality Control." Under that federal regulations (40 CFR, Parts 1500-1508) the EIS should be prepared "...as close as possible to the time the agency is developing or is presented with a proposal (subparagraph 1508.23)..." Consequently, the EIS is a generic document based on the highest density possible under the State's Land Use Commission's decision. The developer, instead of completing detailed plans or technical verification studies, chose to prepare environmental studies based on the probable impact anticipated and complete the EIS process. This allows public and governmental input at this early, conceptual stage. It is the intent of the EIS process (both Federal and State) to review the proposed project prior to the commitment of a specific action. This being the case, it would be difficult to identify design details or coordinative actions (as indicated in your comment number 3).

We also note that the Federal EIS regulations provide for a streamlined EIS document. The regulations highly recommend that the document be limited to less than 150 pages; the Draft EIS for West Beach is approximately 140 pages if the reproduction of comments received and the responses sent during the EIS Consultation Period is not counted (these were placed in the Draft EIS to fulfill the State requirement). Additionally, the Federal regulation calls for "scoping" process, i.e. "not only to identify significant environmental issues deserving of study, but also to deemphasize insignificant issues, narrowing the scope of the environmental impact statement process accordingly..." The Federal regulations state, that excessive paperwork will shall be reduced by "(b) Preparing analytic rather than encyclopedic environmental impact statement." In simply terms, the Draft EIS was a document boiled down from numerous technical studies, and this is consistent with Federal EIS regulations. As the preparers of the EIS, we understood that the document needed to meet both the Federal and State requirements, to do so we held several meetings over a period of one year, with both the cooperating Federal, State, and County

agencies. It was agreed upon that Federal regulations would be followed with State EIS content requirements included in the document. Also through that one year period, various technical reports were completed and sent out for review to various Federal, State, and County agencies. According to the information provided by the Office of Environmental Quality Control, your Department received various technical studies for review.

Dispositions to your other comments are provided below.

1) As indicated above, the Draft EIS is a generic document, in this regard we felt that a review of the objectives of the Coastal Zone Management Act (Chapter 205-A, Hawaii Revised Statutes) was premature especially when the reduced size of the project would likely result in lesser environmental impacts. The objectives and policies of the Coastal Zone Management Act will be addressed at a future point in the governmental approval and permit process (since Federal permit action is required). At that point, the proposed project would be better defined and the evaluation would be more accurate. However, several reviewers have requested that such a review be included in the EIS document. Subsequately, we have reviewed the objectives and policies set forth in Chapter 205-A, HRS, and have provided a preliminary evaluation of the project's concept to to these objectives and policies. We still find that this effort is premature; in many instances our evaluation identifies only the procedure the developer intends to follow to comply with the stated objectives.

   The State Tourism Functional Plan and other pertinent plans will be reviewed. At the time of the technical studies these plans were not available (except for the State Plan).

2) This is answered in paragraph two of this letter.

3) This is answered above in paragraph one of this letter. Also, we note that we have addressed most of these issues as unresolved in the Draft EIS, page 14. The need for a marina has been reviewed by the preliminary marketing analysis. This analysis found that there is a demand for marina slips in this area.

4) At this time the developer has not confirmed the total number of units nor their mix. As your office may know, the County's Development Plan process is still ongoing and has not resolved the density levels to be allocated to West Beach. The specific governmental housing program which may be used has also not been determined. Given this situation, we did not chose to speculate as to the final number of units or housing program(s) which will be considered for the low/moderate income.

There were many conditions set by the Land Use Commission. These will act as a framework for the proposed project when design plans are prepared. Design plans will be prepared upon completion of the EIS process; because these are conditions, it would be best that the Land Use Commission request details when design work is completed.

5) a) Human use of the marina is a consideration in the technical verification phase. Sewage and other discharges from boats into the marina are governed by Federal and State laws and regulations. The management will advise the marina users of such requirements.

b) This was considered in the marketing analysis; demand does exist for berthing facilities.

c) We concur; should one entrance result in conflict, it is likely that the marina will have a separate entrance.

d) Dr. Paul Bienfang has reviewed this issue and the attached information of ciguatera will be included in the Draft EIS.

e) Shoreline access, use of the bathing lagoons and boating facilities will be afforded to the public. At this time no specific access routes are drawn; these will be coordinated with the City's Department of Parks and Recreation.

Thank you for your comments.

Very truly yours,

F. J. Rodriguez

FJR/lka
Attachments

cc: DLU
DLNR
EQC
OEQC
COE
WBR

248

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE

Two Embarcadero Center, Suite 530
San Francisco, California 94111

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA

August 5, 1980

IN REPLY REFER TO
HED-09

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

We have reviewed the Draft Environmental Impact Statement for the West Beach Project, Honouliuli, Ewa District, Island of Oahu, Hawaii, and provide the following comments.

1. The EIS needs to include preliminary conceptual drawings of the proposed H-1 interchange and the at-grade intersections with Farrington Highway.

2. Page 16, Section 7.2(a) (1), Roads.

   The estimated $770,000 cost for the new freeway interchange needs to be referenced with respect to an engineering cost study and the base year for construction. Because this new interchange is required by the proposed project, the cost of the interchange is a project cost and is the responsibility of the project developer.

3. Page 78, Section 9.3.18, Carbon Monoxide.

   Basic drawings of the "free flow interchange with Farrington Highway" need to be provided.

4. Pages 92-95, Sections 9.4.8 - 9.4.11, Probable Impact of Highway Noise on Future West Beach Residents.

   a. Existing and proposed Federal noise level criteria for residential housing need to be provided in the text to permit quantitive evaluations of predicted noise level violations.

   b. A reference to the noise study methodology is needed.

   c. The source of potential Federal-aid funding for noise abatement costs needs to be identified.

5. Page 114, Section 9.12.5, Impact on Traffic.

With ultimate development of the West Beach project, existing highways are expected to operate at Level of Service E. The potential decrease of traffic safety and the extended travel times due to traffic operation at this Level of Service need to be addressed.

If you would like additional information or clarification concerning these comments, please contact Mr. Losh Kusumoto, Assistant Division Administrator, Federal Highway Administration, Box 50206, Honolulu, Hawaii 96850 at telephone number 546-5150.

We appreciate this opportunity to review the subject Draft EIS and would like two copies of the Final Statement when it becomes available.

Sincerely yours,

Neil Dillabough, Director
Office of Environment and Design

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

September 2, 1980

Mr. Neil Dillabough, Director
Office of Environment and Design
Federal Highway Administration, Region Nine
U.S. Department of Transportation
Two Embarcadero Center, Suite 530
San Francisco, California 94111

Dear Mr. Dillabough,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH PROJECT

Reference is made to your letter of August 5, 1980 (HED-09) commenting on the above mentioned Draft EIS. We have reviewed your comments and would like to provide the following responses.

1. The Draft EIS is a generic document based on the highest density allowable for the resort project. No detailed plans have been drawn at this time. This is consistent with the intent of the EIS process to allow comments to be made prior to a commitment to a specific action. Regarding the Farrington Highway Interchange and at-grade intersection, present plans indicate only a conceptual scheme for both the interchange and intersection. Detailed plans will be prepared at a later date to conform to the applicable Federal and State standards.

2. The construction cost is estimated on present-day prices or a base year of 1980. The cost of improvements for the interchange and intersection will be borne by the developer.

3. This assumption, "free flow interchange with Farrington Highway" was made by the air pollution consultant based on preliminary conceptual drawings and information from the engineering consultant.

4.a. Paragraphs 9.4.4 and 9.4.9 describe Federal criteria/recommendations regarding environmental noise and land uses. The statements contained therein also apply to traffic noise. The list of reference materials on the noise section was inadvertently left out. This list is enclosed for your information and is contained in the noise impact report. The Final EIS will include the list of references.

4.b. General analysis methodology used is described in Paragraphs 9.4.3 and 9.4.8. Reference 7 (FHWA Tech. Advisory T 5040.5) was used in generating traffic noise predictions.

4.c. Part 772 - Noise Standards and Procedures, 23 CFR 772, describes potential Federal funding for noise abatement under Type II Project program. Existing residential units fronting H-1 and east of the West Beach area may be Type II project candidates.

5. The traffic consultant, Henry T. Au, provides the following discussion on this comment.

What is not understood and even many traffic and transportation engineers are not familiar with it, is that the capacity of a highway is a rate instead of a quantity and is not directly comparable to the capacity of a container or enclosed space. The capacity of a highway, therefore, is a variable and can be affected by a number of factors. Until the publication of the "Transportation & Traffic Engineering Handbook, 1976," the capacity of the traffic facility, heretofore, has never been fully explained. This clarification is now set forth on page 309 of the "Handbook".

That the calculated or existing capacity is very conservative and the actual capacity will be considerably higher is substantiated by past and present traffic volumes. It should be emphasized that traffic volumes used for establishing the numerical values for the capacities of the different types of roadways were determined from studies of many highways under a variety of conditions. Thus, it would be impossible to state that the volume measured or calculated is the absolute maximum that could be carried, inasmuch as maximum volumes observed at different times at one point will show a range of values. The capacity values, therefore, should be considered as the average maximum and need to be adjusted to actual roadway conditions inasmuch as there are too many variables.

The traffic analysis used the worst case condition for maximum impact. The traffic projections assumed a continuation of a high level of activity and growth in the Waianae and Ewa Districts and which is very unlikely. Also, no reliance was made on mass transportation or other mitigating measures to reduce the impact of the project. Thus, in actual practice, the 1990 traffic volume should be considerably less than the project traffic volume. As an example, the respective developers will not be able to implement the two theme parks. These projects, for all practical purposes, have been abandoned. Consequently, it is not expected that Level of Service E will be a daily occurrence, but may occur only a few days of the year.

Thank you for your comments on these areas.

Very truly yours,

F. J. Rodriguez

FJR/lka
Enclosure

cc: DLU
DLNR
OEQC
EQC
COE
WBR

dominantly restrictive factor during the construction and blasting phases of the harbor or marina.

REFERENCES

1. Environmental Protection--Planning in the Noise Environment, Departments of the Air Force, the Army, and the Navy; AFM 19-10, TM 5-803-2, NAVFAC P-970; 15 June 1978.
2. Proposed HUD Regulations for Determining Acceptability of Housing Projects in Terms of Noise Exposure; 43 FR 60396, December 27, 1978.
3. "Land Use: EPA Launches Effort to Consolidate Federal Land Use Guidance," Noise Regulation Reporter, No. 104, May 8, 1978, pp. A-14.
4. Guidelines for Preparing Environmental Impact Statements on Noise, Report of Working Group 69 (CHABA), National Research Council, National Academy of Sciences, 1977.
5. Air Installations Compatible Use Zones (AICUZ), Naval Air Station Barbers Point, Oahu, Hawaii, Pacific Division, Naval Facilities Engineering Command, April 8, 1976.
6. AICUZ Preparation Policy, Federal Register, Vol. 42, No. 2, January 4, 1977.
7. FHWA Technical Advisory T 50405.5, Hand-Held Calculator Listings for the FHWA Highway Noise Prediction Model; U.S. DOT, FHWA, September 5, 1978 and October 17, 1978 (Change 1).
8. Traffic Impact Statement for West Beach Resort Project, Henry Tuck Au, Consulting Engineer, August 1, 1979.
9. Blasting Vibrations and Their Effects on Structures; PB-231-971; Denver Mining Research Center; 1971.

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

VERNE C. WAITE, M.D.
DEPUTY DIRECTOR OF HEALTH

HENRY N. THOMPSON, M.A.
DEPUTY DIRECTOR OF HEALTH

JAMES R. KUMAGAI, Ph.D., P.E.
DEPUTY DIRECTOR OF HEALTH

RADIO BSPPH
DEPUTY DIRECTOR OF HEALTH

August 5, 1980

In reply, please refer to:
File: EPHS-SS

MEMORANDUM

To: State Environmental Quality Commission

From: Deputy Director for Environmental Health

Subject: Proposed West Beach Resort, Honouliuli, Ewa, Oahu

We submit the following comments for your information and consideration:

Sewage Disposal

Before sewage from the project can be transported and treated at the Honouliuli Wastewater Treatment Plant, the Oahu Water Quality Plan (Facility Plan) for West Mamala Bay must be amended to include West Beach as a tributary area. This amendment requires approval from the Department of Health and the U.S. Environmental Protection Agency, Region IX. A population/flow contribution analysis must be made to assess capacity phasing of the Honouliuli Wastewater Treatment Plant.

Drinking Water

It is our understanding that when completed, the proposed project would increase the total population of the area by 33,000 to 35,300 persons and would create an increased water demand of 5.5 million gallons per day. Of this 5.5 million gallons, 1.0 million gallons would be used for irrigation and a total of 4.5 million gallons per day would be used for domestic purposes.

We find the provision of 4.5 million gallons per day to 33,000 persons produces an average supply of 136 gallons per person per day. Using the higher population estimate, a per capita usage of 127 gallons is derived. These figures are significantly below the average usage given by the Honolulu Board of Water Supply in their 1979 Annual Report of 198 gallons per person per day. Using the Board of Water Supply average, we find water demand could range from 6.5 to 7.0 million gallons per day. In view of this difference, we believe an expanded review of water demand considerations would be helpful. Such review should identify assumptions and parameters used in the derivation of the water requirements for the project.

We also find the discussion of water supply to be insufficient. The issue of water supply and development will continue to be a critical one for major projects in Hawaii. As recognized in the draft impact statement, water availability will determine the allowable extent of development. We believe that the final environmental impact statement will remain incomplete until the source or sources of water for the development have been identified and discussed. If water commitments have been obtained, the agency making the commitment, the amount committed, the sources

to be employed to meet this commitment and the impact on those and surrounding sources should all be identified and discussed. If new sources are to be developed, the location, number, anticipated withdrawal, and impact on existing sources need to be examined. If different technologies are to be used to supplement the water supply, their feasibilities for the area should be reviewed.

Please be informed that Section 29, Public Health Regulations, Chapter 49, Potable Water Systems, deals with the development of new water sources to serve public water systems. Under the terms of Section 29, all new sources of potable water must be approved by the Director of Health prior to use. Such approval is based primarily upon submission of an engineering report which satisfactorily addresses all concerns as set down in Section 29. Once approved, the source and distribution system will be subject to the applicable terms and conditions of Chapter 49.

Noise

1. Noise problems are anticipated from the proposed development as a result of the mix of various land use designations:

   a. Noise from activities associated with the use of recreational facilities can have adverse effects, in terms of annoyances, on adjacent residents. The proposed concept of situating residential units within the golf course area may result in noise disturbances from activities including ground maintenance and club activities such as entertainment. Other recreational areas including the marina, tennis courts, parks and entertainment center may also result in disturbances if situated adjacent to residential areas.

   b. Noise from activities associated with commercial facilities can have an adverse effect on residents in the surrounding neighborhood. Increase in vehicular traffic, including heavy vehicles utilized for deliveries and vehicles within off-street parking areas, may also create noise impacts on adjacent residential communities.

   c. Some noise impacts may be created from the proposed school site, including classroom and recreational activities. Noise associated with recreational activities during after school hours from playground areas may also pose some problems to neighboring residents.

2. Plans should be initiated to locate areas listed above and especially recreational and commercial facilities away from adjacent residential communities. If such plans cannot be initiated, areas utilized for such usage should be designed to minimize possible noise impacts.

3. Noise from equipment, such as air conditioning/ventilation units, exhaust units and booster pumps, must be attenuated to meet the allowable noise levels specified in Public Health Regulations, Chapter 44B, Community Noise Control for Oahu.

4. We concur with the applicant's mitigative measures for control of:

   a. Internal street system noise, including bus traffic. Vehicles traveling to and from the resort area, specifically buses, must comply with Public Health Regulations, Chapter 44A, Vehicular Noise Control for Oahu.

   b. Noise from external traffic on the proposed West Beach residential units, primarily those fronting existing highways.

5. Noise from aircraft and associated activities at Barber's Point Navel Air Station may have an adverse effect on the proposed residential areas. Although the impact is addressed in the Noise Impact Analysis, definite control measures are not indicated.

6. Should the proposed project site include parking structures, effort should be directed toward control of noise from tire squeals and vehicular noise emissions.

7. Construction activities must comply with the provisions of Public Health Regulations, Chapter 44B, Community Noise Control for Oahu:

   a. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the regulations.

   b. Construction equipment and on-site vehicles or devices requiring an exhaust of gas or air must have a muffler.

   c. The contractor must comply with the conditional use of permit as specified in the regulations and the conditions issued with the permit.

8. Traffic noise from heavy vehicles traveling to and from the construction site must be minimized in residential areas and must comply with the provisions of Public Health Regulations, Chapter 44A, Vehicular Noise Control for Oahu.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

for MELVIN K. KOIZUMI

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

September 2, 1980

Mr. Melvin K. Koizumi, Deputy Director
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Koizumi,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

Thank you for your letter of August 5, 1980 commenting on the above mentioned project. Below we have provided responses to your comments.

Sewage Disposal. Regarding sewage disposal, the City's Division of Wastewater Management should file the required amendment. The project engineer assumes that based on previous correspondence between the City and Department of Health regarding oversizing the Makakilo Interceptor that the Department of Health has informed the City of this amendment requirement. If the Makakilo Interceptor Sewer is not oversized, the Developer intends to construct (at his expense) a separate sewer line from West Beach to the Honouliuli Wastewater Treatment Plant.

Drinking Water. The computations are based on the Board of Water Supply Domestic Consumption Guideline contained in their current Water System Standards dated March 1977. The guideline specifies average water usage for different types of living units as well as differing land uses. These computations are compared with yours based on population. Undoubtedly, the projected population or the Board of Water Supply's Guideline is the cause of the discrepancy.

The Ewa-Waianae water system is anticipated to change within the next five years. The Board of Water Supply (BWS) has already designed and should construct shortly a 16-inch transmission main from its existing well in Waipahu to bolster the Kunia sources. This, however, is an interim measure to assure water in the Ewa-Waianae system until the Waianae-Nanakuli system is developed.

Both the City and State have started exploratory wells in Makaha and Waianae. It is anticipated that the area from Nanakuli to Makaha will, within the next five years, have its own water system of about 5 MGD (million gallons per day). Then West Beach, as well as the Campbell Industrial Park, would be the only logical service area for the existing water reservoir and water mains in Farrington Highway near the project site.

It is also our understanding that Campbell Estate has hired Walter Tagawa & Associates to review the water demands of its Ewa lands including West Beach. An exploratory well is being drilled by Campbell Estate near Makakilo as a recommendation of that water study.

Consequently, due to the unconfirmed nature of all the present proposals of the Board of Water Supply it is impossible as well as impractical to predict the source of water for West Beach which, at the minimum, is about four (4) years away from initial occupancy and water use. A period of 12-18 years is anticipated before total Master plan resort development is fully implemented.

The developer and/or his agents will meet with the BWS prior to rezoning to discuss and resolve the water source issue. At that time the BWS, Oahu Sugar Company, and the Navy should have finalized their plans to properly utilize the water resource in the Pearl Harbor Basin.

Regarding Section 29, Public Health Regulations, Chapter 49, Potable Water Systems: the developer will comply with all applicable laws and regulations relating to potable water development.

Noise. We concur with the general comments. The implementation of specific noise control measures during the project design phase, to insure adherence to State and County noise regulations should serve as mitigation measures.

We appreciate your comments on these concerns.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLNR
DLU
OEQC
EQC
COE
WBR

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4411

FRANK F. FASI
MAYOR

TYRONE T. KUSAO
DIRECTOR

79/SMA-48(SM)

August 8, 1980

Environmental Quality Commission
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Draft Environmental Impact Statement
West Beach Resort
Honouliuli, Ewa, Oahu

We have reviewed the above and have the following comments to offer:

1. General Comments:

   a. To accurately define the project area, a tabulation of the Tax Map Keys (TMK) and areas of each within the proposed project should be included. Also current zoning designations of these TMKs would also be useful.

   b. It should be noted in the summary, as well as 9.15 Land Use Controls and Impact, that unless the applicant intends to develop only agriculture and industrial uses as an alternative, county land use amendments and rezoning will be required.

2. Reference: Page 16.

   Comment: Considering the nature of the proposed development, are bikeways (i.e., bike paths, bike lanes, or bike routes) being planned for implementation?

3. Reference: Page 20.

   Comment: Does the Department of Public Works have adequate capacity at the Honouliuli Sewage Treatment Plant to accommodate the proposed development? Has there been an agreement to this effect?

4. Reference: Page 20.

   Comment: Has the source of water been determined for the proposed project? If not, when will this commitment occur? Can treated sewage effluent or brackish water be used for irrigation? Have provisions been made to implement such a scheme?

5. Reference: Page 21.

   Comment: What percentage of the 700± small boat slips will be made available for public use?

6. Reference: Page 21.

   Comment: What percentage of the residential and condominium units will be set aside for low-to-moderate income families?

7. Reference: Page 29.

   Comment: Under Water Supply, what is meant by "limit size of development and install conservation equipment to reduce demands"? What kinds of conservation equipment were considered? What percentage amounts of demand would be reduced? What specific methods of desalinization were considered? At what cost? To provide what quantities of water?

8. Reference: Page 29.

   Comment: What prime agricultural areas were considered for development as park or open space for potential reconversion to cultivation use? What acreage in the proposed development was considered to fall into this category?

9. Reference: Page 30.

   Comment: Will the developer bear the financial responsibility of renovating the old O R & L Railroad, and the salvaging of historical sites? There should be close coordination with the Historic Preservation Office.

10. Reference: Page 36.

Comment: Considering recent weakness in the tourist industry, is it realistic to expect a 4% per year increase in tourism through 1990? Also the occupancy figures appear to be optimistic, considering occupancy comparisons (%) between the first six months of 1979 with 1980 as follows (HVB):

	WAIKIKI		ALL OF OAHU	
	1979	1980	1979	1980
JAN	94.8	80.5	94.8	80.7
FEB.	97.7	79.4	96.2	80.4
MAR.	91.8	78.1	92.1	79.2
APR.	73.8	72.5	75.9	72.9
MAY	61.1	66.5	64.2	67.2
June	71.8	66.6	74.1	68.8

11. Reference: Page 43-53.

Comment:

a. The lagoons' shapes, volume, depth, surface area, and nearshore earth stabilization methods will be specified accurately at the time of the application for a Shoreline Management Permit.

   Plans and cross-sections will be necessary also.

b. The flushing rate of 2 1/2-to-5 times per day appears to be extremely optimistic, considering that in the upper reaches of the Hawaii Kai Marina may be flushed as little as once every 11 days. What are the flushing characteristics of the Ala Wai Canal?

c. How will the nutrient concentrations of "10 to 125 times greater than the coastal source waters" affect the nearshore benthic environment? How exactly will sedimentation be minimized? How will the nearshore coral communities be affected?

d. Please define "coastal tidal prism".

e. Does the State Department of Transportation concur with the proposed connection of the main entrance channel with the marina entrance?

12. Reference: Page 60.

Comment: Would wave conditions which are "moderate to heavy during an appreciable number of days per year" pose problems for small boat navigation? Will an offshore navigation channel need to be dredged?

13. Reference: Page 69.

Comment: The University of Hawaii Water Resources Research Center and the Environmental Center should be consulted to determine more specifically the impact of salt water intrusion on the Ghyben-Herzber (groundwater) lens. This matter is of particular concern to the future of the proposed marina development.

14. Reference: Page 69.

Comment: Will the "resident population of sharks" pose a threat to the safety of swimmers and boaters?

15. Reference: Page 72.

Comment: What mitigation measures have been examined to minimize the potential altered tsunami response on property near the harbor's shoreline?

16. Reference: Page 85.

Comment: Who will be responsible for the implementation of a new air pollution monitoring station in the development? Has the State Department of Health been contacted in this regard?

17. Reference: Page 98.

Comment: Can representative populations of the endangered plant species be saved or relocated safely? Who will be responsible for their maintenance?

18. Reference: Page 100.

Comment: Please define "de pauperate bird fauna".

19. Reference: Page 104-105.

Comment: Did the State Department of Agriculture concur with the State Land Use Commission's Decision and Order?

20. Reference: Page 109.

Comment: How and where will solid waste generated by the proposed development be disposed?

21. Reference: Page 111, 114.

Comment: Traffic volume data, which is more current than 1973, is available from the State Department of Transportation. How will these additional traffic volumes affect H-1 Freeway in the area of Halawa and Red Hill, where peak hour traffic poses problems in the mornings and afternoons? Service Level E appears to be an undesirable situation?

22. Reference: Page 129.

Comment: The statement that "rather than setting a trend for development, the West Beach project is paralleling that same path of urbanization" is misleading, considering that 9,200 new residential/condominium units and a new population of 17,500 people is being proposed.

It is also pointed out that permits for the proposed Kahe Point Theme Park have lapsed. Therefore, it does not appear to be a viable future project at this time.

Should there be any questions, please contact Sampson Mar of our staff at 523-4077.

Very truly yours,

TYRONE T. KUSAO
Director of Land Utilization

TTK:sl

cc: Env. Comm. Inc.

256

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

September 2, 1980

Mr. Tyrone T. Kusao, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Kusao:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

Thank you for your letter of August 8, 1980 commenting on the abovementioned project. Below we have provided responses to your comments.

1. General Comments. The information requested under both a. and b. will be included in the Final EIS.

2. Reference: Page 16. At this time, no roadway designs have been prepared; the engineer will, however, coordinate roadway plans with the Department of Transportation Services and State Department of Transportation. The inclusion of bikeways is probable.

3. Reference: Page 20. The project engineer provides the following response: The City has acknowledged accepting the sewage at their Honouliuli Treatment Plant. Attached are copies of letters from Community Planning, Inc., to the City's Department of Public Works and their subsequent letter to the Department of Health. If the Makakilo Interceptor Sewer is not oversized, the Developer intends to construct (at his expense) a separate sewer line from West Beach to the Honouliuli Wastewater Treatment Plant.

4. Reference: Page 20. The Ewa-Waianae water system is anticipated to change within the next five years. The Board (Board of Water Supply) has already designed and should construct shortly a 16-inch transmission main from its existing well in Waipahu to bolster the Kunia sources. This, however, is an interim measure to assure water in the Ewa-Waianae system until the Waianae-Nanakuli system is developed.

Both the City and State have started exploratory wells in Makaha and Waianae. It is anticipated that the area from Nanakuli to Makaha will, within the next five years, have its own water system of about 5 MGD (million gallons per day). Then West Beach, as well as the Campbell Industrial Park, would be the only logical service area for the existing water reservoir and water mains in Farrington Highway near the project site.

It is also our understanding that Campbell Estate has hired Walter Tagawa & Associates to review the water demands of its Ewa lands including West Beach. An exploratory well is being drilled by Campbell Estate near Makakilo as a recommendation of that water study.

Consequently, due to the unconfirmed nature of all the present proposals of the Board of Water Supply it is impossible as well as impractical to predict the source of water for West Beach which, at the minimum, is about four (4) years away from initial occupancy on water use.

The developer and/or his agents will meet with the Board prior to rezoning to discuss and resolve the water source issue. At that time the Board of Water Supply, Oahu Sugar Company, and the Navy should have finalized their plans to properly utilize the water resource in the Pearl Harbor Basin.

5. Reference: Page 21. The developer is seriously considering a significant reduction in the size of the marina (50 percent of more). At this time, there are no established percentage or number of slips which will be set aside for public use.

6. Reference: Page 21. At this time the developer has not finalized the total amount of residential units to be constructed. Nor has a City, State, or Federal housing program been considered. Under the State Land Use Commission's condition, the developer must provide 10 percent of the total residential units for the low and/or moderate income. If the size is decreased, the number of units provided under this condition will decrease.

7. Reference: Page 29. The total density of the development would be lessened. Also, water conservation equipment, details on their effectiveness, methods of desalinization, and quantities, have not been reviewed in detail at this time. Until actual daily consumption demand is calculable, the methodology of alternative sources or means of water development can be at best only general in nature.

8. Reference: Page 29. This was a general statement and not meant to imply that there would be reconversion.

9. Reference: Page 30. The developer is willing to contribute to the cost of renovating the old O R & L Railroad if such a project is felt to provide a recreational/educational experience and add to the visitors' attractions. As indicated, work on the Railroad will be coordinated with the Historic Preservation Office and the railroad society.

10. Reference: Page 36. The socioeconomic consultant considered the slowdown in the tourist industry and therefore, the figures provided are conservative.

11. Reference: Page 43-53. We concur with comment a. On comment b, flushing rate, Dr. Karl Bathen responds that a flushing rate of 2½ to 5 times a day is not "optimistic" as much as it is a design requirement based on biostimulation criteria. It represented the flushing rates to be achieved via forced flushing during the design phase. It is not meant to be ambient flushing rate but a design objective, i.e. a design necessity. The Hawaii Kai marina is not artifically flushed nor is any other area in Hawaii, thus, most have poor flushing characteristics under ambient conditions.

Comment c, on high nutrient environment and coral communities: The high nutrient concentrations associated with groundwater infiltration to the basin are expected to effect primarily a limited area immediately outside the entrance channel. Nutrient levels outside the basin are expected to decline rapidly with distance from the entrance and with time as the result of advection and mixing with the adjacent coastal waters. Further, because the nutrients are associated with the less dense, brackish groundwater, nutrient levels decline markedly with depth and thus their contact with benthos is limited for the most part to the most shallow areas. The principal impacts to affected areas will likely be decreased diversity and increased abundance of benthic algal species having higher capacity for nutrient assimilation. The basis for these conclusions comes from analysis of horizontal and vertical nutrient profiles in the regions of the existing Barbers Point basin and the Honokahau Small Boat Harbor, two basins presently receiving nutrient-rich groundwater infiltration.

Sedimentation effects to the nearshore communities will be minimized by conducting dredging operations in the dry, and by the construction of settling basins inland of the lagoon and marina basins to trap portions of the surface runoff.

The most pronounced effects to the nearshore coral communities will occur in the regions adjacent the entrance channel to the marina. Decreased size and diversity of coral communities are expected to result from the increased sedimentation and turbidity (decreased water clarity) that will likely be associated with this region.

Comment d, on coastal tidal prism. This should be corrected to read "coastal tidal height" since the coastal area has no definitive boundaries and thus no coastal tidal prism.

Comment e, on State DOT's a concern on one entrance for the harbor and marina. The State DOT feels that a single entrance may result in navigational conflicts. If at the technical verification and design phase, this is still a serious concern and/or a likely problem, the developer will likely construct a separate entrance for the marina.

12. Reference: Page 60. These concerns will need to be addressed in the technical verification and design phase.

13. Reference: Page 69. As previously indicated, the developer is seriously considering a significant reduction (50%) of the marina. As the marina is finalized and the technical verification studies prepared, a groundwater hydrologist will be consulted to make an evaluation of saltwater intrusion into basal groundwater. Based on his evaluation, the developer will adhere to the applicable regulations and laws which relate to the adverse impacts of saltwater intrusion and groundwater seepage.

14. Reference: Page 69. The comment on "resident population of sharks" calls attention to the fact that some risk will indeed likely exist in the area that could threaten the safety of swimmers and boaters. The extent of this threat will obviously depend on population variations from year to year and on the amount of use of the coastal waters for swimming and boating.

15. Reference: Page 72. Dr. Karl Bathen provides the following information on tsunamis. The final site topography is yet to be established. Both the final elevations and terrain roughness will establish runup heights on land. In absence of the final development plan, we attempted to roughly quantify the extent of runup on the existing terrain. It showed tsunami runup will be a problem. Final work will include, the Corps of Engineer's waterways experiment station (WES) work and 100-year runup height along with the National Flood Insurance Guidelines. We suggest that a local tsunami expert aid the West Beach project in this work during the design stage. Further work in absence of the final site topography and terrain characteristics would not seem meaningful at this time. The problem potentially is, however, acknowledged.

16. Reference: Page 85. The Department of Health would be responsible for the implementation of a new air pollution monitoring station in the development. The Department of Health has not yet been contacted in this regard.

17. Reference: Page 98. Winona Char, the botanical consultant, responds as follows: Honolulu Botanic Gardens (City and County of Honolulu) has successfully transplanted a number of Euphorbia plants. Keith Woolliams, horticulturist at Waimea Arboretum, is at present conducting transplanting experiments for the U.S. Army Corps of Engineers. At

this time the responsibility for maintenance of the Euphorbia plants has not been determined. It is likely that their transplant and initial growth stages will be monitored (and cared for) by the present botanical consultant.

18. Reference: Page 100. The definition of depauperate is, falling short of natural development or size. This definition will be included in the Final EIS.

19. Reference: Page 104-105. The Department of Agriculture opposed the West Beach development during the Land Use Commission's Hearings. It is likely that the Department of Agriculture did not concur with the State Land Use Commission's Decision and Order. During the EIS Preparation Period, we note that the State Department of Agriculture did not criticize the loss of agricultural lands due to the West Beach project (see page 184 of Draft EIS).

20. Reference: Page 109. Using a de facto population of 17,500 and assuming that the average person generates 3.5 pounds of solid waste per day (based on the Refuse Division's figures); the total solid waste generated by the project would be approximately 30 tons per day. Other uses such as commercial areas, park areas, visitor facilities, et cetera may add an additional three tons of solid waste. The solid waste will be collected by private refuse companies and disposed of at a private certified landfill or at a public landfill for a fee. This informaton will be incorporated into the Final EIS. The final disposal site of the solid waste has not been determined.

21. Traffic volume data, more current than 1973 were, in fact, included and used in the Traffic Impact Statement as well as the DEIS. This is reflected in the analysis set forth on page 111 of the DEIS and in Tables 1, 2 and 3 of the Traffic Impact Statement. The following is stated on page 111 of the DEIS:

"Traffic volume information and data were obtained from the report 'Traffic Summary, Island of Oahu 1973' of the State Department of Transportation and from the latest traffic volume counts collected by the Department."

The peak hour congestion on the H-1 Freeway is due to a deficiency in the highway downstream at the most critical location. In the vicinity between Kalihi Street and Fort Shafter, the highway is narrowed to 2 lanes, thus causing a restriction in the highway to create the congestion in the area of Halawa and Red Hill. When this deficiency is corrected, there should be no congestion and the Freeway will have sufficient capacity to be able to accommodate present and future traffic demands.

Level of Service E describes the operating condition of a highway at or near the capacity of the highway. The "Highway Capacity Manual, 1965" does not indicate that this level of service is an undesirable situation. Of course, it would be desirable if the level of service could be D or C.

22. Reference: Page 129. We will delete the statement that "rather than setting a trend for development, the West Beach project is paralleling that same path of urbanization." We concur with your statement "It is also pointed out that permits for the proposed Kahe Point Theme Park have lapsed. Therefore, it does not appear to be a viable future project at this time."

We appreciate your comments on these concerns.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLNR
OEQC
EQC
COE
WBR

259

245 North Kukui Street, Honolulu, Hawaii 96817, Telephone (808) 537-5966

AMERICAN LUNG ASSOCIATION *of Hawaii*

August 7, 1980

Environmental Quality Commission
550 Halekauwila Street
Honolulu, Hawaii 96813

Gentlemen:

SUBJECT: West Beach Resort EIS

We have reviewed the subject EIS with particular attention to those sections addressing traffic and air quality impact. Our detailed comments are attached.

In brief, the most serious shortcoming appears to be a significant underestimation of the traffic generated by the proposed development, as well as an inadequate accounting of the cumulative traffic impact of all the other projects in the fwa area. This also implies an underestimation of air quality impact since that analysis was based largely on the traffic study results.

Sincerely,

James W. Morrow
Director, Environmental Health

JWM:jm

cc: OEQC

AMERICAN LUNG ASSOCIATION OF HAWAII

ENVIRONMENTAL IMPACT STATEMENT REVIEW

. . . an air quality assurance program

Project: WEST BEACH RESORT **Date:** August 7, 1980

1. Section 9.12 Access, Traffic, and Mass Transportation

   a. The rate of increase in average daily traffic (ADT) for the period 1965-1976 is incorrectly stated to be 9.82% per year. The 9.82% figure is based on 9.82% of the base year traffic, i.e., 9,017. Therefore, .0982 x 9,017 = 885. If this 885 is added to each year of the period 1965-1976, then the result is 18,756. This represents a linear increase of 885 trips per year and not an annual increase of 9.82% as stated. An annual rate of 9.82% would result in a 1990 ADT projection of 69,611.

   b. The traffic projections presented appear to be sharply underestimated. If one were to add up the traffic projections for the currently approved and proposed projects in that area, the ADT for the H-1 Freeway would be about 88,000 by 1990 which is well above the 47,070 mentioned in the report. See the Final EIS for Makakilo prepared by the Honolulu Area Office of HUD.

   c. The peak-hour traffic projections for West Beach are based only on the residential land use and do not account for traffic generated by the commercial and hotel/condominium uses. The stated reason for this is that the peak-hours associated with these uses do not coincide with the peak-hours of the principal access roads, i.e., H-1 and Farrington Highway. While this latter statement may be correct, it is not correct to assume that these uses will generate absolutely no traffic during the highway peak hours. Table 7 on page I-17 of the Traffic Impact Statement clearly indicates this fact for the shopping center. The shopping center's peak-hour is 2-3:00 p.m. but there are almost as many trips during the 3-4:00 p.m. hour which does coincide with the highway peak-hour. Some fraction of that traffic must be using either Farrington Highway or H-1. The same argument can be made for the hotels and condominiums. It is simply unrealistic to assume that just because the peak-hours do not coincide that no traffic trips are generated at all during the highway peak-hour.

   d. The analysis of hotels and condominiums makes no mention of employee trips for the 6,945 units. It would seem that there would be a significant number of employee trips associated with that many units and that many of those trips would occur during the highway peak hours.

STATE OFFICE 245 N. Kukui St. Honolulu, Hawaii 96817
HAWAII COUNTY Post Office Box 925
KAUAI COUNTY Post Office Box 901
MAUI COUNTY Kaahumanu Center

   e. Based on the analysis which did not include commercial or hotel/condominium generated traffic during peak hours, it was concluded that the highways could accommodate the peak-hour traffic at Service Level E, which is capacity, and is characterized by unstable flow. The additional traffic generated by these other land uses may result in Service Level F (forced flow) and capacity being exceeded.

2. While the EIS did discuss the Kahe Point power plant in several places, no specific attempt was made to quantify the electrical energy demand of the proposed project and translate that into fuel oil consumption and concomitant pollutant emissions. It is important to know what energy demand and what pollutant emissions result from development of a project of this magnitude.

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

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 FOR THE PROPOSED WEST BEACH RESORT PROJECT

Thank you for your letter of August 7, 1980, on the abovementioned Draft Environmental Impact Statement. Your comments on traffic were reviewed by the traffic consultant, Henry T. Au; the remaining comment (item 2) was reviewed by Barry Root, the air pollution consultant. Their responses are provided below.

RESPONSE TO ITEM 1.a.

If the increase of 885 trips per year is expressed as a percentage, then the 885 trips would represent an increase of 9.82% of the base year traffic volume of 9,017 for the year 1965. Therefore, the rate of increase is correctly stated to be 9.82% as a percentage from the base period. Expressing the rate of increase as a percentage of the base period is simple for the general public to understand and the easiest to apply in projecting future traffic volumes.

RESPONSE TO ITEM 1.b.

Traffic projections could also be grossly overestimated and in this instance, the 88,000 trips for 1990 appears to reflect an unreasonable estimate of future traffic demand. In applying any method of analysis, it is essential to evaluate results for reasonableness. It should be pointed out that the Waianae and Ewa Districts experienced the highest level of activity and growth during the period from 1965 to 1976. The growth in traffic volumes in the future, therefore, cannot be expected to equal or even keep pace with the rate of growth in traffic volumes for the period from 1965 to 1976. The traffic projection of 47,070 trips by 1990, however, assumed that this same high level of activity and growth will continue in the future.

In 1969, the traffic volume on the H-1 Freeway at Honouliuli Bridge was only 16,378. If as predicted, the traffic volume by 1990 would total 88,000, the traffic volume would have increased 437.31% over that of 16,378 for 1969. If 1976 is taken as the base year, the increase would be 235.03% over that of 26,266 for 1976.

If future travel trends are taken into consideration, the 88,000 trips for 1990 is unrealistic for several reasons. The two theme parks,* the Barbers Point Deep Draft Harbor and other proposed developments, similar to the West Beach Resort Project, will not be completed within a year, but over a period of years. Even after its completion, it will be a number of years before sufficient patronage is developed to generate a reasonable volume of traffic on the highways.

The West Beach Resort Project will require at least 10 years to complete, and within the 10 years, it is expected that the rising cost of transportation and the limited supply of gasoline will restrict the use of the automobile and improve the traffic flow on the highway and street systems.

This trend is already evident and the motoring public is conserving and using less gasoline. With more limited supply of gasoline and higher cost foreseeable in the near future, the traffic volumes projected for the future will be reduced considerably.

RESPONSE TO ITEM 1.c.

It is true that land uses other than residential land uses will generate traffic trips during the highways' peak commuting hours. However, the variability typical of human activities and land uses will tend to average out these differences. As an example, shopping trips made during the peak hours, especially the afternoon peak hour, seldom are made from the home as an origin. These trips are made as an intermediate trip on the way home. On the way home, the motorist stops by to do his shopping and then continues his journey home. His trip on the highway has already been counted and his journey home from the shopping center would again be counted, thus magnifying the volume of traffic on the highway.

If an attempt is made to reach a high level of accuracy, the process becomes quite complex and because of the unpredictability of the numerous variables, especially the projection future traffic trends, the results obtained are usually too low or too high. Furthermore, in most cases, the variability typical within a particular land use does not warrant this high level of analysis. It is more appropriate to choose a trip generation approach that is simple and yet be reasonable accurate.

The purpose of an impact statement is primarily to include those elements that are pertinent to the evaluation that would lead a decision maker to determine what significant environmental impacts he must consider. References should be made to significant impacts as distinguished from

* It should be noted that both Caneland and Kahe Point are for all practical purposes null and void; Kahe Point has lapsed its permits and Caneland is now planned for Kahuku.

ordinary effects. This is in line with the objectives for the preparation of an impact statement, otherwise an environmental assessment is not required. For this reason, an impact statement should not be conducted as a theoretical research project.

The adequacy of information in an impact statement for use to allow a decision maker to judge the importance of traffic and environmental consequences and cost of the project must be tempered in favor of being practical. Although it is desirable to adopt a comprehensive viewpoint, the time involved and the expense for making a complete or more thorough analysis is uneconomical and in most cases unnecessary. Furthermore, unless the amount of data and supporting data is significant, the final results may be of very little added value in influencing the ultimate decision. More information than is necessary makes the consuming and laborious analysis that will discourage a thorough critical review of the impact statement.

The judgment as to how deep an EIS must go and what it must contain has been a matter of considerable controversy. Even with judicial decisions, it is still difficult to determine in a comprehensive way what is required to fulfill the requirements of an impact statement. Science is integrated into the environmental process and scientific and technological judgment must be made in an environmental impact evaluation. There is no magical formula or model that will take the place of technical skill, foresight and judgment. Until such time a more scientific method is established, professional judgment combined with scientific evidence and facts is the best available method of evaluating and predicting significant environmental consequences.

RESPONSE TO ITEM 1.d.

Hotels operate on a 24 hour basis with three shifts of employees. The prime shift usually starts at 6:00 A. M.; the smaller afternoon shift at 2:00 P. M.; and the still smaller night shift at 10:00 P. M. Between 44% to 93% of the total employees may be working during the prime shift. Thus, most hotel employees are at work either before or after the peak commuting hours of the highways.

RESPONSE TO ITEM 1.e.

What is not understood and even many traffic and transportation engineers are not familiar with it, is that the capacity of a highway is a rate instead of a quantity and is not directly comparable to the capacity of a container or enclosed space. The capacity of a highway, therefore, is a variable and can be affected by a number of factors. Until the publication of the "Transportation & Traffic Engineering Handbook 1976", the capacity of a traffic facility, heretofore, has never been fully explained. This clarification is now set forth on page 309 of the "Handbook".

RESPONSE TO ITEM 2.

Both the DEIS and the air quality study discuss the long-range plans for the Kahe Point power plant. These plans include the addition of two (2) more generating units to the existing six (6) units. The two (2) additional units reflect the future electrical demand for the island. This energy demand includes developments such as West Beach. Consequently, the project's energy pollution emissions are discussed. The expected future concentrations of sulfur dioxide in the West Beach area from the Kahe power plant were calculated and listed in Table 9 on page 53 of Root's air quality analysis for the West Beach project. (The source of Table 9 was Reference 4: Cermak, J.E. and D.G. Mutter, "Physical Modeling of Atmospheric Transport of Stack Emissions at Kahe Electrical Generating Plant, Oahu, Hawaii," April, 1978.) The impact of the Kahe power plant (present and future plans for the facility) is reviewed in subsection 9.3.13. (pages 75, 76) and 9.3.39., item 2. (pages 85, 86) of the DEIS.

We hope that these future details clarify the information provided in the DEIS and the traffic and air quality studies.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLU
DLNR
OEQC
EQC
COE
WBR

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 523-4181

FRANK F. FASI
MAYOR

EDWARD Y. HIRATA
MANAGING DIRECTOR

BARRY CHUNG
DIRECTOR

MYRA M. TAKASAKI
DEPUTY DIRECTOR

August 7, 1980

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: West Beach Resort
Draft Environmental Impact Statement

We have reviewed the Draft Environmental Impact Statement for the West Beach Resort.

The statement should contain a detailed discussion on the provision of low and moderate income housing relative to the following:

1. The Housing Section of the General Plan of the City and County of Honolulu (pages 35 through 37).

2. The Order of the Land Use Commission, State of Hawaii, Docket No. A76-421 (item 4, page 37).

We would welcome the opportunity to assist the developer in formulating a program to provide a minimum of 10 percent of the units, or adopt an alternative provision for low and moderate income households, and to provide housing for the employees of the complex. (The cost of the units should be within the price range of an approved Federal program.) The developer should contact Mr. John Whalen, Phone 523-4200, for any assistance.

Thank you for forwarding the statement for our review and comment, copy of which we are retaining for our files.

Very truly yours,

Barry Chung

Barry Chung

cc: Department of Land Utilization

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F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

September 2, 1980

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

Dear Mr. Chung,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH PROJECT

Thank your for your letter of August 7, 1980 commenting on the above mentioned Draft EIS. At this time the developer has not finalized the total amount of residential units to be constructed, nor has a City, State, or Federal housing program for the low/moderate income housing been considered. The developer will provide 10 percent of the total residential units for low/moderate income as provided under the conditions of the State Land Use Commission.

Your assistance in this matter is appreciated and the developer will contact your office as the project plans are detailed.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLU
DLNR
EQC
OEQC
COE
WBR

GEORGE R. ARIYOSHI
GOVERNOR

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

RYOKICHI HIGASHIONNA, Ph.D.
DIRECTOR

DEPUTY DIRECTORS
JACK K. SUWA
JAMES R. CARRAS
JAMES B. McCORMICK
JONATHAN K. SHIMADA, Ph.D.

IN REPLY REFER TO:

STP 8.6464

August 4, 1980

MEMORANDUM

TO: Mr. Donald Bremner, Chairman
Environmental Quality Commission

FROM: Director of Transportation

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT
West Beach Resort
Honouliuli, Ewa District, Oahu

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Thank you for the opportunity to review the subject EIS. We offer the following comments which could improve the document:

1. Section 9.2.36, page 53, Marina Configuration

   The design alternative of incorporating the deep water entrance channel for both recreational and commercial boating traffic will inherit unavoidable disavantages for all concerned.

   a. The entrance - exit area of the proposed marina will need careful design considerations to minimize the possibility of storm surf and surge within the marina.

   b. A marina design that incorporates its entrance as part of the main channel of a commercial harbor will result in some harbor discharge reaching the marina and/or conversely.

   c. The priority commercial traffic at Barbers Point Harbor may encounter severe interference problems.

However, we would have no objections to a separate entrance channel which may be parallel and adjacent to the deep-draft harbor entrance channel provided that specific policies and guidelines are developed for safe boating passage.

We recommend close coordination of the development plans and policies with our Harbors Division.

Ryokichi Higashionna

Ryokichi Higashionna

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

September 2, 1980

Mr. Ryokichi Higashionna, Director
State Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Higashionna:

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORTS PROJECT

We have received your comments of August 4, 1980 on the abovementioned Draft EIS.

Your comments are directed to the marina configuration and indicate your staff's awareness that the marina design has not been finalized. At this time the developer is giving serious consideration to significantly reducing the size of the marina. As the Draft EIS indicates, the marina's design has not been confirmed.

Specifically, we provide the following responses to your comments:

1.a. Technical verification studies on the marina's design will be prepared. This includes physical and computer modeling techniques which will identify anticipated problems such as stormwater runoff, surf and induced surge within the marina and other circulation problems.

1.b. We realize that if the entrance of the marina and Deep Draft Harbor is shared, there will be exchange of water discharge from the Deep Draft Harbor and marina and vice-a-versa. This is noted in the Draft EIS (page 71, item 17).

1.c. If it is determined during the design stage that interference problems with commercial traffic using the Deep Draft Harbor is likely, a separate entrance to the marina would appear to be the most likely solution. Therefore, we concur with your concerns and recognize the priority of commercial traffic over the recreational boats utilizing the proposed marina.

Thank you for your comments.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLU
EQC
OEQC
DLNR
COE
WBR

HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860

IN REPLY REFER TO:
002A:RLE:amn
Ser 1673
7 AUG 1980

Mr. Donald A. Bremner, Chairman
Environmental Quality Commission
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Bremner:

Draft Environmental Impact Statement
for the Proposed West Beach Resort
Honouliuli, Ewa District, Island of Oahu, Hawaii
June, 1980

Thank you for the subject Draft EIS forwarded by your letter of 16 June 1980. The earlier letters of 23 May 1979 from both Headquarters, Fourteenth Naval District and Barbers Point Naval Air Station (NAS) appear on pages 177-78. The Draft EIS has been reviewed and the following comments are provided:

a. Previous Navy comments expressed concern regarding public exposure to excessive noise levels and potential aircraft accidents. A noise study was requested as well as an alternate design plan in order to reduce public exposure.

b. While the consultant did undertake a noise study, there is no indication that an alternate design plan was developed.

c. Against this background, the following statements quoted from the Draft EIS are pertinent:

(1) Page 2. "Urban encroachment on Barbers Point Naval Air Station will tend to increase military and urban conflicts due to noise and aircraft safety hazards."

(2) Page 91, paragraph 9.4.6. "Because these aircraft currently fly directly over the project site at altitudes below 500 ft., a conflict regarding these overflights may occur following implementation of the project."

(3) Page 91, paragraph 9.4.7. "Depending upon operational uses of the NAS and future growth of the NAS, portions of the proposed development centered around the marina area will be exposed to aircraft noise, and noise complaints are expected to increase."

"...and further desire to see that rotary wing traffic over the project area be confined to a single flight corridor at mandatory altitudes."

"It is clear that the proposed development creates a potential problem by exposing a portion of its future occupants to aircraft noise, increasing

public exposure to noise nuisances. The compatibility of the proposed development with the operation of the NAS will have to be discussed between the local and state permitting agencies and the NAS representatives."

d. The essence of the above statements is an attempt to place the burden of noise levels and potential aircraft accidents; i.e., the basic compatibility of the project, on NAS Barbers Point operations. As indicated in our letter of 23 May 1979, NAS Barbers Point has previously altered flight paths and curtailed hours of operations in order to minimize the impacts of noise and accident potential on surrounding lands. While these impacts have been minimized, they cannot be eliminated. Operations at NAS Barbers Point are, of necessity, governed by its military mission. Discussions with local and state permitting agencies will not affect their mission and as such will not eliminate the noise and accident potential impact. Compatibility of the project, to the satisfaction of the local and state permitting agencies, remains the burden of the developer. Development of an alternate design plan within the project area whereby hotels and other high density facilities would be relocated in order to minimize their exposure to noise and accident potential is considered a minimum requirement in determining project compatibility.

e. The following observation is quoted from applicable Department of Defense regulations on Air Installations Compatible Use Zones, published in the Federal Register of January 4, 1977:

> "A developer that knowingly places the public in a position of possible injury and death could be subject to future lawsuit for damages by estates of the injured or deceased."

It is apparent that the Navy's concerns, as expressed in the letters of 23 May 1979, have not been adequately addressed in the Draft EIS of June 1980. The issues involving aircraft flight operations and the proposed development remain unresolved. These issues continue to be the basis for the Navy objections to the West Beach Resort development as currently proposed.

Thank you again for the opportunity to review this draft EIS.

Sincerely,

R. D. EBER
CDR, CEC, USN
FACILITIES ENGINEER
BY DIRECTION OF THE COMMANDER

Copy to:
COMPACNAVFACENGCOM
CO NAS BARBERS POINT

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

September 2, 1980

Commander R. D. Eber, Facilities Engineer
Headquarters, Naval Base Pearl Harbor
Box 110
Pearl Harbor, Hawaii 96860

Dear Commander Eber,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

We have received and reviewed your letter of August 7, 1980 commenting on the above mentioned Draft EIS. Our response to your comments are below.

a. No response required.

b. A new design plan will be prepared upon completion of the EIS process.

c. No response required.

d. Discussions on the noise levels and potential aircraft accident zones are taking place between the Department of the Navy and the landowner, Campbell Estate. Their lands, including Ewa Marina and West Beach, are involved, subsequently they are taking the lead in examining these concerns. Further coordination with the Department of the Navy and federal authorities will be necessary during the land use planning of West Beach. We understand and appreciate the military mission of the air base and will work closely with the Navy to work out a suitable solution to any conflicts.

e. The Draft EIS indicates that this is an unresolved issue (page 14, item (e) under paragraph 5.4).

Very truly yours,

F. J. Rodriguez

FJR/lka
cc: DLU
DLNR
EQC
OEQC
COE
WBR

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
Western Pacific Program Office
P. O. Box 3830
Honolulu, Hawaii 96812

August 7, 1980 F/SWR1:JJN

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

The National Marine Fisheries Service has reviewed the draft environmental impact statement (DEIS) for the proposed West Beach Resort, Honouliuli, Oahu, Hawaii (DEIS No. 8006.23).

In order to provide as timely a response to your request for comments as possible, we are submitting the enclosed comments to you directly, in parallel with their transmittal to the Department of Commerce for incorporation in the Departmental response. These comments represent the views of the National Marine Fisheries Service (NMFS). The formal, consolidated views of the Department should reach you shortly.

General Comments

The generic nature of the DEIS makes it difficult for this agency to accurately evaluate the potential impacts of the proposed action on living marine resources off the west coast of Oahu. This is particularly true for the proposed bathing lagoon system and marina, the designs of which are presently based only on conceptual ideas.

However, the fourteen technical support studies prepared for the DEIS provide considerable data on the West Beach project site. Of particular benefit to this agency was the study entitled "Predevelopment Reconnaissance of the Water Quality and Macrobiota Conditions Afronting the West Beach Coastline, Oahu, Hawaii." Based on the information presented in this and the other studies we submit the following recommendations for consideration when finalizing design plans for the resort project.

We feel the greatest impact on marine resources will come from the actual construction of the lagoons, marina, entrance channel and wave trap unless strict mitigation measures are taken. It is recommended that dredging of the lagoons and marina be conducted "in the dry" behind a land barrier which completely separates the dredging activity

from the open ocean. Final opening of the lagoons and marina to the sea should be made only after the basins have been dredged to project depth. Silt curtains should be utilized to minimize turbidity during the final opening of the land barrier to the sea.

We recommend that the marina design incorporate its entrance with that of the Barbers Point deep draft harbor. This will eliminate the need to dredge a second entrance channel through the nearshore reef. Dredging in this area for the existing barge harbor entrance channel has created a change in the substratum from a limestone bench to rubble. The rubble bottom is unstable and not favorable for coral recruitment and growth, consequently reef fish diversity is also low in the dredged channel.

The technical support studies for the proposed project indicate that the existing coral communities fronting the West Beach area are in general well developed and diverse. Present use patterns, with the exception of low level fishing pressure, do not appear to be adversely impacting the marine environment or resources in the area. In addition, it is clear that a project of this magnitude, which includes possible massive excavation on the coastal plain, has the potential of creating substantial adverse impacts on marine communities off West Beach. Therefore, if the decision is made to construct the proposed marina and bathing lagoon system, NMFS requests additional input in the design and construction method phase of the project.

Specific Comments

Section 9. ENVIRONMENTAL CONDITIONS AND CONSEQUENCES

9.2.102. Other Potential Impacts and Mitigation.

Page 69. An additional potential impact from the inclusion of the marina in the West Beach development is that of increased fishing pressure in both the nearshore and offshore areas. The proposed 700 slip marina will undoubtedly berth many recreational and part-time commercial fishing vessels. Their immediate accessibility to the nearshore reefs and predominately calm offshore waters will subject these areas to considerable additional fishing pressure.

9.7.1 Fauna.

Page 103. This section discusses fauna found on the project site, but considers only terrestrial mammals and states that they are limited to exotic species and are not considered endangered. In fact two animals

on the endangered species list are frequently sighted in nearshore waters surrounding Oahu, including the West Beach site.

The endangered humpback whale (Megaptera novaeangliae) is commonly sighted off the west coast of Oahu between the months of January through April. Their preferred habitat is well within the 100 fathom isobath, consequently they occur close to shore. Although the coastal waters of Oahu do not appear to be critical habitat to these large whales they can often be seen migrating along the coast, particularly late in the season.

The second listed marine animal to be considered is the green turtle (Chelonia mydas) which recently was designated threatened under the Endangered Species Act of 1973. Green turtles occur in shallow reef areas surrounding Oahu where they are usually seen feeding on benthic algae or resting in coral caves. They are commonly sighted off West Beach.

The DEIS should be expanded to include important marine fauna found off the project site and potential impacts on these resources from the proposed project.

We appreciate the opportunity to review the subject DEIS. Please keep us informed as design criteria and construction details are being formalized.

Sincerely yours,

Doyle E. Gates

Doyle E. Gates
Administrator

cc: F/SWR3
District Engineer, Honolulu
Office of Habitat Protection,
F/HP (4 copies)

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

Mr. Doyle E. Gates, Administrator
Southwest Region, Western Pacific Program Office,
National Marine Fisheries Service,
National Oceanic and Atmospheric Administration
U.S. Department of Commerce
P.O. Box 3830
Honolulu, Hawaii 96812

Dear Mr. Gates,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

Thank your for your comments dated August 7, 1980 on the above mentioned Draft EIS. We have reviewed your comments and provide the following responses.

General Comments

First and second comments require no responses.

Dredging of the lagoon and marina be conducted "in the dry". We concur with your recommendation.

Marina Entrance. A common marina - deep draft harbor has already been endorsed primarily because of the restrictions in dredging a separate marina channel. A separate channel would allow the marina designers more flexibility but a common entrance seems to make more construction sense at this time. In any event a single channel will obviously involve less environmental damage or risk. The single entrance must also take into consideration navigational conflicts (commercial craft using the deep draft harbor versus the smaller recreational craft).

Coordination with NMFS during the marina and bathing lagoon system design phase. We concur with the proposed coordination.

Specific Comments

Section 9. ENVIRONMENTAL CONDITIONS AND CONSEQUENCES
9.2.102. Other Potential Impacts and Mitigation.
Page 69. We concur with your statement and will include this impact in the Final EIS.

9.7.1 Fauna.
Page 103. We acknowledge your expertise in this area and subsequently will incorporate this information into the Final EIS. Discussion on the humpback whale and green turtle will indicate that the proposed

project will increase the potential of sighting and contact with these marine animals. It will also be recommended that the fishermen and boaters be advised of their existence in this area and that these animals are not to be harassed, caught, or otherwise harmed under the Federal laws.

Bienfang's reports (see page 10 of the Draft EIS) sufficiently covers the marine fauna and potential impacts. If you have not already received a copy of his reports, we will provide your office with a copy.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLNR
DLU
OEQC
EQC
COE
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UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Policy
Washington, D.C. 20230

AUG 5 1980

Environmental Quality Commission
State of Hawaii
550 Halekauwila Street
Room 301
Honolulu, Hawaii 96813

Dear Sir:

This is in reference to your draft environmental impact statement entitled, "West Beach Resort, Honouliuli, Ewa District, Oahu." The enclosed comments from the National Oceanic and Atmospheric Administration (NOAA) are forwarded for your consideration.

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving six copies of the final statement.

Sincerely,

Robert T. Miki
Deputy Assistant Secretary for
Regulatory Policy (Acting)

Enclosure Memos from: Kenneth Hadeen
National Oceanic & Atmospheric
Administration
Environmental Data & Information Service

Robert B. Rollins
National Oceanic & Atmospheric
Administration
National Ocean Survey

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Rec'd PPIEC
AUG 01 1980

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
ENVIRONMENTAL DATA AND INFORMATION SERVICE
Washington, D.C. 20235
Center for Environmental Assessment Services

July 29, 1980 OA/D23/DH

TO: PP/EC - J. Wood

FROM: OA/D2x1 - K. Hadeen

SUBJECT: DEIS 8006.23 - The Proposed West Beach Resort; Oahu, Hawaii

Generally, this is a well written, thorough report which leaves few questions unanswered. However, there are some points which need clarification:

Comments pertaining to content are as follows:

1) p. 69, 9.2.102 #1 - This is a discussion of ground water infiltration. It is stated that without site specific borings and permeability test data, the probability of this impact cannot be safely estimated. Are the proper studies being performed or planned so that estimation can be made?

2) p. 69, 9.2.102 #2 - This is a discussion of the problems created by excavation. However, one question is left unanswered; are there plans to alleviate the sediment problem created by excavation which could effect corals during construction?

3) p. 69, 9.2.102 #5 - Will accumulated sand in the lagoon wave trap entrance and holding pond be placed back into the littoral drift after removal? If not, adverse effects could occur further down the coast from the planned resort.

4) p. 72, 9.2.102 #18 - It is proposed to build a breakwater north of the entrance channel to the marina in order to protect it from heavy wave action. Such construction would most likely disrupt littoral drift. Measures need to be taken to adjust for this interruption such as pumping of sand from behind the breakwater to beyond the harbor entrance. Due to this complication, the applicant may wish to consider the other suggested option of redesigning the harbor to reduce wave action without building a breakwater.

10TH ANNIVERSARY 1970-1980
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F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

Mr. Kenneth Hadeen
Center for Environmental Assessment Services,
Environmental Data and Information Services,
National Oceanic and Atmospheric Administration
U.S. Department of Commerce
Washington, D.C. 20235

Dear Mr. Hadeen,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

Reference is made to your memorandum to J. Wood, dated July 29, 1980, (OA/D23/DH) commenting on the above mentioned Draft EIS. Our response to your comments are as follows.

1) p. 69, 9.2.102 #1 - Studies relating to groundwater infiltration will be conducted during the technical verification stage. It is anticipated that the technical verification and design phase of the project will begin upon completion of the EIS process.

2) p. 69, 9.2.102 #2 - Dredging in the "dry" would seem to be the minimum precaution to be taken. Every effort will be taken to prevent dredged material, particularily the fine suspended loading, from reaching the coastal waters.

3) p. 69, 9.2.102 #5 - It is assumed trapped sand will be removed periodically and returned to the shoreline. This is both an environmental and management issue. If this is not done your conclusion would be correct.

4) p. 72, 9.2.102 #18 - The last project concept did not contain a marina breakwater extending seaward of the site coastline. The marina entrance channel intersects the much larger Barbers Point Harbor channel landward of the coastline. Thus, the subject of littoral drift in that area was not included. We note, however, that the earlier marina concepting work did at one time consider seaward extending breakwaters. If the final design again includes such a breakwater we agree the subject of littoral drift around the marina entrance would need evaluation in the design phase.

Thank you for your comments.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLU
DLNR
OEQC
EQC
COE
WBR
Robert T. Miki, Deputy Assistant Secretary
for Regulatory Policy (Acting)

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

Rec'd PP/EC JUL 30 1980

JUL 28 1980

OA/C52x6:JLR

TO: PP/EC - Joyce M. Wood

FROM: for OA/C5 - Robert B. Rollins

SUBJECT: DEIS #8006.23 - The Proposed West Beach Resort; Oahu, Hawaii

The subject statement has been reviewed within the areas of the National Ocean Survey's (NOS) responsibility and expertise, and in terms of the impact of the proposed action on NOS activities and projects.

Although the tidal information is consistent with NOS published data, the tidal current data is not available from NOS for this area.

Geodetic control survey monuments may be located in the proposed project area. If there is any planned activity which will disturb or destroy these monuments, NOS requires not less than 90 days' notification in advance of such activity in order to plan for their relocation. NOS recommends that funding for this project includes the cost of any relocation required for NOS monuments.

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

September 2, 1980

Mr. Robert B. Rollins
National Ocean Survey,
National Oceanic and Atmospheric Administration
U.S. Department of Commerce
Rockville, Md. 20852

Dear Mr. Rollins,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

Reference is made to your memorandum to Joyce Wood dated July 28, 1980 (OA/C52x6:JLR), commenting on the above mentioned Draft EIS. Our response to your comments are provided below.

Tidal information. No response necessary.

Geodetic control survey monuments. This information will be provided to the project engineers for their follow-up action if these survey monuments are disturbed. Based on coordinative efforts, the developer and/or his agents will provide the necessary compensation costs for relocation.

Thank you for your comments.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLNR
DLU
OEQC
EQC
COE
West Beach Resorts
Robert T. Miki, Deputy Assistant Secretary
for Regulatory Policy (Acting)

LIFE OF THE LAND
A GROUP FOR ENVIRONMENTAL RESEARCH AND ACTION

August 7, 1980

Mr. F.J. Rodriguez, President
Environmental Communications, Inc.
1152 Bishop Building, Suite 508
P.O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriquez:

We at Life of the Land have reviewed the Draft Environmental Impact Statement for the Proposed West Beach Resort Project, and have the following comments:

1. Social Impacts: We feel that a more comprehensive assessment of the social impacts of this project is neccessary. Such things as: crime, cost of living increases, the effects of increased recreational demands placed on the Waianae coast, all need to be addressed.

2. Health and Medical Services: While the DEIS states that health and medical centers are found within a reasonable traveling distance for normal medical care, page 108 sec. 9.11.8, the residents of Ewa, Makakilo, and Waianae have repeatedly requested better medical facilities. We feel that the availability of quality medical and health services, needs to be readdressed.

3. Air Quality: We support the comments of Jim Morrow from the American Lung Association. We also feel that relocating the existing Barbers Point air pollution monitering station within the West Beach project area would be important in detecting any potential air pollution problems as early as possible.

4. Traffic: The DEIS states that the applicant is considering a private transportation mode that would connect all hotel, commercial and recreational areas with strategically located public parking centers, page 115 sec. 9.12.6. We would like to encourage the apllicant to develope an internal transporation system. It would not only enhance the West Beach project but would also be a service to the City.

5. Air Traffic: Lieutenant Fred W. Dew, Staff Civil Engineer of the Barbers Point Naval Air Station stated that "an alternative design plan within the project area should be developed whereby the hotels, and other high density facilities are relocated outside the Accident Potential Zone." We feel that all precautions neccessary to avoid a major tragedy in the future should be taken.

6. Coastal Impacts: Life of the Land raised some questions regarding this projects impact on the coastal zone in the DEIS that were not adequately addressed.
   1. How does the release of ground water into the marina basin and channel due to excavation effect the coastal zone?
   2. What are the effects of less recharge water due to development?
   3. What is the impact of the marine channel on ocean currents?

The above portion deals with specific problems we have found with the DEIS for the proposed West Beach Project. In conclusion we would like to reiterate Life of the Lands position that there be no extensive Off-Waikiki resort and urban development. Due to the current energy and economic situation we question the State's projections of the viability and the need for the West Beach development.

We wish to remain a consulted party and look forward to reviewing the final EIS. Thank-you for this opportunity to comment.

Sincerely,

Sandy Scafe

Sandy Scafe
LOL Staff

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

Ms. Sandy Scafe
Life of the Land
404 Piikoi Street
Honolulu, Hawaii 96814

Dear Ms. Scafe,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

We have received and reviewed LOL's comments of August 7, 1980 on the Draft EIS. Responses to your comments are provided below.

1. & 2. Social Impacts and Health and Medical Services. Dr. Robert Anderson, the socioeconomic consultant, provides the following disposition on your comments.

"In regards to the socioeconomic concerns as stated by Life of the Land, we (the socioeconomic consultant team) would argue that there is no way to scientifically evaluate the effects of the project on crime or the cost of living. To a reasonable extent relevent information has been generated and analyzed concerning the impact of recreational uses of the beachfront. With respect to health and medical services, although substantive research is now beginning in several States across the country, there is yet no reliable method available to allocate demand by residents of rural areas for various types of health care facilities, or for that manner, for proposed health care facilities."

3. Air Quality. The response to the American Lung Association of Hawaii is attached for your review and information.

4. Traffic. The developer does intend to provide an internal transit system to allow visitors and residents to conveniently go from one facility/area to another. This may be in form of a mini-bus or jitney-type transit.

5. Air Traffic. A design plan will be prepared upon the completion of the EIS process; this plan will take into consideration the aircraft noise and accident zones. Further coordination with the Department of the Navy and federal authorities will be necessary during the design phase of West Beach. We recognize the seriousness of potential accidents and will work closely with the Navy to find a suitable solution to these conflicts.

6. Coastal Impacts. During the design phase a groundwater hydrologist will be retained to evaluate groundwater seepage, and saltwater intrusion into the basal groundwater. The impact of the marine channel on ocean currents will be evaluated during the technical verification and design phase. In both instances, adverse impacts will be evaluated and mitigation measures, including design changes, will be taken. In response to item 2, the dredging of the marina and bathing lagoons will be done "in the dry," that is, the dredging inland will be done first (with a land barrier between the dredged area and the ocean). This will mitigate the impact on the marine biota and the coastal zone.

Thank your for your comments, a Final copy of the EIS will be sent to your organization.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLNR
DLU
OEQC
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Attachment: Copy of ECI's response to American Lung Association.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL
ATLANTA, GEORGIA 30333

August 11, 1980

Ms. Helene Takemoto
State Environmental Quality Commission
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Ms. Takemoto:

We have reviewed the Draft Environmental Impact Statement (EIS) for the Proposed West Beach Resort, Honouliuli, Ewa District of Southwest Oahu, Hawaii. We are responding on behalf of the U.S. Public Health Service and are offering the following comments for your consideration in preparing the Final EIS.

We understand that the West Beach Resorts has applied for State and Federal permits for permission to develop a 640-acre resort community with 1,680 residential units, 7,520 hotel/condominium units, a marina and swimming areas, tourist and shopping centers, schools, and other support facilities.

We are very concerned about the availability of a satisfactory long-term water supply for the proposed West Beach development, the potential impact of the proposed development upon ground water resources, and potential land use conflicts. While careful consideration and mitigation of the project's environmental impacts are very important, the long-term compatibility of this resort development with a nearby expanding industrial park area, an adjacent deep draft harbor, local naval air station activities and potential airport expansion must also be carefully examined.

Land Use Conflicts

Figure 16 of the EIS reveals a proposed Barbers Point Deep Draft Harbor adjacent to the proposed West Beach Resort and an oil refinery and storage facility just south of the proposed project. The hazards associated with these facilities and the current or proposed shipment and storage of any hazardous materials at this harbor or industrial park should be detailed. We believe that any current or future shipment and/or storage of hazardous materials at the harbor or industrial park must be taken into consideration in order to determine whether a safe buffer zone exists or will exist to protect proposed residential areas and other sensitive land uses and receptors in the event of spills, explosions, and other accidents.

In addition, a new oil refinery and a resource recovery facility appear to be planned for the Campbell Industrial Park. The effect of these new facilities and any other future expansion of the industrial park upon the proposed West Beach Resort should also be addressed. How can the resort land uses and industrial land uses be compatible?

Noise

The EIS should provide existing and future noise contour maps of each airport within 5 miles of the proposed project. Future expansion of these airports and their effect on ambient noise levels should be disclosed in the EIS. Will the proposed project conflict with any future airport expansion? Nighttime noise measurements should also be performed and included in the noise impact assessment. The noise impact of new industrial and harbor development activities upon the West Beach Resort should be mentioned too.

Water Supply

According to the EIS "the availability of a sustained yield source of potable water is undetermined." We believe that knowledge of a suitable long-term source of potable water must exist before any further consideration of the project is made by government authorities. A better determination of the project's long-term effects upon ground water resources within the region is also necessary. This determination should be detailed and fully documented in the EIS. The project's secondary effects upon ground water resources should also be addressed (i.e., increased residential and commercial development in the immediate area).

Examination of the alternatives reveals that the applicant may be able to develop a portion of the West Beach Resort without permission of the permitting agencies. The effect that local zoning and building permit controls would have on the West Beach Resort should be explained. For example, could the project be developed if a suitable long-term potable water supply source was not currently available or if the project development was determined to have adverse effects on local ground water resources (i.e., well irrigation waters)?

We appreciate the opportunity to review this Draft EIS. Please send one copy of the final document when it becomes available. Should you have any questions regarding our comments, please contact me or Mr. Robert Kay at FTS 236-6649.

Sincerely yours,

Frank S. Lisella

Frank S. Lisella, Ph.D.
Chief, Environmental Affairs Group
Environmental Health Services Division
Bureau of State Services

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

September 2, 1980

Dr. Frank S. Lisella, Chief
Environmental Affairs Group
Environmental Health Services Division
Bureau of State Services
Public Health Service
Department of Health and Human Services
Atlanta, Georgia 30333

Dear Dr. Lisella,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

We have received and reviewed your letter of August 11, 1980 to the Office of Environmental Quality Control on the above mentioned Draft EIS. As the preparers of this document, we are providing the responses to your comments. These responses are provided below.

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Land Use Conflicts

Environmental awareness has become an important aspect in our society. Industrial areas are no longer given a "license" to pollute the air, or create a noisy or hazardous environment as in the past decades. Specifically, the standards set by the Campbell Estate, the landowner of Campbell Industrial Park, are high. The road system is well designed, the industries are governed by Estate rules even in regards to the buildings' appearance and landscaping. Each industry must comply individually with air quality and noise regulations. The point is that a resort adjacent to the industrial park can be compatible because it is the responsibility of each development to maintain "their pollution" within prescribed standards of acceptance. A buffer zone is being provided between the proposed deep draft harbor; this more for aesthetic purposes rather than safety. The storage of hazardous material must comply with existing governmental laws and regulations.

Noise

Based upon current information available, the proposed project should not conflict with airport expansion plans. The 1976 AICUZ for NAS, B.P. and noise contours contained therein are applicable for present and future NAS, B.P. operations. Preliminary noise contours for Honolulu International Airport to the year 2000 have been recently developed, and do not indicate a serious noise conflict.

Nighttime noise measurements were not considered necessary to evaluate noise impacts for the following reasons:

1. Nighttime aircraft operations at NAS, B.P. on Rwy 11/29 (approximately 2% of daily operations) do not significantly contribute to the noise contour values of the 1976 AICUZ for NAS, B.P.

2. The major potential noise conflict involved daytime rotary-wing overflights over the West Beach area during the daytime period.

3. Nighttime noise exposure from aircraft operations are incorporated in the 1976 AICUZ and Honolulu International Airport noise contours.

4. Nighttime automobile traffic noise levels can be accurately predicted using traffic count data and highway noise prediction models. Daytime traffic noise was determined to be the dominant contributor to traffic noise exposure to future West Beach residents.

The impact of the proposed deep draft harbor activities on West Beach residents could not be accurately determined. However, assuming a minimum 500 to 600 FT buffer space between the harbor noise sources and the West Beach hotel/condo units, and compliance with State and local noise regulations by noise emitters in the harbor area, noise conflicts are not anticipated.

As mentioned above, the noise from the industrial and harbor development activities is subject to State and County regulations. Each development must be responsible for compliance with the noise standards.

Water Supply

The Ewa-Waianae water system is anticipated to change within the next five years. The Board of Water Supply (the County agency responsible for potable water facilities) has already designed and should construct shortly a 16-inch transmission main from its existing well in Waipahu to bolster the Kunia sources. This, however, is an interim measure to assure water in the Ewa-Waianae system until the Waianae-Nanakuli system is developed.

Both the City and State have started exploratory wells in Makaha and Waianae. It is anticipated that the area from Nanakuli to Makaha will, within the next five years, have its own water system of about 5 MGD (million gallons per day). Then West Beach, as well as the Campbell Industrial Park, would be the only logical service area for the existing water reservoir and water mains in Farrington Highway near the project site.

It is also our understanding that Campbell Estate has hired Walter Tagawa & Associates to review the water demands of its Ewa lands including West Beach. An exploratory well is being drilled by Campbell Estate near Makakilo as a recommendation of that water study.

Consequently, due to the unconfirmed nature of all the present proposals of the Board of Water Supply it is impossible as well as impractical to predict the source of water for West Beach which, at the minimum, is about four years away from initial occupancy and water use.

The developer and/or his agents will meet with the Board prior to rezoning to discuss and resolve the water source issue. At that time the Board of Water Supply, Oahu Sugar Company, and the Navy shold have finalized their plans to properly utilize the water resource in the Pearl Harbor Basin.

For all practical purposes, the resort could not be built without State and County approvals and permits. The project could not be built if potable water is unavailable. Irrigation of the project site will utilize brackish water.

Thank you for your comments.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLNR
DLU
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Advisory Council On Historic Preservation

This response does not constitute Council comment pursuant to Section 106 of the National Historic Preservation Act, nor Section 2(b) of Executive Order 11593.

1522 K Street, NW
Washington, DC 20005

July 29, 1980

State of Hawaii
Environmental Quality Commission
550 Halekauwila Street - Room 301
Honolulu, Hawaii 96813

Gentlemen:

This is in response to your request of June 16, 1980, for comments on the draft environmental statement (DES) for the proposed West Beach Resort, Ewa District, Oahu, Hawaii. We have reviewed the DES and note that the undertaking will affect the Barbers Point Archaeological District, a property determined to be eligible for inclusion in the National Register of Historic Places, as well as numerous other cultural resources that may be eligible for inclusion in the National Register.

Pursuant to Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. Sec. 470f, as amended, 90 Stat. 1320) Federal agencies must, prior to the approval of the expenditure of any Federal funds or prior to the granting of any license, permit, or other approval for an undertaking afford the Council an opportunity to comment on the effect of the undertaking upon properties included in or eligible for inclusion in the National Register. Since the Corps of Engineers must issue a permit for the harbor activity, it will be required to offer the Council an opportunity to comment prior to issuance of the permit.

Until Corps has met the requirements of Section 106, the Council considers the DES incomplete in its treatment of historical, archaeological, architectural, and cultural resources. To remedy this deficiency, the Corps must request Council comment in accordance with the regulations, "Protection of Historic and Cultural Properties" (36 CFR Part 800).

We will appreciate receiving a copy of William M. Barrera, Jr.'s A Report on the Archaeological Reconnaissance of the Proposed Barbers Point Harbor Area for our review since it appears that there will be an adverse effect on archaeological sites in the Barbers Point Archaeological

District. It should be sent to the attention of Jane King of the Council's Western Division, who may be reached at (303) 234-4946 for assistance in completing the compliance process.

As requested in your letter, we are returning a duplicate copy of the DES. Thank you for the opportunity of reviewing the DES.

Sincerely,

Louis S. Wall
Chief, Western Division
of Project Review

Enclosure

cc: Stanley Arakaki
Corps of Engineers,
Honolulu District

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F. J. RODRIGUEZ,
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

September 2, 1980

Mr. Louis S. Wall, Chief
Western Division of Project Review
Advisory Council On Historic Preservation
1522 K Street, NW
Washington, D.C. 20005

Dear Mr. Wall,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

We have received and reviewed your letter of July 29, 1980 on the above mentioned Draft EIS. The EIS is a generic EIS which will be supplemented when more detailed designs are developed. At that time, coordination with the State Historic Preservation Officer and your office, will be completed prior to finalizing the supplement and issuance of a U.S. Department of the Army Permit for the construction of the marina and lagoons.

A copy of A Report on the Archaeological Reconnaissance of the Proposed Barbers Point Harbor Area prepared by William Barrera, Jr., is enclosed as requested.

Thank you for your comments.

Very truly yours,

F. J. Rodriguez

FJR/lka
Enclosure

cc: DLNR
DLU
OEQC
EQC
COE
WBR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

Project #D-COE-K85029-HI

Colonel B.R. Schlapak, District Engineer
U.S. Army Engineer District, Honolulu
Building 230
Ft. Shafter, HI 96858

15 AUG 1980

Dear Colonel Schlapak:

The Environmental Protection Agency (EPA) has received and reviewed the Draft Environmental Impact Statement (DEIS) titled WEST BEACH PROJECT, HONOULIULI, EWA DISTRICT, ISLAND OF OAHU, HAWAII.

The EPA's comments on the DEIS have been classified as Category ER-2. Definitions of the categories are provided by the enclosure. The classification and the date of the EPA's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal Actions under Section 309 of the Clean Air Act. Our procedure is to categorize our comments on both the environmental consequences of the proposed action and the adequacy of the environmental statement.

The EPA appreciates the opportunity to comment on this DEIS and requests three copies of the Final Environmental Impact Statement when available.

If you have any questions regarding our comments, please contact Susan Sakaki, EIS Coordinator, at (415)556-7858.

Sincerely yours,

Sheila M. Prindiville for

Paul De Falco, Jr.
Regional Administrator

Enclosure

cc: Environmental Quality Commission, State of Hawaii

279

EIS CATEGORY CODES

Environmental Impact of the Action

LO—Lack of Objections

EPA has no objection to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER—Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these aspects.

EU—Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1—Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2—Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3—Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

Comments on West Beach Project

General Comments

Section 40 CFR 1502.14 of the regulations for implementing the procedural provisions of the National Environmental Policy Act requires that agencies "rigorously explore and objectively evaluate all reasonable alternatives" in a manner that will serve the purpose of "sharply defining the issues and providing a clear basis for choice among options by the decision makers and the public." The three alternatives outlined in the Draft Environmental Impact Statement (DEIS) provide for a range of multiple uses in an area which does not appear to be able to support these uses and still maintain its fragile ecosystem. Additionally, discussion of the alternatives other than the proposed project is inadequate. The Final Environmental Impact Statement (FEIS) should further develop and clarify the alternatives to assure the protection of environmental resources.

Water Quality Comments

1. The DEIS refers to many possible adverse water quality impacts with respect to groundwater supplies and waters of the proposed marina, lagoons, and nearshore waters. In view of the numerous potential water quality problems, the FEIS should document coordination with the Hawaii Department of Health 208 plan as required by the Clean Water Act, 1977.

2. The DEIS states, "A potential significant impact exists for the coastal water during the excavation for construction of the lagoons, wave trap, tidal ducts, and marina....Portions of the beach dunes and basalt base will be completely removed or altered. The construction process can create or release considerable amounts of suspended materials of fine sand, silt, and clay. If allowed to reach the coastline (or settle in the lagoons) the abundant nearshore beds of principally Porites lobata and Pocillodora meandrina corals could subsequently sustain considerable damage" (Page 69 9.2.102(1)).

   The DEIS contains no mitigation measures for project-related construction impacts of sedimentation. The FEIS should discuss appropriate mitigation measures, including use of Best Management Practices (BMPs) to offset adverse impacts to the nearshore beds of coral.

3. The DEIS states, "The excavation and ocean water use of the lagoons and marina will result in the infiltrating of brackish water from land into the ocean water and vice-versa. Bathen acknowledges that the extent of impact on the fresh water lens due to the infiltration of salt water is not known" (Page 107 9.11.3). This statement is an inadequate assessment of the possible impacts from the proposed project on water quality. The FEIS should provide a more detailed discussion of the effects of salt water intrusion into the groundwater supply, and brackish water infiltrating through the land into ocean waters. Additionally, the FEIS should include mitigation measures that will ameliorate these potential problems.

4. The DEIS indicates that silt and sand particles will settle and accumulate in the marina (Page 69 9.2.102(5)). The FEIS should address the consequent impacts of the sediment on the biota of the marina area, as well as the need for periodic dredging.

5. The DEIS does not discuss the potential water quality problems with respect to the demand placed by the proposed development on the available water supplies for the Pearl Harbor area. The DEIS does not discuss the secondary impacts of developing additional water supplies from other sources in Oahu to replace Pearl Harbor water going to the West Beach development. Not only are projected potable water supplies in question (Page 107 9.11.2), but the DEIS does not adequately address the possibility of groundwater degradation as a result of the proposed project. The FEIS should contain a detailed discussion of the potential problems of groundwater overdraft in the Pearl Harbor area, as well as the secondary impacts resulting from developing supplementary water supplies in other areas of Oahu.

6. The DEIS states, "The connection with the Makakilo interceptor and subsequent transmission line will be sized to accommodate both the West Beach and Makakilo sewage..." (Page 20 7.2(3)). This information is incorrect. Additional capacity to accommodate the West Beach project was not considered in the Final EIS prepared by EPA on the Honouliuli and Sand Island wastewater treatment systems in 1973. The West Beach FEIS should discuss alternatives for sewage treatment and disposal other than the Makakilo interceptor sewer and Honouliuli Sewage Treatment Plant. As a result of the apparent constraints on available public wastewater treatment facilities, the proposed project may utilize privately-operated sewage treatment facilities on an interim basis. Any facility serving a development the size of the proposed project may create significant environmental impacts. The DEIS does not address this issue, nor is there

any discussion of mitigation measures to offset the environmental impacts of such a facility. The FEIS should include discussion of the impacts of construction, operation and disposal from any private facilities. These include impacts to surface and groundwater, wastewater and sludge disposal. Potential adverse groundwater impacts may occur, especially if waste is disposed through underground injection. If this type of disposal is to be considered, the FEIS should document coordination with the proposed State Underground Injection Control program, as required by Section 1424 of the Safe Drinking Water Act, 1977. Additionally, the FEIS should include a thorough discussion of mitigation measures to be implemented based on the potential adverse impacts noted above.

7. The DEIS on the proposed project indicates that the Waimanalo and Makaiwa Streams will be entirely rerouted and drainage ways constructed "to the ocean" (Page 66 9.2.90). The DEIS contains no discussion of the potential impacts on the existing stream ecosystems and surrounding environment as a result of the proposed construction. The FEIS should provide more complete information on the impacts and mitigation measures for the proposed drainage way construction.

8. The discussion of stormwater runoff impacts indicates that runoff from the project area would increase nitrogen and phosphorus levels in the marina and surrounding waters and may contribute to eutrophication. The DEIS does not adequately discuss the impacts of stormwater runoff on marine life and habitat, nor does the DEIS contain any mitigation measures for this potential problem. The FEIS should discuss the impacts of increased levels of nitrogen and phosphorus, and also detail mitigation measures to alleviate this problem.

404 Permit Comments

The DEIS does not adequately address the extent of dredging and filling required to construct the proposed marina and lagoons and other shoreline modifications, since plans have not been finalized. The FEIS should include design plans and describe those activities which will require an Army Corps of Engineers Section 404 permit. Activities which should be discussed include the amount of dredging required, types of dredged material, proposed disposal methods and sites, as well as types and amounts of fill material to be utilized. If an Army Corps of Engineers Section 404 permit is required, the EPA will review the proposed project in accordance with 40 CFR 230, promulgated pursuant to Section

404(b) of the Clean Water Act, 1977. Our evaluation would focus on the maintenance of water quality, and the protection of wetlands, fishery and wildlife resources. The FEIS should address these concerns with particular emphasis on any anticipated impacts to marine life and habitat.

Based on the information presented in the DEIS, EPA could not agree to the issuance of a Corps of Engineers Section 404 permit until the proposed project is in conformance with the regulations cited above. This would include discussion of alternative plans and implementation of mitigation measures to alleviate any adverse impacts to the fragile aquatic ecosystem.

Solid Waste Comments

The discussion of solid waste collection and disposal in the DEIS is inadequate. The DEIS does not address the fact that the proposed project would generate more solid wastes within a discrete island environment. The FEIS should include a discussion of not only solid waste collection but ultimate disposal of the collected waste.

Noise Comments

1. The helicopter operation at Barber's Point Naval Air Station as described constitutes a potential adverse noise impact to the proposed project. The DEIS states, "Because these aircraft currently fly directly over the project site at altitudes below 500 FT, a conflict regarding these overflights may occur following implementation of the project" (Page 91 9.4.6). The FEIS should demonstrate coordination with the proper representatives from the Naval Air Station, and also detail mitigation measures to offset impacts.

2. The DEIS states, "Based on the aircraft noise measurements obtained on March 23, 1979, the Barber's Point Naval Air Station (NAS) operational data contained in Reference 5, and other aircraft noise data collected with the Honolulu International Airport (HIA) Automatic Noise Monitoring System, it is considered unlikely that aircraft noise currently exceeds Ldn 55 in the majority of the proposed West Beach project area" (Page 91 9.4.5). The measurements obtained on March 23, 1979 were of a 6 1/2 hour duration. A more complete approach to determining Ldn is desirable. The FEIS should include measurements from a minimum 24 hour recording operation, during a period of maximum aircraft operation from both airports. This should be undertaken to account for both the 10 dB nighttime penalty for aircraft takeoffs after 10 p.m., and actual night flight operations included

in the Ldn metric. Additionally, the FEIS should include further discussion of the possible impacts from expanded flight operations at either airport for a more accurate "worst case" potential situation.

3. Under the noise section of Table 3, page 30, the potential mitigation measures lists the following:

> Adherence to local noise ordinances.
>
> Limit air traffic to confined corridors and heights over development.
>
> Insulate residential and hotel/condominium units.
>
> Change flight patterns over the area to reduce noise exposure hazards.

While these measures may be productive, the FEIS should expand on the feasibility of implementation. The FEIS should document coordination with the appropriate responsible local, State, and Federal agencies to assure adequate mitigation from potential adverse noise impacts.

4. The footnote for page 87 9.4.4 makes note of a "Table 9 for References." However, Table 9, page 79 of the DEIS is a "Summary of Air Pollutant Emissions From Significant Stationary Sources," and contains nothing regarding noise. This should be corrected in the FEIS. Additionally, on pages 87 and 91, mention is made to References 2, 3, 4, 5, and 6, none of which can be found in the DEIS. The FEIS should contain these references.

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

September 2, 1980

Mr. Paul De Falco, Jr., Regional Administrator
Region IX, U.S. Environmental Protection Agency
215 Fremont Street
San Francisco, California 94105

Dear Mr. De Falco,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH EIS

We have received and reviewed your letter of August 15, 1980, commenting on the above mentioned Draft EIS. Responses to your comments are provided below.

General Comments

The alternatives as described are extremely flexible in terms of number of units, marina/lagoon size, unit mix, types of commercial facilities, et cetera. The discussion of detailed alternatives was not provided due to the significant number of alternatives available. It would have been too great a task and unnecessary to describe each to the extent of the EIS regulation.

Also, it is premature to discuss the specific details. The Draft EIS is a generic document (as was indicated in the text several times). Supplements will be prepared when detailed designs are completed and will be circulated for public review prior to the issuance of a Department of the Army Permit. That is, a concept of highest density allowable is being reviewed. This is consistent with the intent of the EIS to be made available for review prior to the commitment to a specific action. As stated in Section 40 CFR 1502.5 Timing, "The statement shall be prepared early enough so that it can serve practically as an important contribution to the decision-making process and will not be used to rationalize or justify decisions already made..." This same subsection continues, "...(b) For applications to the agency appropriate environmental assessments or statements shall be commenced no later than immediately after the application is received. Federal agencies are encouraged to begin preparation of such assessments or statements earlier, preferably jointly with applicable State of local agencies..."

Basically we found EPA's review did not review the overall impacts of the proposed action; EPA chose to review the document as if the project plans and designs were completed when, in fact, the document clearly indicates that a concept was at issue. The Corps of Engineers will not issue a permit to a project unless these plans are prepared, coordinated with the required regulatory agencies, and reviewed by federal agencies such as EPA. Therefore, we would surmise that EPA staff would, at that point, review specifics and provide critical comments. The developer under-

stands that this design phase is still a year or two from completion and chose to prepare and process the EIS to allow early public input. It is with this philosophy that the EIS on the concept of the project was prepared. Many of the questions below cannot be answered and await technical verification studies and/or details yet to be prepared, reviewed, and finalized. Development plans will also need to be evaluated in terms of consisting with controlled growth policies employed by both State and County planning departments. It is felt that review during this period of earliest action will "red-flag" significant impact concerns at the outset.

Water Quality Comments

1. Coordination with the State Department of Health (208 plan) as well as with the Board of Water Supply and State Department of Land and Natural Resources, will occur during the design phase.

2. Dredging will be performed "in the dry"; other mitigation measures will be identified by the oceanographic consultants during the design phase.

3. This again (i.e. groundwater infiltation into the basal groundwater and groundwater seepage into the marina will also be evaluated when technical design are completed.

4. The high nutrient concentrations associated with groundwater infiltration to the basin are expected to effect primarily a limited area immediately outside the entrance channel. Nutrient levels outside the basin are expected to decline rapidly with time as the result of advection and mixing with the adjacent coastal waters. Further, because the nutrients are associated with the less dense, brackish groundwater, nutrient levels decline markedly with depth and thus their contact with the benthos is limited for the most part to the most shallow areas. The principal impacts to effected areas will likely be decreased diversity and increased abundance of benthic algal species having higher capacity for nutrient assimilation. The basis for these conclusions comes from analysis of horizontal and vertical nutrient profiles in the regions of the existing Barbers Point basin and the Honokahau Small Boat Harbor, two basins presently receiving nutrient-rich groundwater infiltration.

   Sedimentation effects to the nearshore communities will be minimized by conducting dredging operations in the dry, and by the construction of settling basins inland of the lagoon and marina basins to trap portions of the surface runoff.

   The most pronounced effects to the nearshore coral communities will occur in the regions adjacent the entrance channel to the

   marina. Decreased size and diversity of coral communities are expected to result from the increased sedimentation and turbidity (decreased water clarity) that will likely be associated with this region.

   Periodic dredging will be required.

5. Discussion on impact on the water resources of the Pearl Harbor area is unwarranted. The water resources of this area provides water for most of the island of Oahu. To inventory users, identify shortages, and potential users, not to mention the description of the area's hydrology would be a significant undertaking. To place this burden on one development is unfair. Even the regulating and managing State and County water agencies have not undertaken such a study. The discussion in the EIS describes the present situation. The question on groundwater degradation was answered in item 3.

6. The City has acknowledged accepting the sewage at their Honouliuli Treatment Plant. Attached are copies of letters from Community Planning, Inc. to the City's Department of Public Works and their subsequent letter to the Department of Health which addresses the oversizing of the Makakilo Interceptor Sewer. If the Makakilo Interceptor Sewer is not oversized, the Developer intends to construct (at his expense) a separate sewer line from West Beach to the Honouliuli Wastewater Treatment Plant.

   Based on this information discussion on other alternatives for sewage collection, treatment, and disposal are not necessary.

7. The streams are intermittent streams and have been modified in the past for agricultural production. To the best of our knowledge the streams do not have an important ecological value.

   Although the details of final design are incomplete at this time, it is the engineer's intent that the 200±-acre golf course well be designed for retention of storm runoff. However, runoff from storms exceeding the retention capaity will overflow into the marina.

8. Refer to item 4 of this letter.

404 Permit Comments

This is covered under item 4. We realize EPA's review requires that specific details are included. This would occur during and after the design phase of this project.

Solid Waste Comments

Using a de facto population of 17,500 and assuming that the average person generates 3.5 pounds of solid wast per day (based on the County's Refuse Division figures); the total solid waste generated by the project would be approximately 30 tons per day. Other uses such as commercial areas, park areas, visitor vacilities, et cetera may add an addtional three tons of solid wate. The solid waste will be collected by private refuse companies and disposed or at a private certified landfill or at the public landfill for a fee. This information will be incorporated into the Final EIS.

Discussion of the solid waste collection and disposal for the island is beyond the scope of this project.

Noise Comments

Items 1 through 3 are critical of the noise study; it is emphasized that the noise study is based on higher values normally not attained. It is felt that the noise impact study is "good" and requires no changes.

The reference for the section on noise was inadvertently left out. The Final EIS will include this section.

Thank you for your comments.

Very truly yours,

F. J. Rodriguez

FJR/lka
Attachments

cc: DLNR
DLU
OEQC
EQC
COE
WBR

BISHOP MUSEUM
P.O. BOX 19000-A • HONOLULU, HAWAII 96819 • 808 847-3511

August 8, 1980

Mr. Donald A. Bremner
Office of Environmental Quality
550 Halekauwila Street
Room 301
Honolulu, Hawaii 96813

Dear Mr. Bremner:

SUBJECT: REVIEW OF DRAFT EIS FOR EWA MARINA COMMUNITY PROJECT
HONOULIULI, OAHU

The two technical reports, Birds of West Beach, by Berger and West Beach, Oahu: An Archaeological Survey, by Barrera were previously reviewed by Dr. Thomas Riley and myself at the time the initial consultant draft reports were sent out for review. The comments were forwarded to your office in a letter addressed to the former director, Mr. Richard L. O'Connell, dated November 2, 1979.

Since no changes were apparent in the technical reports and all of our comments are still appropriate, I am enclosing a copy of the comments.

If you or the consultants have any questions, please feel free to call 847-3511 at ext. 123 for Dr. Riley or ext. 191 for myself.

Sincerely,

Aki Sinoto
Archaeologist
Dept. of Anthropology

Encl.

BERNICE P. BISHOP MUSEUM

P.O. Box 19000 A, Honolulu, Hawaii 96819 • Telephone 847 3511

November 2, 1979

Mr. Richard L. O'Connell
Office of Environmental Quality Control
550 Halekauwila Street
Room 301
Honolulu, Hawaii 96813

Dear Mr. O'Connell:

The subject report was reviewed by Dr. Tom Riley , our contract archaeology supervisor and myself. The following are the resultant comments.

WEST BEACH, OAHU: AN ARCHAEOLOGICAL SURVEY by William Barrera

comment number	page	paragraph/line number	comments
1	1	1/11	What is meant by *cultural values*? Significant archaeological sites, cultural resources? The terminology needs clarification.
2	2	1+2/---	References are needed for the physical data. Perhaps more specific locational information for the presence of basalt and other igneous geologic features should be included. Infact, for most of the subject study area, aside from artificially imported basaltic material, the substrate should be karstic.
3	2	3/---	What is the possibility of the presence of any endangered species like those that occur in the adjoining Deep Draft Harbor areas? Especially, *Achyranthes splendens* and *Euphorbia skottsbergii*? Also were there any native species?
4	3	1/11	Ernest Lewis was a graduate student at the time he wrote his report and it was done for a seminar class requirement for the University of Hawaii, Dept. of Anthropology under the supervision of Bishop Museum.
5	3	1/12	*Berrera* in the reference should read *Barrera*.
6	3	1/--	In 1979, another cultural resources survey was completed by Bishop Museum in the New Dredged Material Disposal Site, for the U.S. Army Corps of Engineers. However, the final report is still pending.

comment number	page	paragraph/line number	comments
7	4	1/2	*Intensive* should be changed to read *extensive*.
8	4	1/11-15	How many test pits were excavated?
9	4	3/--	Sugar cane production does not necessarily preclude the presence of subsurface features. Although it would obviously be unfeasible to systematically test all the areas presently or formerly under sugarcane production, archaeological monitoring during construction activities should be included as a recommendation in Section VI of the report.
10	11	1/--	How many auger holes were placed and at what interval? Specific locational information is lacking. Also, sand dunes are high potential areas for paleontological materials. Was this considered?
11	14	1+2/--	The remains at West Beach are probably part of the whole Barbers Point complex. A more detailed comparison of site and feature types with the adjoining areas seems desirable.
12	14	3/4-5	This statement seems to contradict what was stated in the preceding paragraph. Also, even sites of recent or historic vintage have more than just research significance. Interpretive potential for incorporation with planned development is certainly one alternative to destroying sites "with no regard."
13	15	--/7	In our view site 1436 is an excellent candidate for preservation and incorporation into the development plans for public interpretation.
14	16	3/17	Again the term *cultural values* should be clarified.
15	27	2/3	Site B6-139 was a water filled sinkhole. Underwater surface recovery was conducted, not excavations.

BIRDS OF WEST BEACH, EWA, OAHU, REGION - Statement on possible fossil bird sites- by Andrew J. Berger, Oct. 5, 1979

comment number	page	paragraph/line number	comments
1	1	3/5-6	Does "no soil deposit" mean sinkholes with bare substratum exposed? Or are they rubble filled? This is an important point since some previously tested sinkholes revealed soil fill below the rubble.
2	2	1/7	We have found in the past that having a paleontologist in the field during the excavation is highly advantageous since certain identifications can be made on the spot.
3	3	2/2	Dr. Aki Sinoto should be changed to Mr. Aki Sinoto-
4	3	2/4-6	This sounds like a personal opinion and should be deleted.
5	3	2/7-14	Dr. Berger appears to have missed the gist of Dr. Olson's "over-exuberance." What was stated by Dr. Olson in his letter, inpart was that, more than any other locale found so far in the Hawaiian Islands, the Barbers Point area affords an excellent opportunity, in view of the material already found, to recover nearly complete and sometimes even articulated skeletal remains.
6	4	4/5-7	"Fossil banks" are definitely necessary in the Barbers Point Region along with some possibility for public interpretation. However, the two objectives are not compatible. The banks should be restricted from public access to ensure no disturbance and integrity of the data for future scientific applications.
7	4	4/8	Dr. Sinoto should be changed to Mr. Sinoto.

comment number	page	paragraph/line number	comment
8	4	4/8-11	This closing statement seems totally irrelevent to all of the preceding statements in the paper. Without close scrutiny of the sinkholes and without subsurface data, statements like this should not be made. As an illustration, the results of recent Bishop Museum investigations have shown that from 24 sinkholes tested in another portion of Barbers Point 82% yielded avifaunal remains and of these 19% were immediately identifiable as probable extinct species. The last statement should be deleted, because it poses an inherent danger of being misinterpreted as a conclusive one.

Other than these specific comments presented above a few general comments regarding the archaeological report is presented below.

1) The descriptive portion of the report appears to be adequate although a little more detailed map locations would have been helpful, especially for those areas that overlap with previous surveys including the Deep Draft Harbor Areas. More information is definitely needed for the auger tested pits and test excavations. Also if the midden and artifacts recovered could be summarized on a table it would aid the reader.

2) The discussion or interpretive portion can be expanded with more detailed comparison with the adjoining areas.

3) A discussion of the archaeological areas and how they relate to the development plan is lacking. For instance, are some of the sites in an area where preservation or incoporation would be compatible with the development plans, etc. What is being planned in the specific sited areas?

4) Also, for the recommendation section, six sites are slated for either salvage excavation or preservation. It should be further clarified which sites realistically should be preserved since not all six probably would be. If a choice is left open for either salvage or preservation, there is the danger that all of the sites will be salvaged and none will be preserved. With coordination and cooperation with the developer, the archaeologist should formulate a program of preservation along with some provisions for public interpretation.

5) The point should also be made that, according to previous site excavations, the perimeter of surface structural remains do not necessarily define the limits of the site. Very often in the course excavation the cultural deposit was shown to extend beyond the surface limits. This should be considered during the formulation of the recommendations.

We feel that the Barbers Point and West Beach area is an important cultural and scientific resource for Hawaii.

We appreciate this opportunity to review Mr. Barrera's report and hope that our comments will be helpful. If you have any questions or comments, please feel free to call me at 847-3511 x. 191.

Sincerely,

Aki Sinoto
Dept. of Anthropology
B. P. Bishop Museum

AS:pb

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

September 2, 1980

Mr. Aki Sinoto, Archaeologist
Department of Anthropology,
Bishop Museum
P.O. Box 19000-A
Honolulu, Hawaii 96819

Dear Mr. Sinoto,

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WEST BEACH RESORT

We have received and reviewed your letter of August 8, 1980 on the above mentioned Draft EIS and the studies on avifauna and archaeological survey. The archaeological consultant is presently on assignment off the island of Oahu. He is expected to return at the beginning of September; we cannot provide the corrections and additional information to his report. Therefore, we will make the necessary clarifications and appropriate corrections to these technical reports as per your comments. These revised reports will be sent to you on or before September 6, 1980.

Generally, we find that many of your comments are addressed to clarifications of details and there is basically no disagreement with the recommendations (i.e. actions) which will be taken to salvage and/or preserve certain sites. In many instances there a "professional" differences of opinion and/or approaches taken in the archaeological study and the statement on fossil birds.

We hope that the revised technical documents will clarify your concerns on these matters.

Very truly yours,

F. J. Rodriguez

FJR/lka

cc: DLNR
DLU
OEQC
EQC
COE
WBR

Used as enclosure to:

Office of Environmental Quality Control
Environmental Center
Department of Planning and Economic Development

INFORMATION ON CIGUATERA

by Paul Bienfang

An association of ciguatera outbreaks with construction/dredging activities has been witnessed in several Pacific locales. The causative nature of this association, that is the triggering mechanism(s) which may lead to the production of toxins from the epiphytic dinoflagellate (Gambeirediscus toxicus) is at present incompletely understood. Because of this lack of knowledge, it cannot be stated unequivacably that a ciguatera outbreak will or will not be associated with the proposed dredging at West Beach; it is however, definitely to be acknowledged that the possibility of such an occurrence exists.

Neither (a) the fact that an outbreak occurred in conjunction with dredging at the adjacent Waianae local, nor (b) that many dredging operations around the state over the years have failed to illicit such incidents of ciguatera toxicity enables one to improve on the certainty of the simple statement that "the possibility exists".

Because factor(s) triggering the incidence of ciguatera are unknown, no mitigating measures can be put forth to avoid a possible occurrence. It would, however, be possible to alert fishermen to the potential hazard and thus reduce the likelihood of consumption of poisonous products by this population. It is recommended that appropriate state agencies be asked to notify fishermen in the area of the potential hazard associated with organisms taken from the area during and for several months following dredging. In conjunction with this alert, a monitoring program designed specifically to address the ciguatera issue could evaluate the toxicity status. The periodic analysis of reef fish taken from the area for toxicity is probably the best diagnostic tool.

(This discussion of ciguatera will be incorporated into the Final EIS for the West Beach Resort.)

Used an enclosure to:

Department of General Planning
Office of Environmental Quality Control
Environmental Center
Department of Health
Department of Land Utilization
Environmental Protection Agency

April 14, 1980

Mr. Wallace Miyahira
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
Honolulu, Hawaii

Dear Mr. Miyahira:

Subject: Request for Oversizing Proposed Makakilo Interceptor Sewer for West Beach Resorts

On behalf of the Developer, West Beach Resorts, Inc., we hereby request that the City and County of Honolulu oversize the proposed Makakilo Interceptor Sewer to accommodate the future resort project at West Beach located between the Campbell Industrial Park, Kahe Point and Farrington Highway.

The project area consisting of approximately 640 acres is presently designated for urban use on the State Land Use Map. Both the State and County in their respective planning efforts have proposed West Beach for future resort development. Consequently, oversizing of the interceptor sewer will not induce growth but only provide a facility for an already planned use.

The Developer proposes to bear the cost of the oversizing.

Based on the Developer's present development plan, it is determined that an increase of pipe size from 30-inch to 36-inch diameter would be adequate to accommodate West Beach as well as Makakilo. The oversizing is proposed from the connection of the Makakilo Interceptor Sewer with the Honouliuli Interceptor Sewer to the Barber's Point N.A.S. Access Road at Sewer Manhole 38 or an approximate distance of 11,369 feet. It is assumed that all slopes and inverts of the Makakilo Interceptor Sewer would remain as originally designed.

Your favorable consideration on this matter would be greatly appreciated.

Very truly yours,

Bernard P. Kea

BPK:cl

cc: West Beach Resorts, Inc.
Attn.: Herbert Morita

Used as enclosure to:

Department of General Planning
Office of Environmental Quality Control
Environmental Center
Department of Health
Department of Land Utilization
Environmental Protection Agency

WPP 80-174

April 25, 1980

Mr. Melvin Koizumi
Deputy Director for
Environmental Health
State Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Koizumi:

Subject: Oversizing of the Proposed Makakilo Interceptor Sewer

We request approval to oversize portion of the Makakilo Interceptor Sewer to provide additional capacity to accommodate the flows from the future West Beach Resort project.

Attached is the April 14, 1980 letter from Mr. Bernard P. Kea, representing the developer of the West Beach project, requesting the oversizing.

As noted in the letter, the oversizing is for the section of the line from the Honouliuli Wastewater Treatment Plant to the Barbers Point Naval Air Station Access Road. The oversizing is to provide capacity for a planned use and not to induce growth. Furthermore, the developer will bear the cost for the oversizing.

Your expeditious consideration on this matter will be greatly appreciated.

Please contact George Iwamoto at 523-4916 should you have any questions.

Very truly yours,

Wallace Miyahira

WALLACE MIYAHIRA
Director and Chief Engineer

Attach.

cc: Bernard P. Kea,
Community Planning, Inc.

RECEIVED MAY 6 1980

Enclosure to: Water Resources Research Center, University of Hawaii
Department of Planning and Economic Development, State of Hawaii

Preliminary Evaluation of the Proposed West Beach Project and the Objectives of the Coastal Zone

During the Draft EIS review period, several reviewers requested that the DEIS include an evaluation of how the proposed West Beach Resort would effect the objectives of the coastal management zone. At this time, the details and design have not been completed; subsequently this preliminary evaluation is based on the project's concept and the maximum allowable density. While some objectives of the coastal management zone (CZM) can be evaluated, others (in the area of project design) cannot be answered because of the unavailability of the descriptive action. The CZM must be applied for and approved at some point along the approval and permit process; subsequently, a more detailed plan and design will be available and the project's consistency with the CZM can be evaluated more accurately. The objectives of the CZM are found in the Shoreline Protection Act of 1975 (Chapter 205A, Hawaii Revised Statutes).

Sub-paragraph 205A-25, Special management area policy.

(1) Maintain the undeveloped portion of the special management area of the State where needed for recreation, scenic, educational and scientific uses in a manner that protects resources and is of maximum benefit to the general public.

The West Beach shoreline is undeveloped. It will be modified to include a marina and bathing lagoons. The existing shoreline and the proposed marina and lagoons will be available to the general public and the existing shoreline will be more easily accessible to the public for recreational, scenic, and possibly educational and scientific uses.

(2) Encourage public and private agencies to manage the natural resource within the State in a manner that avoids or minimizes adverse effects on the environment and depletion of energy and natural resources to the fullest extent.

The proposed project will be constructed to minimize adverse environmental impacts. However, some adverse impacts will occur and cannot be avoided. The project will result in a consumption of energy, and human and natural resources; this consumption is counterbalanced by man's economic and recreational benefits that will derive from the proposed resort.

(3) Protect the shorelines of the State where needed from encroachment of man-made improvements and structures.

It is not felt that the West Beach shoreline "needs" to be protected. A listing of the shoreline areas which "need" to be protected is not available.

(4) Encourage the definition and development of operational criteria and standards for the special management area which lead toward progressive enhancement of the relationship between mankind and the natural environment.

(This policy is addressed to regulating governmental agencies and appears to be inappropriate for the applicant.)

(5) Carry out a program of intergovernmental and private-public interaction and coordination on the special management area planning and management.

(This is addressed to the regulating governmental agency.)

(6) Encourage citizen participation in the planning process for the special management area so that it continually embraces more citizens and more issues.

This is addressed to the regulating governmental agency. Current procedures for review of applications and public review and hearing (held by the City Council), and the governmental agency (Department of Land Utilization, City and County of Honolulu) will be provided for at the appropriate time when the applicant files for his SMA permit. This will come after zoning has been completed.

Sub-paragraph 205A-26, Guidelines.

(1) All development in the special management area shall be subject to reasonable terms and conditions set by the authority in order to ensure:

(A) Adequate access, by dedication or other means to publicly owned or used beaches, recreation areas, and natural reserves is provided to the extent consistent with sound conservation principles.

Public access (though not detailed) will be provided.

(B) Adequate and properly located public recreation areas and wildlife preserves are reserved.

The development will dedicate to the County approximately 65+ acres for park use. As indicated above, public access the the remaining shoreline area will be provided. There are no wildlife preserves in the area.

(C) Provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon special management area resources.

The sewage generated by the project will be transmitted and treated at the Honouliuli Wastewater Treatment Plant.

(D) Alterations to existing land forms and vegetation except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of earthquake.

As discussed in the EIS, the proposed project will attempt to minimize or eliminate impact on water resources, floods, sedimentation, and water quality. The impact on scenic resources must be evaluated when the development's buildings are located and designed.

(2) No development shall be approved unless the authority has first found:

(A) That the development will not have any substantial adverse environmental or ecological effect except as such adverse effect is clearly outweighed by public health and safety. Such adverse effects shall include, but not be limited to, the potential cumulative impact of individual developments, each one of which taken in itself might not have a substantial adverse effect and the elimination of planning options;

(This is addressed to the regulating governmental agency for evaluating the project.)

(B) That the development is consistent with the findings and policies set forth in this part.

These were reviewed above.

The remaining subsection (3) were addressed to the regulating authority for minimizing environmental impacts.

(3) The authority shall seek to minimize, where reasonable:

(A) Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough, or lagoon.

(B) Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the special management area and the mean high tide line where there is no beach.

(D) Any development which would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast.

(E) Any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agriculture uses of land.

14. LIST OF PREPARERS

14.1 The following individuals (alphabetical order) at the U.S. Army Corps of Engineers were responsible for the review of technical reports and for insuring that the DEIS fulfilled federal requirements and addressed the Corps concerns regarding the permit action.

Name	Expertise	Experience	Professional Discipline
Mr. Karl Keller	Ocean Engineer	BS, Civil Engineer, 25 years with Corps of Engineers Hydrology, and Coastal Engineering design and review of coastal projects in Pacific area and Hawaii. Registered Professional Engineer.	Hydraulic Engineer
Mr. Michael T. Lee	Biology	BA, Biology; 1 year Biologist U.S. Navy; 7 years EIS studies, U.S. Army Corps of Engineers, Honolulu District.	Environmental Biologist
Dr. James E. Maragos	Marine Ecology	BS, Zoology; Ph.D. Oceanography; 2 years Post-Doctoral Research; 8 years Environmental Consultant; 4 years EIS studies, U.S. Army Corps of Engineers, Honolulu District.	Supervisor Environmental Biologist
Henry Nakashima	Hydraulic Engineer	BS, Engineer Physics/Geology; 22 years military and hydraulic engineering and programming.	Supervisory Civil Engineer
Mr. David G. Sox	Historical & Cultural Geography	BA, MA Geography; 6 years Research; 4 years EIS studies, U.S. Army Corps of Engineers, Honolulu District.	Social Environmental Specialist

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14.2 The persons primarily responsible for preparing the DEIS for submittal to the government agencies. (Alphabetical Order)

Name	Expertise	Experience	Professional Discipline
Robert N. Anderson	Ph.D. Economics	11 years experience private consultant, associate professor, Department of Agriculture and Resource Economics, Coordinator of Center for Nonmetropolitan Planning and Development, University of Hawaii.	Economics
Henry T. Au	Traffic Engineer	B.C.E. Certificate in Traffic Engineering; 7 years structural engineer, U.S. Corps of Engineers; 12 years city planner City & County of Honolulu; 7 years City Traffic Director, City & County of Honolulu 13 years private consulting engineer.	Traffic Engineer
Karl H. Bathen	B.S. Engineering, M.S. & Ph.D., Oceanography	Researcher, 15 years; private consultant.	Oceanography and Environmental Studies
William Barrera, Jr.	M.A. Anthropology	5 years Assistant and later Associate Anthropologist, Bishop Museum, Honolulu; 6 years private archaeological consultant.	Archaeologist
Andrew J. Berger	Ph.D. Zoology	15 years study (research and publications) of avifauna in Hawaii; Professor, Department of Zoology, University of Hawaii, Manoa Campus.	Zoologist
Paul K. Bienfang	Ph.D. Oceanography	4 years research assistant, University of Hawaii, Manoa Campus; 3 years phytoplankton ecologist, microbiologist, nutrient chemist (private consultant); 7 years biological oceanographer, Oceanic Institute, Hawaii.	Biological Oceanographer

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Name	Expertise	Experience	Professional Discipline
Richard E. Brock	Ph.D. Oceanography	Consultant in biological oceanography.	Biological Oceanographer
Winona P. Char	B.A., M.S. Botanical Sciences	4 years, botanical aide, 2 years horticulturist, Honolulu Botanic Gardens; 4 years botanic consultant.	Botanical Consultant
Michael J. Chun	M.S. Civil Engineering, Ph.D. Environmental Health	10 years Assistant and Associate Professor, University of Hawaii, Manoa Campus; consultant for surface water runoff projects in Hawaii.	Water Quality Consultant
Ronald A. Darby	M.S. Engineering, (P.E.)	5 years engineering; 7 years research mechanical engineer at Marine Engineering Laboratory, Annapolis, Maryland; 10 years private acoustical consultant.	Noise Consultant
Gordon L. Dugan	M.S. Sanitary Engineering, Ph.D., Environmental Health Sciences	9 years Associate Professor/Professor at University of Hawaii, Manoa Campus, 8 years consultant in surface water runoff in Hawaii.	Water Quality Consultant
Yoichi Ebisu	M.S. Electrical Engineering	8 years research scientist; 4 years acoustical consultant.	Noise Consultant
F. Gerritsen	Ph.D. Ocean Engineering	Several years experience in ocean studies and research in Hawaii.	Ocean Engineering
F. J. Rodriguez	B.A. Sociology and Business Administration	10 years work relating to environmental concerns and impact statements in Hawaii	President, Environmental Communications, Inc.
Barry D. Root	M.A. Geography and Public Health	4 years duty with U.S. Air Force, air service; 5 years university geography assistant/instructor; 4 years air pollution consultant.	Air Quality Consultant
Caroleen K. Toyama	B.A. Geography and Sociology	2 years Environmental Analyst, Office of of Environmental Quality Control, State of Hawaii; 6 years environmental impact statement consultant.	Environmental Impact Statement Consultant

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14.3 The following consulting firms provided project description, engineering and/or technical data, or marketing data for use in this DEIS.

a. Community Planning, Inc. - Civil Engineering
Honolulu, Hawaii

b. Alfred A. Yee & Associates, Inc. - Engineering (Marina & Lagoons)
Honolulu, Hawaii

c. Harris, Kerr, Forster & Compnay - Certified Public Accountants
(Marketing Analysis) Honolulu, Hawaii Office

d. John L. Chapman - Land Planning
Newport Beach, California

e. West Beach Resorts - Applicant/Developer of West Beach
Honolulu, Hawaii

14.4 The individuals and companies identified in this section provided major input and data necessary for the compilation and preparation of this document. Involvement of other individuals were under the direction and/or employment of these individuals and/or companies.

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15. INDEX

This index provides general information on the location or various subjects in the text of the Final EIS. It does not identify subjects within a letter or response to a comment which would be included in Section 13.

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