

REVISED
ENVIRONMENTAL
IMPACT
STATEMENT

for the proposed

WAIKANE
RESIDENTIAL
SUBDIVISION

WAIKANE, KOOLAUPOKO DISTRICT, OAHU

MARCH 1978

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I. SUMMARY

The Waikane Subdivision is a proposed project consisting of the development of a fifteen-lot subdivision in Waikane. The five acre project site is designated and zoned for residential use (R-6). The lot sizes will vary from 7,745 to 37,100 square feet. One 44-foot roadway (cul de sac) with access to Kamehameha Highway is proposed. This roadway will be dedicated to the City upon completion.

The developer, Windward Partners, intends to improve the project site and sell the fifteen improved lots in fee, without homes. These house lots will have beach front views which are the primary amenity being offered.

Based on the findings of this Revised Environmental Impact Statement (EIS), the proposed subdivision will not create major or significant adverse effects on the environment.

Existing public services and facilities are available to the site and can adequately serve the subdivision without stress on its resources or services to the existing homes in the area. The exception to this is the sewage collection and disposal system. Presently, cesspools service the adjacent residents in the area. The proposed project will require the future homeowner to utilize waterless, non-discharge toilet systems which will be used to accommodate discharge from this source. The remaining domestic waste discharge will be disposed of via conventional seepage pits. This sewage disposal system is subject to the approval of the State Department of Health and the Board of Water Supply, City and County of Honolulu.

Physical impact is considered to be minimal. Air quality and noise levels will remain the same and very little adverse impacts are anticipated. Water quality (drainage runoff) is expected to be similar to the present chemical quality of runoff from the existing adjacent residential subdivision. The quantity of water runoff will increase due to the creation of hard surfaces, but this increase will be slight in comparison to the total surface runoff of the drainage area. Views of the project site will be altered from its present dense foliage, open space use to a residential subdivision.

Socioeconomic impact will include an increase in population and households, increase in expenditures at local stores, and increase in property taxes. However, because of the relatively small number of people anticipated (60) these economic impacts will remain on a relatively small scale and no effect on the economic or employment patterns is expected. Lifestyle within the proposed subdivision will be "urban" in character, versus the present "rural-agriculture" lifestyle in the Waiahole-Waikane Valleys; it is felt that these different lifestyles can co-exist in the same area because of their separation by Kamehameha Highway and because other Windward shore areas (e.g. Laie, Punaluu, Hauula) have residences of different lifestyles without apparent social conflict. It should be noted, however, that during the EIS review process, three community oriented organizations have questioned whether these two different economic groups (along with their lifestyle) will be compatible or desirable within this area.

The project is consistent with the present R-6 zoning of the project site. However, in general, it is inconsistent with the recommendations of the State's

Windward Oahu Regional Plan and the draft Corps of Engineers' study, Kaneohe Bay Urban Water Resources Study. Both studies recommend that there be no further urban development in this area.

Lastly, it is felt that the proposed project will not conflict with the shoreline management policies and guidelines established in Ordinance 4529. Shore access to the public will be provided and no adverse impacts to the shoreline are anticipated.

The Revised Environmental Impact Statement was prepared for the project's developer by Environmental Communications, Inc. The requirement for an Environmental Impact Statement is based on the project site being located within the Shoreline Management Area as designated by Ordinance 4529, City and County of Honolulu.

Copies of the comments received on the Environmental Impact Statement during the review process, as well as the responses to these comments, are provided in Section XVI.

II. PROJECT DESCRIPTION

A. PROJECT LOCATION

The proposed Waikane Subdivision site is located in Waikane, Koolaupoko District, Oahu. The site lies approximately 3.5 miles north of Kahaluu, makai of Kamehameha Highway. Figures 1 and 2 show the project site in relationship to the island and the region (U.S.G.S. map).

The site is identified by Tax Map Key: 4-8-03:7, 8 and 9.

B. STATEMENT OF OBJECTIVES

The primary objective of the project is to utilize the present General Plan residential designation. The developing of this site will allow for a higher use of the 5-acre parcel. Additionally, the "normal" benefits to the landowners and developers will include the realization of profit due to the purchase of the completed subdivision lots.

Future residents will also be provided with benefits in the form of housing, privacy and scenic views.

C. PROJECT DESCRIPTION

The landowner and developer, Windward Partners, proposes to develop a fifteen-lot subdivision off Kaneohe Bay in Waikane. The following are technical characteristics of the proposed subdivision:

- a. The lots would range in size from 7,745 to approximately 37,100 square foot.
- b. One forty-four foot roadway (cul de sac) with access to Kamehameha Highway is also proposed.
- c. A thirteen-foot setback would be provided on lot numbers 1, 12, 13, 14 and 15 for the future widening of Kamehameha Highway.
- d. The forty foot setback area will be within lots 4, 5, 6, and 7.
- e. One minimum 12-foot beach access (pedestrian right-of-way) to the shoreline is proposed. (See Figure 3.)
- f. The site is zoned R-6 Residential District, which would permit the construction of single family homes on a minimum 5,000 square foot lot area. This site is proposed, however, to be utilized for 15 single-family units. The developer intends to sell, in fee, the fifteen improved lots without constructing homes.
- g. The project site will be graded; however, the existing drainage patterns will generally be maintained. Approximately 30,000 cubic yards of soil will be needed to fill portions of the project site.

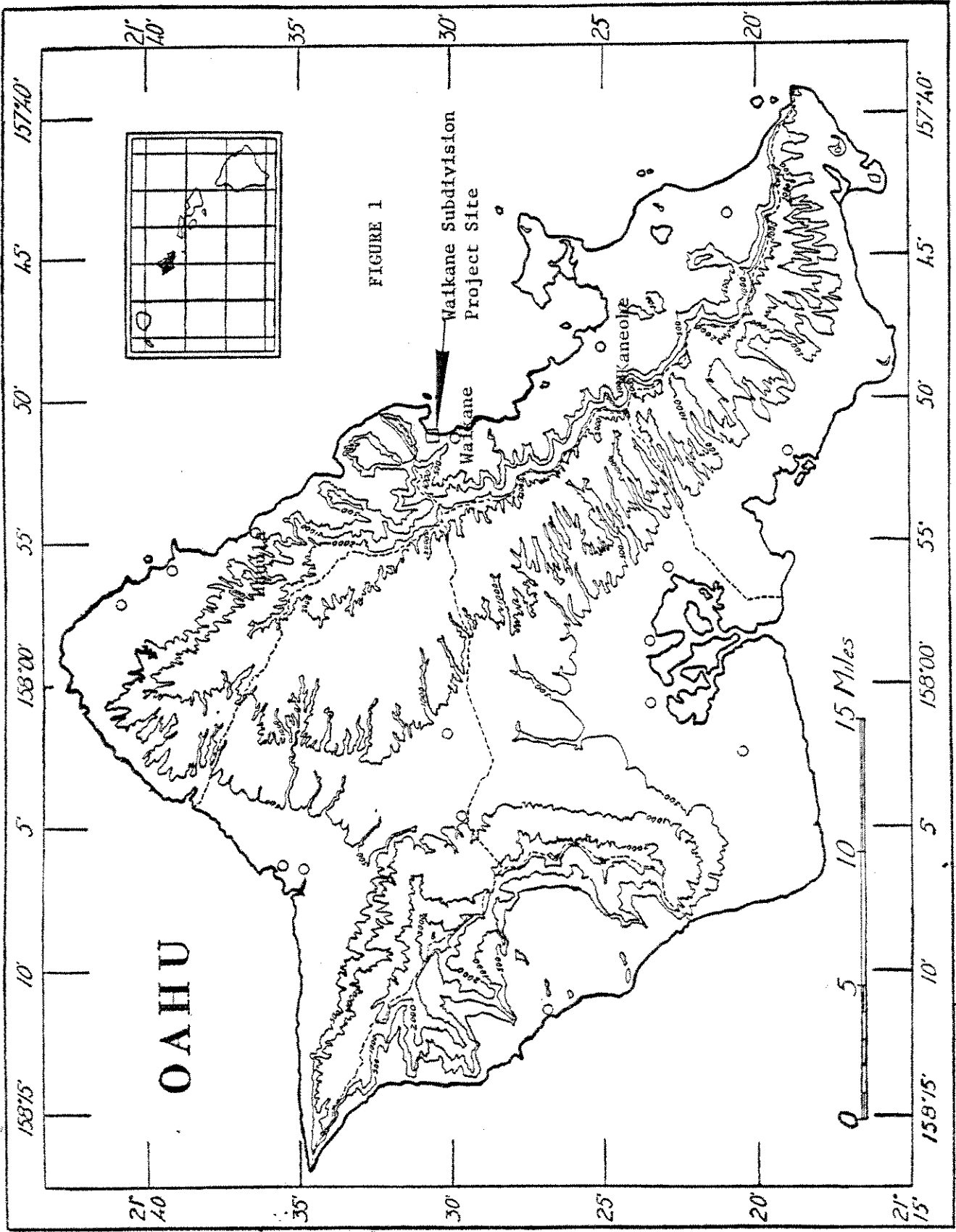


FIGURE 2
WAIKANE SUBDIVISION LOCATION MAP
Source: USGS Quadrangle Map
Kahana, Hawaii
Scale: 1 : 24,000

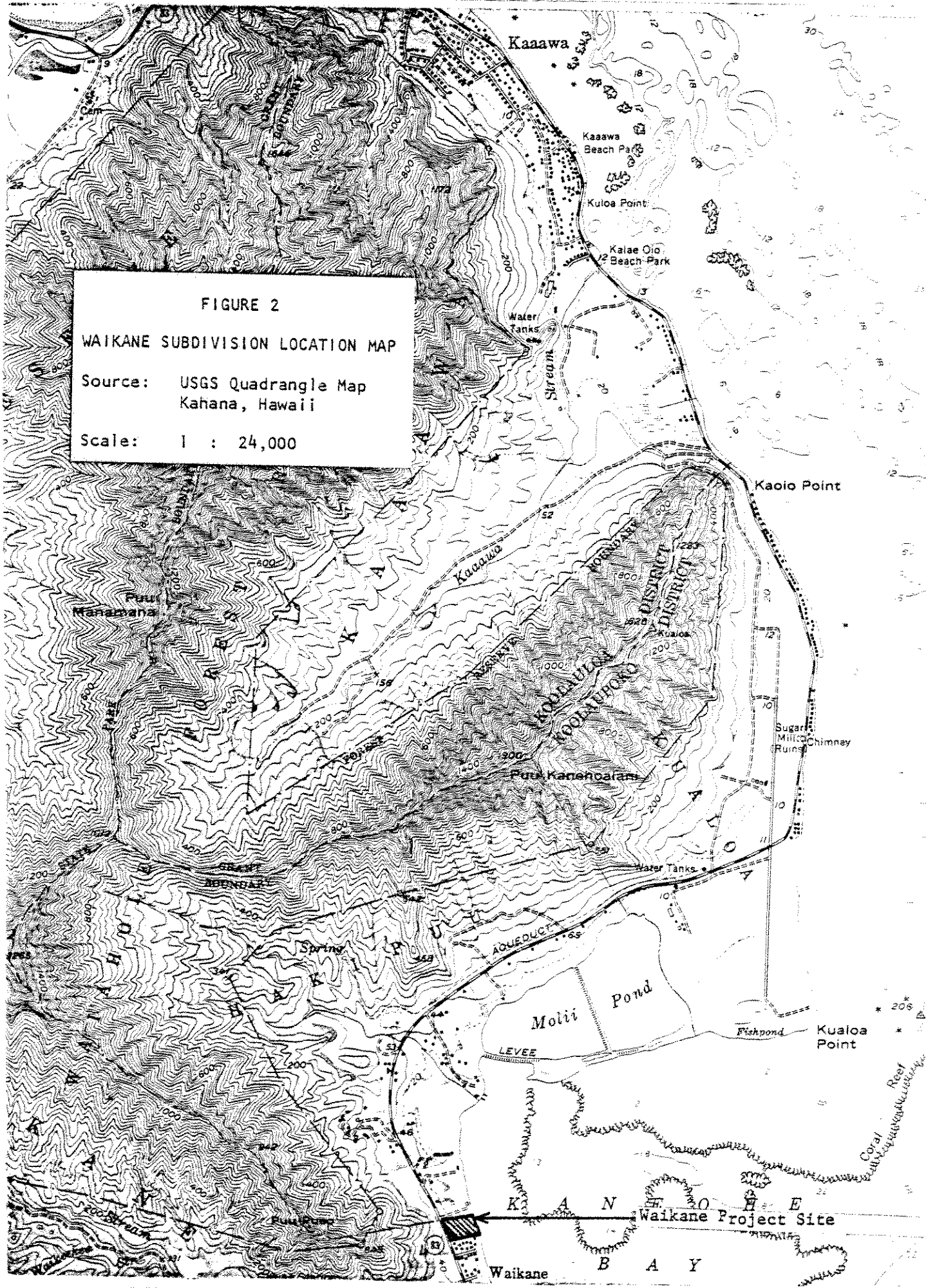






FIGURE 3

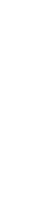
PRELIMINARY
SUBMISSION PLAN

CONSOLIDATED OF
 PORT OF MARIAGUA TO BAY AND H. DIMANOR, INC.
 OF 25% TO 100% WITH APPROVAL TO 100%
 TITLE OF R.F. 25% TO 100% APPROVAL TO 100%
 SUBDIVISION HEREBY
 INTO LOTS TO BE ALLOCATIVE
 AT THE SAME INSTANTANEOUS PROPORTION

OWNER: MARIAGUA PORT
 ENGINEER: [Signature]
 DATE: [Date]

ENGINEER: [Signature]
 DATE: [Date]

TOTAL AREA: 1,134,000 sq. m.



- h. Drainage will be handled by a pipe system with an outlet located within lot 5 near the shoreline. This outlet, or discharge apron, has been relocated further mauka to provide a storm water dispersion area consisting of loose rubble paving. The estimated storm water runoff velocity through the discharge apron, without baffles, is 7.5 fps. Water flow depth approximated at 0.80 feet. Installation of baffles within the apron is expected to decrease the flow velocity and correspondingly increase the water depth. It is expected that the runoff water after leaving the loose rubble paving will have a flow velocity, such as not to cause serious erosion of the beach area.
- i. A covenant (Exhibit I) which the future owners must abide by will stipulate that the homes to be built must install waterless, non-discharge toilet systems. These toilet systems are self-contained and utilizes mineral oil which is periodically replaced. Thus, no "black" water will be discharged from this project. This toilet system must be approved by the State Department of Health.
- j. The remaining waste waters (i.e. rinse water, dish water, wash water) called "grey" water are planned to be disposed of through seepage pits. This method of disposal and the location of these seepage pits (one for each lot) must be approved by the Board of Water Supply and the State Department of Health. Percolation tests have been performed at two locations on the project site (lot nos. 4 and 13). These tests have indicated that, "...even a 4 inch disposal well can safely absorb the quantity of grey water that may be generated by a home on one of these lots." (For further information the consulting engineer's report, "Grey Water" Disposal at Waikane Subdivision Plat (TMK: 4-08-03: 7, 8, and 9) is provided as Exhibit III.)
- k. At this time, the cost of improving the lots has not been calculated and, therefore, no selling price has been determined. It is anticipated, however, that the lots will be within the price range of middle and upper middle income families (this is based on the present fair market land value determined in the past by comparable land sales of adjacent parcels).
- l. The covenant will restrict the landowner to building one house per lot.
- m. The proposed subdivided lots fronting the ocean will have finish grades at and over the 20 foot elevation. The toe of the slope of these lots will be at elevations ranging from 4 to 6 feet, and the distance from the highwater mark will range from 50 to 230 feet.
- n. Utilities, such as water, electricity and telephone will be connected to existing lines located along Kamehameha Highway.

D. USE OF PUBLIC LANDS AND FUNDS

No public lands and/or funds will be utilized for the development of the proposed subdivision. However, approvals, permits and review and certification of plans from various governmental agencies (see page 64) will be necessary prior to site work.

E. PHASING AND TIMING

Because of the relatively small scope of the project, the site work will be completed in one phase. As indicated previously, no homes on the lots will be constructed by the developer.

It is anticipated that after all approvals, permits, and reviews have been obtained, the developer will initiate site work. The site work (includes all work identified under the Project Description) would be completed in about six (6) months.

III. DESCRIPTION OF THE ENVIRONMENTAL SETTING

A. PHYSICAL GEOGRAPHY

Topography of the project site. The site is located at the toe of a ridge that projects into Kaneohe Bay. A drainageway or depression cuts across the site diagonally and drains from the south to the north. Makai of the drainageway, the slope tapers off from approximately 5% to 2.5% along the shore. The southern and western sides of the site are approximately 20 ft. higher than the northern portion which is a depression that is generally flat. The ground elevations vary from about 32 to 38 feet in the higher areas and from about 3 to 6 feet in the lower areas. Approximately 100 cubic yards of material is planned to be excavated, with 30,000 cubic yards required for embankment.

Soils on the project site. Based on a preliminary soil study, "Proposed R-6 Residential Subdivision - Waikane Preliminary Soil Report," prepared by Walter Lum Associates, Inc., the soils on the project site include:

1. stiff brown clayey silt (MH soil) with decomposed rock to about 15 to 20 feet (the depths drilled) in the higher areas; in two of the three soil borings a 2 to 4 foot layer of clay (CH soil) was noted in 4 to 8 foot depths.
2. in the lower areas of the site, there is a surface layer about 2 to 4 feet of stiff silty clay (MH soil) over clay (CH soil) to about 3 to 5 foot depths. Below this was composed rock to about 4 to 6 feet in one boring. The preliminary soil report also noted that portions of the northeaster section of the site may be underlain by a layer of soft to medium organic material.

It is noted that these soils have varying characteristics, and that portions of the site have been previously filled. "Pockets" of soft, organic material mixed in with the soil were also found. The soil study prepared by Walter Lum Associates, Inc. discuss the general characteristics and recommendations in working with the soil. A portion of their soil study is provided in Exhibit VI.

Microclimate.¹ The temperature in the area is mild and uniform, which is characteristic of the windward side of the Island. February is usually the coldest month, with a mean temperature of 68°F while September is normally the hottest month averaging 80°F. During the winter months, the relative humidity approaches 80 percent while during the summer months it is somewhat less humid. Despite the relatively high humidity and temperatures, the climate is comfortable due to the prevailing north-northeast trade winds. The annual average rainfall varies from about 50 to 75 inches.

¹ Source of information: Precipitation records, Waikane, Oahu from 1956 through 1972, obtained from the U.S. Weather Bureau (No. 885); and "Baseline Water Resources Inventory for Waiahole-Waikane," prepared in 1974 by Michael J. Chun, Ph.D. and Gordon L. Dugan, Ph.D.

B. FLORA AND FAUNA¹

The site is presently densely vegetated, but otherwise is vacant and undeveloped. The higher western and southern sides of the site are covered with large trees and brush. The lower portions are covered with smaller trees and brush.

The dominant vegetation, in addition to pasture grasses, along the shore

¹ Source of information relating to flora within the project site was based on several field visits (which included the identification of predominant plants on the site) and review and inclusion of portions (the shoreline area) of Andrew Berger's report, "Report of the Fauna and Flora, Waiahole-Waikane Area of Oahu," prepared in 1974.

consists of hau (Hibiscus tiliaceus) and two species of introduced mangrove (Rhizophora mangle; Bruguiera conjugata). A few scattered tree heliotropes (Messerschmidia argentea) grow along the beach; this plant is widely distributed on Pacific islands but was introduced to Hawaii according to St. John (1973). Coconut palms (Cocos nucifera) are conspicuous, especially in the vicinity of a small clearing along the beach. Such plants are false kamani (Terminale meliacaatappa), mango, kukui, haole koa, banana, and plumeria are found in the area between the beach and Kamehameha Highway.

Shorebirds, as listed in Table 1, inhabit the mudflats, especially at low tide. Other common birds in the Waikane shoreline area include the Japanese White-eyes, Red-crested Cardinals, and Common Mynahs. (Other avifauna seen in the area are listed in Table 1).

Additionally, a list of observed amphibians, reptiles, and mammals in the Waikane shoreline area is provided in Table 2.

In summary, the flora and fauna in the shoreline area, including the project site, is exotic. No rare or endangered native species are known to exist within the project site or the adjacent area.

C. ENVIRONMENTAL QUALITY

Air Quality. A study entitled, Air Quality - An Environmental Assessment, Waiahole-Waikane Community Development, prepared by Robert S. Nekomoto in 1974, provides the most recent information on ambient air quality in the Waiahole-Waikane area. Since the land uses in the area have not significantly changed since Nekomoto's 1974 study, it is felt that the findings are still valid.

In the study, Nekomoto reviewed possible sources of air pollutants and the meteorological conditions in the Waiahole-Waikane area. He found that no industrial sources of air pollution existed in the area, and that the area was dominated by scattered residential structures. The major source of any air pollutants was created by vehicles traveling along the main thoroughfares. Nekomoto calculated this amount to be minute in comparison to the State standards. Meteorologically, the trade winds (winds originating from the northeast) prevail, and the incoming air does not pass over urbanized areas. Only in the absence of trade winds (which occur for short and infrequent durations) would the incoming air contain pollutants created in the Kaneohe area.

The study concludes that the present level of air quality within the Waiahole-Waikane area is equal to that which might be considered as background level for the State. Additionally, Nekomoto stated: "The present environment can absorb considerable impact before approaching levels of the most stringent primary and secondary air quality."

Noise. No noise pollution measurements were attempted for the preparation of this environmental impact statement. In reviewing the land uses around the site, it was found that the residential and agricultural uses are primarily "quiet" activities. Also, on several site visits, no significant sources of noise were noted. The only source of sounds which remained constant was from vehicles passing on Kamehameha Highway.

Background noise appeared to be less than residential street noises

TABLE 1
 BIRDS OF THE WAIAHOLE-WAIKANE SHORELINE AREA¹

	<u>Scientific Name</u>
<u>Migratory Shorebirds</u>	
Pacific Golden Plover	(<u>Pluvialis dominica fulva</u>)
Ruddy Turnstone	(<u>Arenaria interpres</u>)
Wandering Tattler	(<u>Heteroscelus incanum</u>)
Sanderling	(<u>Crocethia alba</u>)
<u>Exotic Birds</u>	
Cattle Egret	(<u>Bulbucus ibis</u>)
Spotted or Chinese Dove	(<u>Streptopelia chinensis</u>)
Barred Dove	(<u>Geopelia striata</u>)
Barn Owls	(<u>Tyto alba pratincola</u>)
Common Mynah	(<u>Acridotheres t. tristis</u>)
Japanese White-eye	(<u>Zosterops j. japonica</u>)
House Finch or Linnet	(<u>Carpodacus mexicanus frontalis</u>)
Richard or Spotted Munia	(<u>Lonchura punctulata</u>)
House Sparrow	(<u>Passer domesticus</u>)
Cardinal	(<u>Cardinalis cardinalis</u>)
Red-Crested Cardinal	(<u>Paroaria coronata</u>)

1. Based on the observations of Andrew J. Berger, Ph.D., in his report entitled, "Report of the Fauna and Flora, Waiahole-Waikane Area of Oahu." February, 1974. Because Berger's study included the entire valley, the above list is a compilation of only those birds probably inhabiting the shoreline area.

TABLE 2
 AMPHIBIANS, REPTILES, AND MAMMALS OF THE WAIAHOLE-WAIKANE SHORELINE AREA¹

	<u>Scientific Name</u>
<u>Amphibians</u>	
Giant Neotropical Toad	(<u>Bufo Marinus</u>)
<u>Reptiles</u>	
Blind Snake	(<u>Typhlops braminus</u>)
Mourning Gecko	(<u>Lepidodactylus lugubris</u>)
Fox Gecko	(<u>Hemidactylus garnoti</u>)
Metallic Skink	(<u>Lygosome metallicum</u>)
<u>Mammals</u>	
Roof Rat or Black Rat	(<u>Rattus rattus</u>)
Polynesian or Hawaiian Rat	(<u>Rattus exulans</u>)
House Mouse	(<u>Mus musculus</u>)
Small Indian Mongoose	(<u>Herpestes auropunctatus</u>)

1. Based on the observations of Andrew J. Berger, Ph.D., in his report entitled, "Report of the Fauna and Flora, Waiahole-Waikane Area of Oahu." February, 1974. Because Berger's study included the entire valley, the above list is a compilation of only those amphibians, reptiles, and mammals observed in the shoreline area or ubiquitous in the Waiahole-Waikane region.

experienced elsewhere in the suburban areas on Oahu.

Aesthetics. Presently, portions of the project site are littered with various types of discarded household appliances, automobile parts, cans, et cetera. These areas where litter accumulates are not clearly visible from Kamehameha Highway because of the dense plant cover. The vegetation along with the site's topography also obstructs the view of the shoreline from Kamehameha Highway. Therefore, the existing views within the site, and the "beauty" of the site itself, is in its present open space usage.

Drainage. A natural gully (occupying 15 to 20 percent of the site) winds through the project. The tributary areas is approximately 19.2 acres and the 50 year design discharge is approximately 130 cubic feet per second. The project engineer prepared a Drainage Study/Map for this project site; this Drainage Study/Map is included in this Revised EIS as Exhibit IV.

Water Quality. In 1975-1976, the Water Resources Research Center (WRRC) of the University of Hawaii monitored¹ the water quality of several streams and various portions of Kaneohe Bay. For the purposes of this proposed project, the data for sampling station 12 was felt to represent the present water quality of the shore waters of the Bay. (See Figure 4, Stream and Bay Water Quality Sampling Stations, Kaneohe Bay and Adjoining Drainage Basins.)

The results of the monitoring at this station are shown in Tables 3 and 4, and reflect the "dry weather conditions" and "wet weather conditions" respectively. Table 5 provides the State standards for water quality (Class AA waters) for comparison purposes.

In generally reviewing this data and the studies identified in footnote 1 below, the following generalized description of this shore area was concluded:

1. The shore area does not meet the Class AA water quality standards. This is true for the entire Kaneohe Bay area.
2. The northern area (the location of this project) is considered to be the "cleaner" end of the Bay. Results of this and past monitoring data indicates that the northern end of the Bay is consistently less polluted.

Tsunami Inundation Zone. The Civil Defense Agency (State of Hawaii) notes that: "From Kualoa Pt. to the Marine Air Station, the expected shore line rise of water would not exceed 4 feet. Therefore, it is not necessary to evacuate the coastal areas inside Kaneohe Bay." The 4-foot elevation line is shown in Figure 3, page 5.

¹ These studies and monitoring data was prepared as part of the U.S. Army Corps of Engineers study, Kaneohe Bay Urban Water Resources Study (presently in Draft form). The sources of the Tables and Figure 4, are: the Water Resources Research Center's publication (Technical Report No. 98), "Water Quality Monitoring Kaneohe Bay and Selected Watersheds July to December 1975," prepared by Reginald H.F. Young et al; and (Technical Report No. 100), "Wet-Weather Water Quality Monitoring Kaneohe Bay, Oahu, Hawaii," prepared by L. Stephen Lau et al in August, 1976.

D. INFRASTRUCTURES AND SUPPORT SERVICES

Potable Water Supply. Currently, the Waiahole-Waikane area is being serviced by the Honolulu Board of Water Supply. This area is located in the Board's Service Area 2, and derive their water from groundwater sources located elsewhere in the service area.¹ More specifically, two water lines are located along

¹ Source of information: "Baseline Water Resources Inventory for Waiahole-Waikane," (1974) prepared by Michael J. Chun, Ph.D. and Gordon L. Dugan, Ph.D.

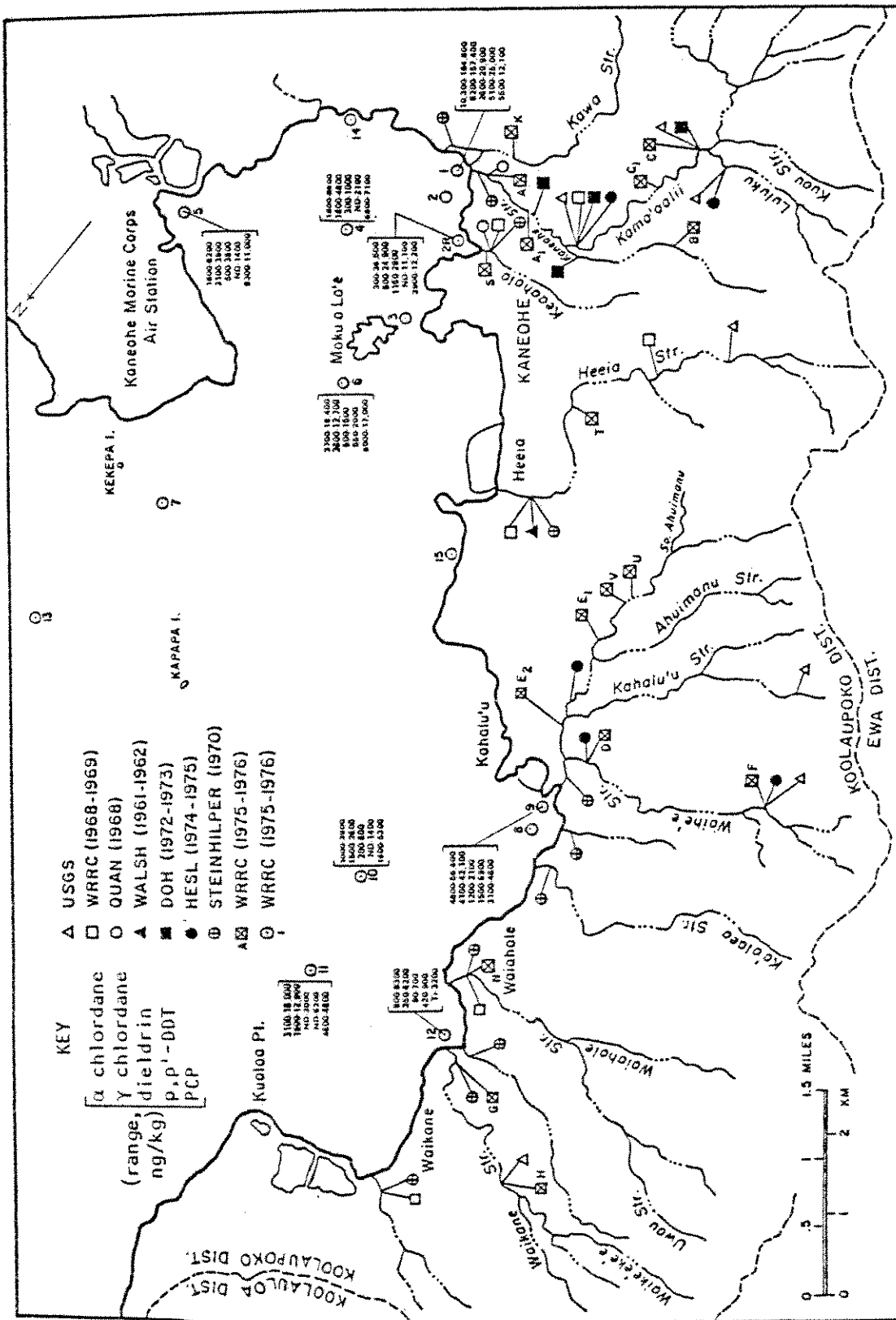


FIGURE 4. STREAM AND BAY WATER QUALITY SAMPLING STATIONS, KANEHOE BAY AND ADJOINING DRAINAGE BASINS

Source: Water Resources Research Center, University of Hawaii, Technical Report No. 100, "Wet-Weather Water Quality Monitoring Kaneohe Bay, Oahu, Hawaii," (August, 1976).

Table 3. Monitoring Results Under "Dry Weather Conditions"
1975

TABLE E-7. STATION 12

Parameter	Collection Dates			
	7/16	7/30	9/03	10/01
Temperature °C	27.5	30.0	26.0	28.0
pH	8.2	8.1	8.1	8.2
Turbidity JTU	3.4	9.1	17	4.0
Conductivity	45,160	42,910	45,330	44,750
Settleable S. ml/l	<1	<1	ND	<1
SS mg/l	164	55	17	33
NO ₂ +NO ₃ -N mg/l	<0.01	0.02	ND	ND
Kjeldahl N mg/l	0.42	0.37	0.39	0.14
Total N mg/l	0.42	0.39	0.39	0.14
Cl ⁻ mg/l	16,630	16,392	18,240	18,070
Total P mg/l	0.118	0.084	0.086	0.013
Total Coli. MPN	790	490	49	7
Fecal Coli. MPN	33	33	23	2
Fecal Strep. MPN	4	49	2	20
Cadmium ppm	<0.001	<0.001	ND	ND
Chromium ppm	0.041	0.004	ND	0.003
Lead ppm	<0.002	<0.002	ND	0.005
Mercury ppm	<0.0002	<0.0002	ND	ND
Copper ppm	0.012	0.002	0.002	0.004
Zinc ppm	<0.001	<0.001	ND	0.003
Ammonia mg/l	0.10	<0.05	ND	ND
Silica mg/l	6.9	4.6	1.86	ND
Salinity ‰	30.440	24.940	37.56	<1
Nickel ppm				34.27
				ND
				0.004

NOTE: ND = nondetectable.

Source: WRRRC Technical Report 98, as cited on page 11, footnote 1.

Table 4. Monitoring Results Under "Wet Weather Conditions"

APPENDIX TABLE H.10. STATION 12-0

Parameter	Collection Dates			
	11/16/75	02/26/76	03/25/76	04/08/76
Time	1250	--	--	--
Temperature, °C	23.4	22.0	24.0	25.0
Dissolved Oxygen, mg/l	6.4	8.2	8.4	7.8
pH	8.0	--	--	--
Salinity, %	--	--	--	--
Settleable Solids, mg/l	0.3	--	--	--
Suspended Solids, mg/l	31.8	--	127.4	14.3
Volatile Suspended Solids, mg/l	--	--	20.6	3.2
Turbidity, NTU	8.0	4.5	7.7	6.8
Conductivity, umhos/cm	24,000	--	--	--
Biochemical Oxygen Demand, mg/l	Tr	--	--	--
Chemical Oxygen Demand, mg/l	--	--	--	--
Total Organic Carbon, mg/l-C	--	3.7	1.5	9.3
Dissolved Organic Carbon, mg/l-C	--	<1	--	<1
NO ₂ -N, mg/l	Tr	--	--	Tr
NO ₃ - + NO ₂ -N, mg/l	0.12	Tr	Tr	Tr
NH ₄ -N, mg/l	--	--	--	--
NH ₄ - + Organic Nitrogen, mg/l	Tr	--	--	--
Total Nitrogen, mg/l	0.13	0.12	0.90	0.24
Total Kjeldahl Nitrogen, mg/l	--	0.12	0.90	0.24
Dissolved Total Kjeldahl Nitrogen, mg/l	--	--	0.23	0.06
Nitrogen, mg/l	--	--	--	--
Soluble Phosphorus, mg/l	--	--	--	--
Total Phosphorus, mg/l	0.053	0.049	0.011	0.028
Chloride, mg/l	12,900	--	--	--
Silica, mg/l	2.59	--	--	--
MBAS, mg/l	--	--	--	--
Total Coliform, No./100 ml	2,300	--	--	--
Fecal Coliform, No./100 ml	1,500	--	--	--
Fecal Streptococcus, No./100 ml	1,300	--	--	--
Chlorophyll a, µg/l	--	--	10.4	1.9

NOTE: 12 = Station Number, 0 = Depth (Surface).

-- = No sample analyzed.

Tr = Present in trace amounts but below limit of quantification.

Source: WRRRC Technical Report 100, as cited on page 11, footnote 1.

TABLE 5
RECEIVING WATER QUALITY STANDARDS, STATE OF HAWAII (CHAPTER 37-A)

<u>Parameters</u>	<u>Class AA Standards</u>
Uses	Oceanographic research, propagation of shellfish and marine life, conservation of coral reefs and wilderness areas, and esthetic enjoyment.
Bacteria, coliform, per 100 ml	Median 70,230 anytime
pH	8.0-8.5
Total phosphorous, in milligrams per liter	0.020
Total nitrogen, in milligrams per liter	0.10
Dissolved oxygen, in milligrams per liter	6.0
Total dissolved solids in grams per liter	≥ 28.00 from other than natural causes.
Temperature, in degrees Fahrenheit	± 1.5% from natural conditions
Turbidity	Secchi disk or equivalent as "extinction coefficient" shall not be altered from natural conditions by more than 5%.
Radionuclides	1/30th of MPC _w values given in national bureau of Standards Handbook No. 69 or does not exceed radionuclide concentrations as specified in United States Public Health Service 1962 drinking water standards.
Salinity	No alterations which would cause the isohaline patterns to change more than ± 10% from natural occurring variation.

Source: Journal of the Hydraulics Division, Water Quality and Effluent Standards of Hawaii, by Gordon L. Dugan, Reginald H.F. Young, and L. Stephen Lau, September, 1974.

Kamehameha Highway. These include a 30" water main and a 12" water line.

No present or future sources of groundwater are expected to be developed within the project site or in the immediate area.

Sewage Collection and Disposal. At the present time, the adjacent residence area located makai of Kamehameha Highway is serviced by cesspools. Based on the review of the pumping records of the adjacent subdivision it was found that except for one residence which needed excessive pumping, the remaining lots showed a total of four maintenance calls during 1974-1975.¹

Solid Waste. Presently, the Division of Refuse Collection and Disposal, Department of Public Works, provides regular twice a week pickup of solid waste in the adjacent residential area.

Electricity and Telephone. Both electric and telephone service lines are available along Kamehameha Highway. No gas lines are located in the area.

Fire and Police Protection Services. During the EIS Consultation Period, the Fire Department provided the following information relating to the present fire stations available to the project site. This information is provided below:

"We wish to inform you that fire protection services for subject project are available from Kahaluu Fire Station which is located approximately five miles therefrom with a response time of approximately eight minutes. Supportive services are available from Kaaawa Fire Station which is also approximately five miles away with a response time of eight minutes. In accordance with the fire grading schedule established by the Insurance Services Office, fire protection would be considered inadequate since the project is more than four miles from the closest fire station."

In addition to this, the Fire Department identified plans for a future fire station which would be closer to and eventually service this project site.

"Included in our capital improvement program is a proposed fire station in Kualoa Park. When this station is completed fire protection services at that time may be deemed adequate. No projection date has been made for construction which is predicated on the kind of development that will be approved and completed."

The Police Department indicated (see page 41) that the present station in Kaneohe would serve the people of the planned development.

Public Schools. The public schools which presently serve the project area include Waiahole Elementary School, King Intermediate School and Castle High School. The distances from the project site to these schools are 9.5, 7.6 and 1.5 miles, respectively. The present and projected enrollment of these schools is provided in Table 6.

Recreational Facilities. Presently, there are no neighborhood or community parks within a mile radius of the project site. Additionally, no developed beach park facilities are located within a 1 mile radius. The nearest recreational

¹ According to City pumping records.

TABLE 6
PRESENT AND FUTURE ENROLLMENT PROJECTIONS FOR WAIHAOLE ELEMENTARY,
KING INTERMEDIATE AND CASTLE HIGH SCHOOLS

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Maiahole Elementary	247	243	215	197	187	169	150
King Intermediate	1961	2020	1916	1825	1710	1633	1557
Castle High	2636	2625	2623	2534	2467	2312	2184

Source: Enrollment Projections of the Public Schools in Hawaii, 1975-80, Office of Business Services, Facilities Branch, Department of Education, State of Hawaii, TAC 75-9075, March, 1975.

facilities are the Kualoa Regional Park (153 acres) located approximately 2 miles (in the Kahuku direction) to the project site and Waiahole Beach Park (.6 acre) located approximately 2 miles (in the Kaneohe direction) from the project site.

Retail and Commercial Facilities. Various retail and commercial facilities are located along Kamehameha Highway from Kahaluu to Hakipuu. These commercial and retail facilities include grocery stores, restaurants, service stations, laundromat and specialty (tourist oriented) shops. The closest major shopping area can be found in Kaneohe, about 8 miles (15 minutes driving time) from the project site.

E. HIGHWAYS AND STREETS

Presently, the major thoroughfare serving the project site is Kamehameha Highway. Kamehameha Highway is a 2-lane, 2-way thoroughfare and provides an acceptable level of service for present travel demands. It should be noted that the State Department of Transportation, in their letter of January 11, 1978, page 45, indicated that, "Kamehameha Highway will eventually be widened from an existing 2-lane facility to a 4-lane divided facility." There are no present plans or fund for this improvement.

F. HISTORICAL AND ARCHAEOLOGICAL SITES

An archaeological reconnaissance of the Waiahole-Waikane area in March of 1974 prepared by the Archaeological Research Center Hawaii¹ indicated that no sites of historical significance are found in the project site. Additionally, the Department of Land and Natural Resources in their letter of January 30, 1976, see Exhibit 11, stated that: "There are no recorded historic sites in the project area. A survey made in 1971 indicates coastal sites in the area have been cleared and areas of taro cultivation destroyed."

F. SOCIO-ECONOMIC ASPECTS

A socio-economic profile of the Waiahole-Waikane area was prepared by Robert N. Anderson, Ph.D. in March of 1974.² A summary of the household characteristics is provided in Table 7. Briefly, Anderson made the following observations on the population characteristics of the Waiahole-Waikane area:

1. Median family income in the region was \$9,800 in comparison to the equivalent figure of \$11,990 for Oahu in 1971. The Oahu-wide percentage of families with incomes under \$5,000 was 10 percent compared to 24 percent in Waiahole-Waikane. Families with incomes above \$15,000 amounted to 32 percent on Oahu and 22 percent in Waiahole-Waikane. In other words, the Waiahole-Waikane population receives substantially less income than the general population on Oahu.

¹ The Archaeology of Koolau-poko, O'ahu (from the ahupua'a of Waiahole to the ahupua'a of Waikane) by P. Bion Griffin and Dorothy Pyle, prepared by the Archaeological Research Center Hawaii. Lawai, Kauai, March, 1974.

² Waiahole-Waikane, A Socioeconomic Profile, prepared by Robert N. Anderson, Ph.D., March 15, 1974.

TABLE 7
1974 HOUSEHOLD CHARACTERISTICS, WAIAHOLE-WAIKANE

<u>Item</u>	<u>Number</u>
Households	95
People	423
Length of Residency	
0-4 years	27%
5-9 years	15%
10-14 years	8%
15-19 years	9%
20-24 years	13%
25-29 years	14%
30 or more years	14%
Household Income	
Less than \$1,000	2%
\$1,000-\$1,999	1%
\$2,000-\$2,999	5%
\$3,000-\$3,999	8%
\$4,000-\$4,999	8%
\$5,000-\$5,999	7%
\$6,000-\$6,999	6%
\$7,000-\$7,999	0%
\$8,000-\$8,999	6%
\$9,000-\$9,999	9%
\$10,000-\$14,999	20%
\$15,000-\$19,999	15%
\$20,000 and over	7%
No Response	6%
Ethnicity	
Haole	12%
Japanese	20%
Filipino	17%
Hawaiian & Mixed Hawaiian	45%
Other	5%
Employment	
Number Employed (Total)	225
Any of Household in Agriculture	15%
Any of Household in Windward Area	61%

Source: Waiahole-Waikane, A Socioeconomic Profile, prepared by Robert N. Anderson, Ph.D., March 15, 1974.

2. Nearly half of the households were identified as being primarily of Hawaiian or mixed Hawaiian ethnicity. Contrary to conventional expectations, no single ethnic group was unusual in terms of age, household numbers, income or reasons for residing in the area.
3. Approximately 225 people residing in the 95 households held either full-time or part-time jobs. Only 15 percent of the households received significant income from agricultural employment. Sixty-one percent of the households has a member employed in the Windward region.
4. There is general satisfaction with present living conditions reflected by the lack of response to the question, "What are the problems of living here?" A surprising sixty-nine percent said there were no disadvantages, or at least they couldn't think of any.

IV. THE RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS, POLICIES AND CONTROLS FOR THE AFFECTED AREA

As previously noted, the project site is presently covered with dense vegetation and is in open space use. The surrounding area is essentially rural or agricultural in nature. Across Kamehameha Highway are groves of papaya, scattered groups of banana trees, and vegetable fields on lands designated for agricultural use by both the State and City. On the Kahuku side of the proposed site are lots ranging in size from 1.8 to 3.9 acres which are sparsely developed with dwellings. On the Kahaluu side is a 12-lot, 34-year old subdivision with lots varying in size. The proposed project would have a use consistent with homes on the Kahuku side on the parcel. It is also noted that along the shoreline area from Kaneohe to Kahuku "beachfront" residential homes are popular.

The project site is designated for residential use on the Oahu General Plan. It is zoned R-6, Residential District. There is no adopted General Plan Detailed Land Use Map (DLUM) for the area. The proposed use of the site would be consistent with its present General Plan and zoning designations. The site is designated Urban by the State Land Use Commission.

The 1977 General Plan (objectives and policies) does not make specific reference to the project area; however, its objectives and policies can be subjectively treated to support and not support the project. Because of the high degree of subjectivity involved and the number of interpretations which could be rendered, and because no specific references are made even on a district basis, each individual objective and policy has not been discussed in this Revised EIS.

The Windward Oahu Regional Plan prepared by the State Department of Planning and Economic Development does have information which relates to the Waiahole-Waikane area. Two (2) items in the Plan which relate to the area indicates that: (1) the rural/agricultural/open space nature of the area is desired by the existing residents; and (2) the Waiahole-Waikane-Hakipuu-Kualoa, Kaaawa, Kahana Valley, Punaluu, Hauula, Kahuku, Sunset Beach-Pupukea-Waimea areas are designated rural. The Plan continues to state that: "This regional settlement pattern designation calls for the conversion of existing urban land use districts to rural land use districts initially." Based on these two items identified in the Plan, this project is inconsistent with the Plan.

During the EIS review period, the U.S. Army Corps of Engineers, indicated that:

"Our studies in Kaneohe Bay indicate that shoreline development eliminates or restricts public access to the shoreline, and further results in the construction of shoreline protection or boating facilities adjacent to individual shoreside properties. The construction of these structures usually obstructs or impedes any pedestrian movement along the shore. The concern for the maintenance of public access and use of shoreline waters prompted the Corps to propose recommendations as part of the Kaneohe Bay Urban Water Resources Study that additional shoreline development in the northern third of the bay be restricted."

The Corps of Engineers along with several other agencies felt that impact on the shore waters is an important secondary impact, that the non-development

of this project is, in fact, the "first line of defense" against such shore line and shore waters impact. On the other hand, the plan does not* include any work within the coastal waters. If a resident in the future desires any piers, seawalls, or other such structures within the navigable waters, his individual proposal is subject to a Shoreline Management Permit, Conservation District Use Permit, a Department of the Army Permit, and other appropriate permits which are necessary prior to the implementation of that action. As pointed out by the Corps of Engineers letter: "Furthermore, public access along with other factors will be considered in any Department of the Army permit application review."

The project site is within the Shoreline Management Area as designated by the City and County of Honolulu (Ordinance 4529). The impact of the proposed project on the stated objectives of a shoreline protection district is covered in greater detail in Section XI.

During the EIS review period it was noted that "Development Plans for Oahu" are being developed by the Neighborhood Boards. These plans are not presently available, therefore was not reviewed for in the preparation of the Revised EIS.

* As stated in the Corps of Engineers letter of March 9, 1978: "Again, we note that your project does not appear to involve any construction in navigable waters and waters of the United States; thus, a Department of the Army permit for the development is not required."

V. THE PROBABLE IMPACT OF THE PROPOSED ACTION ON THE ENVIRONMENT

It is noted that this section on the probable impacts of the proposed project is a major concern in this EIS. And, it should be emphasized that, in general, people and their activities generate various magnitudes of environmental impact. Each individual produces and generates various forms of wastes and chemicals, ranging from discarded food packaging to vehicular emissions and applications of fertilizers to supplement desired plant growth. Land modifications, building of structures and infrastructures included in this and other similar projects also cause impact to the environment. Also, one must not forget that people's views, interactions, and economic inter-relationships affect the socioeconomic profile of a relatively small community such as Waiahole-Waikane.

This review of the impacts of the Waikane Subdivision acknowledges that many forms and different magnitudes of environmental impacts will occur, simply as a result of the significant increase in residential density on the project site. Because of the small size of the subdivision and the resources available, no attempt was made to quantitatively define the magnitude of impact. Instead, through evaluation of various environmental components, and based on past experience, the probable impact was determined and is discussed in the various sections below.

Additionally, the impacts of the proposed project were viewed primarily in two categories. The first would be the site and construction work impacts. These are considered to be short-term, temporary effects. Although temporary, the activities include land modification which is likely to generate noise, fugitive dust and potential soil erosion (resulting in water pollution) under conditions of heavy rainfall. The second category of impact can be termed "residential occupancy". This would be continual and, in all probability, have long-term effects. It involves people's activities and their individual and collective modifications to the environment to satisfy their needs and desires.

A. IMPACT ON THE SITE'S PHYSICAL GEOGRAPHY

As indicated, approximately 30,000 cubic yards of soil will be required for fill. Most of this fill will be used to cover a gully which occupies 15 to 20 percent of the project site. The fill for this gully is planned to be acquired from lands mauka of Kamehameha Highway (these lands are owned by the developer). In order to obtain this soil for fill, the developer must meet the City and County of Honolulu's Grading Ordinance and obtain the appropriate permits.

Comments from the EIS review period also indicated concern over the stability of the existing soils (e.g. organic content, structural support) since the site was previously filled (20+ years ago). Because there are those instances where specific "pockets" in the site may have undesirable soil conditions or steep embankments, a certified soils engineer will be retained to determine the suitability of the soils (both the soils to be removed and the soils to be used for fill).

Although the gully and other natural depressions in the site will be filled, the general topography of the site will be retained. The soils will be altered to create soil stability, however this is not felt to be adverse to the environment.

No impact on the climatic condition is anticipated due to the relatively small size of this project.

B. IMPACT ON FLORA AND FAUNA

Negligible impact on the flora on the site is expected. Although the vegetation will be removed during the land clearing stage, it is felt that the removal of these exotic plants, the weeds and grasses, and shrubs will not be significant. No rare or endangered species of flora will be affected. (The removal of the vegetation may increase erosion; however, this is discussed more appropriately under subsection C of this section, Drainage).

All existing trees on the site will be retained wherever possible. However, all trees that due to their location will impede grading will be cleared. It is recognized that these mature trees represent a valuable aesthetic addition to the property and wherever possible, they will be retained. The coconut trees along the shoreline area are proposed to be retained. Trees on individual lots will be retained subject to the ultimate purchaser's decision as to where he will place his structural improvements; he will then remove tree(s) at his discretion.

The effect on fauna and avifauna is not anticipated to be adverse. As identified previously, the fauna on the site is exotic, consisting of many "common" forms of fauna existing throughout the island. It is felt that during the land clearing and construction phase, the mammals (primarily rodents) and birds will seek refuge in adjacent open space areas (probably mauka of Kamehameha Highway). After construction, the site is likely to again be populated with birds since many of the birds in this area have previously adapted to a residential setting.

It is also noted that the residential use of the site would probably include the cultivation of various ornamental, flowering, and fruit plants which will compensate, to some degree, the vegetation removed. Additionally, street trees will be planted in accordance with the Department of Parks and Recreation's recommendation.

C. IMPACT ON ENVIRONMENTAL QUALITY

Drainage. Control of erosion during construction will be of principal concern. Silting basins will be constructed and all areas exposed for grading will either be mulched or grassed as outlined in the grading ordinance (City and County of Honolulu). These measures will minimize any short-term effects.

The water quality will be similar to the present runoff entering Kaneohe Bay from the adjacent existing subdivision. Because the site is part of a total 19.2-acre drainage area, it is not felt that the quantity or the chemical quality of the drainage runoff will be significantly altered. (For more information on runoff quantities refer to the Drainage Study/Map, Exhibit IV).

Water Quality. During the EIS review process concern was raised on the effect the grey water seepage wells may have on the near shore marine habitat in the project vicinity. There also was some concern because of "cesspool use by adjacent communities". It is our belief that the discharge of grey water into seepage wells will not have any adverse effects on the marine habitat. Grey water consists of discharges from showers, sinks, washing machines, dish-washers. It is well known that grey water does not present a bacteriological hazard in receiving waters. In this instance, the discharge of grey water into a geological formation will be subjected to partial filtration. This filtered grey water upon reaching the underground water strata (which has been contaminated by cesspool discharges) would improve rather than deteriorate the mixed water reaching the marine environment.

Since some grey water contains chlorine derivatives (from clothes and dish washing) this would have a beneficial effect through bacteriocidal action. In view of the above statements, we feel that the effects of grey water on the near shore habitat would be beneficial rather than deleterious.

Flooding. The drainage system is designed to eliminate any flooding of the area. All lots will be graded so that no ponding will occur on any of the lots. In the event the design storm is greatly exceeded, storm waters will be directed away from the houses and towards the street except at the extreme makai (bottom) portion of the site, where overflow is directed towards the ocean.

The project engineer has investigated the drainage system; it is his professional opinion that the proposed drainage system will adequately accommodate the drainage presently being received from the adjacent areas. The drainage patterns in the surrounding areas will not be affected. In addition, the drainage plans must meet the requirements of the Department of Public Works, City & County of Honolulu.

Flood Hazard Zone. Previously the EIS, under this section, stated:

"As earlier stated, a portion of the project site is within the flood hazard zone as identified in the Preliminary Flood Hazard Maps for Oahu. Because the site is at the periphery of the flood zone, (flooding caused by Hakipuu Stream) and the finished building pad grade for the house lots will be not less than 20 feet, structural damage is not anticipated.

The developer's retained engineering consultant will work with the Corps of Engineers and the Department of Land Utilization to determine if other flood prevention measures are necessary."

The project engineer, Yasuo Arakaki, has completed his investigation of the question of whether the floodflows of Hakipuu Stream will affect the subject property (as indicated by the Preliminary Flood Hazard Maps for Oahu). He states: "Preliminary investigation shows that subject property will not be affected by floodflows of Hakipuu Stream, resulting from design floodflows in accordance to City & County drainage standards." (The plan showing Hakipuu Stream drainage basin, and partial topography is shown as Exhibit V.)

Even if the project is outside of the flood hazard zone, the finished building pad grade for the house lots will be not less than 20 feet above mean sea level.

Tsunami Inundation Zone. The estimated 100-year tsunami runup for the project site, in accordance to the U.S. Army Corps of Engineers, is 4-feet above sea level (see Figure 3, page 5). Portions of lots 4, 5, 6, and 7 are within the 4-foot elevation (the designated tsunami inundation area). However, the building pads (location of the homes) are set above the 20-foot elevation; no homes are thus expected to be affected by tsunami.

Personal property may be affected by tsunami if that property is located within the 4-foot elevation. This may include plants, cooking structures (eg. barbeque grill), play apparatus, et cetera.

Air Quality. As previously described, the present air quality in Waikane was determined to be well within the State's ambient air quality standards.

The primary source of air pollution generated by the project will be in the form of vehicular emissions caused by the number of vehicular trips which residents will normally make. However, based on the relatively small number of homes (15) being considered and subsequently a small number of cars (assuming 2 cars per home or 30 cars), the amount of vehicular emissions generated is not anticipated to alter the present pollution levels. Additionally, the proposed project will not cause the ambient air quality to exceed the applicable State standards.

In regards to the temporary site preparation effects, it is felt that the frequent rainfall in the area will minimize fugitive dust; however, should a dry and windy condition prevail, the contractor will normally water down the site.

No detrimental temporary or long-term impact on the air quality is anticipated due to the implementation of this project.

Noise Considerations. Noise during the site preparation and construction of infrastructures can be anticipated. The noise generated by land clearing equipment may annoy or disturb the surrounding residential area. The noise, however, is felt to be unavoidable and is not expected to create a significant distraction to adjacent residents or their activities.

The existence of this new residential area on this site will create some noise generated by the normal home and home-related activities of the residents. Such likely activities include children playing, vehicles passing on adjoining streets, et cetera. These sounds are normally unintrusive to neighbors. Because these activities generate small volume of noise on a periodic basis, it is felt that these sounds will be within the acceptable residential noise levels.

Additionally, it is noted that the recently approved Public Health Regulations, Chapter 44B, "Community Noise Control for Oahu," sets the allowable noise levels for residential districts and construction activities.

Aesthetics. Presently there is no view of the ocean front along Kamehameha Highway except for a narrow dirt roadway from which one can barely see the site's shoreline from the top of the roadway. The dense foliage constitutes the present view; this view will be modified to home frontages. The view from Kualoa Regional Park and from the waters of Kaneohe Bay towards the proposed development will be altered. This will result in the "loss of open space" in that regard.

The view planes from the homes (to be built on the project site) to the ocean are expected to be an aesthetic amenity which a majority of the homeowners and their visitors can enjoy.

D. IMPACT ON INFRASTRUCTURES AND SUPPORT SERVICES

Potable Water Supply. Using a higher than average water consumption figure, it is anticipated that an average family of four (4) will consume approximately 600 gallons per day (gpd) making the total water consumption for the 15 homes 9,000 gpd. (It should be noted that the 600 gpd per household would also be reduced because of the use of the generic toilet systems which do not utilize water.)

The Board of Water Supply, by their letter of March 8, 1978, has provided the following comments on the availability of water:

- "1. Water will be available for this development. Water will be from the existing 12-inch main along Kam Highway.
2. The developer will be required to pay a pro rata share of \$500/unit for source, storage and transmission facilities that are needed to provide water fro his project. The developer should confirm the pro rata share cost with us when he is ready to start his project."

The project will not affect present and future water sources as identified in the Board of Water Supply's 2020 Plan.

Sewage Collection and Disposal. Sewage collection and disposal is of concern to the State Department of Health, especially as it relates to Chapter 38, Public Health Regulations, Sewage Treatment and Disposal Systems. In an original plot plan configuration of 20 lots, the concept of seepage pits or cesspools had been proposed; this was rejected by the Department of Health.

The present proposal calls for 15 lots utilizing a waterless, non-discharge toilet system (there are several commercial systems available). These generic toilet systems will be used to accommodate the "black water" or domestic sewage discharge from the households. These waterless toilet systems involve the use of closed system tank and a water-like mineral oil which is recycled for repeated use as the vehicle to carry the human waste from the toilets to the tank container. Periodic pumpout of these tanks and transport of the sewage solids to secondary treatment plants for adequate treatment and disposal should adequately meet Chapter 38 requirements.

The vendors for these innovative waste disposal systems will provide the periodic pumpout and disposal of the "black water" via municipal sewage treatment plants (in accordance with the State Department of Health's rules and

regulations). The annual maintenance of the individual residential unit(s) is the responsibility of each respective residence. Correspondence with the various firms selling these toilet systems indicate that an annual operating cost of under \$100 is realistic.

The remaining domestic waste discharge or "grey water" is proposed for disposal via conventional seepage pits. The review and approval of this process will be subject to review and acceptance by the State Department of Health and Board of Water Supply. As mentioned earlier, percolation tests have been performed at two locations on the project site (lots nos. 4 and 13). These tests have indicated that, "...even a 4 inch disposal well can safely absorb the quantity of grey water that may be generated by a home on one of these lots." (For further information refer to Exhibit III and page 63.)

Finally, Exhibit I is provided to indicate that all purchasers of these fee simple lots must comply with applicable regulations covering private sewage treatment and disposal until such time that government sewage lines are available to the project site. At that time, the project would be required to connect their individual systems to the City and County sewer system.

During the EIS review period, comments on the statement in the covenant which reads: "This covenant will run with the land and shall be binding on all parties and all persons claiming under them for a period of ten (10) years from the date these covenants are recorded or until such time a City and County sewer system is available in the area, whichever occurs first..." were received. The concern here was that homeowners may abandon the use of these toilet systems at the end of a 10-year period and use cesspools if a sewer system is unavailable. There was no intention to imply that these toilets would be removed or not used after a 10 year period. The mandate that the lot owners use these "self-contained flush toilet" for 10 years was based on our understanding that the variance from Chapter 38 (which must be obtained from the Department of Health) is applicable for a 10-year period and after that period, it must be renewed. An extension of that variance must be obtained by the homeowner if sewer lines are not available at the end of the initial 10-year variance period.

Another concern brought up during the EIS review period is the possibility of the toilet system failing. In response to this concern we noted that representatives of the toilet systems' manufacturers have informed us that the maintenance of the toilets include emergency services (much like conventional plumbing services when cesspools fail).

Solid Waste Collection and Disposal. It is anticipated that the Refuse Collection and Disposal Division, Department of Public Works, City & County of Honolulu, will provide its regular, twice a week, services to the Waikane Subdivision, when occupied.

Electricity and Telephone. To service the proposed subdivision, connections to the existing overhead electrical power and telephone lines along Kamehameha Highway will be installed. All connections and installations made will be in accordance with the standard codes and regulations of the respective utility company. No significant or adverse impact on utilities is foreseen.

Public Schools. The State Department of Education (DOE) was contacted during the consultation period for comments. Their response (dated January 18, 1978) is included in Section XIII, page 37. The enrollment increase expected is rela-

tively small and can be accommodated with the existing land planned school facilities.

Recreational Facilities. Because the subdivision is not located in close proximity (within 1 mile) to a public park, it is likely that children will confine their recreational activities to their own yard areas. Other court oriented or playground activities can be found in community parks at Kaneohe and the Temple Valley area, and it is anticipated that during the holidays and weekends a few residents may utilize these areas. However, with the small number of residents anticipated (4.0 persons per household or a total of 60 people) no stress is anticipated on the existing recreational lands and facilities.

Due to the space limitations of the proposed project site, the developer has advised the Department of Parks and Recreation that he will comply with Ordinance No. 4611 by monetary compensation rather than dedication of lands for park use.

The access to the shoreline would also be convenient for residents of the project who own sailboats or small boats. This small boats could be anchored off-shore in the relatively shallow waters.

Secondary impact, in form of restricting recreational uses and public access to the shoreline and shore water was discussed on pages 22a and 22b.

Public Access. Public access to the shoreline will be available via the 12+ foot public right-of-way to the shoreline as shown in Figure 3, page 5.

During the EIS review period, several concerns/viewpoints were provided on public access. These concerns are addressed below:

1. The Department of Parks and Recreation noted concern over the "possible erosion impacts that a drainage system and discharge apron would have on the right-of-way if it were constructed adjacent to the easement."

Upon review of this comment, the project engineer, Mr. Yasuo Arakaki, responded that:

"The preliminary subdivision plat has been revised to eliminate the objectionable features, as found by Mr. Fukuda, in the original subdivision plat.

The discharge apron has been relocated mauka, to provide a storm water dispersion area consisting of loose rubble paving.

The side of the access easement adjacent to the stormwater dispersion area will be provided with a wall, from the discharge apron to the 40-ft. shoreline set-back line.

Grading in the vicinity of the discharge apron has been revised accordingly.

Estimated stormwater runoff velocity thru the discharge apron, without baffles, is 7.5 fps. Water flow depth approximated at 0.80 Ft.

Installation of baffles within the apron is expected to decrease the flow velocity and correspondingly increase the water depth.

It is expected that the runoff water after leaving the loose rubble paving will have a flow velocity such as not to cause serious erosion of the beach area."

2. The Kahaluu Neighborhood Board (No. 29) noted that "public access to the beach within this development will be seriously restricted to a narrow lane which brave and adventuresome people will have to negotiate, unembarrassed enough to go down a deadend private road, with watchdogs probably barking at them."

This comment has two errors: (1) the public access will be 12+ feet in width and we do not find this to be "narrow"; and (2) the proposed roadway for the subdivision is planned to be dedicated to the City, thus it will be a public road. Furthermore, the public access is reserved for that purpose and it would be the attitude of the individual which will determine their use of the access.

It is recognized that the entire frontage of the site is now available for people to utilize as a "public access." With the development of the project, access will be confined to the 12+ foot public right-of-way. No parking for users of this right-of-way will be provided although on-street parking will probably be available.

Fire and Police Protection Services. Both fire and police protection services are available to the project site. There will be no additional manpower requirements to serve this project. Fire protection service is considered to be inadequate because of the distance of the nearest fire station and time delay in answering the fire alarm. The response from the Police Department (January 4, 1978, page 44) on the Environmental Assessment/EIS Preparation Notice stated:

"The proposed development of a 5-acre parcel in Waikane has been reviewed by this department. The project would create a 15-lot subdivision. Upon completion of the project, there would be an approximate increase of 51 residents in the area. No additional manpower would be needed. . ."

"There are no immediate plans for additional police facilities in the area. Our present station in Kaneohe would serve the people in the planned development."

Fire protection services are available primarily on an emergency basis (i.e. fire calls). The 15 additional homes will not improve the present inadequate fire protection service.

Retail and Commercial Facilities. The future residents of the subdivision are not expected to alter purchasing patterns or volumes of sales to local stores in the area. Like other areas on Oahu, it is probable that large purchases will be from shopping centers and complexes rather than the smaller stores along Kamehameha Highway. It is also emphasized that the purchasing power of about 60 people will not significantly alter the present volume of sales in the Kaneohe or Temple Valley shopping areas.

E. IMPACT ON HIGHWAYS AND STREETS

It is anticipated that when the homes are built, there will be an average of two (2) cars per home. If seven (7) trips are generated by each car, a total of 210 trips will be generated daily. (The number of trips are felt to be on the high side; however, in considering the traffic impact, we feel that the use of maximum numbers are preferred). If we further assume that 10% of the total daily traffic generated will be generated during the peak hour, then 21 vehicles will be added to the total peak hour volume along Kamehameha Highway. This is an insignificant number and will not adversely affect the existing highway facilities.

During the EIS review period, several community oriented organizations commented on the need to further substantiate that the existing Kamehameha Highway will not be significantly affected.

Henry Au, a traffic consultant has advised us that:

"Kamehameha Highway under its present condition as a two-way, two-lane highway has a capacity of 900 vehicles per hour in one direction and 1,350 for both directions of travel for level of Service C. Since the 1976 peak hour volume is only 581 vehicles for both directions of travel, Kamehameha Highway will have sufficient capacity to meet the vehicles generated by this project."

The present plans for the roadway have been drawn up to meet with City standards. It is the intention of the developer to dedicate the road upon completion.

By letter, dated November 11, 1975, the State Department of Transportation accepted the subdivision layout with two intersections on Kamehameha Highway. Their previous letter (September 15, 1975) stated that:

"We do not anticipate any measureable impact on our transportation facilities. The area selected for development was considered developable under the existing general plan and therefore, was considered as contributing to the vehicular traffic of this area."

Acceptance of the subdivision layout was with the understanding that "all lots abutting Kamehameha Highway must be provided off the subdivision roadway ..."

The retained engineer for the project has indicated that lots No. 13, 14, and 15 (see Figure 3, page 5) will need to have direct access to Kamehameha Highway under the present plans.

The engineer has also indicated that he will discuss and coordinate final plans for the streets and access with the Department of Transportation Services, City and County of Honolulu and the State Department of Transportation, Land Transportation Facilities Division. As indicated in the State Department of Transportation's letter of February 24, 1978, construction plans, when developed, for any work within Kamehameha Highway rights-of-way will be submitted for approval to the Land Transportation Facilities Division. A permit would also be required for these work items.

At this time, bus ridership has not been determined; however, we feel that bus ridership will not increase significantly and should not entail more than

20 trips per day.

Additionally, the Police Department has stated (letter dated January 4, 1978):

"The completion of this project would bring approximately 30 additional vehicles into the area. The present roadways and traffic control devices are adequate for the anticipated increase in traffic flow."

F. IMPACT ON HISTORICAL AND ARCHAEOLOGICAL SITES

As previously discussed, there are no historical or archaeological sites within the project area. Therefore, no impact is foreseen in this category.

G. IMPACT ON SOCIO-ECONOMIC ASPECTS

The Waikane subdivision will have the following social impacts:

1. It will increase the present population of the Waiahole-Waikane area from its present 423 (1974 population) to approximately 483. This assumes that there will be 4.0 persons per household for the proposed project. This increase constitutes approximately 14%.
2. The number of households would increase from 95 (1974) to 110. This is an increase of 13.6%
3. More importantly, these new residents will likely follow "different" lifestyles from that of the Waiahole-Waikane Valley. Their lifestyles will probably be more "urban" rather than the "rural-agricultural" character of the valley (Waiahole-Waikane). However, this does not mean nor is it foreseen that the proposed project would alter the existing lifestyles in the Waiahole-Waikane valleys. Rather a co-existence of these two lifestyles is foreseen (especially since their distances are not considered within walking distance).
4. It is felt that the makai side of Kamehameha Highway from Kahaluu to Laie is, in many cases, different from the uses and character of the mauka side of Kamehameha Highway. Beach front homes used as a second or vacation home are noted in this area. Families of larger income, desiring beach front views and other amenities but employed in downtown Honolulu or other parts of urban Oahu own many of these newer, more expensive homes. Therefore, it is not felt that an altogether "unique" or detrimental impact will be created by the proposed Waikane Subdivision. The subdivision would be regarded as beach front homes associated primarily with other clusters of such characterized homes in the Kahaluu to Laie area rather than the mauka valley region.

Economic impact will include the additional property taxes for the various residential lots. Also purchases in the area is expected to slightly increase. Governmental expenditures in form of various services: public schools, refuse collection and disposal, and road maintenance can be expected. (These would normally be expended in other proposed subdivisions). Families purchasing the completed lots or homes will probably have jobs and no significant impact on employment patterns are foreseen.

During the EIS review period, several concerns relating to lifestyle compatibility and economic "benefits" were raised. For the purpose of considering these viewpoints, their comments are provided below.

1. The Neighborhood Board No. 29 (Kahaluu) stated that:

"The incompatibility of such a high-priced enclave with a rural, agricultural neighborhood of low-income people, is of major proportion."

(No elaboration on this statement is provided.)

2. Relating to the potential that the proposed project may result in the increased assessment of land, the Neighborhood Board noted that this was an adverse impact since this would result in increased property taxes for landowners (who would have no intentions of selling or using the equity in their land).
3. The Waiahole-Waikane Community Association pointed out that there may be speculation of the lands, especially in light of the potential development of the mauka (Waikane Valley) lands.
4. Several community oriented groups noted that the project constituted a potential for further urbanization of the area. Based on comments received these groups felt that this project is a "toe-in-the-door" for future urban projects. (It was noted in the response back to these agencies that this project is not separate from any project in the area, and that the apparent concern is due to the fact that Windward Partners is the landowner for both this 5 acre parcel and the much larger property consisting of a most of Waikane Valley.)

VI. ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

At this time, no major or long term adverse environmental impacts caused by this proposed action are foreseen. It is felt that impact on air quality and noise will be within the established air and noise standards. The water quality of Kaneohe Bay (which at times exceeds the Class AA Standards) will not be significantly altered by this project. Public services, utilities and infrastructures can accommodate the needs of the subdivision without curtailment or loss of effectiveness to residents presently serviced. Although a population increase will occur, the social and economic lifestyles presently pursued by residents in Waiahole-Waikane Valleys will be unaffected.

VII. ALTERNATIVES TO THE PROPOSED ACTION

The following alternatives were considered for the proposed project:

1. Creating 20 lots within the 5 acre site. This alternative was earlier (prior to that the creation of 30 lots) proposed. However, through various governmental reviews and standards, the number of lots was felt to have a greater effect on the physical environment and public facilities. Based on this initial review and evaluation, the developer decreased the number of lots (to 15) and doing this, enlarged the size of these house lots.

2. Creating less house lots within the 5 acre site. If this alternative was selected, the costs per lot would be extremely high and potential owners would probably need upper middle to high incomes to purchase these lots. Presently, the assessed value of the site is \$375,000. The creation of a 10 lot subdivision would result in a per lot sales price of about \$40,000 with the planned improvements.

The benefits which would be offered by this alternative would include the compatibility of this residential area to that on the adjacent Kahuku side where the lots are larger and more expensive. These beach front homes were hidden from the highway and had access along private roads.

3. No Action. No action is an alternative which must be considered in the review of alternatives. In reviewing this alternative, it was felt that the following benefits would occur:

- a. the future options of the land would be kept open;
- b. the water quality impact would not be changed because the land would remain in open space;
- c. open space offered by this site can be preserved; and
- d. no governmental expenditures (direct or indirect) need be expended.

The principal non-benefit of this alternative is that it would not be within its designated and zoned use, thus the highest and best use of the land would not be pursued. The owners must continue to pay for the land at a higher rate with no income being realized. All the objectives of the project would not be recognized.

4. Agricultural use of the land. The agricultural use of the land was not pursued because of its present residential zoning. In any event, the topography and soils of the site limit the cultivation capabilities of the site. Additionally, the farmer must produce crops which would generate enough monies to pay the taxes on the assessed value (\$375,000) of this site, which would be very difficult, if not impossible.

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

Both the short-term and long-term benefits derived from this proposed residential subdivision are anticipated to be the same. Economically, the property will increase in value, therefore, adding to the real property tax to the County. Jobs, although short-term, will be created for the construction industry.

In addition to these economic benefits, the project will provide housing and property investments to individuals who purchase the lots. The land use is not expected to infringe on other uses in the adjacent mauka areas (e.g. agriculture, conservation). The appearance of the land will be permanently altered from its present open space to a residential area, however, appropriate landscaping and individual yard plantings are expected to retain much of the more commonly found cultured plants.

The use of the land for this purpose, does, however, foreclose the land's future options. It is rare to downgrade the use of a property once the infrastructures are built. (The investment in these improvements will result in increased property value, and therefore, the withdrawing the land from an urban use has limited economic appeal.) Subsequently, the land is committed to this or a higher use.

IX. MITIGATION MEASURES PROPOSED TO MINIMIZE IMPACT

Based on the anticipated impacts addressed in Section V, it is felt that the following measures will be taken to minimize detrimental environmental effects.

1. The retained contractor will be responsible for the appropriate disposal of the accumulated litter and debris. The contractor will transport and dispose of this refuse at an approved landfill.
2. No mass grading will be done.
3. Sewage treatment and disposal plans (i.e. generic toilet systems) will be reviewed and approved by the State Department of Health prior to installation.
4. Disposal of "grey" water via seepage pits must be reviewed and found acceptable to the Board of Water Supply and the State Department of Health.

The Department of Health, via letter dated March 13, 1978, has stated that: "The recent percolation tests conducted on Lot No. 13 and Lot No. 4 of the subject property did indicate that grey water generated by a home on one of those lots could be safely absorbed by disposal wells constructed at the boring sites."

We note that percolation tests for the remaining thirteen (13) lots must be conducted by the lot owner to determine if the percolation rates for that lot is acceptable. This would be done at the time of Building Permit review, after the issuance of a Shoreline Management Permit and a Variance to Chapter 38.

The Board of Water Supply has stated that they have no objections to the use of seepage pits.

5. During construction, silting basins will be constructed to minimize pollution. Additionally, mulching will be performed to further curtail erosion after grading. Street trees, other yard plants, et cetera, will further reduce erosion during the long-term occupancy of the site.

Additionally, other applicable environmental protection laws, rules and regulations as required by the State and County will be complied with. Working conditions will adhere to the Federal OSHA (Occupational Safety and Health Act) regulations.

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

It is anticipated that the land clearing and creation of 15 house lots would commit the necessary infrastructure materials and labor. The materials could possibly be reused. However, at the present time and state of our economy, it is felt that the reuse of these materials would be restricted. The labor utilized to plan, clear, and construct the infrastructures on the site will be irretrievable.

Additionally, if these units are constructed, there will be, economically, a commitment to utilize these units for a residential or higher urban use in the future.

The shoreline area does not have sand beaches (but is a rocky type beach area); the rock and coral will not be excavated and/or removed.

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

Of primary concern here is the stated City policy relating to the shoreline protection district. Ordinance No. 4529 sets forth the Special Management Policy (Section 3), as well as Review Guidelines (Section 4) for the Council in the review of developments proposed in the special management area (shoreline). Because this project lies within the shoreline protection district and this EIS is being prepared as part of the set requirements under Ordinance 4529, a careful evaluation was made to determine if the project was consistent with the established policy and review guidelines for the shoreline areas.

It was determined that the project is consistent with the policy and guidelines as stated in Ordinance 4529, due to the following reasons:

1. There are no competitive uses of the site for a recreational, scenic, educational or scientific use.
2. No adverse impact or depletion of a natural resource is foreseen.
3. A public right-of-way to the beach front is being provided.
4. The sewage treatment and disposal system must be approved by the Department of Health prior to the implementation of the proposed project.
5. Erosion will be curtailed by silting basins during construction and later the site will be mulched and vegetation planted to minimize erosion. No flooding to the project site and adjacent areas is anticipated.
6. The project will not involve any dredging, filling or other alterations to the Bay.
7. The development will not detract from the line of sight toward the sea from the State Highway. Presently this line of sight is not available because of the topography and vegetation.
8. It is not anticipated that the project would cause major change to the drainage runoff quality.

XII. ORGANIZATIONS AND PERSONS CONSULTED

The following governmental and private agencies were contacted by correspondence (dated December 22, 1977) for comments on the Environmental Assessment/EIS Preparation Notice on the proposed Waikane Subdivision:

City & County of Honolulu	Fire Department Department of General Planning Department of Parks and Recreation Board of Water Supply Police Department Department of Public Works Department of Transportation Services Department of Land Utilization, Land Design Branch Neighborhood Board No. 29
State of Hawaii	Department of Planning and Economic Development Department of Land and Natural Resources Department of Health Department of Education Office of Environmental Quality Control Department of Transportation Department of Agriculture Department of Social Services and Housing Department of Accounting and General Services
University of Hawaii	Hawaii Environmental Simulation Lab Environmental Center Water Resources Research Center
Federal	U.S. Army Corps of Engineers U.S. Soil Conservation Service U.S. Fish and Wildlife Service
Private Associations	Windward Action Group and Resource Center Council of Presidents Life of the Land Shoreline Protection Alliance Kahaluu Coalition Sierra Club Hawaii Chapter Waiahole-Waikane Community Windward Regional Council Hakapuu Kualoa Community Association Kaalaea View Acres Association Ahuimanu Homeowners Association

During the EIS consultation period, two organizations requested copies of the Preparation Notice. The American Lung Association of Hawaii and the First Hawaiian Bank (request for a copy only). The American Lung Association later sent in a letter indicating that they have no comments to provide at this time.

XIII. REPRODUCTION OF COMMENTS AND RESPONSES MADE
DURING THE CONSULTATION PROCESS

Pages 39 through 62 are copies of the comments received from the twenty (20) agencies during the consultation period prior to preparing the EIS. After each comment, the written response sent back to the agency (by Environmental Communications, Inc.) is provided. Those agencies, indicated by an asterisk (*) provided responses indicating no comments (at this time) would be provided. Therefore, no response were made to these agencies.

The agencies commenting and the order in which they appear in this section are provided below.

<u>Agency</u>	<u>Date of Letter</u>
Department of Public Works, C & C of Honolulu ¹	December 29, 1977
*Department of General Planning, C & C of Honolulu	January 4, 1978
Police Department, C & C of Honolulu	January 4, 1978
*Department of Social Services and Housing, State of Hawaii	January 4, 1978
U.S. Army Corps of Engineers	January 9, 1978
Fire Department, C & C of Honolulu	January 11, 1978
Department of Transportation, State of Hawaii	January 11, 1978
Shoreline Protection Alliance	January 12, 1978
Department of Planning and Economic Development, State of Hawaii	January 16, 1978
Department of Health, State of Hawaii	January 17, 1978
Department of Parks and Recreation, C & C of Honolulu	January 17, 1978
Department of Transportation Services, C & C of Honolulu	January 18, 1978
Department of Education, State of Hawaii	January 18, 1978
*Soil Conservation Service, U.S. Department of Agriculture	January 19, 1978
*Department of Agriculture, State of Hawaii	January 23, 1978
*American Lung Association of Hawaii	January 24, 1978

¹ Reference in their letter of December 29, 1977 was made to a prior letter dated January 13, 1976. Therefore, the latter letter was responded to.

Agency

Board of Water Supply, C & C of Honolulu

Neighborhood Board No. 29

Life of the Land (Position Statement)

Fish and Wildlife Service, U.S. Department of the
Interior

Date of Letter

January 25, 1978

January 25, 1978

January 27, 1978¹

January 27, 1978

¹ This is the date the letter was received. The correspondence was not dated.

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



FRANK E. PASH
MAYOR

WALLACE MIYAHIRA
DIRECTOR AND CHIEF ENGINEER

ENV 77-575

December 29, 1977

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

Dear Mr. Rodriguez:

Subject: Environmental Assessment/Determination
Residential Subdivision,
Waikane, Oahu (TKR: 4-9-03: 7 to 9)

We do not have any additional comments to those previously
made in our letter of January 13, 1976.

Very truly yours,


WALLACE MIYAHIRA
Director and Chief Engineer

cc: Div. of Engineering

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



FRANK E. PASH
MAYOR

KAZU HAYASHIDA
DIRECTOR AND CHIEF ENGINEER

ENV 76-41

January 13, 1976

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

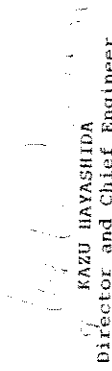
Dear Mr. Rodriguez:

Subject: Environmental Impact Statement
Preparation for Waikane Subdivision,
Waikane, Oahu
(UMTR dated January 6, 1976)

We have reviewed the environmental assessment for the proposed
subdivision and have the following comments.

1. Municipal sewers are not planned in the project area in the
near foreseeable future. Since Kaneohe Bay is a water
sensitive area, the EIS should discuss the proposed waste-
water treatment and disposal systems employed to serve the
subdivision adequately. Such systems have to be in compliance
with Chapter 38, PHR, State Department of Health (under
revision).
2. Local drainage problems should be discussed in the EIS.
Drainage plans should be coordinated with the Drainage
Section of the Division of Engineering.

Very truly yours,


KAZU HAYASHIDA
Director and Chief Engineer

cc: Div. of Sewers
Div. of Engineering
Dept. of Land Utilization

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



RAMON DURAN
ACTING CHIEF PLANNING OFFICER

DGP12/77-3560 (WL)

F. J. RODRIGUEZ,
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

February 1, 1978

Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

January 4, 1978

ATTENTION: Mr. Wallace Miyahira
Director and Chief Engineer

Dear Mr. Miyahira:

SUBJECT: Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu
Tax Map Key 4-8-03: 7 through 9


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

Dear Mr. Rodriguez:

This is in response to your letter regarding an
environmental assessment for a residential subdivision
in Waikane, Oahu.

We do not have any comments regarding this matter at this
time.

Thank you for providing us the opportunity to review and
comment on the environmental assessment.

Sincerely,

RAMON DURAN
Acting Chief Planning Officer


RD: fnt

Thank you for your response to our circulated EIS Preparation Notice for
the above mentioned project.

In your comments you indicated concern about the proposed waste water
treatment and disposal system. The developer plans to require that homes
(to be built by the lot purchaser) install waterless, non-discharge toilets.
These toilet systems are self-contained and utilizes mineral oil which is
periodically replaced. Thus, no "black" water will be discharged from this
project. This toilet system must be approved by the State Department of
Health. Furthermore, the remaining waste water (i.e. rinse water, dish water,
wash water) called "grey" water are planned to be disposed of through seepage
pits. This method of disposal and the location of these seepage pits must be
approved by the Board of Water Supply and the State Department of Health.

Relating to your second comment, we note that the retained engineering
consultant will be coordinating the project's drainage plans with the drainage
section of your Department's Division of Engineering. Additionally, we will
discuss drainage concerns in the Environmental Impact Statement.

Very truly yours,


F. J. Rodriguez

FJR:dhr

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII 96814

FRANK P. FASI
MAJOR
RICHARD K. SHARPLESS
MANAGING DIRECTOR



FRANCIS KEALA
CHIEF
EUGENE FLETCHER
DEPUTY CHIEF



F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

OUR REFERENCE DT-JS
YOUR REFERENCE

January 4, 1978

February 1, 1978

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

Mr. Francis Keala
Chief of Police
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, Hawaii 96814

Dear Mr. Keala:

Dear Mr. Rodriguez:

SUBJECT: Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu
Tax Map Key 4-8-03: 7 through 9

Subject: Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu
Tax Map Key 4-8-03: 7 through 9

The proposed development of a 5-acre parcel in Waikane has been reviewed by this department. The project would create a 15-lot subdivision. Upon completion of the project, there would be an approximate increase of 51 residents in the area. No additional manpower would be needed.

The completion of this project would bring approximately 30 additional vehicles into the area. The present roadways and traffic control devices are adequate for the anticipated increase in traffic flow.

There are no immediate plans for additional police facilities in the area. Our present station in Kaneohe would serve the people in the planned development.

We hope this information will be of assistance to you. If you have any questions, please contact the Research and Development Division at 955-8121.

Very truly yours,

Francis Keala
FRANCIS KEALA
Chief of Police

Very truly yours,

F. J. Rodriguez
F. J. Rodriguez

We have received your letter dated January 4, 1978 regarding the above Indicated Environmental Assessment/EIS Preparation Notice. The information provided to us relating to police services will be included in the Environmental Impact Statement.
Thank you for reviewing and responding to this Environmental Assessment.

FJR:dhe

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners

1-10-78

GEORGE W. ARIOYISHI
GOVERNOR



ANDREW I. CHANG
DIRECTOR OF SOCIAL SERVICES & HOUSING

STATE OF HAWAII
DEPARTMENT OF SOCIAL SERVICES AND HOUSING

January 4, 1978

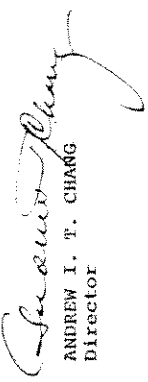
Mr. F. J. Rodriguez, President
Environmental Communications Inc.
225 Queen Street
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Re: Environmental Assessment/Preparation
Notice for Waikane Subdivision

We have reviewed the EIS Preparation Notice for Residential Subdivision, Waikane and do not have any objections to the project. We thank you for the opportunity to comment.

Sincerely,


ANDREW I. T. CHANG
Director



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
 BUILDING 230
 FT SHAFTER HAWAII 96858

WDDED-PV

9 January 1978

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

Bear Mr. Rodriguez,

We have reviewed your notice of intent to prepare an environmental statement for the Waikane Subdivision. We note that the subdivision is located within the flood hazard zone for Hakipuu Stream and recommend that the project include methods to reduce or prevent flood damages or losses to the subdivision and potential residents and homeowners.

The estimated 100-year tsunami runup for the project site is 4 feet above mean sea level. You are advised that any structures such as piers, revetments or storm drain outlets to be constructed or any fill material to be placed in the water will require Department of the Army permits. Environmental information specific to the project site must be submitted with the permit applications.

Thank you for an opportunity to review your environmental statement preparation notice.

Sincerely yours,

F. M. Pender
 F. M. PENDER
 Colonel, Corps of Engineers
 District Engineer

1 Inc1
 EIS Preparation Notice

Copy Furnished:

Mr. George S. Moriguchi
 Director of Land Utilization
 City and County of Honolulu
 650 South King Street
 Honolulu, HI 96813

ENVIRONMENTAL COMMUNICATIONS INC.

February 1, 1978

F. J. RODRIGUEZ,
 PRESIDENT

Colonel F. M. Pender
 Corps of Engineers
 U.S. Army Engineer District, Honolulu
 Building 230
 Fort Shafter, Hawaii 96858
 Dear Colonel Pender:

**SUBJECT: Environmental Assessment/Determination
 Residential Subdivision, Waikane, Oahu
 Tax Map Key 4-8-03: 7 through 9**

Thank you very much for your letter dated January 9, 1978 on the proposed residential subdivision at Waikane, Oahu.

Our review of the Preliminary Flood Hazard Maps for Oahu shows that a 20 to 30 percent portion of the project site (northeastern corner of the site) is subject to flooding from Hakipuu Stream (100-year flood event). Because this site is at the periphery of the flood hazard zone, the retained engineer feels that flooding would be very infrequent and minor. Additionally, the homes will be set back at an elevation at or higher than 20 feet above sea level. However, the engineer will comply with the appropriate review/approval procedures to insure protection of the homes from flooding. This review and approval process will be conducted with the Department of Land Utilization who will provide the latest flood hazard maps for detailed review.

The comment in your letter relative to the 100-year tsunami runup have been reviewed by the project's retained engineering consultant, Mr. Y. Arakaki, who has advised that:

"Proposed subdivision lots fronting the ocean will have finish grades at and over the 20 foot elevation. The toe of slope of said lots will be at elevations ranging from 4 feet to 6 feet, and the distance from the highwater mark will range from 50 feet to 230 feet. Because of the relatively great distance of the toe of slope of the proposed lots from the shoreline, structural damage and flooding of the subdivision from storm waves is not anticipated."

We appreciate your comments and please advise in the review of the Environmental Impact Statement if we have omitted data pertinent to your agency's concern.

Very truly yours,

F. J. Rodriguez
 F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
 Office of Environmental Quality Control
 Windward Partners

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

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



FRANK F. FADU
MAYOR

G. R. AIU
CHIEF

F. J. RODRIGUEZ,
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

January 11, 1978

February 1, 1978

Mr. F. R. Rodrigues
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

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

SUBJECT: Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu
Tax Map Key: 4-8-03: 7 through 9

SUBJECT: Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu
Tax Map Key: 4-8-03: 7 through 9

4 4

We wish to inform you that fire protection services for subject project are available from Kahaluu Fire Station which is located approximately five miles therefrom with a response time of approximately eight minutes. Supportive services are available from Kaaawa Fire Station which is also approximately five miles away with a response time of eight minutes. In accordance with the fire grading schedule established by the Insurance Services Office, fire protection would be considered inadequate since the project is more than four miles from the closest fire station.

Included in our capital improvement program is a proposed fire station in Kuaioa Park. When this station is completed fire protection services at that time may be deemed adequate. No projection date has been made for construction which is predicated on the kind of development that will be approved and completed.

We strongly recommend that all fire hydrants conform to standards established by the Board of Water Supply for proposed subdivisions.

Should you need further information, please contact Battalion Chief John Ferreira at 955-8304.

Very truly yours,

Boniface K. Aiu
BONIFACE K. AIU
Fire Chief

Dear Mr. Aiu:

Thank you for your letter of January 11, 1978 regarding the above indicated Environmental Assessment/EIS Preparation Notice. Thank you for the information provided relating to the available fire protection services in this area. We will include this information in the Environmental Impact Statement. Additionally, we note that the engineer will provide all fire hydrants to comply with the appropriate standards.

Very truly yours,

F. J. Rodriguez
F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners

GEORGE R. ARIMISHI
SUPPORTER



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
405 PUNAHOU STREET
HONOLULU, HAWAII 96813

January 11, 1978

IN REPLY REFER TO:
STP 8.4648

F. ALVEY WRIGHT
DIRECTOR
DEPT. OF TRANSPORTATION
WALEALE ALPA
RYOICHI HIGASHIYAMA
DORGLAS S. BARNABO
CHARLES O. SWANSON

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

February 1, 1978

Hr. Ryokichi Higashiyama, Ph.D.
Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

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

Dear Mr. Higashiyama:

SUBJECT: Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu
Tax Map Key 4-8-03: 7 through 9

Subject: Environmental Assessment
Residential Subdivision, Waikane, Oahu
TMK: 4-8-03: 7-9

In reference to the above-captioned subdivision, Kamehameha Highway will eventually be widened from an existing 2-lane facility to a 4-lane divided facility. However, we do not have any plans or funds at this time for the improvement.

Thank you for your letter of January 11, 1978 regarding the above indicated Environmental Assessment/EIS Preparation Notice. We have included this information on the future widening of Kamehameha Highway in the Environmental Impact Statement. We note that the amount of traffic to be generated (30 cars - 210 trips) will not significantly add to the peak hour traffic period. Therefore, we do not anticipate that this project will significantly or adversely affect the present traffic conditions on Kamehameha Highway.

Sincerely,
F. J. Rodriguez
F. J. RODRIGUEZ, Ph.D.
Director

Very truly yours,
F. J. Rodriguez
F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners

JAN 25 1978

P. O. BOX 4247
HONOLULU, HAWAII 96813
TEL: 523-2400



**SHORELINE
PROTECTION
ALLIANCE**

January 12, 1978

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

Re: EIS for Waikane Subdivision

Dear Mr. Rodriguez:

The Shoreline Protection Alliance would like to be a consulted party on the EIS being prepared for a subdivision at IMK 4-8-03: 7, 8, 9.

We have several concerns which we would like to see addressed by the EIS. They are as follows:

- 1) What are the cost and operating characteristics of the waterless toilets that will be used in the subdivision? What are the cost and operating characteristics of the system to be used to handle wastewater from the subdivision?
We are not asking these questions strictly for the purpose of determining the environmental impacts of the proposed subdivision. Instead, we are interested in whether the subdivision will be pioneering a cost-effective alternative to installation of flush toilets, sewer hookups, secondary sewage treatment plants, and miles-long sewage outfall pipes. In short, we are concerned about the cost of providing sewerage treatment to parts of the State that do not have sewers. And we do not like the option of cesspools.
If you can stretch your analysis to the point of comparing the installation and operating cost of wastewater and sewerage treatment in the proposed subdivision with the costs that a similar subdivision would incur to install a wastewater hookup with a hypothetical sewer main running along Kamehameha Highway and pay in City sewer charges, then we think you will provide some valuable guidance for future municipal policy.
- 2) We would like to know the environmental impacts of the waterless toilets, wastewater disposal system, and grading plan of the proposed subdivision.
- 3) We would like to know what provisions will be taken to protect the subdivision from structural damage from flooding and storm waves. Elevation of structures would be preferable to exten-

EIS for Waikane Subdivision
January 12, 1978
page 2

grading and channelization of runoff.

- 4) We would like to know what measures will be taken to develop and preserve views of the ocean and/or shoreline from Kamehameha Highway.
- 5) We would like you to explore the possibility of meeting county park dedication requirements by acquiring and dedicating land adjoining the existing county beach park in Waikane.

Thank you for addressing our concerns.

Respectfully,

Douglas Meller
Secretary

Mr. Douglas Metler
February 1, 1978
Page Two

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

February 1, 1978

Mr. Douglas Metler
Secretary
Shoreline Protection Alliance
P. O. Box 4247
Honolulu, Hawaii 96813

Dear Mr. Metler:

SUBJECT: Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu
Tax Map Key 4-8-03: 7 through 9

Thank you for your letter dated January 12, 1978 on the above mentioned Environmental Assessment/EIS Preparation Notice. We have reviewed your organization's concerns and would like to preface our responses with the following position: It is not the intent of the applicant, Windward Partners, to develop this project in a house/lot package. Rather, Windward Partners is planning to develop a fully improved fee simple subdivision for sale to purchasers who would construct their own residential units on the individual lots in accordance with the designated zoning and in compliance with all applicable ordinances and codes.

In view of this position, we will respond to the specific questions that you have posed regarding the waterless toilet systems (cost, operating characteristics, comparative cost-benefit analysis for conventional sewer systems vs. waterless toilet systems) by saying that our comments on this subject are limited to insuring that the applicant will provide for the use of this waterless system on an individual basis by each lot purchaser. Our major concern at this time is to assure the Department of Health that when the homes are constructed on the fee lot, the purchaser will comply with and use a generic waterless toilet system until such time that the conventional sewer system is available. Accordingly, we must comply with the government requirements which states that each purchaser must obtain a variance permit to Chapter 38, "Sewage Treatment and Disposal System" Public Health Regulations for the use of these waterless toilet systems. We cannot endorse a brand name system but would limit ourselves by describing the generic format and allow each lot purchaser to make his own selection.

The environmental impact of these systems should not prove to be detrimental to the overall ecosystem of the project site or its adjacent shoreline sector, Kaneohe Bay, since the highly toxic material normally found in "black" water (domestic wastes) will be contained in a closed system, and periodically pumped out and adequately treated prior to disposal at the nearest sewage treatment plant. "Grey" water disposal will be achieved through conventional seepage

pits, with soil studies and percolation tests having been conducted prior to the construction of the seepage pits.

The proposed subdivided lots fronting the ocean will have finish grades at and over the 20 foot elevation. The toe of slope of said lots will be at elevations ranging from 4 feet to 6 feet, and the distance from the highwater mark will range from 50 feet to 230 feet.

The reef line is approximately 875 feet offshore.

The estimated 100-year tsunami runup for the project site, in accordance to the Corps of Engineers, is 4 feet above mean sea level.

Because of the relatively great distance of the toe of slope to the proposed lots from the shoreline, structural damage and flooding of the subdivision from storm waves is not anticipated.

The extent of development of views of the ocean and/or shoreline from Kamehameha Highway, will be from areas between proposed residential structures if not otherwise obstructed by fences or landscaping.

The compliance with the County park dedication ordinance will be accomplished through the formula of payment rather than dedication of lands. This is due to the small size of the proposed project site (5+) acres. The thought of acquiring the lands adjacent to the County beach park at Waikane is considered economically unfeasible from the applicant's position.

We hope that these responses adequately address your concerns; we are also sending under separate cover, descriptive material received from the manufacturers of the various waterless toilet systems for your use. Please understand again, that we will be recommending or requiring that each lot purchaser use a generic type system until such time that County sewer lines are available on Kamehameha Highway. We appreciate your interest in this matter.

Very truly yours,



F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners



DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

Kamohaku Building, 256 South King St., Honolulu, Hawaii • Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

GEORGE R. ARTYUSHI
Governor
HIDETO KONO
Director
FRANK SUBIAWAKA
Deputy Director

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL COMMUNICATIONS INC.

January 16, 1978

Ref. No. 5385

February 1, 1978

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

Mr. Hideto Kono
Director
Department of Planning and Economic Development
State of Hawaii
P. O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Rodriguez:

Subject: Environmental Assessment/Determination Residential Subdivision, Waikane, Oahu, Tax Map Key 4-8-03:7 through 9

Dear Mr. Kono:
SUBJECT: Environmental Assessment/Determination Residential Subdivision, Waikane, Oahu
Tax Map Key 4-8-03: 7 through 9

We have reviewed the subject Environmental Assessment Preparation Notice and concur with the Department of Land Utilization's suggestions concerning the areas requiring further study and the need for adequate discussion of the concerned areas in the forthcoming environmental impact statement.

Thank you for your comments of January 16, 1978 regarding the above indicated Environmental Assessment/EIS Preparation Notice. We have prepared the Environmental Impact Statement and have addressed the Department of Land Utilization's suggestions.

We have no further comments to offer at this time but would appreciate the opportunity to comment further when the environmental impact statement is available for review.

Your department will be provided with a copy of the Environmental Impact Statement when it is distributed for review and comments by the Office of Environmental Quality Control.

Thank you for the opportunity to comment on this preparation notice.

Very truly yours,

Sincerely,

HIDETO KONO

F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 509
HONOLULU, HAWAII 96809

January 17, 1978

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

Dear Mr. Rodriguez:

Subject: Request for Comments on Environmental Assessment/Determination
Residential Subdivision; Waikane, Oahu
Tax Map Key 4-8-03; 7 through 9

Thank you for allowing us to review and comment on the subject
environmental assessment.

Please be informed that we have serious reservations on the proposed use
of waterless toilets for sewage disposal and the discharge of "grey water"
for the proposed residential subdivision.

We submit the following comments for your information:

- (1) The proposed sewage disposal system is not sufficiently identified.
- (2) It is assumed that the facility being proposed is a self-contained,
flush toilet that utilizes a recyclable liquid. The sewage wastes
would be stored in a holding tank, then at periodic intervals the
sewage will be pumped out and disposed of at a sewage treatment
plant.
- (3) Department of Health regulations, Chapter 38, Sewage Treatment and
Disposal Systems, Section 3, does not specifically provide for the
proposed manner of sewage disposal. Please be informed that a request
for a variance from Section 3 of Chapter 38 may be submitted to the
Director of Health. Please note that the variance application and
supporting information must clearly show:

- (a) The operation involved in the discharge of waste by the granting
of the variance is in the public interest;
- (b) The proposed sewage disposal system does not substantially
endanger human health or safety; and

Mr. F. J. Rodriguez

-2-

January 17, 1978

(c) Compliance with the rules, regulations or standards from which
variance is sought would produce serious hardship without equal
or greater benefits to the public.

The review of the variance request may include both a public notice
and a public hearing to solicit input from the general public.

(4) Tests conducted in September 1975 demonstrated decreasing percolation
rates.

(5) Seventy percent of the domestic sewage consists of other than "black
waters." This waste water (grey waters) not only has a significant
amount of residues but the quantity of liquid to be disposed poses a
problem. The poor subsoil formation of the proposed project precludes
satisfactory performance of seepage pits and subsurface trenches or
tile fields.

We realize that the statements are general in nature due to preliminary
plans being the sole source of discussion. We, therefore, reserve the right
to impose future environmental restrictions on the project at the time final
plans are submitted to this office for review.

Sincerely,

SHINJI SONEDA, Chief
Environmental Protection &
Health Services Division

cc: John Whalen, City & County Dept. of Land Utilization

Mr. Shinji Soneda
February 1, 1978
Page Two

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

February 1, 1978

Mr. Shinji Soneda, Chief
Environmental Protection and
Health Services Division
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Soneda:

SUBJECT: Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu
Tax Map Key 4-8-03: 7 through 9

Thank you for your memorandum dated January 17, 1978 which commented on the above mentioned Environmental Assessment/EIS Preparation Notice. The concerns raised by your office have been provided to the consulting engineer, Mr. Y. Arakaki, and he has indicated the following on the proper treatment/disposal of "grey" water. Discussions with your staff and also the Board of Water Supply indicate that subject to adequate percolation in the project site's sub-strata, the disposal of "grey" water may prove to be a problem as indicated by your office. We are confident, however, that this problem will be resolved to the satisfaction of your office.

It should be noted that presently it is the applicant's intention to utilize the waterless toilet system. This system is similar if not identical to the system contemplated by the Department of Land and Natural Resources at the state park at Mahekaheka, Oahu. Your description of this toilet system, item (2), is basically correct. Also, the applicant does not plan to develop the site for sale as a package house and lot; rather, it is intended that the sale will be for improved fee simple lots in the configuration shown on the project plot plan. We are also providing as an exhibit in the EIS, the proposed deed covenant which states that purchasers of the fee title will be required to use the generic waterless toilet system as approved by the Department of Health. This covenant also provides that this generic toilet system will remain in use and meet applicable standards until such time that adequate government waste collection lines are available along Kanehameha Highway. At that time, the subdivision would be required to connect their sewer lines to the government collector system.

Finally, the applicant intends to file a request for a variance permit under Chapter 38, Sewage Treatment and Disposal Systems, Section 3 for the project's 15 fee simple lots to insure that there is no confusion or problem later after the project has been completed and sold to individual purchasers. It is felt that this will meet the intent of the Public Health regulation and maintain the public interest.

Thank you again for your continuing interest and concern.
Very truly yours,

F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners

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



FRANK F. FASE
MAYOR

Mr. F. J. Rodriguez
January 17, 1978
Page 2

- 3) The project, pursuant to Ordinance No. 4621, effective October 16, 1976, must also comply with the Park Dedication Ordinance and the Rules and Regulations.

Should you have any questions, please contact Mr. Art Challacombe at 523-4884.

January 17, 1978

Mr. F. J. Rodriguez
Environmental Communication, Inc.
225 Queen Street, Apt. 7F
Honolulu, Hawaii 96813

Dear Mr. Rodriguez:

SUBJECT: EIS-Waikane Subdivision
TRK: 4-8-03; 7, 8, 9

We have reviewed the Environmental Assessment/Preparation Notice of this project and make the following comments and recommendations.

- 1) The City and County's Subdivision Rules and Regulations, Sec. 5-513, requires that street trees be provided and that the plans be reviewed and approved by the Department of Parks and Recreation.
- 2) The Environmental Assessment, under Section A, Technical Characteristics, states that, "A 10-foot wide drain and beach access easement is indicated on the plans." This is a deviation from an earlier plan which a 12-foot public easement was established between Lots 15 and 16 (see attachment). In order to meet the requirements of Ordinance 4311, Public Access to Shoreline and Mountain Areas, the project must provide a public easement at least 12-feet wide. We are also concerned with the present location of the newly proposed easement. Earlier, the applicant agreed to provide only the easement between Lots 15 and 16 for a public access. We are, therefore, requesting that a copy of the plans designating the present location of the public easement be forwarded to our Department for review and approval.

Sincerely,

Young Sukko
YOUNG SUKKO, DIRECTOR

Attach.

YOUNG SUK KO
DIRECTOR

ENVIRONMENTAL COMMUNICATIONS INC.

February 1, 1978

F. J. RODRIGUEZ, PRESIDENT

Mr. Robert Fukuda
Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fukuda:

SUBJECT: Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu
Tax Map Key 4-8-03: 7 through 9

Thank you for your comments of January 17, 1978 on the above indicated Environmental Assessment/EIS Preparation Notice. We have reviewed your comments and would like to provide the following comments:

1. The Environmental Impact Statement acknowledges that street trees will be planted and that these planting plans must be reviewed and approved by the Department of Parks and Recreation.
2. We note that the earlier Environmental Assessment was based on a 20 lot subdivision. We have reviewed the current project plans for 15 lots and have now revised these plans to provide a minimum beach access right-of-way of 12 feet. The enclosed map shows the proposed location of the new beach access easement.
3. The developer intends to comply with Ordinance No. 4621, Park Dedication Ordinance, and its pursuant rules and regulations. An agent of the developer should be contacting your staff shortly. The Environmental Impact Statement will include information relating to this matter.

Very truly yours,

F. J. Rodriguez
F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners

275 GREEN STREET P. O. BOX 536 HONOLULU, HAWAII 96809 TELEPHONE (808) 521-8191

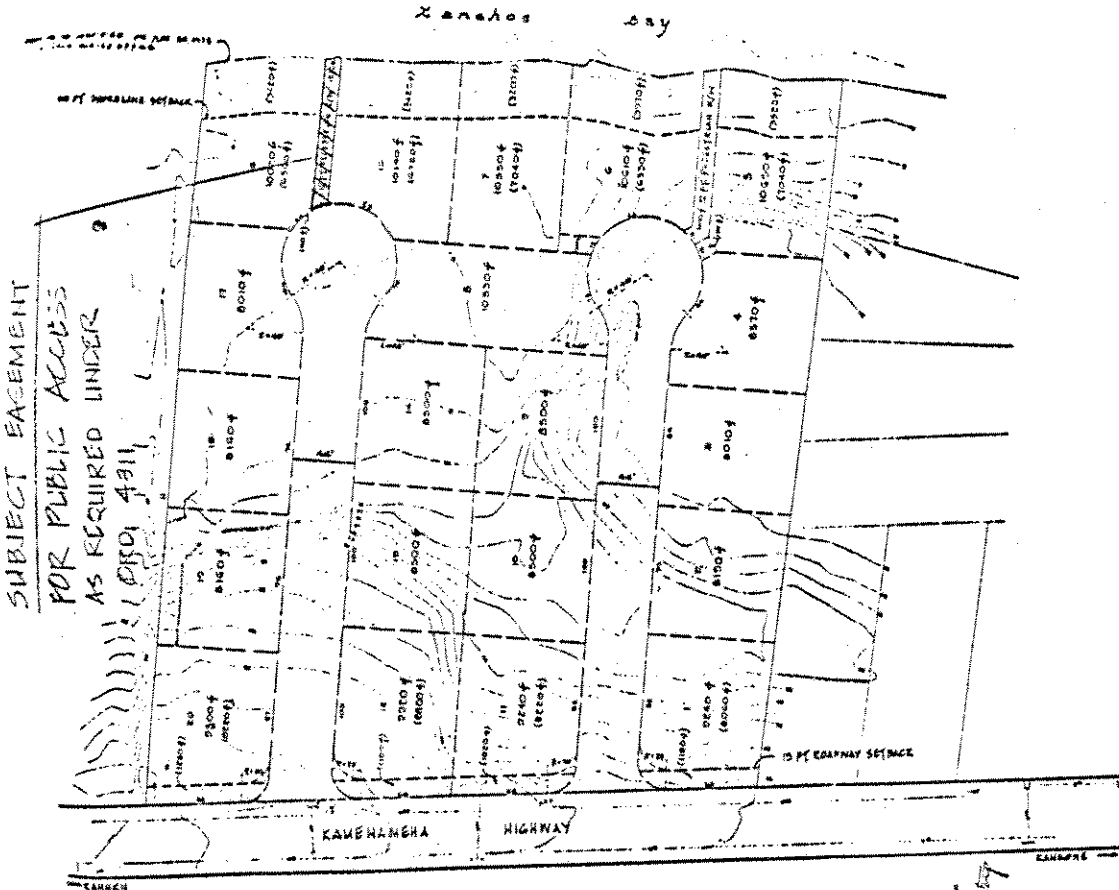


FIGURE 2

PROPOSED WAIKANE RESIDENTIAL SUBDIVISION

GENERAL INFORMATION:
DRAWN BY: K. C. FLORES
CHECKED BY: K. C. FLORES
DATE: 1/17/78
SCALE: AS SHOWN
THIS PLAN IS VALID ONLY WHEN USED IN CONJUNCTION WITH THE CITY ENGINEERING DEPARTMENT RECORDS.



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



FRANK F. FASH
MAYOR

F. J. RODRIGUEZ,
PRESIDENT

KAZU HAYASHIDA
DIRECTOR

TEL2/77-5340

ENVIRONMENTAL
COMMUNICATIONS
INC.

February 1, 1978

Mr. Kazu Hayashida
Director
Department of Transportation
Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Mr. F. J. Rodriguez
Environmental Communications, Inc.
Apt. 7F - 225 Queen St.
Honolulu, Hawaii 96813

Dear Mr. Rodriguez:

Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu, Hawaii
TWK: 4-8-03: 1 through 9

Your Environmental Assessment should address the following concerns:

1. The total vehicular traffic that will be generated by the development and the impact that it will have on existing highway facilities servicing the property.
2. The anticipated bus ridership that will be generated and its impact on existing services.

Very truly yours,

KAZU HAYASHIDA
Director

Dear Mr. Hayashida:

SUBJECT: Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu
Tax Map Key 4-8-03: 7 through 9

Thank you for your comments of January 18, 1978 regarding the above indicated Environmental Assessment/EIS Preparation Notice. We would like to provide the following responses to your concerns:

1. We anticipate that when the homes are built, there will be an average of two (2) cars per home. If the normal seven (7) trips are generated by each car, a total of 210 trips will be generated daily. (The number of trips are felt to be on the high side, however, in considering the traffic impact, we feel that the use of maximum numbers are preferred.) If we further assume that 10% of the total daily traffic generated will be during the peak hour, then 21 vehicles will be added to the total peak hour volume along Kamehameha Highway. We feel that this is an insignificant number and will not adversely affect the existing highway facilities. Engineering plans will be provided for your office regarding the proposed roadway within the subdivision. The present plans for the roadway have been drawn up to meet with City standards. It is the intention of the developer to dedicate the road upon completion.

2. At this time, we have not determined the bus ridership, however, we feel that bus ridership will not increase significantly and not entail more than 20 trips per day.

Very truly yours,

F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2400
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

January 18, 1978

Mr. F. J. Rodriguez
Environmental Communications, Inc.
225 Queen Street
Honolulu, Hawaii 96813

Dear Mr. Rodriguez:

We have discussed the impact of the subject development with the Windward School District, and we agree that your proposed Waikane Subdivision will not generate students in number that will adversely affect our school operations.

Thank you for continuing to involve the Department of Education.

Sincerely,

Charles G. Clark
CHARLES G. CLARK
Superintendent
CC:RKY:sv

cc: Windward District

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

February 1, 1978

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

Dear Mr. Clark:

SUBJECT: Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu
Tax Map Key 4-B-03: 7 through 9

Thank you for your letter of January 18, 1978 relating to the above indicated Environmental Assessment/EIS Preparation Notice.

We appreciate your comments and will incorporate your letter into the Environmental Impact Statement as required. In addition, we would like to note that we are including in the Environmental Impact Statement, the enrollment of public schools in the surrounding area.

Very truly yours,

F. J. Rodriguez

F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners

1/23/78

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

P. O. Box 50004, Honolulu, HI 96850

January 19, 1978

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

Dear Mr. Rodriguez:

Subject: Environmental Assessment/Determination Residential
Subdivision, Waikane, Oahu

We have reviewed the above notice and have no comments to offer; however,
we would appreciate receiving a copy of the draft EIS.

Thank you for the opportunity to review this notice.

Sincerely,

Jack P. Kanalz
Jack P. Kanalz
State Conservationist

GEORGE E. ARYTOSHI
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1428 SO. KING STREET
HONOLULU, HAWAII 96814

January 23, 1978

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

Dear Mr. Rodriguez:

F. J. Rodriguez

Subject: Environmental Assessment/
Determination Residential
Subdivision, Waikane, Oahu
THK: 4-8-03: 9

The Department of Agriculture has reviewed the subject material
and has no comments to offer at this time.

Thank you for the opportunity to comment.

Sincerely,

John Farias, Jr.

JOHN FARIAS, JR.
Chairman, Board of Agriculture

JOHN FARIAS, JR.
CHAIRMAN, BOARD OF AGRICULTURE
YUKIO KIYOSAKI
DEPUTY TO THE CHAIRMAN

BOARD MEMBERS

- MEMBER - AT LARGE
ERNEST F. ABRIGADO
- MEMBER - AT LARGE
Sidney Goo
- MEMBER - AT LARGE
SHUZUO KADOTA
HAWAII MEMBER
- STEPHEN O. LAU
HAWAII MEMBER
- PIERO M. OCASAMATHA
MAUI MEMBER

JAN 25 1978



1/23/78

AMERICAN LUNG ASSOCIATION of Hawaii

January 24, 1978

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

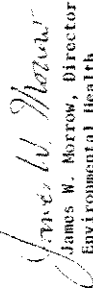
Dear Mr. Rodriguez:

Subject: Residential Subdivision, Maikane

Thank you for providing us with a copy of the EIS Preparation Notice for the subject project.

We have no comments at this time but would like to receive a copy of the final EIS when it is available. Thank you.

Sincerely,


James W. Morrow, Director
Environmental Health

JWM:ct

cc: J. Whalen, DEU

Christmas Seals Fight TB, Asthma, Emphysema, Air Pollution

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERT LAMIA
HONOLULU, HAWAII 96843

FRANK F. FASH, Mayor
YOSHIE H. FUJIMAKA, Chairman
STANLEY S. TAKAHASHI, Vice Chairman
TED DARLEY
EDWARD Y. HIRATA
WALLACE S. BRYANT
DAI CHOH-PANG
Kyokichi Higashionna

EDWARD Y. HIRATA
Manager and Chief Engineer

January 25, 1978

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

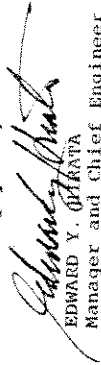
Dear Mr. Rodriguez:

Your Letter of December 22, 1977 Relating to
Environmental Assessment/Determination for
Residential Subdivision, Waikane, Oahu,
Tax Map Key 4-8-03: 7 through 9

We will withhold any comments regarding the availability
of water for the proposed project until a water master plan
is submitted to us for review and approval. We have no
objections to the use of cesspools or other waste disposal
facilities meeting the State Department of Health's require-
ments.

If you have any questions on this matter, please call
Lawrence Whang at 548-5221.

Very truly yours,


EDWARD Y. HIRATA
Manager and Chief Engineer

cc: Mr. George S. Moriguchi, Director
Dept. of Land Utilization
City and County of Honolulu

**ENVIRONMENTAL
COMMUNICATIONS
INC.**

F. J. RODRIGUEZ,
PRESIDENT

February 1, 1978

Mr. Edward Y. Hirata
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Hirata:

SUBJECT: Environmental Assessment/Determination
Residential Subdivision, Waikane, Oahu
Tax Map Key 4-8-03: 7 through 9

Thank you for your comments on the above mentioned Environmental Assess-
ment/EIS Preparation Notice. We will incorporate these comments into the
EIS. Additionally, we note that presently we are planning to test soil con-
ditions and percolation rates at two locations on the project site for the
seepage pits (for disposal of the "grey" water). The findings of these
tests will be discussed and reviewed with your staff.

Very truly yours,



F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners

NEIGHBORHOOD BOARD NO. 29

KAHALUU COMMUNITY CENTER
4723 WAIHEE ROAD
KAHOOLA, HAWAII 96744

Hesia Kea, Kahalu'u, Waiohale, Waikane, Waikapu and Kueloa

"Let us not ever have
an unhappy minority"



25 January 1978

- Sub-area 1
- C. Ho
- G. Nakamoto
- Sub-area 2
- H. Holtendorfer
- R. Nakata
- Sub-area 3
- J. Hooper
- F. Reppun MD
- Chairman
- J. Wilton
- Sub-area 4
- W. E. Salie
- V. Van Epps
- Sub-area 5
- R. Bellinger
- S. Souza
- C. Tod
- Sub-area 6
- K. Payne
- Secretary
- B. Shigemoto
- Vice-Chm

Mr. F. J. Rodriguez
Environmental Assessment and Planning
Residential Subdivision, Waikane, Oahu
Honolulu 96809

Dear Mr. Rodriguez: Re: Residential Subdivision, Waikane, Oahu
77/SHA-166(B)

The Kahalu'u Neighborhood Board voted unanimously (13 - 0 with one absent off-island) at its regular meeting this evening to have no state to you that until such time as the Development Plans, under the City's new General Plan (adopted by resolution 1/1977 of the City Council and signed by the Mayor), are formulated, approved and enacted into City Ordinance, hopefully within two years, the Board is opposed to any development that would increase population density in the "rural" portion of our Neighborhood, increase traffic on Kam Hwy that is already considered to be unsafe, and call for public services that are not projected for the foreseeable future in the Waikane-Waikapu area.

The Board is also vitally interested in preserving open space and in promoting aqua and agriculture. Despite its R-6 zoning, we feel that the 5-acre parcel intended for a 15-unit development is ideally suited for diversified crop agriculture.

Both the Governor and the Mayor have expressed serious interest in furthering agriculture, with a view to making us all more self-sufficient in terms of food.

Although the Waiohale/Waikane Community Ass'n has not yet formally discussed this application, we have been assured by Guy Nakamoto, President of the WPCA, member of our Board from the affected Sub-area, and Charlene Ho, of that Sub-area, that the people of the main valleys will oppose this development.

Aloha,
F. J. Rodriguez

J. I. Frederick Reppun MD
Chairman
cc Mr. Rodriguez of DLU
etc and others.

JAN 27 1978

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

February 1, 1978

Mr. J. I. Frederick Reppun MD
Chairman
Neighborhood Board No. 29
Kahaluu Community Center
47-232 Waihee Road
Kaneohe, HI 96744

Dear Mr. Reppun:

SUBJECT: ENVIRONMENTAL ASSESSMENT AND PLANNING
Residential Subdivision, Waikane, Oahu
Tax Map key 4-8-03; 7 through 9

Thank you for your letter of January 25, 1978 regarding the above indicated Environmental Assessment/EIS Preparation Notice. As we understand your position, the Neighborhood Board is recommending that the proposed project not be approved or implemented until the development plans for the City's General Plan is formulated and accepted. Although we support the concept of controlled growth, we feel that the rights of the landowners to develop this project under existing statutes are also valid and proper. Understandably, the developer purchased the land with this R-6 zoning, and thus, we feel the landowner has the right to develop this land with the stipulation that all governmental approvals, regulations and permits are obtained.

Additionally, we point out that the development would increase population in this area by approximately 60 persons and the small scope of the project is not anticipated to create adverse traffic problems nor is it expected to alter existing public services for this area.

In consideration of the agricultural use of this parcel, we would like to point out that the soils and physical terrain of the project site are not suitable for diversified crop agriculture on a viable economic basis.

We hope that we have expressed the private landowners position in this matter, and can relate to his need to derive economic benefits from this property.

Very truly yours,
F. J. Rodriguez
F. J. Rodriguez

FJR:dhe
cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners



FOURTH STATEMENT

Mr. Rodriguez, in response to your EIS on Waikane, Life of the Land strongly opposes Windward Partners determination for a residential subdivision for the following reasons:

1. Kuleana owners around Waikane who want to keep their land to live on or pass down to children will face higher property valuation and tax assessments that could force them to sell.
2. Projected population growth will change the beautiful natural environment and country life-style.
3. Jobs provided by this development will be very short term.
4. This development will take valuable AG lands away and disperse other small farms to those out and make Hawaii less self-sufficient.
5. Because of the cost of housing, present residents in Waikane won't be able to afford to buy or rent housing. The development is openly being marketed to people out of state, investor-speculators, and second homes for the wealthy.
6. Lollute fishing grounds and bay areas.
7. Increase traffic to the point where Kam Hwy. will be widened into four lanes or possibly another highway will cut through valuable AG lands.
8. Majority of water will go to housing complex, leaving less water for AG lands, small farmers, and home use outside Waikane.
9. This development will open the door for further development in windward Oahu.


George M. Hudes
President

JAN 27 1978

406 PUNCH STREET HONOLULU HAWAII 96814 TELEPHONE 521 1300

Mr. George M. Hudes
February 1, 1978
Page Two

ENVIRONMENTAL
COMMUNICATIONS
INC.

P. J. RODRIGUEZ,
PRESIDENT

February 1, 1978

Mr. George M. Hudes
President
Life of the Land
404 Piikoi Street
Honolulu, Hawaii 96814

Dear Mr. Hudes:

SUBJECT: Environmental Assessment/Determination
Residential Subdivision, Maikane, Oahu
Tax Map Key 4-8-03: 7 through 9

We have received your organization's statement of position on the above mentioned Environmental Assessment/EIS Preparation Notice. Although we realize that your organization's position is unlikely to change, we would like to provide the following clarifications to your reasons in opposing the project:

1. It should be made clear that the project involves selling the improved 15-lots in fee, without homes. No amenities will be involved in this project, therefore, the increased value (and subsequently tax) would not be significant. However, higher tax assessments to the adjacent landowners are viewed as desirable because it socially benefits the community by increasing land value.
2. At this time, it is anticipated that 60 persons (four per house lot) would be housed in this project. We do not feel that these 60 individuals will significantly change or alter the lifestyle in the surrounding area. The project will result in the elimination of much of the vegetation, however, in the studies, we have found that the vegetation is exotic except for a few common indigenous plants.
3. We concur that the jobs provided by this development will be on a short-term basis.
4. In consideration of the agricultural use of this parcel, we would like to point out that the soils and physical terrain of the project site are not suitable for diversified crop agriculture on an economically viable basis.
5. At this time, there are no known purchasers for these lots.

6. We feel that the development will not significantly alter water quality. The covenant which the future owners must abide by will include the need to install waterless non-discharge toilet systems. These toilet systems are self-contained and utilize mineral oil which is periodically replaced. This, as "backwash" water will be created by these homes. The use of this toilet system must be approved by the State Department of Health. Furthermore, the remaining waste waters (i.e. rinse water, dish water, wash water) called "grey" water are planned to be disposed of through seepage pits. This method of disposal and the location of these pits must be approved by the Board of Water Supply and the Department of Health.
7. Future plans for Kaneohe Highway does include widening it to a four-lane highway. This was pointed out in the Department of Transportation's response to this Assessment.
8. We feel that the amount of water to be consumed by this development will be relatively small. We also feel that the priority of water usage is first and foremost for residential consumption. It is not our intent to direct water away from agricultural usage; however, the water resources regardless of where people settle on Oahu will be withdrawn from the Oahu water table.
9. Again, we stress that the total number of units which could be built on the lots is 15. We do not consider this to have the magnitude or the influence which would initiate urban development of this region.

We hope that we have provided some clarification in regard to the project scope and that you have gained some insight as to our position on this matter.

Very truly yours,

F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of Ecological Services
300 Ala Moana Blvd., Rm. 5302
P. O. Box 50167
Honolulu, Hawaii 96850

Reference: ES

January 27, 1978

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

Re: Environmental
Assessment/
Determination
Residential Sub-
division, Waikane,
Oahu

Dear Sir:

We are responding to your request for comments on the referenced proposed subdivision, dated 22 December 1977.

According to the attached letter from the Department of Land Utilization, City and County of Honolulu, dated 15 December 1977, portions of the proposed site are within a flood hazard zone. However, in a telephone conversation between Mr. Rodriguez and my staff on 26 January 1978, he indicated that the Army Corps of Engineers was examining the area to determine whether or not this was the case. If a positive determination is made, we cannot condone either the subdivision or residential construction on those plots within the flood hazard area (Federal Executive Order 11988).

Approximately 75% of the Kaneohe Bay shoreline has been developed to date. Sedimentation of the Bay has been attributed, in part, to upland erosion aggravated by land clearance for residential and commercial development and subsequent failure to utilize long and short term erosion

controls. In addition, wastewater and sewage disposal has contributed further to the decline of the Bay's once beautiful coral "gardens". However, this latter adverse impact is being corrected with the utilization of the Mokapu outfall.

We are concerned about the primary and secondary effects that construction of residences on the proposed subdivisions may have upon the biological resources of the Bay. Grading should be done according to regulations set forth by the City and County of Honolulu, which include such control measures as erosion control, planting and installation of sedimentation basins as required.

We also are concerned with the impact of sewage and wastewater disposal. As per our telecon with Mr. Rodriguez, we understand that sewage disposal will be accomplished via in situ chemical treatment. Other domestic wastewater will be run into septic tank(s). Providing the "grey water" and chemically treated sewage is disposed of in a suitable manner so as not to pollute the waters of Kaneohe Bay or any nearby water resources, the Service has no objection to the described methods of handling this material. If this method is unsuitable, tie-ins with existing sewer systems or construction of new lines may be required.

After consultation with Mr. Eugene Kridler, the Service's Hawaii Endangered Species Coordinator, a preliminary determination was made that there are no federally recognized endangered birds in the area. However, the shoreline probably receives some use by migratory waterbirds such as the ruddy turnstone (*Arenaria interpres*) and Golden plover (*Pluvialis dominica fulva*). We have been unable to determine if any proposed endangered plants may be located in the proposed subdivision.

Adjacent development and increased use of the area will result in a decrease in the value of this habitat. In the event that shoreline protection structures are necessitated by beach erosion, this habitat could be more severely affected. We also would like to point out at this time that should any of the residents or the developer wish to extend the property line seaward, this Service does not condone the creation of holdfast land for non-marine related purposes.



Save Energy and You Serve America!

JAN 30 1978

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

Thank you for the opportunity to comment on this project.

February 1, 1978

Sincerely yours,



Maurice H. Taylor
Field Supervisor

Mr. Maurice H. Taylor
Field Supervisor
United States Department of
the Interior
Fish and Wildlife Services
Division of Ecological Services
P. O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Taylor:

Attachment
cc: HA
SE
HDF&G
HMFS
Dept. of Land Utilization
City and County of Honolulu

SUBJECT: Environmental Assessment/determination
Residential Subdivision, Waikane, Oahu
Tax Map Key 4-8-03: 7 through 9

Thank you very much for your letter of January 27, 1978 on the proposed residential subdivision at Waikane, Oahu. Our review of your letter indicates your primary concerns lie in the potential impact on the Kaneohe Bay biological resources and as such, all proposed development plans which involve the construction of improvements on the subject parcel will be reviewed and approved by both the City and County of Honolulu and the State of Hawaii agencies. This review and/or approval would be in: grading of the subject parcel, control of surface runoff into Kaneohe Bay, control of sewage wastes and disposal of these wastes in an acceptable manner, and the potential impact factors due to increased density such as traffic and air quality.

Please be advised that the applicant will be required to meet and comply with all applicable ordinances, codes, rules and regulations prior to receiving his permits authorizing construction of the proposed project.

Thank you again for your continuing concern and we look forward to your agency's review during the formal EIS procedure.

Very truly yours,



F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Office of Environmental Quality Control
Windward Partners

XIV. SUMMARY OF UNRESOLVED ISSUES

(This section relates to the unresolved issues involving the acceptability of the proposed sewage treatment and disposal system; during the EIS review period and subsequent comments returned, differing viewpoints were offered on such matters as the compatibility of lifestyle, the speculation of the land, the secondary impact of the proposed project, the potential of further urbanization due to this project. These concerns are addressed in Section XVI in comments and responses of the agencies and Environmental Communications, Inc., respectively.)

The only known unresolved issue (other than those differing viewpoints noted above) that exists is the question relating to the acceptance of the sewage treatment and disposal system. As stated previously, the developer plans to include within the Deed, a Covenant (see Exhibit I) for the land purchaser, that a "self-contained, flush toilet that utilizes a recyclable liquid" be installed and used until such time that adequate government sewer lines are available. A similar system has been accepted for use by the Department of Health at the State Park at Malaekahana. The Department of Health has recently given the Department of Land and Natural Resources a 10-year Variance for the use of this self-contained toilet system under Chapter 38. A similar Variance under Chapter 38 will be applied for this project.

In regards to the remaining waste waters or "grey" waters, the project plans call for its disposal via seepage pits. This method of disposal must be approved by both the State Department of Health and Board of Water Supply. The Board of Water Supply has indicated that they have no objections to this method of disposal if it meets the Department of Health's requirements.

In order to resolve the Department of Health's initial concern about satisfactory performance of seepage pits for the future homes, the developer retained Meyer Bogost, an environmental engineer, to oversee drilling operations at two (2) locations on the project site to perform percolation tests. Mr. Bogost's subsequent report on grey water disposal is included in this Revised EIS as Exhibit III for the reviewer's information. The report concludes that: "The percolation test shows that one disposal well can take 6.4/1.8 or more than three and a half (3-1/2) times the maximum possible peak flow of grey water. The other hole can take 8.1/1.8 or more than four and a half (4-1/2) times the same peak flow. Thus even a 4 inch disposal well can safely absorb the quantity of grey water that may be generated by a home on one of these lots."

The Department of Health reflected these latest test results in their letter of March 13, 1978, they state: The recent percolation tests conducted on Lot No. 13 and Lot No. 4 of the subject property did indicate that grey water generated by a home on one of those lots could be safely absorbed by disposal wells constructed at the boring sites."

We note that percolation tests for the remaining thirteen (13) lots must be conducted by the lot owner to determine if the percolation rates for that lot is acceptable. This would be done at the time of the Building Permit review, after the issuance of a Shoreline Management Permit and a Variance to Chapter 38.

XV. LIST OF NECESSARY APPROVALS

The proposed project must obtain the following approvals and permits prior to its implementation:

1. Shoreline Management Permit - Department of Land Utilization (line agency) and City Council (decision making body).
2. Subdivision and Reconsolidation Approval - Department of Land Utilization.
3. Shoreline Setback Permit - Department of Land Utilization.
4. Grading Permit - Department of Public Works (City & County of Honolulu).
5. Building Permit - Building Department.
6. Water Master Plan - Board of Water Supply (City & County of Honolulu).
7. Variance from Chapter 38 for the Sewage Treatment and Disposal - State Department of Health.

XV. REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE EIS REVIEW PROCESS

A total of twenty eight (28) letters responding to the EIS was received prior to March 17, 1978 (the deadline for responses was March 10, 1978). Of this total sixteen (16) letters provided comments which required a response. The following two pages identify the agencies responding, the date of their response, and whether they provided comments or not.

This section also includes, in chronological order, copies of the letters received. Copies of the responses to those letters immediately follow.

(Reviewer note: this section is added onto the EIS document and is part of the Revised EIS document.)

LIST OF AGENCIES RESPONDING TO THE EIS

<u>Agency</u>	<u>Date of Response</u>	<u>Comments</u>
Department of Public Works, City and County of Honolulu	2/13/78	Yes
Water Resources Research Center, University of Hawaii	2/13/78	No comments
Directorate of Health Services, USASCH	2/14/78	No comments
Department of Defense, State of Hawaii	2/14/78	No comments
Department of Land and Natural Resources, State of Hawaii	2/15/78	Yes
Department of Housing and Community Development, City and County of Honolulu	2/15/78	No comments
Headquarters, Fourteenth Naval District	2/16/78	No comments
Historic Preservation Officer, State of Hawaii	2/16/78	No comments
Department of Land Utilization, City and County of Honolulu	2/21/78	Yes
Department of Transportation, State of Hawaii	2/24/78	Yes
U.S. Coast Guard, U.S. Department of Transportation	2/24/78	No comments
Department of Transportation Services, City and County of Honolulu	3/1/78	No comments
Fish and Wildlife Service, U.S. Department of the Interior	3/1/78	Yes
Department of Social Services and Housing, State of Hawaii	3/6/78	No comments
Department of Accounting and General Services, State of Hawaii	3/7/78	No comments
Waiahole-Waikane Community Association	3/7/78	Yes
Neighborhood Board No. 29 (Kahaluu)	3/9/78	Yes
Department of the Army, U.S. Army Engineer District, Honolulu	3/9/78	Yes
Department of General Planning, City and County of Honolulu	3/9/78	Yes

<u>Agency</u>	<u>Date of Response</u>	<u>Comments</u>
Department of Planning and Economic Development, State of Hawaii	3/9/78	Yes
Environmental Center, University of Hawaii	3/10/78	Yes
American Lung Association of Hawaii	3/10/78	No comments
Office of Environmental Quality Control, State of Hawaii	3/10/78	Yes
Life of the Land	3/10/78	Yes
Department of Parks and Recreation, City and County of Honolulu	3/10/78	Yes
Department of the Air Force, Headquarters 15th Air Base Wing	3/13/78	No comments
Department of Health, State of Hawaii	3/13/78	Yes
Board of Water Supply, City and County of Honolulu	3/8/78	Yes

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK P. TASI
MAYOR



WALLACE MIYAHIRA
DIRECTOR AND CHIEF ENGINEER

ENV 78-62

February 13, 1978

MEMORANDUM

TO : MR. GEORGE MORIGUCHI, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM : WALLACE MIYAHIRA, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT FOR THE
WAIKANE RESIDENTIAL SUBDIVISION, WAIKANE,
KOOLAUPOKO, OAHU, HAWAII

We have reviewed the subject EIS and have the following comments.

1. Wastewater Disposal (Page 26). Based on the proposed grading plan, some of the lots adjacent to Kaneohe Bay may require the services of a sewage lift station, assuming the sewer main was located on Kamehameha Highway. In the event a pump station is required, who will be responsible for the construction of the station?

WALLACE MIYAHIRA
Director and Chief Engineer

cc: Windward Partners

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

March 23, 1978

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

Dear Mr. Miyahira:

SUBJECT: Environmental Impact Statement for the Proposed Waikane Residential Subdivision, Waikane, Koolaupoko, Oahu, Hawaii

Thank you for your letter dated February 13, 1978 on the proposed residential subdivision at Waikane, Oahu. In response to the need for a sewage lift station, we believe that a sewage lift station will likely be required for the proposed project, and the adjacent Kamaka Subdivision, which is located at a 4 foot elevation makai of Kamehameha Highway. Because the construction of the sewer line is not anticipated until 1990 - 2000, the costs, users, and method of funding has not been resolved. Consequently, we cannot determine the actual responsibility of the cost for the lift station; however, we anticipate that the residential lot owners would either share this cost on an improvement district basis or a cost-sharing ratio.

Very truly yours,

F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Environmental Quality Commission
Windward Partners

GEORGE B. ANYOSHI
GOVERNOR



STATE OF HAWAII
ENVIRONMENTAL QUALITY COMMISSION
OFFICE OF THE GOVERNOR
550 HALEKAUWILA ST.
HONOLULU, HAWAII 96813

ALBERT O. TOM
Chairman
TELEPHONE NO.
548-8815

UNIVERSITY OF HAWAII

Water Resources Research Center

Office of the Director

February 13, 1978

Office of Environmental Quality Control
550 Halekauwila
Honolulu, Hawaii 96813

Gentlemen:

Subject: Waikane Residential Subdivision

We have reviewed the subject EIS and have no critical comments. We will retain the EIS for future reference.

Thank you.

Sincerely,

Reginald H. F. Young
Reginald H. F. Young
Asst. Director, WRRRC

RHFY:jmm

cc: Dept. of Land Utilization, CC
Windward Partners

February 8, 1978

Dear Reviewer:

Attached for your review is an Environmental Impact Statement (EIS) prepared pursuant to Chapter 343, Hawaii Revised Statutes and its Rules and Regulations:

Title - Waikane Residential Subdivision
Location - Waikane, Kooilaupoko, Oahu, Hawaii
Classification - Applicant Action

We would appreciate your comments or acknowledgement of no comments. Please submit one copy each to:

1) Approving Agency : Dept. of Land Utilization
Address: City and County of Honolulu
Honolulu Municipal Building
Honolulu, HI 96813

2) Applicant : Windward Partners
Address: 1020 J Keolu Dr.
Kailua, HI 96734

Your comments must be received or postmarked by: March 10, 1978

If you have no future use for this document, please return the EIS to the Commission. (Comments or acknowledgement of no comments should be directed to both the accepting authority and proposing party.)

Thank you for your participation and cooperation in the EIS process!

14 February 1978

No comments.

Patricia A. Greene
PATRICIA A. GREENE
Colonel, ANC
Chief, Health and Environment Activity
Directorate of Health Services, USASCH

100-100-100

GEORGE B. ADAMS
100-100-100

WALDO B. A. DEERBERGER
100-100-100
ADJUTANT GENERAL



STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL

3949 Diamond Road, Honolulu, Hawaii 96816

HIENG

Windward Partners
1020 J Keolu Drive
Kailua, Hawaii 96734

Gentlemen:

Waikane Residential Subdivision
Waikane, Koolaupeko, Oahu, Hawaii

Thank you for sending us a copy of the "Waikane Residential Subdivision, Waikane, Koolaupeko, Oahu, Hawaii" Environmental Impact Statement. We have received the publication and have no comments to offer.

Yours truly,

Wayne R. Turoyash
WAYNE R. TUROYASH
Captain, CE, HARRC
Contr & Engr Officer

February 15, 1978

HONORABLE FRANK F. FASI
Mayor of Honolulu
Honolulu Hale
Honolulu, HI

DEAR SIR:

We have reviewed the EIS for the Waikane residential subdivision and have no comments to add to our letter of January 10, 1976, except to urge your consideration of the effects of the project upon traffic.

Very truly yours,
W. J. Thompson
W. J. THOMPSON
Chairman of the Board

cc: Dept. of Land Utilization

GS:epo:tb

14 FEB 1978

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

630 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 522-4181



FRANK F. FASI
MAYOR

RICHARD K. SHARPLESS
MANAGING DIRECTOR

TYRONE T. KUSAO
DIRECTOR

J. HARRY ENDO
SECURITY DIRECTOR

F. J. RODRIGUEZ
PRESIDENT

ENVIRONMENTAL
COMMUNICATIONS
INC.

March 23, 1978

February 15, 1978

Mr. William Thompson
Chairman of the Board
Department of Land and Natural
Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Thompson:

Environmental Quality Commission
State of Hawaii
550 Halekauwila Street, Rm. 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Waikane Residential Subdivision
Environmental Impact Statement

We have reviewed the subject environmental impact
statement and have no comments.

Per your request, we are returning the copy of the
EIS which was forwarded to us.

Sincerely,

TYRONE T. KUSAO
Director

ENC.
cc: Department of Land Utilization
City and County of Honolulu
Windward Partners

SUBJECT: Environmental Impact Statement for the Proposed Waikane
Residential Subdivision, Waikane, Koolauopoko, Oahu, Hawaii

Thank you for your letter dated February 15, 1978 on the above indicated
EIS. We note that you have recommended that traffic be considered for the
proposed project. At this time, the retained engineer is preparing plans on
traffic access. These plans will be discussed and coordinated with both the
Department of Transportation Services, City and County of Honolulu and the
Land Transportation Facilities Division, State Department of Transportation
as indicated on Page 27 of the EIS (Section V. E.). We feel that the addi-
tion of 21 vehicles to the peak hour volume will not significantly affect
the present conditions along Kamehameha Highway.

Thank you for your continuing concern.

Very truly yours,

F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Environmental Quality Commission
Windward Partners

HEADQUARTERS
FOURTEENTH NAVAL DISTRICT
PEARL HARBOR, HAWAII 96860

IN REPLY REFER TO:
002A-FHD:amin
Ser 319

16 FEB 1978



STATE OF HAWAII
DIVISION OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS
P. O. BOX 621
HONOLULU, HAWAII 96808

February 16, 1978

Department of Land Utilization
City and County of Honolulu
Honolulu Municipal Building
Honolulu, Hawaii

Dear Sir:

Subject: Waikane Residential Subdivision, Waikane,
Koolauapoko, Oahu Island, EIS

There are no further comments to add to the Department
of Land and Natural Resources' letter dated 30 January 1976 found
on page 66 (Exhibit 2).

Sincerely yours,

Jane L. Silverman

Jane L. Silverman
Historic Preservation Officer
State of Hawaii

CC: Environmental Quality Commission
Windward Partners

Environmental Quality Commission
Office of the Governor
State of Hawaii
550 Hahaione Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Environmental Impact Statement for the
proposed Waikane Residential Subdivision

The Environmental Impact Statement for the proposed Waikane Residential
Subdivision has been reviewed, and the City has no comments. As
requested by your letter of 8 February 1978, the EIS is returned.
Thank you for the opportunity to review the EIS.

Sincerely,

BY: [Signature]
DIRECTOR
DEPARTMENT OF LAND AND NATURAL RESOURCES
BY DELEGATION OF THE COMMISSIONER

Encl

Copy to:
City and County, Dept of Utilization
Windward Partners

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU 9, HAWAII 96813



FRANK F. FARO
MAYOR

GEORGE S. MORIYOSHI
DIRECTOR

77/SMA-166 (JW)

February 21, 1978

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

Dear Mr. Rodriguez:

Environmental Impact Statement
Residential Subdivision, Windward Partners
Waikane, Oahu

Our comments on the above are addressed specifically to the issues involved in the review of the Shoreline Management Permit request, since this was the primary purpose for requiring an Environmental Impact Statement, and are grouped according to general topics.

1. Site Development

The amount of grading and fill proposed suggests that little of the existing vegetation would remain. The EIS should indicate where major trees are located and which of these would be removed. Also, a preliminary landscape plan should be included if new plantings are to be installed.

Substantial clearing would have an impact on views along the shoreline. View planes from the highway to the shorewaters are not the only criteria for determining aesthetic impact. Attractive landscaping is a significant scenic feature of this area and ought to be preserved to the greatest extent possible.

The creation of new steep embankments (Fig. 3) unprotected by mature vegetation could cause serious soil erosion problems, even with grassing. More substantial landscaping to retain these slopes might be required. Also, the composition and compaction of fill ought to be described in order to determine whether stability is sufficient for structural footings.

Mr. F.J. Rodriguez

Page 2

February 21, 1978

2. Flood Hazard

Under existing conditions, it appears that at least half the site is within an FIA-defined flood plain. However, site-specific data are not provided. Does the 20-foot contour interval constitute the flood boundary for this site? What effect will filling of portions of this property have upon other areas around Hakipuu Stream?

3. Sewerage Disposal


The use of the non-discharge toilet system may be technically feasible, but questions remain with regard to discharge of "grey water" and periodic removal of waste material. Of primary concern is the enforceability of maintenance requirements, inasmuch as the use of this system for private development is without precedent on Oahu.

4. Recreation Facilities

How does the applicant intend to comply with the Park Dedication Ordinance?

Should you have any questions regarding this matter, please contact Mr. John Whalen of our staff at 523-4256.

Very truly yours,


GEORGE S. MORIYOSHI
Director of Land Utilization

GSM:sl

FEB 23 1978

Mr. George S. Moriguchi
March 23, 1978
Page Two

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

March 23, 1978

Mr. George S. Moriguchi
Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Moriguchi:

SUBJECT: Environmental Impact Statement for the Proposed Maikane Residential Subdivision, Maikane, Koolauloko, Oahu, Hawaii

Thank you for your letter dated February 21, 1978 on the proposed residential subdivision at Maikane, Oahu. The comments raised by your office specifically address the issues felt to be of significance and are covered as follows:

1. Site Development

All clearing and grading work on the site will be performed in compliance with applicable City and County grading ordinance guidelines. We realize that there are those instances where steep embankments will create the potential hazard of soil erosion. In these cases, the services of a certified soils engineer will be employed to determine the acceptable slope factor that will meet City and County standards.

All existing trees on the site will be retained wherever possible. However, all trees that due to their location will impede grading will be cleared. It is recognized that these mature trees represent a valuable aesthetic addition to the property and wherever possible, they will be retained. The coconut trees along the shoreline area are proposed to be retained. Trees on individual lots will be retained subject to the ultimate purchaser's decision as to where he will place his structural improvements; he will then remove tree(s) at his discretion. View planes along the shoreline will be altered from a dense vegetation appearance to a view of homes. This view is generally seen by boaters in the Bay and other shoreline areas. This loss of open space from this standpoint is unavoidable and cannot be quantified objectively. However, a statement on this view will be included in the Revised EIS. Since this project is a standard residential subdivision (upon favorable review of the SMA process) there is no requirement for a landscape plan. Street trees if agreed upon, can be planted in conjunction with the appropriate City and County agency.

2. Flood Hazard

This issue has been provided to the retained engineering consultant, Mr. Yasuo Arakaki, who has responded in a letter dated February 28, 1978. He states,

"Preliminary investigation shows that the subject property will not be affected by floodflows of Hakipu Stream, resulting from design floodflows in accordance to the City and County drainage standards." His letter and plans are attached for your inspection. It is his professional opinion that the design standards to be employed will not affect adjacent areas around Hakipu Stream and that the flood boundary will be at the 4 foot elevation; homes will be built above the 20 foot contour interval.

3. Sewerage Disposal

As previously stated in the EIS, the disposal of "black water" will be by the use of waterless non-discharge toilet systems. The vendors for these innovative waste disposal systems will also provide in accordance with the Department of Health rules and regulations, the periodic pumpout and disposal of the "black water" via municipal sewage treatment plants. The annual maintenance of the individual residential units is also the responsibility of each respective residence. Correspondence with the various firms who sell these toilet systems indicate that an annual operating cost of under \$100 is realistic. Disposal of the "grey water" will be accomplished onsite in accordance with the Department of Health rules and regulations. The report on "grey water" disposal based on drilling and percolation tests is enclosed for your review and information. We are also providing for your information, narrative data received from the vendors of the waterless toilet system.

4. Recreational Facilities

Due to the space limitations of the proposed project site, the applicant advises that he will comply with Ordinance No. 4611 by monetary compensation rather than dedication of land.

We hope that these responses to the issues raised in your letter address sufficiently those areas of concern. We will be pleased to discuss them further with your office if there are any points not sufficiently clear. Thank you for your continuing interest.

Very truly yours,

F. J. Rodriguez

FJR:dhe

Attachments

cc: Environmental Quality Commission
Windward Partners

RECEIVED

MAR 0 9 1978

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

March 23, 1978

February 24, 1978

STP B. 4729

Mr. Donald Bremner, Chairman
Environmental Quality Commission
550 Halekaunaha Street
Honolulu, Hawaii 96813

Dear Mr. Bremner:

Subject: Environmental Impact Statement for
Maikane Residential Subdivision
Maikane, Koolauapoko District, Oahu

Thank you very much for giving us the opportunity to review and comment on the above-captioned environmental impact statement. We have no comments to offer which could improve the statement other than to fortify our understanding that there will be direct access to Kanehameha Highway by all abutting lots, and that this access will be by way of the subdivision road.

The developer should be advised that construction plans for any work within the highway rights-of-way must be reviewed and approved by the Land Transportation Facilities Division and a permit would be required from that Division before such affecting improvements take place.

Sincerely,

R. Higashionna
R. HIGASHIONNA, Ph.D.
Acting Director

ALK:sh

cc: LT-P
Land Utilization
Mindward Partners

Mr. Ryokichi Higashionna, Ph.D.
Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Higashionna:

SUBJECT: Environmental Impact Statement for the Proposed Maikane Residential Subdivision, Maikane, Koolauapoko, Oahu, Hawaii

We have received your letter of February 24, 1978 relating to the above indicated EIS. The retained engineer for the project has indicated to us that lots No. 13, 14, and 15 (see Figure 3, page 5) will need to have direct access to Kanehameha Highway under the present plans. (We will include this information in the Revised EIS.)

The engineer has also indicated that he will discuss and coordinate final plans for the streets and access with the Department of Transportation Services, City and County of Honolulu and your Department's Land Transportation Facilities Division. As you have noted in your letter, construction plans when developed for any work within Kanehameha Highway rights-of-way will be submitted for approval to the Land Transportation Facilities Division. A permit would also be required for these work items.

Thank you for your continuing interest.

Very truly yours,

F. J. Rodriguez
F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Environmental Quality Commission
Mindward Partners

RECEIVED
FEB 27 1978

IN PARTIAL FULL FULFILLMENT OF THE POLICE
CITY AND COUNTY OF HONOLULU RECEIVED
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MAR 05 1978

Phone: 808-546-7510
16475
PIS #14-78-01
24 FEB 1978

FRANK E. FISH
MAYOR



KAZU HAYASHIDA
DIRECTOR
TELEPHONE 504

Department of Land Utilization
City & County of Honolulu
Honolulu Municipal Building
Honolulu, Hawaii 96813

Gentlemen:

Staff review of the "Environmental Impact Statements for the Proposed Waikane Residential Subdivision, Waikane, Koolaula District, Oahu" has been completed, and the Coast Guard has no objections or comments to offer on the project.

The opportunity to review and comment on the EIS is appreciated.

Sincerely,

J. V. CAFFEY
Captain, U. S. Coast Guard
Chief of Staff
Fourteenth Coast Guard District

Copy to:
Windward Partners
C/O C. Hawaii
EPA Region IX
Commandant (C-DET-7)

March 1, 1978

Environmental Quality Commission
Office of the Governor
550 Halekaunila St., Room 301
Honolulu, Hawaii 96813

Gentlemen:

Environmental Impact Statement for Waikane Residential Subdivision
Waikane, Koolaula District, Oahu, Hawaii

We have reviewed the Environmental Impact Statement for the subject development and are satisfied with their assessment of the development's impact on highways and streets servicing the area.

Very truly yours,

(507) KAZU HAYASHIDA
DIRECTOR

cc: DLU
Windward Partners
1020 J. Koolu Dr.
Kaliua, Hawaii 96734



United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 Ala. Moana Blvd., Room 5302
P.O. Box 50167
Honolulu, Hawaii 96850

RECEIVED
MAR 09 1978

March 1, 1978

Dept. of Land Utilization
City and County of Honolulu
Honolulu Municipal Building
Honolulu, HI 96813

Re: Draft EIS for the
Proposed Residential
Subdivision, Waikane,
Koolau-Poolo District, Oahu

Dear Sir:

We have reviewed the referenced document, dated February 1978, and are providing you with the following comments.

General Comments

Although this statement adequately describes the plant and wildlife resources in the project area, it should address the primary or direct impacts especially from "grey water" treatment on these resources in greater detail. Secondary impacts of urbanization will probably have the greatest affect on the project area particularly the nearshore zone. These impacts resulting from such activities as fills, seawalls, channels and piers, have been ignored and should be addressed in this statement.

Specific Comments

Page 2, C-Project Description, statement 5. The source and type of fill material should be identified in this section.

Page 5, Fig. 3-Preliminary Subdivision Plot. It appears from this map that the toe of the discharge apron is about 40-15 feet landward of the 40-foot setback boundary. This could induce significant shoreline erosion during heavy rains and cause silt deposited in the nearshore marine environment.

Page 11, C-Flood Hazard Zone. It should be noted that the Federal Executive Order 11988, re: development in flood plains, specifically requires the following provisions:

- (A) alternative action or locations considered;
- (B) extent of direct or indirect impacts;
- (C) measures to be taken to mitigate impacts; and
- (D) acknowledgement that all state and local floodplain regulations standards are being met.

This section also should include detailed descriptions of the non-structural measures necessary to protect against flood damage and losses.

Page 23, V-The Probable Impact of the Proposed Action on the Environment, paragraph 3. Potential soil erosion problems are identified here as being short-term and temporary. However, the present siting of the discharge apron could cause long-term adverse effects on the nearshore areas (see page 5 comments). In addition, secondary development activities such as shoreline fills and seawalls also could have long-term impacts on the adjacent shoreline and nearshore marine habitats.

Page 24, Section C-Drainage. See page 5 comments. Same page and section, Flood Hazard Zone. See page 11 comments.

Page 26, Section D-Sewage Collection and Disposal. It should be mentioned in this section what effects the "grey water" seepage pit treatment may have on the nearshore marine habitat in the project vicinity. This potential problem should be addressed in light of cesspool use by adjacent communities.

Page 30, VI. Any Probable Adverse Environmental Effects which Cannot Be Avoided. This section should address the long-term secondary impacts expected from wastewater treatment, shoreline fills, seawalls, piers, channels and other modifications which may effect nearshore habitats and their utilization by fish and wildlife resources.

Page 33, IX. Mitigation Measures Proposed to Minimize Impacts, item No. 1. We cannot condone the disposal of construction debris in or adjacent to any aquatic habitat or wetland area where fish and wildlife resources would be adversely impacted. We suggest that this statement be modified to reflect the disposal of debris will occur only in approved land fills.

Page 35, XI. An Indication of What Other Interests...Action, items 2 and 6. The secondary impacts of urbanization and associated activities in the nearshore area may make these statements inappropriate.

We appreciate this opportunity to comment.

Sincerely yours,

Maurice H. Taylor

Maurice H. Taylor
Field Supervisor

cc: Windward Partners
EIS Office of the Governor
(HA)

Save Energy and You Serve America!



ENVIRONMENTAL
COMMUNICATIONS
INC.

March 23, 1978

F. J. RODRIGUEZ,
PRESIDENT

Mr. Maurice H. Taylor
March 23, 1978
Page Two

Mr. Maurice H. Taylor
Field Supervisor
Fish and Wildlife Service
Department of the Interior
P. O. Box 50167
Honolulu, HI 96850

Dear Mr. Taylor:

SUBJECT: Environmental Impact Statement for the Proposed Waikane
Residential Subdivision, Waikane, Koolauupoko, Oahu, Hawaii

Your letter of March 1, 1978 regarding the above indicated EIS has been reviewed. Our responses to your comments have been provided below on an item by item basis.

General Comments and Page 26, Section D - Sewage Collection and Disposal

Your concern is that the grey water seepage wells may have an effect on the near shore marine habitat in the project vicinity. There also appears to be some concern because of "cesspool use by adjacent communities." It is our belief that the discharge of grey water into seepage wells will not have any adverse effects on the marine habitat. Grey water consists of discharges from showers, sinks, washing machines, dishwashers. It is well known that grey water does not present a bacteriological hazard in receiving waters. In this instance, the discharge of grey water into a geological formation will be subjected to partial filtration. This filtered grey water upon reaching the underground water strata (which has been contaminated by cesspool discharges) would improve rather than deteriorate the mixed water reaching the marine environment.

Since some grey water contains chlorine derivatives (from clothes and dish washing) this would have a beneficial effect through bacteriocidal action. In view of the above statements, we feel that the effects on grey water on the near shore habitat would be beneficial rather than deleterious.

Page 2, C - Project Description, statement 9

The Revised EIS will include additional information on the soils characteristics. The fill will be obtained from lands across the project site, mauka of Kanehameha Highway. (These lands are presently owned by the developer; a permit must be obtained to remove the required amount of soil in compliance with the City and County of Honolulu's Grading Ordinance.) Fill will also be used in those instances where soil conditions (e.g. organic materials) and steep embankments may create soil instability. The services of a certified soils engineer will be retained to determine the suitability of the soils.

225 GREEN STREET • P. O. BOX 536 • HONOLULU, HAWAII 96809 • TELEPHONE (808) 521-8341

The following information will be included in the Revised EIS on the proposed drainage:

"Drainage will be handled by a pipe system with an outlet located within lot 5 near the shoreline. This outlet, or discharge apron, has been relocated further mauka to provide a storm water dispersion area consisting of loose rubble paving. The estimated storm water runoff velocity through the discharge apron, without baffles, is 7.5 fps. Water flow depth approximated at 0.80 feet. Installation of baffles within the apron is expected to decrease the flow velocity and correspondingly increase the water depth. It is expected that the runoff water after leaving the loose rubble paving will have a flow velocity, such as not to cause serious erosion of the beach area."

Page 11, C - Flood Hazard Zone

This matter has been reviewed by the retained engineering consultant, Mr. Yasuo Arakaki, who has responded in a letter dated February 28, 1978. He states, "Preliminary investigation shows that the subject property will not be affected by floodflows of Hakipuu Stream, resulting from design floodflows in accordance to the City and County drainage standards." His letter and plans are attached for your inspection. It is his professional opinion that the design standards to be employed will not affect adjacent areas around Hakipuu Stream and that the flood boundary will be at the 4 foot elevation; homes will be built above the 20 foot contour interval.

If the homeowner has placed plants, backyard recreation apparatus, hibachis or barbecue grills within those areas having an elevation of 4 foot above mean sea level, damage of personal property will occur.

Page 23, V - The Probable Impact of the Proposed Action on the Environment, paragraph 3 and Page 30, VI - Any Probable Adverse Environmental Effects which Cannot Be Avoided

(Also see response provided to page 5, Figure 3, above.) The project does not include shoreline fills and/or seawalls.

Page 33, IX - Mitigation Measures Proposed to Minimize Impacts, item No. 1

We have clarified this statement to read: "The retained contractor will be responsible for the appropriate disposal of the accumulated litter and debris. The contractor will transport and dispose of this refuse at an approved landfill."

Mr. Maurice H. Taylor
March 23, 1978
Page three

GEORGE R. ARYOSHI
GOVERNOR



ANDREW T. CHANG
DIRECTOR OF SOCIAL SERVICES AND HOUSING

Page 35, XI. An Indication of What Other Interests ... Action, items 2 and 6

We have reviewed items 2 and 6 and we feel that the proposed action will not result in depletion of natural resources (e.g. sand, coral) nor will it involve any dredging, filling or other alterations to the Bay.

Thank you for your continuing concern.

Very truly yours,

F. J. Rodriguez

FJR:dhe

Enclosure

cc: Department of Land Utilization
Environmental Quality Commission
Windward Partners

RECEIVED
MAR 09 1978

STATE OF HAWAII
DEPARTMENT OF SOCIAL SERVICES AND HOUSING
P. O. Box 339
Honolulu, Hawaii 96809

March 6, 1978

MEMORANDUM

TO: Environmental Quality Commission
550 Halekauwila St., Room 301
Honolulu, Hawaii 96813

FROM: Andrew T. Chang, Director
Department of Social Services and Housing

SUBJECT: Environmental Impact Statement - Makane Residential Subdivision

Subject EIS has been reviewed for its impact on departmental programs.

We have no comment to make and we are returning the EIS for your usage.

Thank you for the opportunity to review and comment.

DIRECTOR

Attachment
cc: Governor (OEQC)
Dept. of Land Utilization, C&C
Windward Partners

MAR 7 1978

(P)1369.8

Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

RECEIVED
MAR 10 1978

Gentlemen:

Subject: EIS for the Proposed Waikane
Residential Subdivision

The subject project will not have any adverse environmental effects on any existing or planned facilities serviced by our agency.

Thank you for this opportunity to review.

Very truly yours,

RIKIO NISHIOKA
State Public Works Engineer

RI:ll
cc: Windward Partners, 1020 J Koa Drive, Kailua, Hawaii 96734
Mr. R. O'Connell

1-11 3/78. 95.

March 7, 1978

State of Hawaii
Environmental Quality Commission
Office of the Governor
550 Halekauwila St., Room 301
Honolulu, Hawaii 96813

Department of Land Utilization
City and County of Honolulu
Honolulu Municipal Building
Honolulu, Hawaii 96813

Windward Partners
1020-J Keolu Drive
Kailua, Hawaii 96734

Re: Waikane Residential Subdivision
TMK 4-8-03:7, 8 & 9
Waikane, Koolaupoko, Oahu, Hawaii
Environmental Impact Statement

Gentlemen:

The purpose of this letter is to object to the adequacy of the environmental impact statement (hereinafter referred to as "EIS") prepared by Environmental Communications, Inc.^{1/} as the agent for Windward Partners, in the above-referenced matter.

I. Background.

The environmental impact statement carefully avoids any mention of the development plans of Windward Partners in the Waikane area except for the five-acre lot mentioned in the EIS. It should be brought to your attention that Windward Partners owns in excess of 1,000 acres of land in Waikane Valley. Indeed, the five-acre parcel involved in this EIS was part of a purchase by Windward Partners of approximately 545 acres in Waikane Valley in May 1975.

The EIS completely ignores Windward Partners' nearby and closely connected landownings in Waikane Valley. This purposeful omission hopes to generate piecemeal planning for a closely related and integrated community and thereby

^{1/}It is not without coincidence that Environmental Communications, Inc. has been the preparer of a number of other environmental analyses for Windward Partners' numerous development schemes in the Waiahole-Waikane area. Even more noteworthy is that such analyses always conclude that there will be no significant adverse effects upon the environment.

permit the landowner to "piggy-back" its justifications for future development. This assures the defectiveness of the EIS since it is silent on these consequences.

Furthermore, the EIS is deficient in the following aspects:

II. Erroneous assessment of the impact on existing public services.

a. Highways. Kamehameha Highway is presently at full carrying capacity. Maier (1974). Testimony before the State Land Use Commission on Windward Partners' 1976 application to reclassify agricultural land in Waikane Valley (hereinafter referred to as the "Hearing") elicited additional testimony to this effect. Furthermore, the intersection of Kahekili Highway and Likelike Highway is in excess of capacity. According to the EIS, residents of the project area will be working in Honolulu or Leeward Oahu. This will result in even more strain on an inadequate transportation corridor. The EIS misstates this inadequacy in transportation facilities.

b. Sewage. Sewage disposal for the project site is inadequate. Kaneohe Bay is classified "AA" waters. The Department of Health in the Hearing disapproved the use of cesspools for a similar project in this area on the mauka side of Kamehameha Highway.

The porous soil conditions and proximity to Kaneohe Bay for this project site will compound the inadequacy of cesspool treatment facilities.

c. Fire protection. Exacerbation of the inadequate fire protection system for this area poses added danger to the existing residences. Approval of this subdivision in the light of inadequate fire protection may also raise complicated legal issues as to the City and County's liability if fire damage should result either to the existing residences or to the houses to be constructed in the project area.

III. Erosion and drainage.

The extensive fill operation contemplated by the EIS will cause massive erosion into Kaneohe Bay. The use of silting basins will not hinder the flow of colloidal suspensions into Kaneohe Bay thereby causing extensive damage to the best coral growth existing in Kaneohe Bay. Hearing testimony clearly established this inadequacy in the use of silting basins.

Kaneohe Bay is a unique natural resource. The southern end has been extensively damaged by multiple projects of the sort here proposed. Yet, the EIS is silent on the impact of colloidal suspensions. Extensive scientific testimony was elicited during the Hearing on this issue; yet the EIS pretends that the problem is non-existent.

Furthermore, comparison of drainage impacts of the project site with the run-off from Waikane Stream is misleading since Waikane Stream serves a fundamentally natural watershed with no fill in any of its areas.

Additionally, the project area is the natural drainage area for a small stream. The EIS is silent on the impact of the alteration of this drainage area on neighboring lands. Change of drainage patterns by mere grading of the project site could present substantial damage to the Kamaka Sub-division on the Kahaluu side of the proposed project site.

IV. Inadequate beach access and possible violation of Section 7-1, Hawaii Revised Statutes, as amended.

The EIS states that the project site will have a 12 feet in width beach access pathway. The plans indicate that this pathway will also serve a drain. For a substantial number of years, the public has utilized a historic pathway well in excess of 12 feet to go to the beach. Hence, it appears that the project site will result in inadequate beach access.

Certain kama'ainas indicate that the existing pathway has been used since time immemorial. Under Section 7-1, Hawaii Revised Statutes, as amended, this may be a right-of-way guaranteed to all residents on the ahupua'a of Waikane Valley. Obliteration of this right-of-way, as the EIS suggests would result from the project, possibly violates the Section 7-1, Hawaii Revised Statutes, rights of the inhabitants of Waikane Valley.

V. Housing.

There is no certainty that this project will result in homes. Speculation may well be the only result; especially so in light of the development plans of Windward Partners in the Waikane Valley area mauka of Kamehameha Highway.

Contrary to the EIS, present housing on the makai side of Kamehameha Highway between Kahaluu and Kualoa is predominantly rural and not beach cabins or homes for the affluent. The existence of an enclave of beach-type, urban dwellers in this area would not be compatible with existing uses and would further the already unfortunate spectre of repeating the Kualoa to Laie situation of having the rich living makai of Kamehameha Highway and the poor living mauka of Kamehameha Highway. This result does not serve any sound public policy.

VI. Destruction of taro land.

The project land used to be taro land. In the 1950's, however, the McCandless Estate permitted extensive fill operations on this site in preparation of a possible commercial area. Underlying such fill is good agricultural land which could be reclaimed and placed into commercial taro production.

The land of the project site was bought together with approximately 540 acres of agricultural land. An equitable allocation of the purchase costs does not result in the conclusion that agriculture is not commercially possible. Furthermore, dedication of such land to agricultural uses would result in taxation at an agricultural rate.

VII. Historical or archaeological sites.

No surveys have been made of the project site. Nevertheless, this area is one of the most sacred areas of the Hawaiians. Charlot, Waiahole-Waikane. Bishop Museum should be retained to conduct an examination prior to subdivision. Without this examination, there can be no conclusion that adverse impacts on historical or archaeological sites would not result by the approval of this project.

Very truly yours,

WAIHAOLE-WAIKANE COMMUNITY ASSOCIATION

By Loni Nakamoto
Its President

Donald R. Hansen
President, Council of Presidents

Jeffrey R. Reppert
Chm., for the
Kahaluu NB-29
8 Mar 78
by vote of 8-0

David Y. Chan 4-8-3-11
4-8-3-43

Eugene W. King
Bernice Kang-4-8-03

Judy Soutain
Henriette Faria -4-8-08-02

Hillean K. Polia 4-8-03-19
4-8-003-017

Lickey Thompson
office manager
Life of the Land.

Adjacent
Property
Owners

Mr. Guy Nakamoto
March 23, 1978
Page Two

ENVIRONMENTAL
COMMUNICATIONS
INC.

March 23, 1978

Mr. Guy Nakamoto
Maiahoie-Waikane Community
Association
P. O. Box 723
Kaneohe, HI 96744

Dear Mr. Nakamoto:

SUBJECT: Environmental Impact Statement for the Proposed Waikane Residential Subdivision, Waikane, Koolauloko, Oahu, Hawaii

We have received your letter of March 7, 1978, commenting on the above indicated EIS. Prior to addressing the specific comments of your letter, we would like to state that your reference to our firm and your implication that we are puppets for the developer is erroneous, inflammatory, and inappropriate. As a business organization, we take pride in "repeat business" clients returning to us for environmental consulting work; however, this does not mean that a "white-wash" job will be part of the working agreement. For your information, our 1974 reports have indicated that there is a potential for significant adverse effects on the environment. Working with the project engineer, our environmental consultants attempt to mitigate such impacts; this is especially true for surface water runoff and drainage discharge. Further, one of the reasons that our company is retained to continue the environmental work is the familiarity of our consultants with the project (having prepared the earlier baseline work).

Your comments are addressed on an item by item basis below.

I. Background

We do not understand the rationale that concludes that this project will "permit the landowner to 'piggy-back' its justifications for future developments." The project site is designated Urban (State Land Use Commission), and is zoned R-6. The number of units planned is considerably lower than the R-6 zoning allows; the lands on the Kahaluu and Punaluu side of the parcel are developed and in similar use. The project is separate and is not related to any urban development proposed in the area. Apparently the landowners/developers being the same is the only basis for your conclusions, and we feel this is erroneous. The Revised EIS will include this statement.

II. Erroneous Assessment of the Impact on Existing Public Services

a. Highways. The study by Water (1974) was misinterpreted. Upon careful review of the study, Water is saying that Kamehameha Highway has over capacity, meaning that the Highway has sufficient carrying capacity for "additional" vehicles. Furthermore, Henry Av, a traffic consultant has advised us that:

"Kamehameha Highway under its present condition as a two-way, two-lane highway has a capacity of 900 vehicles per hour in one direction and 1,350 for both directions of travel for level of Service C. Since the 1976 peak hour volume is only 581 vehicles for both directions of travel, Kamehameha Highway will have sufficient capacity to meet the vehicles generated by this project."

b. Sewage. Cesspools will not be used for the proposed project. The "grey water" disposal has been addressed in a report prepared by Meyer Bogost, environmental engineer. For your information and review a copy of Mr. Bogost's report is attached.

There also appears to be some concern because of "cesspool use by adjacent communities." It is our belief that the discharge of grey water into seepage wells will not have any adverse effects on the marine habitat. Grey water consists of discharges from showers, sinks, washing machines, dishwashers. It is well known that grey water does not present a bacteriological hazard in receiving waters. In this instance, the discharge of grey water into a geological formation will be subjected to partial filtration. This filtered grey water upon reaching the underground water strata (which has been contaminated by cesspool discharges) would improve rather than deteriorate the mixed water reaching the marine environment.

Since some grey water contains chlorine derivatives (from clothes and dish washing) this would have a beneficial effect through bacteriocidal action. In view of the above statements, we feel that the effects on grey water on the near shore habitat would be beneficial rather than deleterious.

c. Fire protection. Fire protection services are available primarily on an emergency basis (i.e. fire calls). The 15 additional homes will not improve the present inadequate fire protection service currently considered inadequate. This will be so stated in the Revised EIS.

III. Erosion and Drainage

The following information will be included in the Revised EIS on the proposed drainage:

"Drainage will be handled by a pipe system with an outlet located within lot 5 near the shoreline. This outlet, or discharge apron, has been relocated further mauka to provide a stormwater dispersion area consisting of loose rubble paving. The estimated storm water runoff velocity through the discharge apron, without baffles, is 7.5 fps. Water flow depth approximated at 0.80 feet. Installation of baffles within the apron is expected to decrease the flow velocity and correspondingly increase the water depth. It is expected that the runoff water after leaving the loose rubble paving will have a flow velocity, such as not to cause serious erosion of the beach area."

The hearings which you refer to (1974) dealt with a significant amount of acreage (1,000+ acres) which were being proposed for redesignation from agriculture to urban. These hearings discussed the impact of urbanization on

water quality. Because this project is approximately 200 times smaller than what was being discussed at the hearing, we feel that your comparison of this project with the ramifications of the 1,000 acre proposed redesignated is inappropriate.

The statements in the EIS comparing the drainage run-off quality with that of Waikane Streams will be deleted.

The project engineer, Mr. Yasuo Arakaki, has prepared a Drainage Study for the proposed project. (A copy of the Drainage Study/Map is included for your information and review.) It is his professional opinion that the proposed drainage system will adequately accommodate the drainage presently being received from the adjacent areas. The drainage patterns in the surrounding areas will not be affected. In addition, the drainage plans must meet the requirements of the Department of Public Works, City and County of Honolulu.

IV. Inadequate Beach Access and Possible Violation of Section 7-1, Hawaii Revised Statutes, as Amended

Public access to the shoreline is provided (as noted in the EIS); this access will be coordinated and planned with the Department of Parks and Recreation.

Regarding Section 7-1, HRS, we have reviewed this Section and find that it relates to the tenants' rights to utilize a right-of-way through the landowner's property. We note that there are no tenants on the proposed site, therefore, we question the applicability of this interpretation.

V. Housing

We have no way of determining the individual purchaser's plans for the proposed lands. This will be noted in the Revised EIS.

It will be stated that the present housing on the makai side of Kauehaneha Highway between Kahahuu and Kuafoa are single family homes, some of which are beach cabins or more expensive beach homes.

VI. Destruction of Iaro Land

The project land is not presently nor in the recent past (20+ years) been used for Iaro land. The land could be reclaimed for agriculture; however, it is the economic feasibility of such uses which would be prohibitive as stated on page 31.

VII. Historical or Archaeological Sites

The historical or archaeological concerns are discussed on page 19 of

the EIS. We feel that on the basis of the information provided, your comment is inappropriate.

A copy of your letter and this response will be included in the Revised Environmental Impact Statement.

Very truly yours,

F. J. Rodriguez

FJR:dhe

Enclosure

cc: Department of Land Utilization
Environmental Quality Commission
Windward Partners

NEIGHBORHOOD BOARD NO. 29

KAHALUU COMMUNITY CENTER
47-232 WAHKEE ROAD
KAHOOLA, HAWAII 96744

Hoeia Kea, Kahaolu'u, Waikohole, Waikane, Hakipuu and Kualoa



"Let us not ever have an unhappy minority"

9 March 1978

- Sub-area 1 C. Hoce
- Sub-area 2 G. Kakimoto
- H. Hottendorf
- R. Nakata
- L. Tong
- Sub-area 3 J. Harper
- F. Roppun MD
- Chairman J. Wilson
- Sub-area 4 Ed Sales
- V. Van Egge
- Sub-area 5 R. Hollinger
- S. Souza
- C. Tod
- Sub-area 6 K. Payne
- Secretary B. Shimamoto
- Vice-chm V. Van Egge

Mr. George Moriiguchi, Director
Dept of Land Utilization
City & County of Honolulu
650 So. King St
Honolulu 96813

Dear Mr. Moriiguchi:

Re: Waikane Residential Subdivision
TRK 4-8-03: 7, 8 and 9 EIS

The Kahaolu'u Neighborhood Board No. 29, at its regular meeting on 8 March 78, voted unanimously, with 8 out of 15 members Present and voting, to endorse the response of the Waikohole/Waikane Community Ass'n to the Environmental Impact Statement for the proposed Waikane Residential Subdivision in the Koloalupoko District of Oahu.

The KRB-29 recommends that the DLU deny the application for this development.

In reviewing the EIS, the KRB-29 notes that the 5 acres makai of Kom Bay at the Waikane-Hakipuu boundary assessed at a value of \$375,000 which means the lots may sell for around \$13,468 to \$64,594, plus costs of infrastructure and profit, before any homes can be built. It becomes apparent, therefore, that only the very wealthy will be able to finance home-building on these lots. There is no doubt, consequently, that property values in the vicinity will be increased. Whether the area will be "enriched" is another matter.

The incompatibility of such a high-priced enclave with a rural, agricultural neighborhood of low-income people, is of major proportions. This points up the fact that the City's New General Plan has designated "urban fringe" land use to the Kaneohe-side of Kahaolu'u streams, and that the northern part of Kahaolu'u on out to North Shora has been planned for "rural" land use. The Governor's Windward Regional Plan has gone along with this design, and so has the State Plan. The affluent urban enclave proposed, would be the "koo-in-the-door" leading to further urban development in the Neighborhood. 15 expensive homes translate into ca. 60 people and 20-30 cars -- a 14% increase in the population of Waikohole/Waikane.

The KRB-29 notes that the 5 acre area includes a gully that will re-

NEIGHBORHOOD BOARD NO. 29

KAHALUU COMMUNITY CENTER
47-232 WAHKEE ROAD
KAHOOLA, HAWAII 96744

Hoeia Kea - Kahaolu'u - Waikohole - Waikane - Hakipuu - Kualoa



"Let us not ever have an unhappy minority"

KRB-29 to DLU re Waikane Residential Development

quire 30,000 cu. ft. of fill; that the present landscape indicates a previous fill; that the soil is unstable with a previous cover, now buried, of porous organic material of considerable depth that is not conducive to firm house foundations, that does not permit cesspools to function well, and that is not likely to accept storm drainage; that the proposed cut and fill will have a major impact on the topography of the land; that the view planes from Kom Bay will be over and between reefs and buildings rather than through foliage, as now; that the view from Kualoa Regional Park and from the recreational waters of Kaneohe Bay towards this proposed development, will emphasize the loss of open space and a diminution of the "country" atmosphere; that the area's former use was and potential use is, in large-growing.

The KRB-29 notes that the response from the Department of Health is largely in the negative for this project; that neither cesspools nor grey-water catchments are likely to be permitted in such soil and so close to AA-waters Kaneohe Bay; that the mandate on the buyer and home-builder to provide "self-contained flush toilet" type systems are only for 10 years; that there is no stipulation as to how the storage tanks are to be emptied, or by whom; that the chances of such systems failing are addressed as a possible adverse impact, and that the comparison with such use at Maekahana is completely false -- at a public park, when facilities fail, the park can be closed, whereas lived-in homes can not be evacuated; that the run-off from roofs, gutters, driveways and storm drains is quite likely to pollute Kaneohe Bay with oil, gasoline and chemicals; that this runoff will be pre-cipitous and violent and likely to destroy the coral and the reef at this "clean" end of the Bay -- nowhere similar to the outflow of Waikane stream.

The KRB-29 notes that the additional use of domestic water in such a development will tax even further the capability of the BWS to stay within the restrictions of Oahu's endangered supply of potable water; that the Governor has dedicated this State not only to controlling its rate of population growth, but also to further a greater degree of self-sufficiency, by encouraging and promoting agriculture, which also requires clean, fresh water in abundance.

The KRB-29 notes that public access to the beach within this development will be seriously restricted to a narrow lane which brave and adventurous people will have to negotiate, unembarrassed enough to go down a dead-end private road, with watchdogs probably barking at them.

The KRB-29 notes, finally, that the Department of General Planning, together

NEIGHBORHOOD BOARD NO. 9
 KAHALOU COMMUNITY CENTER
 47232 WAHEE ROAD
 KAHALO, HAWAII 96744

Hoola Koa - Kahala'u - Waiahole - Waikane - Hekipuu - Kualoa

"Let us not ever have
 an unhappy minority"



RMB-29 to DEU re Waikane Residential Subdivision

with the 32 Neighborhood Boards or Lead Neighborhood Organizations,
 are working on completing the Development Plans for Oahu, and that
 this application for a subdivision, therefore, is premature.

We appreciate the "No Action" alternative.

Aloha,

Frederick Reppun

J. I. Frederick Reppun MD
 Chairman

cc BQC
 Windward Partners

Enc.

- ~~Sub-area 1~~
- ~~R. Fernandez~~
- ~~X. Fernandez~~
- ~~Sub-area 2~~
- ~~P. Aina~~
- ~~B. Holtendorf~~
- ~~L. Wong~~
- ~~Sub-area 3~~
- ~~J. Harper~~
- ~~L. Kaluhya~~
- ~~P. Rogovin MD~~
- ~~Chairman~~
- ~~Sub-area 4~~
- ~~Bob Nakaya~~
- ~~V. Han Elobe~~
- ~~Sub-area 5~~
- ~~K. Miller~~
- ~~S. Souza~~
- ~~C. Tod~~
- ~~Sub-area 6~~
- ~~B. Shimamoto~~
- ~~K. Payne~~
- ~~Secretary~~

ENVIRONMENTAL
 COMMUNICATIONS
 INC.

March 23, 1978

Dr. J. I. Frederick Reppun
 Chairman
 Neighborhood Board No. 29
 Kahala'u Community Center
 47-232 Wahee Road
 Kaneohe, HI 96744

Dear Dr. Reppun:

SUBJECT: Environmental Impact Statement for the Proposed Waikane
 Residential Subdivision, Waikane, Koolauloko, Oahu, Hawaii

We have received and reviewed your correspondence dated March 9, 1978 commenting on the above indicated EIS. In general, we find that your letter and the position of the Neighborhood Board is one which strongly opposes the project, consequently, the comments and view points are negative and at times highly subjective. We feel, nonetheless, that this opposition must be recognized in the EIS. Because the document is one of full disclosure (subject to the availability of reasonable data) it should discuss both sides of supporter and opponent of the project. With this premise, we have attempted to address on an item by item basis your organization's concerns:

1. Cost of house lots: increase on property value. At this time, the cost of improving the lots has not been calculated and, therefore, no selling price has been determined. It is anticipated, however, that the lots will be within the price range of middle and upper middle income families (this is based on the present fair market land value determined in the past by comparable land sales of adjacent parcels). Property values of adjacent lands will likely increase. Your comments imply that such an increase is undesirable; this position will be recognized in the Revised EIS.

2. Incompatibility of the project with "a rural, agricultural neighborhood." Pages 28 and 29, items 3 and 4, respectively discuss this aspect. It is unfortunate that the Neighborhood Board finds that two different "lifestyles" cannot coexist. As we have stated in the EIS prepared for other areas (Punaluu, Kahuku, Sunset Beach) on Oahu, different economic strata have coexisted without social conflict. For the most part, we cannot predict the cultural effect of placing different socioeconomic groups within the same or adjacent area. We feel that the "acceptance" of this new subdivision rest primarily in the existing inhabitant's attitudes and behavior to new residents. It is our opinion that if no social conflicts are created by the existing residences (e.g. resentment, "have" versus "have not", ethnic discrimination), these two lifestyles can and should coexist.

F. J. HOBBS, JR.
 PRESIDENT

We have reviewed both the objectives and goals of the 1977 General Plan and the Windward Oahu Regional Plan (State Department of Planning and Economic Development). We will state that: "The 1977 General Plan (objectives and policies) does not make specific reference to the project area; however, its objectives and policies can be subjectively treated to support and not support the project." Because of the high degree of subjectivity involved and the number of interpretations which could be rendered, and because no specific references are made even on a district basis, we have not itemized and discussed each individual policy and objective in the EIS.

The Windward Oahu Regional Plan prepared by the State Department of Planning and Economic Development does have information which relate to the Waiahole-Waikane area. Two (2) items in the Plan which relate to the area indicates that: (1) the rural/agricultural/open space nature of the area is desired by the existing residents; and (2) the Waiahole-Waikane-Ikapiuna-Kualoa, Kaawa, Kahana Valley, Punaluu, Hauula, Kahuku, Sunset Beach-Pupukea-Waikane areas are designated rural. The Plan continues to state that: "This regional settlement pattern designation calls for the conversion of existing urban land use districts to rural land use districts initially." Based on these two findings identified in the Plan, we will note in the Revised EIS that the project is not consistent with the Plan.

Further, we do not understand the rationale that concludes that this project is the "toe-in-the-door" leading to further urban development in the "neighborhood." It is an urban designated (State Land Use Commission), residentially zoned 5 acre parcel. The number of units planned is considerably lower than the R-6 zoning allows; the lands on the Kahaluu and Punaluu side of the parcel are developed and in similar use. The project is separate and is not related to any urban development proposed in the area. Apparently, the landowners/developers connection with the mauka portions of Waikane Valley is the only basis for your conclusions. We question the basis of your conclusions.

It is estimated that the gully occupies 15 to 20 percent of the project site. The fill for this gully is planned to be acquired from the lands mauka of Kaneohe Highway. (These lands are presently owned by the developer; a permit will be required to remove the amount of soil in compliance with the City and County of Honolulu's Grading Ordinance.) Fill will also be used in those instances where soil conditions (e.g. organic materials) and steep embankments may create soil instability. The services of a certified soils engineer will be retained to determine the suitability of the soils.

The following information will be included in the Revised EIS on the proposed drainage:

"Drainage will be handled by a pipe system with an outlet located within lot 5 near the shoreline. This outlet, or discharge apron, has been relocated further mauka to provide a storm water dispersion area consisting of loose rubble paving. The estimated storm water runoff velocity through the discharge apron, without baffles, is 7.5 fps. Water flow depth approximated at 0.80

feet. Installation of baffles within the apron is expected to decrease the flow velocity and correspondingly increase the water depth. It is expected that the runoff water after leaving the loose rubble paving will have a flow velocity, such as not to cause serious erosion of the beach area."

Regarding the mauka view of the project site from Kaneohe Highway, we note that there is no view of the ocean front along the Highway (except for a narrow dirt roadway from which one can barely see the shoreline from the top of the roadway). The dense foliage constitutes the present view; this view will be modified to home frontages. The view from Kualoa Regional Park and from the waters of Kaneohe Bay towards the proposed development will be altered and this will result in the "loss of open space" in that sense. These views will alter and may be similar to that of the adjacent Kamaka Subdivision.

The EIS (page 31) addressed the alternative agricultural use of the land. Taro-growing on the site is impractical due to the lack of water supply, and would require significant clearing and grading of the site which also affect the land and shore environments.

It is noted that cesspools will not be utilized; instead, a self-contained waterless toilet will be used (as provided by the deed covenant, Exhibit 1). The mandate that the lot owners use these "self-contained flush toilet" for 10 years was based on our understanding that the variance from Chapter 38 (which must be obtained by the Department of Health for the use of these toilets) is applicable for a 10-year period and after that period, it must be renewed. An extension of that variance must be obtained by the homeowner if sewer lines are not available at the duration of the initial 10-year variance period. There was no intention to imply that these toilets would be removed or not used after 10 years.

In response to your comment that these toilet systems may fail, we have been informed by the representatives of the toilet systems' manufacturers that the maintenance of the toilets include emergency services (such like conventional plumbing services when cesspools fail).

As indicated on page 13, 14, 15, and 16, this portion of Kaneohe Bay does not meet the present Ma-water standards. Additionally, the runoff will be similar to that of the existing residential shoreline developments (e.g. Kamaka Subdivision).

Using a higher than average water consumption figure, we anticipate that an average family of four (4) will consume approximately 600 gallons per day (gpd) making the total water consumption for the 15 homes 9,000 gpd.

The availability of water for the project has been resolved per the letter dated March 8, 1978 from the Board of Water Supply. They advise that on payment of our pro-rata share for source, storage, and transmission, there will be water available for this project.

Your statement: "The KMB-29 notes that public access to the beach within

Dr. J. I. Frederick Reppun
March 23, 1978
Page Four

this development will be seriously restricted to a narrow lane which brave and adventuresome people will have to negotiate, unembarrassed enough to go down a deadend private road, with watchdogs probably barking at them." This statement has two errors: (1) the public access will be 121 feet in width and we do not find this to be "narrow"; and (2) the proposed roadway for the subdivision is planned to be dedicated to the City, thus it will be a public road. Furthermore, the public access is reserved for that purpose and we sense that from your comment, it would be the attitude of the individual which will be the hindrance.

Final development plans and land use plans are being completed and to delay any project indefinitely to conclude that planning studies are necessary is felt to be unjustified.

We have attempted to respond to your concerns, but as mentioned initially, we understand that your opposition to this project is irreconcilable.

Very truly yours,



F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Environmental Quality Commission
Windward Partners



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT. SHAFTER, HAWAII 96859

PODED-PV

9 March 1978

Mr. Fred J. Rodriguez
Windward Partners
1020 J. Keolu Drive
Kailua, Hawaii 96834

Hear Mr. Rodriguez:

We have reviewed your Environmental Impact Statement for the Proposed Waikane Residential Subdivision transmitted to us by the Office of Environmental Quality Control. We are pleased to see that you have incorporated our flood and tsunami hazard information into the document and your intention to coordinate your plans with us to insure that further flood prevention measures are not required. Again, we note that your project does not appear to involve any construction in navigable waters and waters of the United States; thus, a Department of the Army permit for the development is not required.

Our studies in Kaneohe Bay indicate that shoreline development eliminates or restricts public access to the shoreline, and further results in the construction of shoreline protection or boating facilities adjacent to individual shoreside properties. The construction of these structures usually obstructs or impedes any pedestrian movement along the shore. The concern for the maintenance of public access and use of shoreline waters prompted the Corps to propose recommendations as part of the Kaneohe Bay Urban Water Resources Study that additional shoreline development in the northern third of the bay be restricted. Furthermore, public access along with other factors will be considered in any Department of the Army permit application review. We suggest you contact Mr. Stanley Arakaki, Chief, Operations Branch, telephone 438-9258, for any further information regarding permit requirements, and Mr. George Naito, Project Manager, regarding the Kaneohe Bay Urban Water Resources Study, telephone 438-2249.

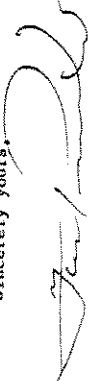
FODED-PW

Mr. Fred J. Rodriguez

9 March 1978

We thank you for the opportunity to review and comment on the environmental statement.

Sincerely yours,



F. M. PENDER
Colonel, Corps of Engineers
District Engineer

CF:
Department of Land Utilization
City and County of Honolulu
Honolulu Municipal Building
Honolulu, Hawaii 96813

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

March 23, 1978

Colonel F. M. Pender
District Engineer
Corps of Engineers
U.S. Department of the Army
Building 230
Fort Shafter, HI 96858

Dear Colonel Pender:

SUBJECT: Environmental Impact Statement for the Proposed Waikane Residential Subdivision, Waikane, Koolauloko, Oahu, Hawaii

We have received and reviewed your letter of March 9, 1978 regarding the above indicated EIS. Mr. Yasuo Arakaki, the project engineer, has reviewed the question on whether the floodflows of Hakipuu Streams will affect the subject property. Mr. Arakaki has stated: "Preliminary investigation shows that subject property will not be affected by floodflows of Hakipuu Stream, resulting from design floodflows in accordance to City and County drainage standards." For your further information, a copy of the plans showing Hakipuu Stream's drainage basin is provided.

In response to addressing the Corps' studies of Kaneohe Bay, we have taken the opportunity to discuss the draft of the Kaneohe Bay Urban Water Resources Studies with your staff. In general, this study recommends that the shoreline development in the northern third of the Bay (where this project is located) be restricted. We understand that the principal reason for this restriction is that residences in these shoreline areas may build piers and recreational structures which would restrict public access to the shoreline in addition to having impact on water quality. We will include your concern in the Revised EIS. In addition, we will note that the project itself does not include any work within the coastal waters. If a resident in the future desires any piers, seawalls, or other such structures within the navigable waters, his individual proposal is subject to a Shoreline Management Permit, Conservation District Use Permit, a Department of the Army Permit, and other appropriate permits which are necessary prior to the implementation of that action.

Thank you for your continuing concern on this matter.

Very truly yours,



F. J. Rodriguez

FJR:dhe
Enclosure
cc: Department of Land Utilization
Environmental Quality Commission
Windward Partners

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FARI
MAYOR



RAHON OLIPIAN
CHIEF PLANNING OFFICER

DGP2/78-527(CT)

March 9, 1978

Mr. George S. Moriguchi, Director
Department of Land Utilization
City and County of Honolulu
Honolulu, Hawaii

Dear Mr. Moriguchi:

Environmental Impact Statement for the
Proposed Waikane Residential Subdivision,
February 1978, TPK 4-8-03: 7, 8 & 9
Comments Requested February 8, 1978

We offer the following comments on the EIS.

Sewage Disposal

The developers propose to sell the lots with a covenant stipulating that homes to be built must have waterless, non-discharge toilet systems approved by the State Department of Health and that "grey" water will be disposed of through seepage pits (p. 6).

The EIS should have incorporated, in this discussion, the Department of Health comments of January 17, 1978 that poor subsoil formation precludes satisfactory performance of seepage pits and subsurface trenches or tile fields (item 5, p. 49).

In view of this, the EIS should indicate an alternative method of satisfactory wastewater disposal.

Water Supply

This is not adequately discussed. The Board of Water Supply withheld comments on the availability of water for the project pending submittal of a water master plan (letter of January 25, 1978, p. 57).

Mr. George S. Moriguchi
Page 2

Soils

Discussion on soils at the site is inadequate (p. 7). The EIS does not discuss the suitability of the soils for the proposed residential use. Neither are potential problems with the underlying layer of soft to medium organic materials in the northwestern section of the site discussed.

The EIS should list the soils engineer's recommended guidelines for earthwork, grading, stabilization fill and excavation. The relevant sections of the soils engineer's report should be included in the appendix.

Drainage and Topography

The EIS indicates that a natural gully winds through the project area (p. 11). How much of the site is covered by this gully should be indicated in the EIS. It is considerable.

The developers propose to fill this gully to a great depth--15 or more feet of fill seem to be proposed in places. Drainage concerns are not discussed in the EIS.

The EIS indicates that "approximately 100 cubic yards of material is planned to be excavated, with 30,000 cubic yards required for embankment" (p. 7). The EIS should indicate the possible sources of material to meet fill requirements. What is used for fill will affect percolation rates and, in turn, wastewater disposal. The EIS should indicate how many of the lots will be on the deeply filled ground.

Impact on Schools

The EIS indicates distances from the project area to existing schools. The EIS should indicate whether school bussing will be required. If so, what are the expected costs to government?

Socio-Economic Impacts

The EIS shows 1974 household income data for the Waiahole-Waikane area (p. 20). The EIS should estimate how many households presently in the area can afford housing in the proposed project, using standard guidelines for income/housing cost ratios.

The expected sales prices or range of prices for the lots should be indicated. The potential market for these lots should also be indicated.

Mr. George S. Moriguchi
Page 3

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ
PRESIDENT

March 23, 1978

Unresolved Issues

The EIS indicates that the only known unresolved issue is the sewage treatment and disposal system (p. 63).

In view of the letter from the Board of Water Supply, the availability of water for the project has not yet been confirmed. Thank you for affording us the opportunity of reviewing this impact statement.

Sincerely,



RAMON DURAN
Chief Planning Officer

RD:fmt

cc: ✓ Windward Partners

Dear Mr. Duran:

SUBJECT: Environmental Impact Statement for the Proposed Waikane Residential Subdivision, Waikane, Koolauapoko, Oahu, Hawaii

Your letter of March 9, 1978 relating to the above indicated EIS has been reviewed. Below we have provided responses to your comments on an item by item basis.

Sewage Disposal

In order to resolve the Department of Health's concern about satisfactory performance of seepage pits for the future homes, the developer retained Meyer, Bogost, an environmental engineer, to oversee drilling operations at two (2) locations on the project site to perform percolation tests. Mr. Bogost's subsequent report on "grey water" disposal is included for your review and information. The report concludes that: "The percolation test shows that one disposal well can take 6.4/1.8 or more than three and a half (3 1/2) times the maximum possible peak flow of grey water. The other hole can take 8.1/1.8 or more than four and a half (4 1/2) times the same peak flow. Thus even a 4 inch disposal well can safely absorb the quantity of grey water that may be generated by a home on one of these lots." A March 13, 1978 letter from the Department of Health reflects these latest test results and is attached for your information.

It is our feeling that the disposal of grey water through seepage pits will be satisfactory.

Water Supply

Using a higher than average water consumption figure, we anticipate that an average family of four (4) will consume approximately 600 gallons per day (gpd) making the total water consumption for the 15 homes 9,000 gpd.

The availability of water for the project has been resolved as per the letter dated March 8, 1978 from the Board of Water Supply. They advise that on payment of our pro-rata share for source, storage, and transmission, there will be water available for this project.



March 10, 1978

State of Hawaii
 Environmental Quality Commission
 Office of the Governor
 550 Halekawaia St., Rm 301
 Honolulu, Hawaii 96813

Department of Land Utilization
 City and County of Honolulu
 Honolulu Municipal Building
 Honolulu, Hawaii 96813

Windward Partners
 1020-J Keolu Drive
 Kailua, Hawaii 96734

Re: Waikane Residential Subdivision
 TMK 4-8-03:7, 8 & 9
 Waikane, Koolapoko, Oahu, Hawaii
 Environmental Impact Statement

Gentlemen:

This letter is a response to the Environmental Impact Statement dated February, 1978, submitted by Windward Partners for their Waikane residential subdivision at Waikane, Koolapoko District, Oahu. Three major omissions are evident. One is a failure to document conclusions. A second is reliance on old data. The third is a failure to consider the project in relation to the City and County's present effort to update the General Plan through the Development Plan process. More specifically:

- Physical Geography
 Failure to state characteristics of soil.
 Failure to document source for microclimate assertions.
- Flora and Fauna
 Use of 1974 study to document present wildlife.
 Failure to document source of vegetation description.
- Environmental Quality
 Use of an outdated 1974 study to show air quality.
 No attempt to document noise pollution.
 Basis for drainage study is 8 years old; Hawaii state standards are 4 years old.
 No documentation of causes of problems with cesspools

in area.
Highways and Streets
 No documentation that 2 lane Kamehameha Highway provides an acceptable level of service for present travel demands.
Socio-economic Aspects
 Study used is 4 years out of date.

RELATIONSHIP OF PROPOSED ACTION TO LAND USE PLAN

No mention is made of the Development Plans the City and County of Honolulu are now preparing for Windward Oahu nor is any mention made of the recent cut in population projections for the State put out by the State. Both of these facts have a substantial bearing on any future residential site on the Windward side.
Probable Impact of the Proposed Action
 No attempt to qualify the magnitude of impact as admitted.

Impact on Sites Physical Geography
 Conclusions listed do not follow because no data on soils in statement nor any data on effects.

Impact of Environmental Quality
 Effect on water quality is unascertainable because there is no evidence that proposed sewage treatment method is acceptable to them.

No documentation of present water usage and drain on present system, the project would make.
 No documentation on anticipated air quality and effects visitors to project could have.

No documentation on anticipated noise levels.
Impact on Infrastructures and Support Services
 No documentation that water supply is available for project.

No indication that the Health Department will accept sewage plan.
 No documentation the Department of Public Works can handle solid waste disposal.

Impact on Socio-economic Aspects
 No consideration of the project as a beginning of a trend to further urbanize the immediate area.
Alternatives to Proposed Action
 No cost-benefit analysis of alternatives.

RELATIONSHIP BETWEEN SHORT TERM USES AND LONG TERM PRODUCTIVITY

No consideration of effect on future development in surrounding area and no consideration of the need for diversified agriculture in Hawaii's future.
Irreversible and In retrievable Commitments of Resource
 No consideration of loss of more agricultural lands to urbanization.

In addition we agree with and incorporate by reference to, the comments of the Waikole-Waikana Neighborhood Association, dated March 7, 1978.

ENVIRONMENTAL
COMMUNICATIONS
INC.

C. J. RODRIGUEZ,
PRESIDENT

March 23, 1978

Sincerely,


Walter P. Zulkoski
Life of the Land Staff

Mr. Walter P. Zulkoski
Life of the Land
404 Piikoi Street
Honolulu, HI 96814

Dear Mr. Zulkoski:

SUBJECT: Environmental Impact Statement for the Proposed Waikane Residential Subdivision, Waikane, Koolau-poko, Oahu, Hawaii

We have received your letter of March 10, 1978 on the above mentioned EIS. First, we would like to address ourselves to the "three major omissions" which you identified. Regarding our failure to document conclusions, we note that prior to discussing impacts (on page 23 under Section V) we qualify the framework and evaluation of the project's impact. The size and magnitude of the project is such that detailed or technical studies to the extent requested would have been excessive in relationship to the number of units being proposed and the total cost of the project. Much of the data in the EIS is based on previous studies and standard documents relating to the project area. We feel that in utilizing this data, we have attempted to disclose the environmental impacts of the project to the extent practical. It is realistic to state that developing quantitative data for year comments/concerns could require at least a year to prepare and well over \$100,000. In this regard, we feel that we have provided with the Revised EIS "sufficient depth of analysis" as warranted for the project's magnitude and impact on the environment.

The 1974 data used is not felt to be "old data." Conditions have not changed to the extent that new surveys are essential.

The Development Plans for the General Plan has not been completed, nor are they available. To delay a project for this purpose is unwarranted since planning documents are continual documents, and normally one governmental agency starts a plan, when another ends or has recently concluded.

Below, we have addressed on an item by item basis the remainder of your comments.

Physical Geography

The characteristics of the soil will be included in the Revised EIS. Additionally, we note that the services of a certified soils engineer will be retained prior to site work to determine the suitability of the soils (existing and fill).

Microclimate data was from two available sources, Precipitation Records, Waikane, Oahu from 1957 through 1972, obtained from U.S. Weather Bureau No. 885, and from the study prepared in 1974 by Michael J. Chun Ph.D. and Gordon L.

Mr. Walter P. Zulkoski
March 23, 1978
Page Two

Dugan, Ph.D. entitled, "Baseline Water Resources Inventory for Matahole-Maikane". This will be referenced in the Revised EIS.

Flora and Fauna

The description of vegetation was based on site field visits and the report, "Report of the Fauna and Flora, Matahole-Maikane Area of Oahu," prepared by Andrew J. Berger, Ph.D. (which report is referred to in the paragraph above).

Environmental Quality

We feel that the use of the 1974 data for identifying the present air quality is acceptable.

We state on page 8 that no noise pollution measurements were attempted; the section continues on to describe the normal noise encountered during field visits.

If more recent water quality data is available (we assume you referred to the water quality data rather than the drainage data) it will be incorporated into the Revised EIS.

No cesspools are proposed for this project, therefore, we do not understand why the EIS must document causes of problems with cesspools in the area.

Highway and Streets

Henry Au, a traffic consultant, has provided information on the existing capacity and volume of traffic on Kamehameha Highway, he states that:

"Kamehameha Highway under its present condition as a two-way, two-lane highway has a capacity of 900 vehicles per hour in one direction and 1,350 for both directions of travel for level of Service C. Since the 1976 peak hour volume is only 581 vehicles for both directions of travel, Kamehameha Highway will have sufficient capacity to meet the vehicles generated by this project."

Socioeconomic Aspects

Although these statistics have fluctuated during the last four years, we do not feel that the data is obsolete.

Relationship of Proposed Action to Land Use Plan

(Refer to general response on page 1 of this letter.)

Probable Impact of the Proposed Action

We have disclosed this information on the basis that the magnitude of the project is comparatively small and that extensive, comprehensive studies are unwarranted and impractical.

Mr. Walter P. Zulkoski
March 23, 1978
Page Three

Impact on Site's Physical Geography

(Refer to response under Physical Geography.)

Impact on Environmental Quality

Additional information will be provided in the Revised EIS relating to the disposal and effect of "grey water" disposal. The "seif contained flush toilet" will not create onsite waste waters. This would result in the consumption of less potable water and no "black water" problems.

Using a higher than average water consumption figure, we anticipate that an average family of four (4) will consume approximately 600 gallons per day (gpd) making the total water consumption for the 15 homes 9,000 gpd. This information will be included in the Revised EIS.

We also note that the Board of Water Supply (letter dated March 8, 1978) has stated that: "Water will be available for this development. Water will be from the existing 12-inch main along Kam Highway. The developer will be required to pay a pro rata share of \$500/unit for source, storage, and transmission facilities that are needed to provide water for this project."

(Relating to air quality and noise, refer to above comments on same.)

Impact on Infrastructures and Support Services

The availability of water for the proposed project has been discussed above.

A variance from Chapter 38 (as stated on page 26 of the EIS) is required. Request for this variance will be submitted upon successful filing and approval of a Shoreline Management Permit.

The Department of Public Works has not indicated (in the several letters sent to us) that their Department could not handle solid waste collection and disposal.

We do not understand the rationale that concludes that this project will start a trend to urbanize the surrounding area. The project site is Urban designated (State Land Use Commission), and zoned R-6. The number of units planned is considerably lower than the R-6 zoning allows; the lands on the Kahaluu and Punaluu side of the parcel are developed and in similar use. The project is separate from any urban development proposal in the area. Apparently the landowners/developers connection with the mauka portions of Waikane Valley is the only basis for your conclusions, and we feel this is erroneous.

Your statement that a no cost-benefit analysis was prepared for the alternative is correct.

Relationship Between Short Term Uses and Long Term Productivity

These comments are addressed in our response above relating to urbanization of the surrounding area as an impact. The agricultural concerns were considered on page 31 of the EIS.

Mr. Walter P. Zulkoski
March 23, 1978
Page Four

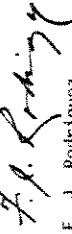
Irreversible and Irrecoverable Commitments of Resource

The land is not presently used for or zoned for agriculture. The potential for agriculture (economically feasible) for all practical purposes is null, therefore, we question why you consider this "agricultural lands."

In conclusion, we feel that because it is apparent that your organization is wholly against the project, your review of the EIS includes statements which could establish that this document is "inadequate" by the terms described in the Environmental Impact Statement Regulations. For that purpose we find your review of the document to be subjective and your request for documentation and data excessive.

You will find that the Revised EIS contains additions which provides more details and information. Your letter and this response will also be included in the Revised EIS.

Very truly yours,



F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Environmental Quality Commission
Windward Partners

105

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



FRANK F. LARI
MAYOR

ROBERT T. FUKUDA
DIRECTOR

March 10, 1978

MEMORANDUM

TO : GEORGE S. MORIGUCHI, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM : ROBERT T. FUKUDA, DIRECTOR

SUBJECT: EIS, WAIKANE RESIDENTIAL SUBDIVISION, OAHU, HAWAII,
TAX MAP KEY: 4-8-03: 7, 8, 9

We have reviewed the Environmental Impact Statement and make the following comments and recommendations.

The preliminary subdivision plat (Figure 3) depicts a 15-foot wide drain and beach access easement with a discharge apron located approximately 40 feet from the shoreline. A 12-foot wide beach access easement adjacent to the discharge apron extends the remainder of the distance to the waters edge. The function of this easement is to provide a public right-of-way to the shoreline of Kaneohe Bay.

We are concerned with the possible erosion impacts that a drainage system and discharge apron would have on the right-of-way if it were constructed adjacent to the easement. As described on the plat, the size of the drainage pipe would be 60" in diameter, allowing for a large volume of runoff. Given the annual rainfall of the Koolauoko region, the area slope that the drainage system would be constructed upon, and the increase of impervious surface area that would result from development, an increase in the peak discharge rate would be expected with the possibility of undermining the right-of-way next to the discharge apron.

COPY

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

RECEIVED
MAR 17 1978

March 9, 1978

TO: MR. GEORGE S. MORIGUCHI, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: EDWARD Y. HIRATA

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT
WAIKANE RESIDENTIAL SUBDIVISION
WAIKANE, KOOLAUFOKO, OAHU, HAWAII

March 23, 1978

Mr. Edward Y. Hirata
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
P. O. Box 3410
Honolulu, HI 96843

Our comments on the proposed project are:

1. Water will be available for this development. Water will be from the existing 12-inch main along Kam Highway.
2. The developer will be required to pay a pro rata share of \$500/unit for source, storage and transmission facilities that are needed to provide water for his project. The developer should confirm the pro rata share cost with us when he is ready to start his project.
3. Construction plans must be submitted for our review of fire protection requirements and conformance to our construction standards.
4. Ground disposal of sewage is not anticipated to have any adverse effects to potable groundwater resources in the area. However, the data on page 17 indicates further study should be given on other methods of sewage disposal as the failure rate of cesspools over a long-term period could be significant.

If further information is needed on this matter, please call Lawrence Whang at 548-5221.

cc: Windward Partners

EDWARD Y. HIRATA
Manager and Chief Engineer

SUBJECT: Environmental Impact Statement for the Proposed Waikane Residential Subdivision, Waikane, Koolaupoko, Oahu, Hawaii

Thank you for your letter dated March 8, 1978 which was received in our office on March 15, 1978. The availability of potable water for the proposed project is good news and please be assured that the applicant will make the necessary arrangements to meet the stated requirements \$500/unit fee for source, storage, and transmission facilities. Also, the review of construction plans for fire protection requirements and conformance to construction standards will be observed.

Please note the comments to the Department of Health and also the Department of Land Utilization where we do not plan to use cesspools for "black water" disposal but only for grey water disposal.

We appreciate your comments and continuing interest.

Very truly yours,

F. J. Rodriguez
F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Environmental Quality Commission
Windward Partners

ENVIRONMENTAL
COMMUNICATIONS
INC.

F. J. RODRIGUEZ,
PRESIDENT

March 23, 1978

Mr. George Yuen, Director
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, HI 96801

ATTENTION: Mr. Shinji Soneda

Dear Mr. Yuen:

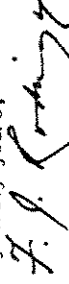
SUBJECT: "Grey Water" Disposal at Waikane Subdivision
Plat TMK: 4-08-03: 7, 8, and 9

Thank you for your comments of March 13, 1978 on the above indicated subject. It is our understanding that:

- (1) The percolation tests for lots 4 and 13 have proven acceptable. Percolation tests for each remaining thirteen (13) lots must be conducted by the lot owner to determine if the percolation rates for that parcel is acceptable. This would be done at the time of Building Permit review, after the SMA and Chapter 38 Variance approvals.
- (2) An application for a variance from Chapter 38 for all 15 lots will be submitted upon issuance of a Shoreline Management Permit.

We appreciate your concerns on this matter.

Very truly yours,



F. J. Rodriguez

FJR:dhe

cc: Department of Land Utilization
Environmental Quality Commission
Windward Partners

EXHIBITS

EXHIBIT I

All deeds drafted and executed for purchases of lots in the proposed subdivision situated at Waikane, on the shores of Kaneohe Bay, makai of Kamehameha Highway shall contain the following restriction covenants:

"The grantee covenants that a toilet system will be installed on the lot for the purpose of treatment and disposal of sewage which will be constructed in strict compliance with Chapter 38, Hawaii Revised Statutes and other Public Health Rules and Regulations of the Department of Health, State of Hawaii. This system is the self-contained flush toilet type, utilizing a recyclable liquid and holding tanks for the storage of the black wastes at the proposed subdivision. The systems adopted will insure that the treatment and disposal of the wastes discharged therefrom:

1. do not contaminate or pollute any drinking water supply, or the waters of any bathing beaches, shorewaters, ponds, lakes, streams or shellfish breeding grounds;
2. are not accessible to insects, rodents or other possible carriers of disease;
3. do not give rise to being nuisances by reason or odor or unsightly appearance;
4. do not become hazards to the public health and safety.

This covenant will run with the land and shall be binding on all parties and all persons claiming under them for a period of ten (10) years from the date these covenants are recorded or until such time a City and County sewer system is available in the area, whichever occurs first."

EXHIBIT II

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P.O. BOX 621
HONOLULU, HAWAII 96809

January 30, 1976

CHRISTOPHER COBB, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

Mr. F. J. Rodriguez
Environmental Communications, Inc.
225 Queen Street
Honolulu, Hawaii 96813

Dear Mr. Rodriguez:

We have reviewed the EIS preparation notice for the proposed 20-lot Waikane Subdivision.

We anticipate no adverse effects on fish or wildlife species due to this project.

There are no recorded historic sites in the project area. A survey made in 1971 indicates coastal sites in the area have been cleared and areas of taro cultivation destroyed. If any archeological remains are uncovered during construction, the Historic Preservation Officer, Jane Silverman, (Phone 548-7460) should be contacted.

Sincerely,

Christopher Cobb
CHRISTOPHER COBB
Chairman of the Board



MEYER S. BOGOST, P. E.

Consultant - Environmental Engineering

1915 ALAELOA STREET, HONOLULU, HAWAII 96821

TELEPHONE (808) 732-0661

ENVIRONMENTAL
PLANNING

WASTEWATER
TREATMENT

WATER POLLUTION
CONTROL

SOLID WASTE
MANAGEMENT

ENVIRONMENTAL
IMPACT STUDIES

INVESTIGATIONS

DESIGN

FEASIBILITY
STUDIES

March 2, 1978

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

Dear Mr. Rodriguez:

SUBJECT: "Grey Water" Disposal at Waikane Subdivision Plat
(TMK: 4-08-03: 7, 8, and 9)

At your request, a study was initiated to determine the feasibility of using seepage wells for the disposal of "grey water" from homes to be built on this subdivision. As previously reported, the disposal of "black water" will be satisfactorily handled using waterless circulating toilets. Grey water (from laundry, sinks and showers) will be separately piped to a disposal well on each lot.

A review of drill holes put down in 1975-76 for structural foundation purposes, indicated that layers of "decomposed rock" or fractured rock exist at depths of 15 to 30 feet. These geologic formations should be capable of absorbing the relatively small flows of grey water generated at each home. Utilizing an average consumption of 600 gallons per day (gpd) for a family of four and assuming a high of 2/3 of this flow constituting grey water, the flow rate would be 400/1440 or 0.3 gallons per minute (gpm). If the peak flow rate is calculated at six times the average flow, this would still only be 1.8 gpm.

Conferences were held with the developers (Windward Partners) and with their Civil Engineer, Mr. Yasuo Arakaki. These meetings led to the conclusion that two disposal wells would have to be drilled and tested to confirm the capability of grey water to be safely and adequately accepted by a permeable geologic strata at a reasonable depth. Since the subdivision consists of land at near sea level and some at 30 to 35 feet above sea level, it was decided that two holes would be necessary to provide the coverage required for the high and low areas of the subdivision.

In order to prove that the substrata would take the generated flow of grey water, two test holes were sited; representing the high and low areas of the subdivision.

Mr. Fred Rodriguez
March 2, 1978
Page Two

Contact was then made with two well drillers and after discussions with each concerning their cost and availability, it was decided to utilize the services of Marine Consultants, Inc. (MC). Further discussions with Mr. Burgess, President of MC, led to a proposal to drill the two well holes and test each boring to determine its percolation rate. MC agreed to drill the two holes and to perform the percolation test in the presence of a representative of the Sanitation Division of the State Department of Health (DOH). The author agreed to assist them in the location of the holes and provide other supervisory advice.

At the subdivision site, the location of boring or drill holes were selected. Boring No. 1 was located on Lot No. 13 representing the high area of the subdivision. Boring No. 2 was spotted on Lot No. 4 and represents the low area. The exact locations are described in the attached letter (Exhibit 1) and shown on the attached Subdivision Plot Map (Exhibit 2).

Boring No. 1, drilled in the high area to a depth of 34 feet was later tested at 8.1 gpm. It was cased to a depth of 23 feet.

Boring No. 2 in the low area was drilled to 22 feet, cased to 17 feet, and tested at 6.4 gpm.

The MC log of the two holes is shown by letter to the author dated February 24, 1978 (Exhibit 3).

The percolation test shows that one disposal well can take 6.4/1.8 or more than three and a half (3 1/2) times the maximum possible peak flow of grey water. The other hole can take 8.1/1.8 or more than four and a half (4 1/2) times the same peak flow. Thus even a 4 inch disposal well can safely absorb the quantity of grey water that may be generated by a home on one of these lots.

Aloha,



Meyer S. Bogost, PE
Consultant - Environmental Engineering

MSB:dhe

Enclosure

EXHIBIT 1

MARINE CONSULTANTS, INC
1160 AUAHI ST.
HONOLULU, HAWAII 96814

February 23, 1978

MR. M. Bogost , Agent
Windward Partners
1915 Alaaloa
Honolulu, Hawaii

Sir,

This is to provide you with the log of borings for the proposed sub-division to be developed by Windward Partners. Two holes were drilled to determine the percolation rate of the sub-strata at the Waikane site, TMK 4-8-03 LOTS 7,8,9. The notes below reflect the approximate location of the borings, and sub strata conditions.

Borings 1

Location from southeast corner of the property 150' along the road and in 25'. Drilled to a depth of 34.0'

0.0	3.0	(3.0)	Dark brown silty clay
3.0	11.6	(8.6)	Stiff brown clay
11.6	34.0	(22.4)	Decomposed rock with some mottled clay
	34.0		End of Boring


Boring 2

Location from southeast corner of the property 250' along the road and 275' in toward the ocean. Drilled to a depth of 22.0'

0.0	2.6	(2.6)	Dark brown silty clays
2.6	14.0	(11.4)	Grayish brown silty sand with organic material and roots with some coral sand and fragmented shells
14.0	17.0	(3.0)	Brownish silty sand
17.0	22.0	(5.0)	Grayish brown river wash with roots and some silt
	22.0		End of Boring

An additional cover letter will follow with the results of the State Board of Health test results.

Very truly yours,

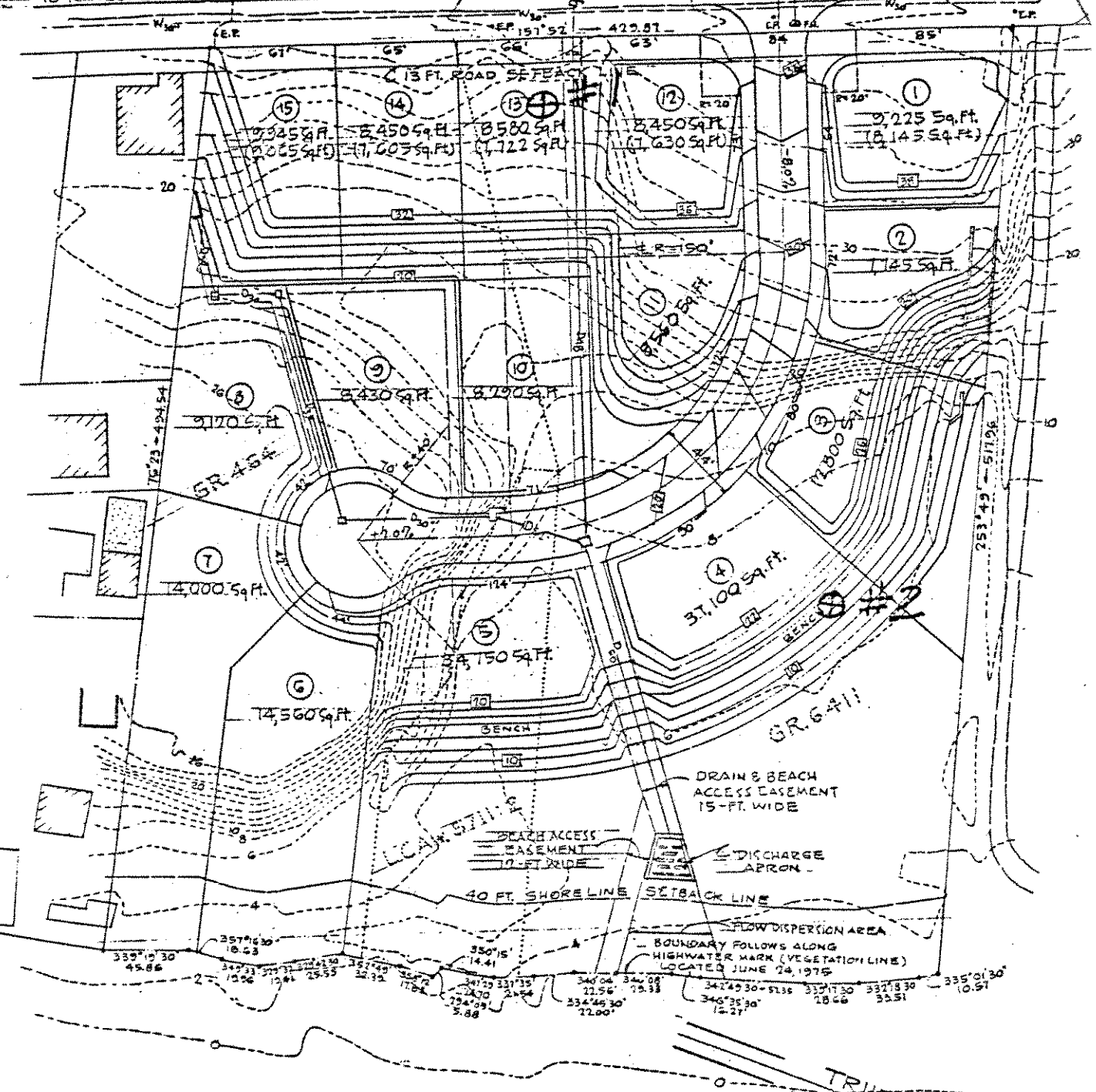

Gregory L. Burgess
President

c/c State Dept of Health
File

13 FT. ROAD SETBACK LINE

TO KANEŌHE

KAMEHAMEHA HIGHWAY



DRAIN & BEACH ACCESS EASEMENT 15-FT. WIDE

BEACH ACCESS EASEMENT 10-FT. WIDE

DISCHARGE APRON

40 FT. SHORELINE SETBACK LINE

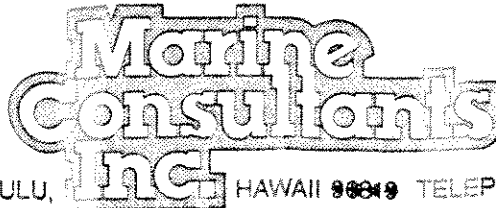
FLOW DISPERSION AREA

BOUNDARY FOLLOWS ALONG HIGHWATER MARK (VEGETATION LINE) LOCATED JUNE 24, 1975

TRUE NORTH SCALE: 1" = 78'

KANEŌHE BAY

EXHIBIT 3



~~1020 KULANANE~~ HONOLULU,
1160 Auahi Street

HAWAII ~~96819~~ TELEPHONE (808) ~~531-2968~~
96814 533-7005

February 24, 1978

MR. M. BCGOST, Agent
Windward Partners
1915 Alaaloa
Honolulu, Hawaii

Sir,

This is to provide you with the test results of the percolation tests conducted by our company and Mr. Glenn Nakahara, representing the State Board of Health, Sanitation Branch, at the development site in Waikane, Oahu reference TMK 4-8-03, Lots 7,8,9.

Boring No.	1	2
Date of test	2-24-78	2-22-78
Depth of Hole	-34.0'	-22.0'
Level of Water		
Start	-20'	-4.2'
Max Head	-17'	-4.2'
Completion	-20'	-4.2'
Rated GPM	<u>8.1 GPM</u>	<u>6.4 GPM</u>

The bill for the work performed will be forwarded to Windward Partners for the sum of \$1081.08. If any further information regarding this project arises feel free to contact us.

Very truly yours,


Gregory L. Burgess
President

c/c File

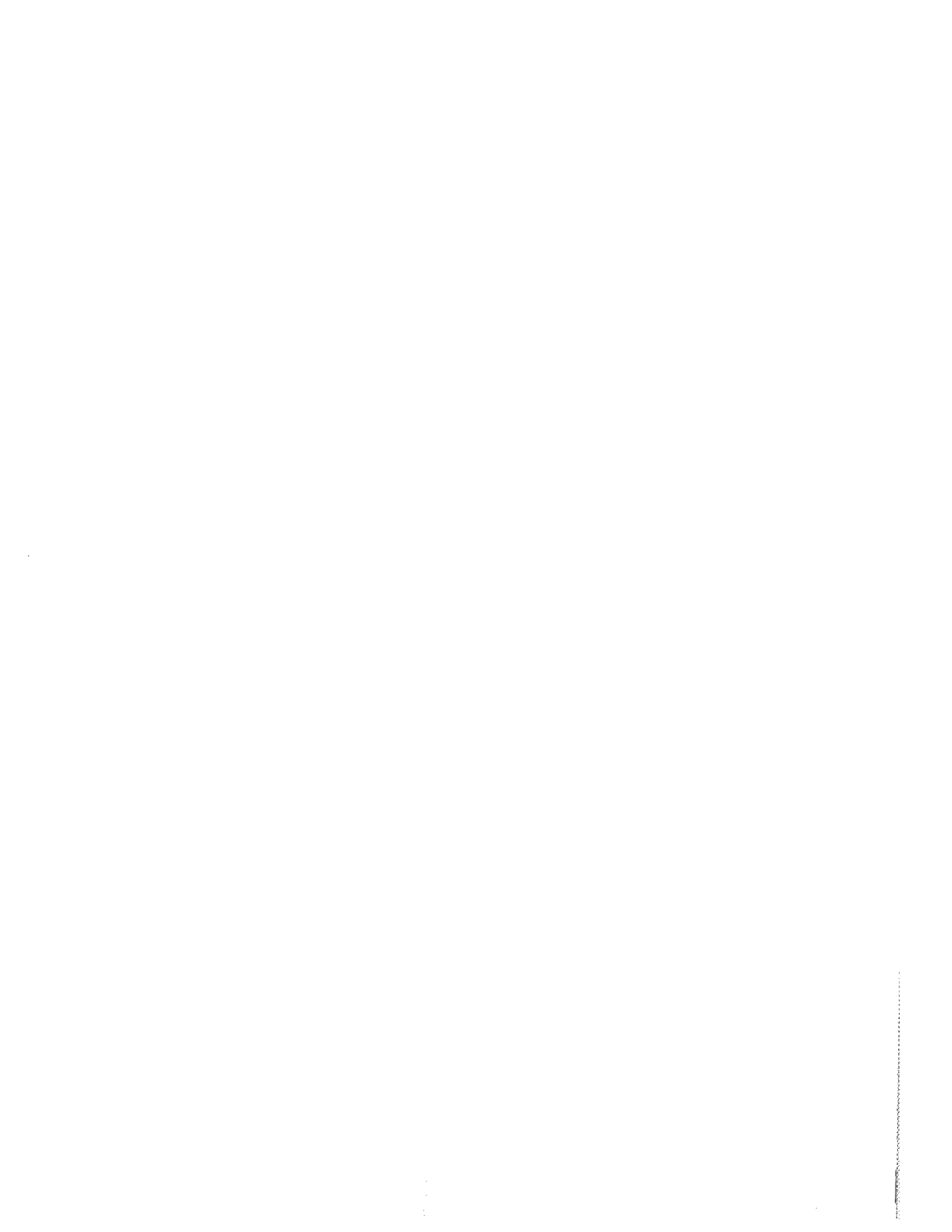


EXHIBIT IV

TRUE NORTH
SCALE: 1" = 200'

DRAINAGE BASIN - 19.2 AC.

$T_M = 10.7$ CFS
 $i = 3.7$
 $C = 0.75$
 $L = 8.50$

DISCHARGE $Q = 122.4$ CFS

DRAINAGE STUDY

WAIKANE
TMAK: 4-E-0317,869



DESIGNED AND PREPARED BY
R. K. KARAMAKI
Robert K. Karamaki

E-8



KANEHE BAY

YASUO ARAKAKI
CONSULTING ENGINEER
914 ALA MOANA BOULEVARD
HONOLULU, HAWAII 96814

February 28, 1978

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

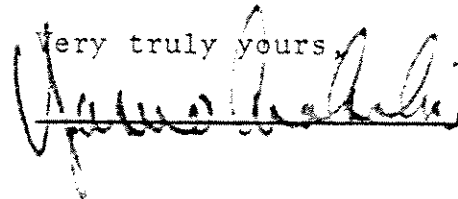
Dear Mr. Rodriguez:

Subject: Proposed 15-Lot Subdivision
Waikane, Koolaupoko, Oahu, Hawaii
TMK: 4-8-03:7, 8 & 9

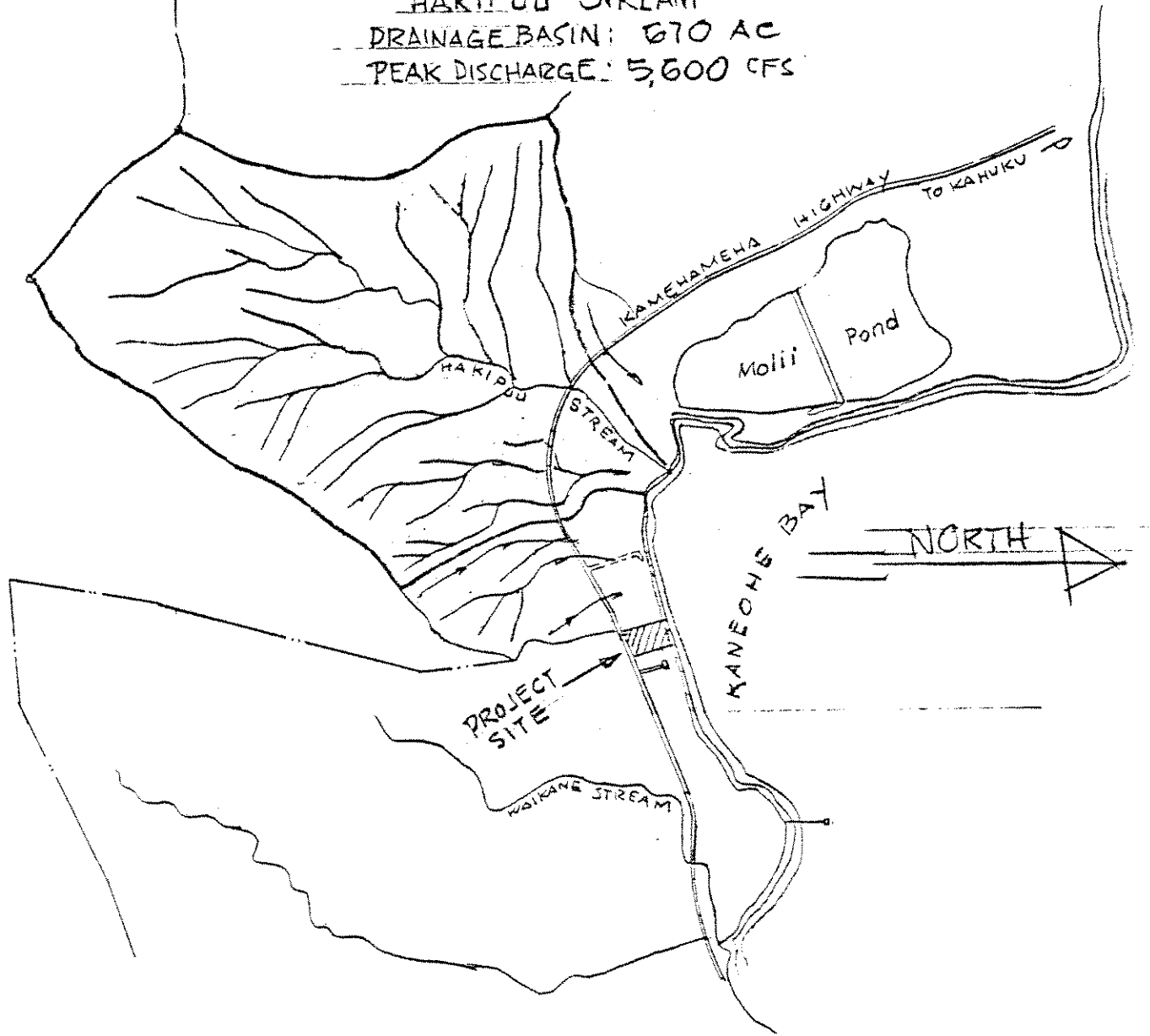
As requested, I have made an investigation of the question whether the floodflows of Hakipuu Stream will affect the subject property.

Preliminary investigation shows that subject property will not be affected by floodflows of Hakipuu Stream, resulting from design floodflows in accordance to City & County drainage standards.

Attached are copies of plans showing Hakipuu Stream drainage basin, and partial topography of the area.

Very truly yours,


HAKIPOU STREAM
DRAINAGE BASIN: 670 AC
PEAK DISCHARGE: 5,600 CFS



SCALE: 1" = 2000



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

Yasuo Arakaki

Portion of the Soil Exploration Report prepared by
Walter Lum Associates, Inc., July 18, 1975

DISCUSSION AND RECOMMENDATIONS

In general, the plan is to clear and grade the site by cutting the higher areas and filling the lower areas for residential development. About 30 lots are presently planned.

In general, cuts of less than 15 ft are planned for the higher (western and southern) portions and fills of little to 8 ft are planned for the lower (northern and eastern) portions of the site.

Portions of the northeastern section of the site may be underlain by a layer of soft to medium organic material. Settlements should be anticipated if foundations are located over soft organic soils. Additional explorations should be considered to locate and evaluate the approximate extent and conditions of the organic soils. The area should be proofrolled and soft spots that are detected should be excavated and replaced with compacted select on-site material.

Site Grading

Vegetation, rubbish and miscellaneous debris should be cleared and removed prior to site filling. The site should be proofrolled with heavy construction equipment and soft pockets that are detected should be excavated and the excavation backfilled with select soils compacted in thin lifts.

In general, the on-site soils may be used for the construction of the proposed fills. Clayey soils may be encountered in the excavations. They should generally be placed in the deeper portions of the fills about 4 ft below the rough finish grade and away from the face of slopes and outside of building pads. Clayey soils should be placed at water contents that are on the wet side of optimum.

Grading work should be done in accordance with the Revised Ordinances of Honolulu, 1969 As Amended and as recommended below:

1. Topsoil and stockpiled soils should be stripped to stiff natural ground before the placement of fills.

Thin layers of loose surface soils near finish grade should be scarified and recompacted.
2. Localized soft pockets encountered during the site preparation should be excavated and replaced with compacted select material.
3. The bottoms and sides of existing drainage ditches should be stripped down to stiff natural ground or scarified and recompacted before the placement of fills.

4. Fills should be constructed in approximately level layers starting at the lower end and working upward. Where fills are made on sloping areas steeper than about 5 horizontal to 1 vertical, the ground at the toe of the fill should be benched to a generally level condition. As the fill is brought up, it should continually be keyed into the stiff natural ground by cutting steps into the slopes and compacting the fill into these steps.
5. Fills should be laid in 6-in. compacted layers to 90% of the maximum density determined by the AASHTO T-180-73I test method. In roadway areas, the top 2 ft of fill should be compacted to 95% of the maximum density.
6. The on-site soils from the cut areas with relatively high water content may be difficult to compact. These soils may be used in fills on fairly level ground and away from the outer portions of slopes.

When used for construction of fills, these soils may be compacted to the maximum density obtainable in the laboratory at the water

content approximating the field moisture condition. However, the dry density of the compacted soils should be greater than 85% of AASHO Test No. T-180-73I. Prior to reducing the compaction requirements for the construction of fills, additional laboratory testing may be required and the results should be reviewed by the soils engineer.

7. If boulders are proposed to be used in the construction of fills, they generally should be placed along the toe sections of fill slopes and outside of probable building sites. Before placement of any boulders, the subgrade should be stripped to stiff natural ground and shaped to drain. A transition layer of select granular material (6 in. to dust sizes) should be placed on the subgrade and the boulders should be placed on the select material. Earth fill may be used in the void spaces between boulders. A transition layer of select granular material should also be placed against the boulders before earth fills are placed against the boulders. See attached sketch, Figure 1.

8. Provisions to drain the site during and after the completion of filling operations should be included.

Slopes

Generally, cut and fill slopes of 2 horizontal to 1 vertical or flatter should be used.

To minimize erosion, the runoff from rainstorms should be diverted away from slopes by berms or ditches whenever practicable. Slope planting is recommended on cut and fill slopes.

The surface of fill slopes should be compacted by cat-tracking or with a sheepfoot roller.

Slope adjustments or other precautions may be necessary if seepage zones, expansive clay pockets or soft spots are encountered in localized areas.

Foundations

In general, light, wood-frame residential structures are planned.

On fairly level sites, where the buildings are situated 15 ft from the tops of slopes, slab-on-ground type construction may be considered except where organic (OH) or clay (CH) soils are encountered below the existing ground surface or near finish grade. Post and beam construction should be considered where organic or clay soils occur.

Generally, slab on ground construction over clay (CH soil) is not recommended.

To reduce the effects of slope creep, buildings should be set back a distance of about 15 ft from the tops of slopes.

Other general guidelines for foundation design are as follows:

1. For light, short-span single-family residential structures, post-and-beam type foundations may be considered depending on the design of the grading of the site.
2. Where slab on ground is considered over non-expansive soils, house construction should be delayed as long as practicable in fill areas to allow the subsoils to adjust to the new loads.
3. Bearing values for a given soil usually vary with the size and depths of footings. For light residential structures, bearing values of about 1500 p.s.f. may be used for footings on stiff natural ground or on compacted fill.
4. Soft spots or pockets of loose material encountered in footing excavations or below the building area should be excavated and replaced with well-graded granular material.

5. Concrete slabs on ground should be placed over a base course of 4 in. of well-graded gravel less than 3/4-in. in size or some other form of capillary break should be provided. The subgrade should be compacted and shaped to a level surface or to drain, if practicable, and generally should be kept slightly higher than the finish grade.
6. A few units may be partly on cut and partly on fill. For slab-on-ground construction, to minimize differential settlements that may occur, the cut area below the unit should be excavated to a depth of about 2 ft and recompacted at above optimum moisture to match the density of the fill area.
7. For slab on ground construction over clayey soils, the surface clay (CH soil) should be removed and replaced with 3 ft of select non-expansive soil below the slabs and foundations. Prior to placing and compacting the selected soil, the moisture content of the clay soils at the bottom of the excavation should be on the wet side of optimum moisture and not allowed to dry-out to lessen the heave potential.

With this technique of surface soil replacement, some movement of the ground floor slab is inevitable. The superstructure should be designed with slip joints to tolerate some movement of the ground floor.

8. Superstructures with slip joints should also be considered for post and beam structures as well as for slabs on ground to accommodate some up and down movements of the ground surface resulting from environmental or weather changes.
9. Construction of retaining walls on slopes should generally be avoided.
10. Good surface drainage away from the foundations of structures should be maintained and the site should be graded to prevent the ponding of water.

Roadways

For light automobile traffic and drained subgrade conditions, the driveway and parking area pavement section for the general soil conditions may be as follows:

1. Wearing course - 2-in. asphaltic concrete.
2. Base course - 6-in. base course.

3. Subbase course - 6-in. select borrow over
a prepared subgrade.

4. Borrow - 18-in. borrow over a
prepared subgrade where
clay soils are encountered
below the subbase course.

Provisions should be made in the contract documents to allow for local adjustments regarding select borrow subbase and borrow requirements. Additional laboratory testing may be considered after the site grading in the pavement areas approaches the finish pavement subgrade. In fill areas, the use of select soils within the top 2 to 3 ft of the subgrade may reduce the thickness of or eliminate the need for the select borrow subbase or borrow courses.

The subgrade should be compacted and shaped to drain. To avoid the ponding of water and softening of the subgrade at low points, weep holes should be placed at subgrade levels thru the walls of the catch basins placed in these low areas.

Existing Cesspools

If cesspools are encountered within the proposed site, the locations of the cesspools should be verified.

Sludge should be removed from the bottom and the cesspool backfilled with well-graded granular material. The materials should be placed in thin layers and rammed into place or compacted with vibratory equipment. The top 5 ft of fill should be compacted in 6-in. compacted layers.

Any portion of building that rests over cesspools should be designed to span over the cesspool..

Utilities

Utilities should be placed after the fills are constructed.

The bottoms of utility trenches should be daylighted at low points and graded to drain water, particularly near the tops and toes of slopes. The backfill of trenches should be well compacted, particularly at the toes of slopes.

Utility lines should be designed with flexible joints, particularly where lines are connected to structures.

Unforeseen Conditions

Because of the variability of soil deposits, site improvements, designs and construction techniques, existing or changed conditions may be encountered that cannot be foreseen with even the most exhaustive studies of site and project conditions. These unforeseen conditions should be recognized when encountered and then evaluated so that the designs or the construction methods may be modified accordingly, if necessary.