

DEPARTMENT OF WASTEWATER MANAGEMENT  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET  
HONOLULU, HAWAII 96813

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OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL



KENNETH M. RAPPOLT  
DIRECTOR

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DEPUTY DIRECTOR

WPP 93-566

November 4, 1993

Mr. Brian J.J. Choy, Director  
Office of Environmental Quality Control  
220 South King Street, 4th Floor  
Honolulu, Hawaii 96813

Dear Mr. Choy:

Subject: Negative Declaration (EA) for Kaneohe Bay South  
Wastewater Pump Station No. 5, Force Main and Relief  
Force Main, TMK 4-4-07:25 and 33, Kaneohe, Oahu, Hawaii

The Department of Wastewater Management has reviewed the comments received during the 30-day public comment period which began on May 22, 1993. The Department has determined that this project will not have significant environmental effect and has issued a negative declaration. Please publish this notice in the November 23, 1993 OEQC Bulletin.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the final EA. Please contact Mr. Richard Leong at 527-5863 if you have any questions.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Kenneth M. Rappolt".

KENNETH M. RAPPOLT  
Director

Enclosures

1993-12-08-0A-FAA-Kaneohe Bay South Wastewater  
Pump Station No 5

DEC 8 1993

DRAFT

**NOTICE OF DETERMINATION  
NEGATIVE DECLARATION FOR THE PROPOSED  
KANEOHE BAY SOUTH WASTEWATER PUMP STATION NO. 5**

**A. Proposing Agency**

Department of Wastewater Management, City and County of Honolulu

**B. Accepting Authority**

Not applicable to a negative declaration.

**C. Description of the Proposed Action**

The proposed project is an integral part of the Kaneohe-Kailua Wastewater Management System, as described in the Kaneohe-Kailua Wastewater Facilities Plan. The Facilities Plan recommends the construction of a wastewater collection system to replace the Malae individual cesspools and a pump station and force main to transport the wastewater to the Kailua Wastewater Treatment Plant (WWTP). The pump station and force main will convey the collected wastewater about 300 feet mauka to the Kaneohe Force Main which runs along Kaneohe Bay Drive to the Kailua WWTP.

The proposed pump station site is located on the southeastern shore of Kaneohe Bay in Malae, Kaneohe on the island of Oahu, Hawaii (Tax Map Keys: 4-4-07:25 and 33). The site is approximately 56 feet wide and 64 feet long, encompassing an area of approximately one tenth of an acre.

The wastewater collection system for Malae is being designed by the Department of Wastewater Management as part of the Kaneohe Bay Sewers Improvement District. The proposed pump station and force main are being designed by SEY Engineers, Inc. under contract to the City & County of Honolulu, Department of Wastewater Management. Both the collection system and the pump station were included in the Facilities Plan. Their environmental impacts were addressed, primarily in the context of a centralized Kaneohe-Kailua-Kahaluu treatment system, in the Revised Environmental Impact Statement for Kaneohe-Kailua Wastewater Facilities. As detailed planning for individual system components begins and more specific information on the proposed facilities becomes available, an environmental assessment of each specific installation is being done.

The major elements of work proposed in this action are: (a) construction of a wastewater pump station; (b) installation of a force main from the pump station to the Kaneohe Force Main; (c) installation of a relief force main from the pump station to a manhole along the South Interceptor Sewer from where, if necessary, wastewater would flow

to Kaneohe Bay South Wastewater Pump Station No. 4; and, (d) construction of an access roadway and installation of utilities within the easement.

D. Determination and Reasons Supporting the Determination

The proposed project would not have a significant effect on the environment and therefore preparation of an environmental impact statement is not required. The "Significance Criteria," Section 12 of Hawaii Administrative Rules Title 11, Chapter 200, "Environmental Impact Statement Rules," were reviewed and analyzed. Based on the analysis, the following were concluded:

1. *No irrevocable commitment to loss or destruction of any natural or cultural resource would result.* There are no significant natural resources which would be affected by the proposed project. The pump station site was selected and acquired approximately 30 years ago, and has remained vacant in anticipation of this use. Installation of the mains involves excavating previously disturbed material and trenching within the right-of-way of an existing paved surface.
2. *The action would not curtail the range of beneficial uses of the environment.* The proposed action would increase potential beneficial uses of the environment by eliminating cesspools from an area adjoining Kaneohe Bay. Any impacts of the cesspools on the water quality and biota of the bay or on public health would therefore be eliminated.
3. *The proposed action does not conflict with the state's long-term environmental policies or goals and guidelines.* The proposed action would have no significant negative impacts. Temporary impacts associated with construction can be adequately mitigated. The proposed action would be supportive of other state goals and guidelines in the areas of public health, pollution control, and protection of the natural environment.
4. *The economic or social welfare of the community or state would not be substantially affected.* The proposed project would provide short-term economic benefits in the form of engineering and construction jobs, and long-term benefits to nearby residents in terms of public health, pollution control and protection of the natural environment.
5. *The proposed action does not substantially affect public health.* The proposed action would eliminate a source of pollution to Kaneohe Bay. Seepage from cesspools is a potential source of biostimulatory nutrients and possibly pathogenic microorganisms to the waters of the bay. Removal of this potential source of contamination of fish and shellfish represents a public health benefit.

6. *No substantial secondary impacts, such as population changes or effects on public facilities, are anticipated.* The proposed action would not affect population growth or distribution, but would simply improve conditions in the affected neighborhood. No long-term effects are expected on any public facilities. The Kaneohe Force Main has the capacity to convey and the Kailua WWTP has the capacity to treat the additional wastewater flows.
7. *No substantial degradation of environmental quality is anticipated.* The proposed action is expected to result in a long-term improvement in environmental quality, although there would be minor short-term increases in noise, emissions of air pollutants from mobile sources, and traffic congestion in the immediate area of construction. Measures have been included in project design to minimize facility noise and odors.
8. *The proposed action does not involve a commitment to larger actions, nor would cumulative impacts result in considerable effects on the environment.* The proposed action is part of a larger facilities plan to reduce the environmental effects of untreated wastewater disposal in shoreline areas.
9. *No rare, threatened or endangered species or their habitats would be affected.* The project site is in a fully developed residential community. No protected species or important habitat exist in the project area.
10. *Air quality, water quality or ambient noise levels would not be detrimentally affected.* Each of these environmental characteristics would be affected by the proposed action, but to insignificant degrees. Operation of heavy equipment and other vehicles associated with the action would temporarily elevate ambient noise and concentrations of exhaust emissions in the immediate vicinity of the site during construction. Sound attenuation measures have been included in facility design to minimize noise, especially from the standby engine generator.
11. *The project would not affect environmentally sensitive areas, such as flood plains, tsunami zones, erosion-prone areas, geologically hazardous lands, estuaries, fresh waters or coastal waters.* The project would improve water quality in Kaneohe Bay by removing a potential source of plant nutrients. The engineering design of the pump station facility has accounted for potential tsunami inundation. Other than Kaneohe Bay, the closest significant environmentally sensitive area is Nuupia Pond, approximately 0.7 miles to the northeast of the force main termination.

E. Supplementary Information

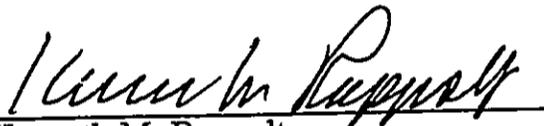
The Environmental Assessment (EA) for the proposed action and the results of the coordination undertaken with affected agencies and parties are attached to support the determination of a Negative Declaration. The description of the proposed action is taken from the engineering report prepared for the City.

F. Name, Address and Phone Number of Contact Person

Department of Wastewater Management  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Richard Leong, (808) 527-5863

RESPONSIBLE OFFICIAL

  
Kenneth M. Rappolt  
Director

11-8-93

Date

**FINAL ENVIRONMENTAL ASSESSMENT**  
**FOR**  
**KANEOHE BAY SOUTH**  
**WASTEWATER PUMP STATION NO. 5**

Kaneohe, Koolaupoko, Oahu, Hawaii  
Tax Map Keys: 4-4-07-25 and 4-4-07-33

This Document is prepared pursuant to Chapter 343, HRS.

Proposing Agency: **DEPT. OF WASTEWATER MANAGEMENT**  
**CITY AND COUNTY OF HONOLULU**  
**650 SOUTH KING STREET**  
**HONOLULU, HAWAII 96813**

Responsible Official:

  
Kenneth M. Rappolt  
Director

11-8-93  
Date

Prepared by  
GK & Associates/  
SEY Engineers, Inc.

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## 1.0 PROJECT DESCRIPTION

### 1.1 Background

The proposed pump station site is located on the southeastern shore of Kaneohe Bay in Malae, Kaneohe on the island of Oahu, Hawaii (Tax Map Keys: 4-4-07:25 and 33) (Figure 1). The site is approximately 56 feet wide and 64 feet long, encompassing an area of approximately one tenth of an acre.

The proposed project is an integral part of the Kaneohe-Kailua Wastewater Management System, as described in the Kaneohe-Kailua Wastewater Facilities Plan (GMP, 1984a). Malae is presently served by cesspools. The Facilities Plan recommends the construction of a wastewater collection system to replace the cesspool disposal system and a pump station and force main to transport the wastewater to the Kailua Wastewater Treatment Plant (WWTP). The pump station and force main will convey the collected wastewater about 300 feet mauka to the Kaneohe Force Main which runs along Kaneohe Bay Drive to the Kailua WWTP. The capacities of the Kaneohe Force Main and the Kailua Wastewater Treatment Plant are both adequate to accommodate the additional Malae flows.

The wastewater collection system for Malae is being designed by the Department of Wastewater Management as part of the Kaneohe Bay Sewers Improvement District. The proposed pump station and force main are being designed by SEY Engineers, Inc. under contract to the City & County of Honolulu, Department of Wastewater Management. Both the collection system and the pump station were included in the Facilities Plan. Their environmental impacts were addressed, primarily in the context of a centralized Kaneohe-Kailua-Kahaluu treatment system, in the Revised Environmental Impact Statement for Kaneohe-Kailua Wastewater Facilities (GMP, 1984b). As detailed planning for individual system components begins and more specific information on the proposed facilities becomes available, an environmental assessment of each specific installation is being done.

The major elements of work proposed are: (a) construction of a wastewater pump station (WWPS); (b) installation of a force main from the pump station to the Kaneohe Force Main; (c) installation of a relief force main from the pump station to a manhole along the South Interceptor Sewer from where, if necessary, wastewater would flow to Kaneohe Bay South Wastewater Pump Station No. 4; and (d) construction of a 14-foot wide access roadway and installation of utilities within the easement (Figure 2) (SEY Engineers, 1992).

The design wastewater flows were based on the projected ultimate population for the service area of 408 persons (102 dwelling units). The design flow projections for the project are:

Design Average Flow:	0.047 mgd
Design Maximum Flow:	0.179 mgd
Design Peak Flow:	0.250 mgd

FIGURE 1  
PROJECT LOCATION

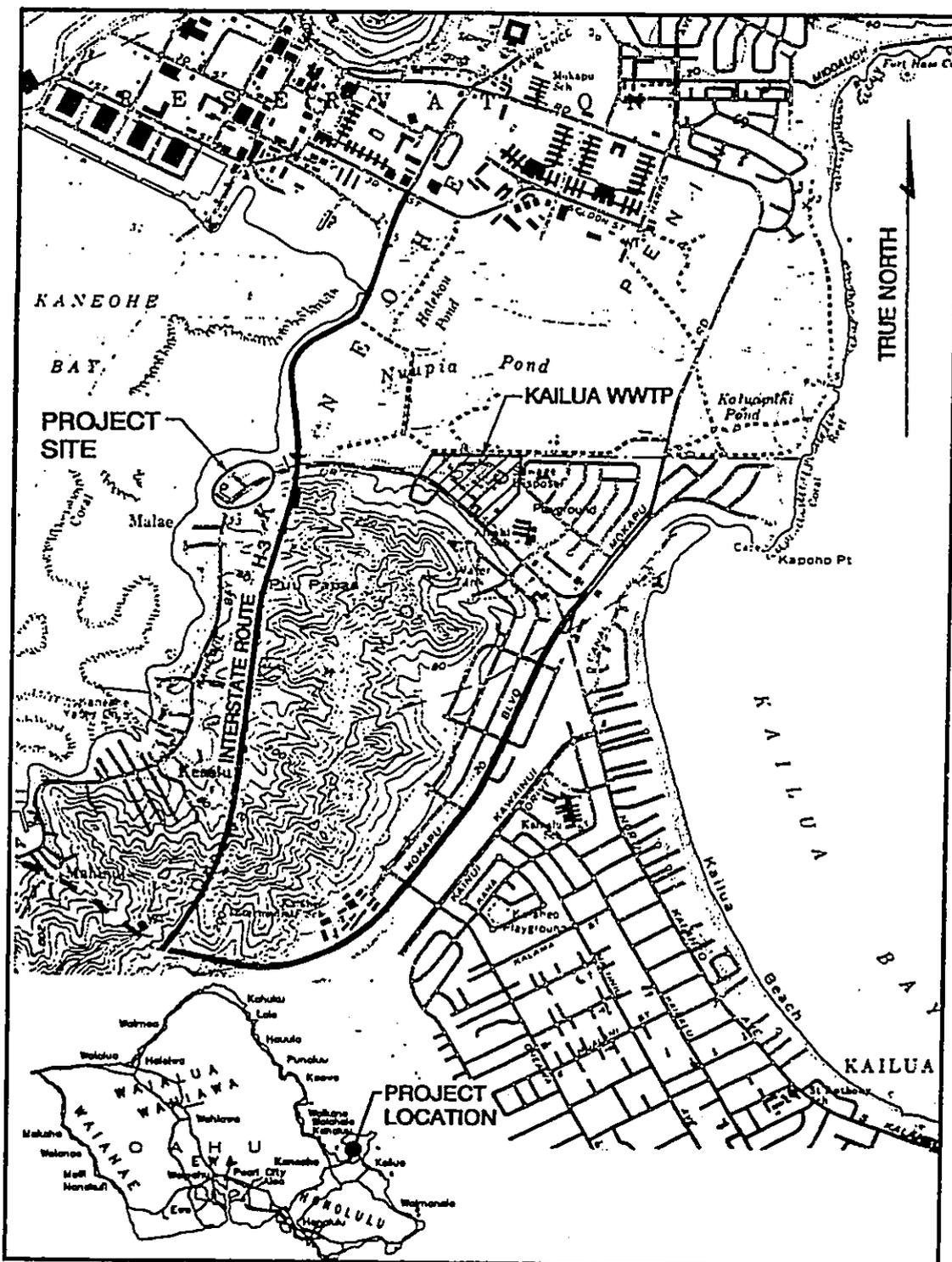
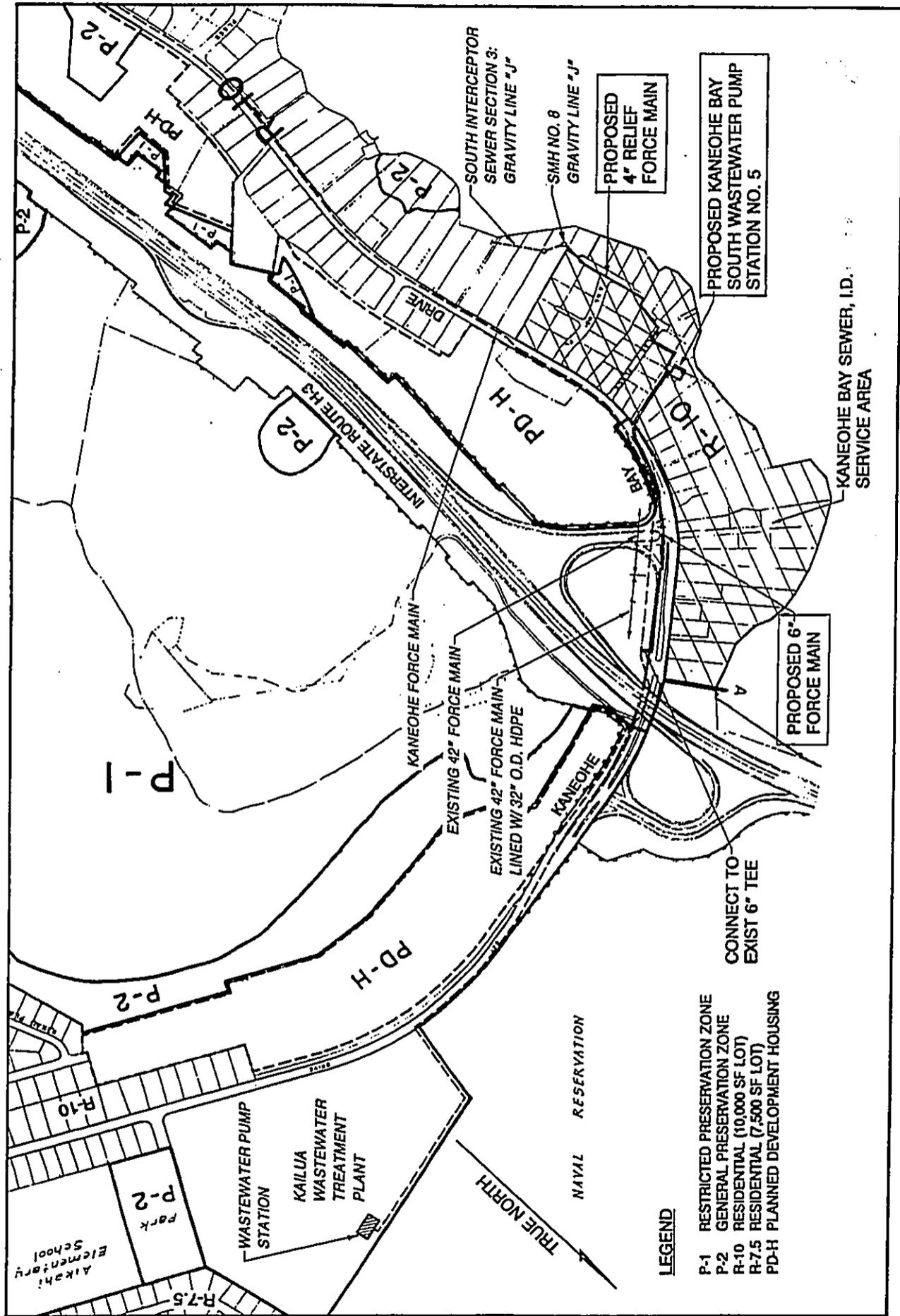


FIGURE 2  
PROJECT AREA, MAJOR FACILITIES AND ZONING



## **1.2 Pump Station**

The pump station will consist of a pump station building, dry well, wet well, driveway, and Venturi/Bypass chamber. The station will be equipped with three pumps, providing redundancy for maintenance or repair, electrical and telemetering control facilities, a standby electrical generator and fuel storage, restroom, service sink, dry storage and a desk. The pump station site will be enclosed within a 6-foot high fence.

The Venturi/Bypass chamber will be constructed over the force main immediately outside of the pump station to house the flow tube and bypass facilities for the station. The venturi flow tube will measure the flow rate of the wastewater pumped out of the pump station. The bypass facilities will allow a portable pump to be hooked up to the wet well and pump wastewater into the force main, relief force main and/or a tanker truck in the event that the permanent facilities are immobilized.

All structures will be sited behind the Shoreline Setback (Figure 3), although the fence will encroach into the Setback. The pump station building will be designed with a minimum finish floor elevation of 5.00 feet above mean sea level to allow a freeboard in excess of two feet above the predicted tsunami inundation level.

## **1.3 Force Main**

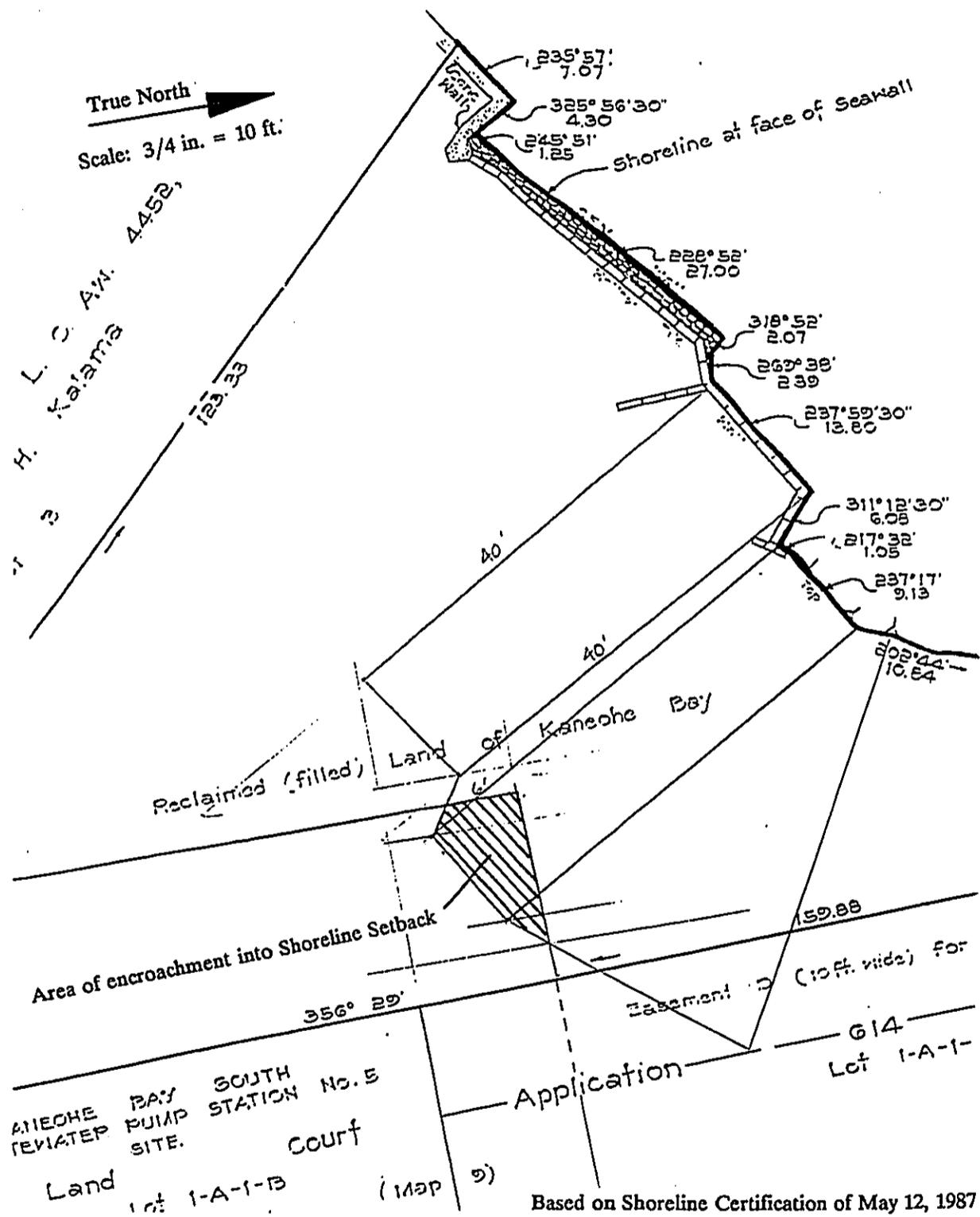
The 6-inch force main will begin at the pump station and will run within the 24-foot roadway and utility easement approximately 300 feet to Kaneohe Bay Drive. Along Kaneohe Bay Drive, the force main will extend approximately 1,100 feet in a northeast direction (Figure 2).

## **1.4 Relief Force Main**

The 4-inch relief force main will keep the pump station operational when the force main is shut down for repair or maintenance. The relief force main will begin at a tee connection at the Venturi/Bypass chamber and will extend south about 900 feet following the alignment of the proposed sewer line for the Malae sewer collection system to Manhole No. 8, Kaneohe Sewerage System, South Interceptor Sewer, Section 3, Gravity Line "J" (Figure 2). A new easement will be acquired for the proposed sewer line and relief force main.

During review of the Draft Environmental Assessment, it was brought to the City's attention by the owner of the makai (seaward) property (Mr. R. Armstrong) that the proposed right-of-way for the gravity sewer line and relief force main would intrude into his proposed building area. A meeting was held and the potential conflict was resolved by rerouting both the gravity sewer line and relief force main to avoid the area of future structures. The locations of the new rights-of-way are shown on Figure 4.

**FIGURE 3  
SHORELINE SETBACK**



### **1.5 Roadway and Utility Easement**

A 14-foot wide access road will be constructed from the proposed pump station to Kaneohe Bay Drive within the existing 24-foot wide easement. The force main, water line and electrical lines from Kaneohe Bay Drive to the proposed pump station will also be installed within the easement.

## **2.0 ALTERNATIVES**

### **2.1 NO ACTION**

The No Action Alternative would continue the current situation. That is, domestic wastewaters from Malae would continue to be disposed of into cesspools or home treatment units serving individual residential lots. Infiltration of groundwaters into cesspools, especially those closest to the shoreline, would continue to necessitate frequent, in some cases, weekly pumping. Some leaching of wastewater into Kaneohe Bay could be expected. In addition, the goal of the City's Facilities Plan with respect to removing potential sources of pollution to groundwater and coastal marine waters would not be met.

### **2.2 DELAYED ACTION**

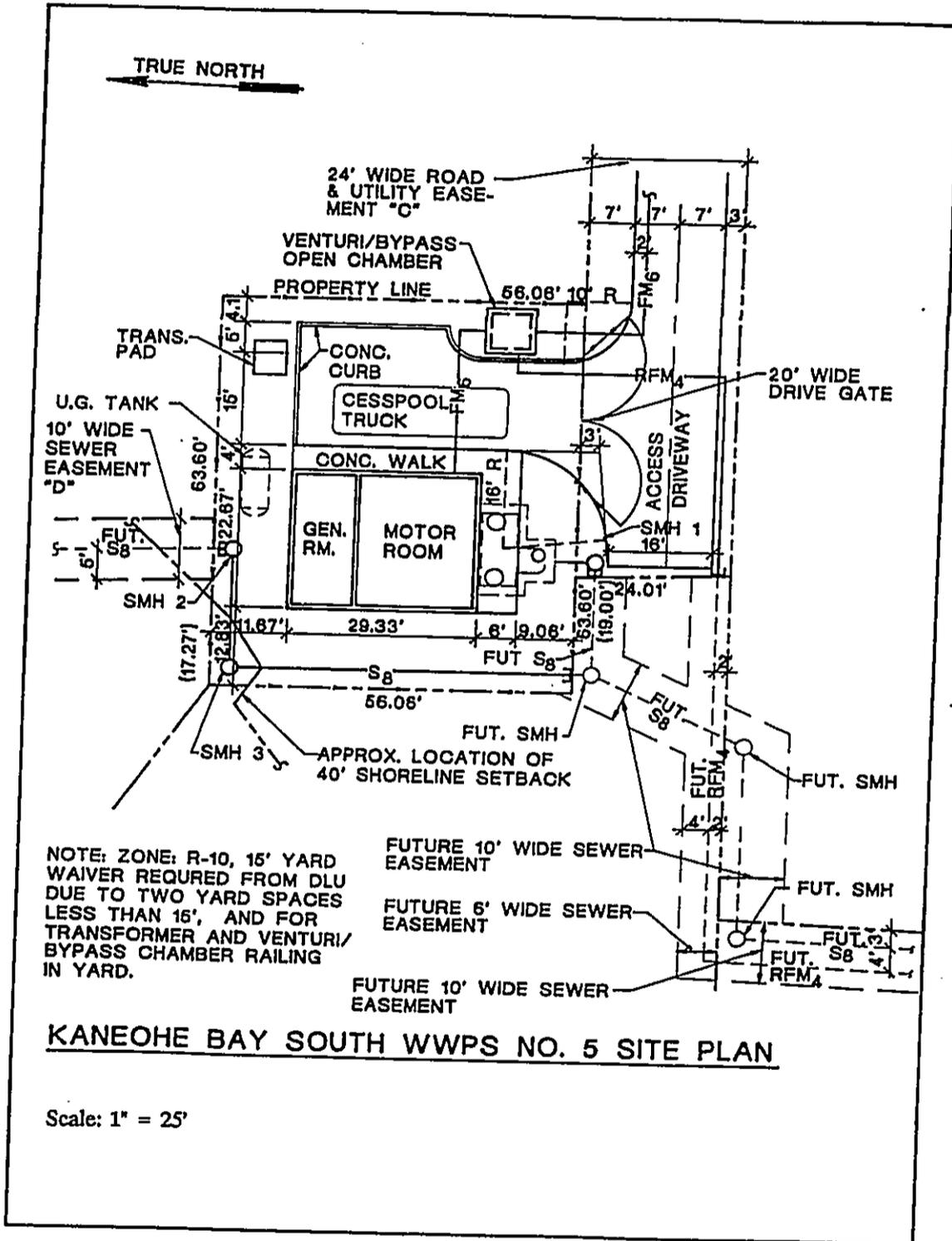
Delay of the project would only serve to increase its cost when construction ultimately takes place. Delaying the project would not eliminate its necessity.

### **2.3 ALTERNATE DESIGNS**

The project site and the basic system interconnections were established in the Facilities Plan. Given those constraints, four alternate schemes were developed for the layout of the pump station within the site. The location of the wet well was the primary difference in the four schemes. The wet well was located on the south side (Alternatives 1 and 4), east side (Alternative 2) and west side (Alternative 3) of the proposed pump station building. An alternative including the wet well on the north side of the building was not developed fully because such a layout would require the engine generator room to be located on the south or east sides of the pump station building increasing potential noise exposure to the closest residences.

The alternatives were evaluated using four criteria: 1) accessibility, 2) land use ordinance, 3) vehicle maneuverability, and 4) available parking. The accessibility criterion evaluated the ease with which personnel could access and service the various facilities at the pump station without disrupting normal station functioning. The land use ordinance

**FIGURE 4  
PREFERRED PUMP STATION LAYOUT**



criterion evaluated the designs for degree of compliance with the LUO. None of the designs complied completely with the LUO. The small size of the lot required that facilities encroach on the yard setback on at least one side. The vehicle maneuverability criterion evaluated the ease with which a cesspool truck could move in and out of the pump station. The available parking criterion evaluated the space available to park a cesspool truck and a maintenance vehicle within the site.

The preferred layout is shown on Figure 4. This layout was selected by the Department of Wastewater Management after review of the alternatives.

#### 2.4 TENTATIVE PROJECT SCHEDULE

Design Completion .....	1994
Begin Construction .....	1995
Complete Construction .....	1996

#### 3.0 SUMMARY DESCRIPTION OF THE AFFECTED ENVIRONMENT, POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

##### 3.1 EXISTING SITE AND LAND USE

The proposed pump station site is designated as Tax Map Keys 4-4-07, parcel 25, owned by the City, and parcel 33, owned by the State. The joint ownership of the site would necessitate a Joint Development Conditional Use Permit from the City Department of Land Utilization. The site is approximately 56 feet wide and 64 feet long, relatively level and is presently vacant. Residential structures occupy surrounding lots. A 24-foot wide roadway and utility easement provides access to the pump station site from Kaneohe Bay Drive, approximately 300 feet away. A partially paved driveway currently exists within the easement and provides access to two dwellings immediately to the north of the easement.

Most of the proposed project is makai of Kaneohe Bay Drive in a residential area zoned R-10 (Figure 2). A portion of the 6" force main would run along Kaneohe Bay Drive adjacent to property zoned PD-H (Planned Development housing). The area is designated residential on the Development Plan Land Use Map. According to Honolulu's Land Use Ordinance (DLU, 1986), utility installations of Type A are a permitted use in R-10 residential districts. Type A utility installations are those having minor impacts on adjacent land uses, and include wastewater pump stations.

The boundary of the Special Management Area (SMA) along the coast at Malae is Kaneohe Bay Drive (Figure 5), and therefore those portions of the project makai of that roadway would lie within the SMA and require an SMA Use permit from the DLU



(Chapter 25, ROH 1990 as amended). Due to its cost, the proposed development would not qualify for a minor permit. The environmental assessment requirements of the Shoreline Management Ordinance will be satisfied by a Negative Declaration prepared pursuant to Chapter 343, HRS, but a public hearing will be required.

Parcel 33 intrudes into the Shoreline Setback (see Figure 3), but no structures would be built makai of the Setback. If necessary, DLU may grant a variance for "Facilities or improvements by public agencies..."(Section 205A-46, HRS).

The entire project area is within the Urban State Land Use District (Figure 6), and no change in that designation is required. Flood hazards have not been determined for coastal lands adjacent the southeastern portion of Kaneohe Bay (Zone D), but according to the engineering design report (SEY Engineers, 1993) a tsunami inundation of 2.2 feet above mean sea level is possible for coastal areas near the project site. The pump station building will be designed with a minimum finish floor elevation of 5.00 feet above mean sea level to allow a freeboard in excess of 2 feet above the predicted tsunami level.

There will be no long-term interference with any existing or proposed use of surrounding properties, although during construction vehicular access to adjoining roadways or driveways may be occasionally hampered by trenching, paving, construction materials deliveries, etc. Shoreline access will not be affected.

### **3.2 TOPOGRAPHY AND SOILS**

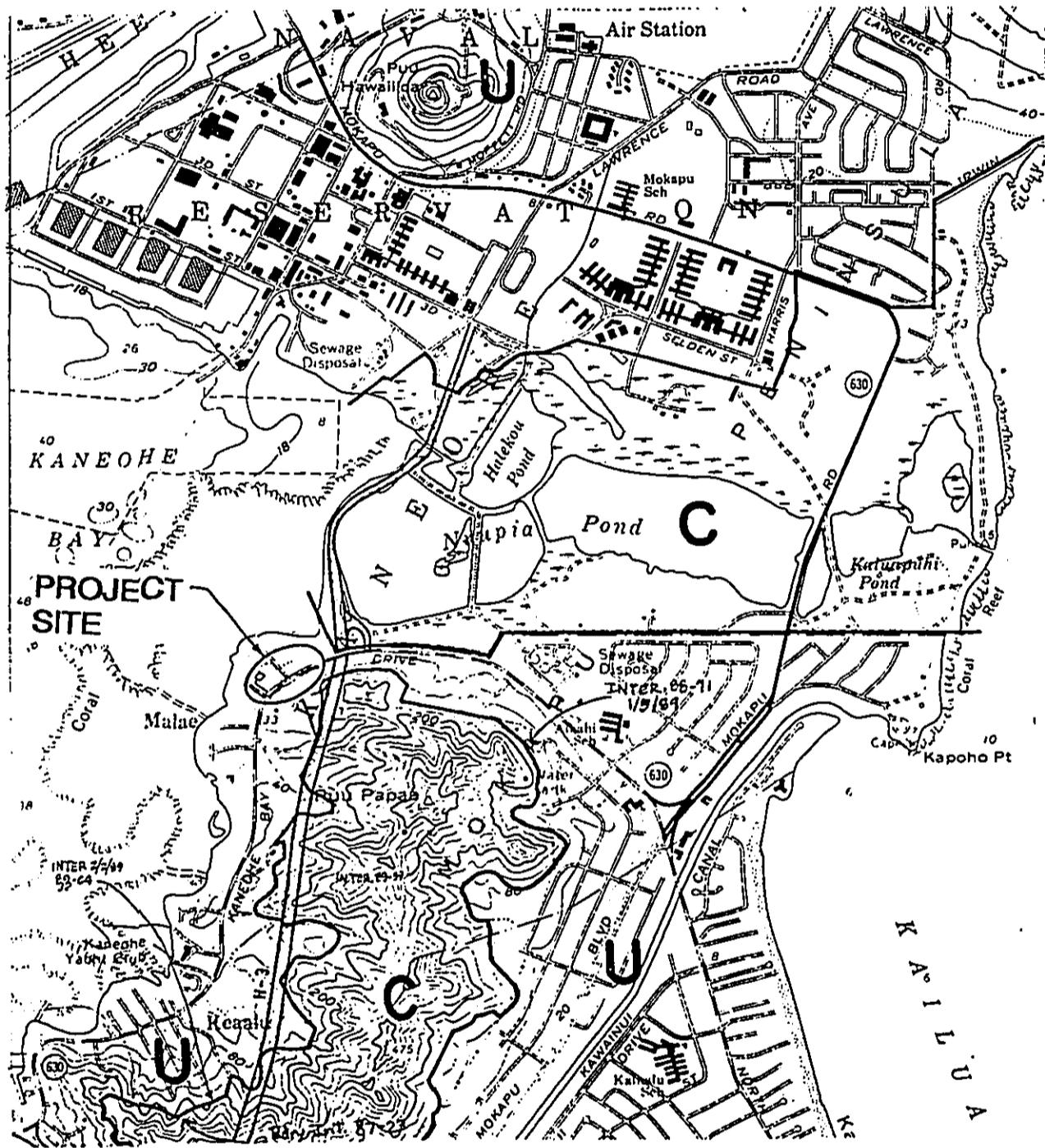
The WWPS site varies in elevation from 2.5 to 5 feet above mean sea level. The ground slopes upward in a west to east direction at an average slope of approximately 3 percent.

A geotechnical investigation of the pump station site and force main route was completed in 1993 (Pacific Geotechnical Engineers, Inc.). Two exploratory borings were drilled to depths of 69.9 and 81.5 feet at the pump station site. The substrata there consist of clayey silts and silty sand fill on the surface underlain by a layer of weak and compressible lagoonal deposits. Stiff alluvium and a weakly to moderately cemented coral reef formation was encountered below the lagoonal deposits. A mat foundation was recommended for the pump station building.

Three exploratory borings were drilled to depths ranging from 11.5 feet to 16.5 feet along the force main alignment. The substrata there consists of fill material along the surface underlain by alluvial silty clay deposits. Groundwater was encountered at elevations ranging from -0.8 to +2.0 feet.

Soils beneath the access roadway appear to be loose and uncompacted. They will have to be excavated and reworked. A proposed retaining wall next to the access road will require anchor slabs or deadman anchors to provide sufficient lateral resistance.

FIGURE 6  
STATE LAND USE DISTRICT BOUNDARIES



To assist in selection of the type of pipe to be used for the force main, a soil corrosivity study was completed (Corrosion Engineering and Research Company, 1993). The results indicate that the soils along the force main alignment would be "severely corrosive" to Ductile Iron Pipe due to low resistivity and high concentrations of chloride ions. Corrosion prevention is recommended. Additionally, sulfate ion concentrations are high enough to damage a cement mortar coating on a steel-reinforced concrete structure, so sulfate resistant concrete will be required for concrete structures installed in that area.

The proposed project will have little effect on soils and topography. A minimal amount of grading and site work will be required on the pump station site. Excavations for the structures and pipes will be necessary, and select fill material may be required.

### 3.3 CLIMATE AND AIR QUALITY

The climate is characterized by the persistence of trade winds, a strong gradient of increasing rainfall from the coast to the mountains, a concomitant gradient from sunny coastal areas to persistent cloudiness over nearby mountain crests, equable temperatures from day to day and season to season, and the infrequency of severe storms. Northeasterly trade winds prevail throughout the year, although their average frequency varies from more than 90 percent during the summer to only 50 percent in January. Annual rainfall in the project area averages about 50 inches per year (Univ. of Hawaii, 1983).

Air quality in Windward Oahu is generally very good due to the lack of stationary sources of pollutants and the effects of the tradewinds. During periods of light or calm winds, however, "hot spots" where air pollutants may exceed short-term standards can occur in areas of traffic congestion. Such areas do not exist near the project area.

Exhaust emissions during construction would be generated from vehicles and construction machinery. Fugitive dust will be generated during earthmoving activities and as a result of vehicular traffic.

Impacts due to exhaust emissions will be minimized by keeping all equipment properly tuned and maintained, as well as by minimizing unnecessary idle time. The contractor will be required to comply with Department of Health Administrative Rules 11-60 "Air Pollution Control" which contains restrictions on visible emissions from motor vehicles and fugitive dust generation.

To reduce fugitive dust emissions, exposed surfaces will be kept well watered whenever feasible. Wet cutting or dry cutting with other dust control measures should be used for asphaltic concrete pavements. The City and County of Honolulu will include special provisions in the construction contract to minimize fugitive dust emissions and erosion from trenching, stockpiling and other operations.

Once operational, the standby engine generator will be the only stationary source of air pollutants at the pump station. Standby engine generators of the type proposed are specifically exempt from permit requirements associated with construction and operation of a stationary source (Section 11-60-40, HAR).

### 3.4 WATER RESOURCES

There are no streams within a mile of the pump station site, and no impacts are expected to any surface freshwater resources.

The pump station site is close to the shore of Kaneohe Bay, the largest embayment in the Hawaiian Islands. Much of the shoreline in the area consists of artificial sea walls and landfill. A fringing reef 1 to 3 feet deep fronts the Malae area. Dredged channels provide small boat access to private piers off some lots. In years past, two sewage outfalls discharged into the southern portion of the bay, adding plant nutrients to the water and stimulating algal growth. Since diversion of the sewage effluents in 1978, marine ecosystems have substantially recovered from the effects of nutrient loading, and nonpoint sources of pollution have assumed a relatively larger role in determining the ambient water quality in the bay. Bottom habitats along the shoreline tend toward muddy sand, with sediments being washed into the bay from disturbed lands.

In the project area, cesspools, sometimes extending below the water table, serve waterfront houses at Malae. This represents a source of plant nutrients to the bay, artificially stimulating algal growth. These wastewaters may also represent a public health hazard to users of the bay. The proposed project would eliminate this source of pollution to the bay's waters.

In the short term, during construction, there is the potential for increased erosion and transport of sediment to the bay. Adherence to the City's Grading Ordinance, prompt paving and revegetation, and possibly scheduling work during expected dry weather months would reduce sediment delivery to the bay. Also, due to the high water table at the project area, dewatering will be required during construction. The construction contractor will be required to obtain an Individual NPDES Permit pursuant to DOH Administrative Rules Chapter 55 and comply with the requirements of the Permit regarding discharge of dewatered effluent, storm water and hydrotesting water.

Because the quality of the discharge and its constituents and pollutants are unknown at this time and because the discharge may enter Kaneohe Bay, a Class AA water body, difficulties may be encountered by the construction contractor. The method of treatment and disposal of discharge is uncertain and must be developed by the contractor. The option of pumping discharge to a nearby silting basin with the desilted effluent discharged to Kaneohe Bay may be permitted subject to approval of contractor's means, methods, techniques and/or sequence of procedures for dewatering. If this option is not acceptable to the City and DOH, the more costly option of treating the discharge onsite and/or offsite

prior to discharge must be considered. In any event, the construction contractor will be required to obtain and comply with the requirements of the NPDES Permit.

According to Takasaki (1977), ground water in the project area is comprised of brackish water in a sedimentary aquifer overlying ground water in a volcanic (Koolau Volcanic Series) aquifer. Leaching from existing cesspools or spills or leaks from the proposed system would enter the brackish ground water in the sedimentary material and eventually discharge into coastal waters. This could have a biostimulatory impact as mentioned above, but would not threaten any potable ground water resources.

### 3.5 FLORA AND FAUNA

The project site is within an urbanized area developed for residential uses. No native habitat exists there. The introduced grasses, shrubs and trees which prevail in the area provide some degree of habitat for the typical array of exotic birds and mammals that one would expect at this elevation and in this type of environment throughout the island. No candidate, endangered or threatened plant or animal species are known to exist on the site or use the site as habitat.

### 3.6 ARCHAEOLOGY AND HISTORICAL SITES

The pump station site is located on land reclaimed by filling with sediments dredged from Kaneohe Bay. Consequently, no archaeological or historical remains are anticipated. The State Historic Preservation Division responded as follows to the pre-assessment consultation for the proposed project:

*A review of our records shows that there are no known historic sites at these parcels. The coastline here is extremely modified. The nearshore areas have been dredged and archaeological excavations at a nearby parcel show that the shoreline has been augmented with fill to a depth of over 10 feet. Therefore, we believe that this project will have "no effect" on historic sites.*

### 3.7 SOCIAL AND ECONOMIC ENVIRONMENT

The service area for the pump station (Kaneohe Bay Sewers, Improvement District [I.D.]) consists of 69 lots and encompasses approximately 26 acres. The pump station site is embedded in a quiet, attractive residential neighborhood. Present uses of the site are minimal. Interviews with residents of nearby properties indicated a strong preference for the project as an alternative to the frequent cesspool pumping now required.

The proposed project would provide short-term economic benefits in the form of engineering and construction jobs, and long-term benefits to nearby residents in terms of public health and water quality. Expenses associated with cesspool pumping would cease, but homeowners would be assessed sewer user fees (set by City Council) and a service fee.

The assessment for connection to the public sewer is currently \$0.16 per square foot. In addition, owners would be responsible for the cost of connecting their home to the City sewer system. For single family residences the current monthly user charge is composed of a base rate of \$24.85 plus a user fee of \$1.05 per 1,000 gallons of water use over the first 2,000 gallons. The City has adopted a "lifeline allowance" to assist those on a fixed income; there is no extra charge for those customers who use 2,000 gallons per month or less.

The estimated construction cost for the project is \$2,630,000 in 1992 dollars.

### **3.8 RECREATIONAL ACTIVITIES**

There are no public recreational facilities adjacent to the project area. Neither construction nor operation of the proposed facilities would hinder in any way use of adjacent portions of Kaneohe Bay.

### **3.9 UTILITIES**

Both above ground and buried utility installations will be affected by the proposed work. Preliminary coordination with all affected utilities (electrical, water, sewer, telephone, cable TV, and gas) will be done during engineering design.

The contractor will be required to verify utility locations and coordinate any temporary or permanent displacement so as to insure no interruption of service.

### **3.10 NOISE AND ODOR**

The operation of construction equipment will raise ambient noise levels in the project vicinity. Construction equipment and on-site vehicles or devices requiring an exhaust of gas or air would have to be equipped with mufflers. In addition, all construction-related vehicles traveling on roadways must meet the vehicle noise level requirements set by the State (Department of Health Administrative Rules 11-42 "Vehicular Noise Control for Oahu").

In the Residential Zoning District, the allowable noise level is 55 dBA at the property line during the day (7 a.m. to 10 p.m.) and 45 dBA at night. Permits are required when noise levels exceed the allowable levels for more than ten percent of the time within any twenty minute period (Department of Health Administrative Rules 11-43 "Community Noise Control for Oahu"). Required permit conditions for construction activities are as follows:

- (A) *No permit shall allow construction activities creating excessive noise when measured at or beyond the property line for the hours before 7:00 a.m. and after 6:00 p.m. of the same day.*

- (B) *No permit shall allow construction activities which emit noise in excess of ninety-five dBA at or beyond the property line of the construction site, except between 9:00 a.m. and 5:30 p.m. of the same day.*
- (C) *No permit shall allow construction activities which exceed the allowable noise levels on Sundays and on the following holidays: New Year's Day, President's Day, Memorial Day, Kamehameha Day, Independence Day, Labor Day, Discoverer's Day, Veteran's Day, Thanksgiving Day, and Christmas Day. Activities exceeding ninety-five dBA shall be prohibited on Saturdays.*

Use of the emergency generator in an emergency would be exempt from the provisions of Chapter 43, but routine testing would not. Consequently, the engine generator room will be provided with a suitable acoustic treatment (i.e., silencer and acoustical panels) to comply with the allowable daytime noise standard (55 dBA at the property line).

Odor control has not been a problem at other pump stations. A venting pipe connecting the open upper section of the wet well to the ground level will be provided for a future odor control unit, if necessary.

### **3.11 TRAFFIC**

Standard specifications for traffic control will be used during construction. Appropriate signs and barriers will be required, and generally at least one lane will remain open during working hours (8:30 AM to 3:30 PM). After working hours trenches will be covered with a non-skid bridging material and all lanes will be open. It is not anticipated that off-duty police will be required for traffic control. Pedestrian traffic will be provided for. A permit will be required for construction within a State highway right-of-way.

### **3.12 VIEWS**

The pump station site is a flag lot surrounded by existing residences. The topography mauka of the site slopes steeply upward. The pump station will therefore only be potentially visible from adjacent residences and from offshore. The City's intention is to landscape the site to blend with the surrounding area. No protected public views to, from or along the shoreline would be impacted.

### **3.13 SPILL PREVENTION**

Table 1 summarizes the spill prevention measures that have been incorporated into the design of the pump station. If a total failure of the pump station (sewage pumps and standby engine generators) should occur, lead times of 1.2 hours (based on peak flow) to six hours (based on average daily flow) would exist before wastewater would overtop any manhole in the Kaneohe Bay Sewers I.D. Telemetric monitoring of the failed system would

trigger alarms at the Sand Island WWTP Supervisory Control and Data Acquisition (SCADA) Center. This amount of lead time is sufficient to deploy a portable pump to the site.

The underground fuel storage tank will be a double-walled fiberglass unit, with leak detection sensors located between the walls. Double-walled piping will also be employed. All applicable requirements of the U.S. Environmental Protection Agency, Hawaii Department of Health, National Fire Protection Association, Honolulu Fire Department and Underwriter Laboratories will be followed.

**TABLE 1  
SPILL PREVENTION MEASURES**

<b>EMERGENCY CONDITION</b>	<b>SPILL PREVENTION MEASURE</b>
Loss of Electrical Power	Engine generator and fuel storage tank provided as a backup power source.
Failure of Sewage Pump	Two standby pumps provided as backup.
Failure or Repair of Force Main	Relief force main provided to Gravity Line "J".
Flooding of Dry Pit	Dry pit submersible pumps provided. Pumps are operational even if dry pit floods.
Total Failure at Pump Station	A portable pump may be connected in the Venturi/Bypass chamber to pump from the wet well to the force main, the relief force main and/or to a tanker truck.

#### 4.0 SUMMARY OF MAJOR IMPACTS, PRELIMINARY DETERMINATION AND JUSTIFICATION

The proposed project would not have a significant effect on the environment and therefore preparation of an environmental impact statement is not required. The "Significance Criteria," Section 12 of Hawaii Administrative Rules Title 11, Chapter 200, "Environmental Impact Statement Rules," were reviewed and analyzed. Based on the analysis, the following were concluded:

1. *No irrevocable commitment to loss or destruction of any natural or cultural resource would result.* There are no significant natural resources which would be affected by the proposed project. The pump station site was selected and acquired approximately 30 years ago, and has remained vacant in anticipation of this use. Installation of the mains involves excavating previously disturbed material and trenching within the right-of-way of an existing paved surface.
2. *The action would not curtail the range of beneficial uses of the environment.* The proposed action would increase potential beneficial uses of the environment by eliminating cesspools from an area adjoining Kaneohe Bay. Any impacts of the cesspools on the water quality and biota of the bay or on public health would therefore be eliminated.
3. *The proposed action does not conflict with the state's long-term environmental policies or goals and guidelines.* The proposed action would have no significant negative impacts. Temporary impacts associated with construction can be adequately mitigated. The proposed action would be supportive of other state goals and guidelines in the areas of public health, pollution control, and protection of the natural environment.
4. *The economic or social welfare of the community or state would not be substantially affected.* The proposed project would provide short-term economic benefits in the form of engineering and construction jobs, and long-term benefits to nearby residents in terms of public health, pollution control and protection of the natural environment.
5. *The proposed action does not substantially affect public health.* The proposed action would eliminate a source of pollution to Kaneohe Bay. Seepage from cesspools is a potential source of biostimulatory nutrients and possibly pathogenic microorganisms to the waters of the bay. Removal of this potential source of contamination of fish and shellfish represents a public health benefit.
6. *No substantial secondary impacts, such as population changes or effects on public facilities, are anticipated.* The proposed action would not affect

population growth or distribution, but would simply improve conditions in the affected neighborhood. No long-term effects are expected on any public facilities. The Kaneohe Force Main has the capacity to convey and the Kailua WWTP has the capacity to treat the additional wastewater flows.

7. *No substantial degradation of environmental quality is anticipated.* The proposed action is expected to result in a long-term improvement in environmental quality, although there would be minor short-term increases in noise, emissions of air pollutants from mobile sources, and traffic congestion in the immediate area of construction. Measures have been included in project design to minimize facility noise and odors.
8. *The proposed action does not involve a commitment to larger actions, nor would cumulative impacts result in considerable effects on the environment.* The proposed action is part of a larger facilities plan to reduce the environmental effects of untreated wastewater disposal in shoreline areas.
9. *No rare, threatened or endangered species or their habitats would be affected.* The project site is in a fully developed residential community. No protected species or important habitat exist in the project area.
10. *Air quality, water quality or ambient noise levels would not be detrimentally affected.* Each of these environmental characteristics would be affected by the proposed action, but to insignificant degrees. Operation of heavy equipment and other vehicles associated with the action would temporarily elevate ambient noise and concentrations of exhaust emissions in the immediate vicinity of the site during construction. Sound attenuation measures have been included in facility design to minimize noise, especially from the standby engine generator.
11. *The project would not affect environmentally sensitive areas, such as flood plains, tsunami zones, erosion-prone areas, geologically hazardous lands, estuaries, fresh waters or coastal waters.* The project would improve water quality in Kaneohe Bay by removing a potential source of plant nutrients. The engineering design of the pump station facility has accounted for potential tsunami inundation. Other than Kaneohe Bay, the closest significant environmentally sensitive area is Nuupia Pond, approximately 0.7 miles to the northeast of the force main termination.

## 5.0 LIST OF REFERENCES

- City and County of Honolulu, Department of Land Utilization. 1986. *Land Use Ordinance*.
- Corrosion Engineering and Research Company. 1993. "Kaneohe Bay South Wastewater Pump Station No. 5, Soil Corrosivity Study." Prep. for SEY Engineers.
- GMP Associates, 1984a. *Kaneohe-Kailua Wastewater Facilities Plan*. Prep. for City and County of Honolulu, Division of Wastewater Management.
- GMP, 1984b. *Revised Environmental Impact Statement for Kaneohe-Kailua Wastewater Facilities*. Prep. for City and County of Honolulu, Division of Wastewater Management.
- Pacific Geotechnical Engineers, Inc. 1993. "Geotechnical Engineering Investigation, Proposed Kaneohe Bay South Wastewater Pump Station No. 5. Malae, Kaneohe, Oahu, Hawaii." Prep. for Shimabukuro, Endo & Yoshizaki, Inc.
- Shimabukuro, Endo & Yoshizaki, Inc. 1993. Design Report for Kaneohe Bay South Wastewater Pump Station No. 5 and Force Main. Prep. for City & County of Honolulu, Division of Wastewater Management. 51pp.
- State of Hawaii, Department of Business and Economic Development. 1988. Population and Economic Projections for the State of Hawaii to 2010 (Series M-K).
- Takasaki, K.J. 1977. "Elements Needed in Design of a Ground-Water Quality Monitoring Network in the Hawaiian Islands." U.S. Dept. of the Interior, Geological Survey, Water Supply Paper 2041.
- University of Hawaii, Department of Geography. 1983. *Atlas of Hawaii*. University of Hawaii Press. Honolulu. 238 pp.

## 6.0 LIST OF CONSULTED PARTIES

### 6.1 PRE-ASSESSMENT CONSULTATION

All owners of record of parcels adjoining the pump station site, and force main and relief force main routes were consulted. Kaneohe Neighborhood Board No. 30 requested that the City and consultants make a presentation to the Board and answer questions about the project. That was done on the evening of November 19, 1992. In addition, the following agencies, organizations and utilities were consulted. Substantive responses are indicated below with an asterisk (\*).

#### FEDERAL AGENCIES

- \* U.S. Department of Agriculture, Soil Conservation Service
- \* U.S. Army Corps of Engineers, Pacific Ocean Division
- U.S. Department of the Interior, Fish and Wildlife Service
- U.S. Department of Commerce, National Marine Fisheries Service
- U.S. Environmental Protection Agency, Pacific Islands Contact Office

#### STATE AGENCIES

- \* Department of Accounting and General Services
- \* Department of Business, Economic Development and Tourism (Response from Land Use Commission)
- Department of Business, Economic Development and Tourism, State Energy Office
- Department of Land and Natural Resources
- \* Department of Land and Natural Resources, State Historic Preservation Division
- \* Department of Land and Natural Resources, Land Management Division
- \* Department of Health
- Department of Health, Environmental Management Division
- \* Department of Transportation
- \* Office of State Planning
- University of Hawaii, Water Resources Research Center
- University of Hawaii, Environmental Center

#### COUNTY AGENCIES

- \* Board of Water Supply
- Building Department
- Department of Housing and Community Development
- \* Department of General Planning
- Department of Land Utilization
- Department of Parks and Recreation

- \* Department of Transportation Services  
Kaneohe Neighborhood Board No. 30

#### UTILITIES

Hawaiian Electric Company  
Hawaiian Telephone Company  
GASCO, Inc.  
Oceanic Cablevision

#### ORGANIZATIONS

Friends of Kaneohe Bay (Returned as undeliverable by Post Office)  
Hawaii's Thousand Friends  
Hui Malama 'Aina O Ko'olau  
Kupa'a He'eia  
Life of the Land  
Sierra Club, Hawaii Chapter

#### 6.2 DRAFT EA REVIEW

Copies of the Draft EA were provided to the same agencies, organizations and individuals included above on the master list provided by OEQC for the pre-assessment consultation. The list was supplemented to include parties who, during the pre-assessment consultation process, requested to receive copies of the Draft EA for their review and comment. These additional parties were as follows:

Robert and Kelly Armstrong  
Andrew and Margaret Stanley  
Harold and Florence Fanning  
Ernest and Elizabeth Hui  
John Brack  
Lloyd and Diane Komagome

Letters containing substantive comments on the Draft EA, and responses to those comments are reproduced on the following pages.



STATE OF HAWAII  
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM  
LAND USE COMMISSION  
Room 104, Old Federal Building  
335 Merchant Street  
Honolulu, Hawaii 96813  
Telephone: 571-3823

ESTHER LYDA  
EXECUTIVE OFFICER

**GK &  
ASSOCIATES**

294 AWAKEA RD. • KAILUA, HAWAII 96734 • TEL/FAX (808) 262-2120

May 24, 1993

**SUBJECT: Draft Environmental Assessment (EA) for Kaneohe Bay  
South Wastewater Pump Station, Force Main, and Relief  
Force Main**

We have reviewed the subject draft EA and have the following  
comments:

- 1) We confirm that the project site as shown on figure 1 of the draft EA is located within the State Land Use Urban District.
- 2) We suggest that the final EA include a map showing the project site in relation to the State Land Use Districts.

We have no other comments to offer at this time.

EU:BKS:th

July 27, 1993

Land Use Commission  
Room 104, Old Federal Building  
335 Merchant Street  
Honolulu, Hawaii 96813

Dear Sirs:

**Subject: Draft Environmental Assessment for Kaneohe Bay South  
Wastewater Pump Station, Force Main and Relief Force Main**

Thank you for your letter of May 24, 1993. As noted, the project site is in the State Urban Land Use District. A Land Use District map will be included in the final environmental assessment.

Sincerely,

George Krasnick  
President

cc: DBED&T

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



FRANK FAS  
MAYOR

ROBIN FOSTER  
CHIEF PLANNING OFFICER  
ROLAND LIBBY, JR.  
DEPUTY CHIEF PLANNING OFFICER

TH 5/93-1235

May 26, 1993

Mr. George Krasnick, President  
GK and Associates  
294 Awakea Road  
Kailua, Hawaii 96734

Dear Mr. Krasnick:

Draft Environmental Assessment (DEA) for  
Kaneohe Bay South Wastewater Pump Station,  
Force Main and Relief Force Main No. 5,  
Kaneohe, Oahu, Hawaii. Tax Map Keys: 4-4-07: 25 & 32

In response to your letter of May 13, 1993, we have reviewed  
the subject DEA and offer the following comments:

1. We have no objections to the proposed project.
2. A symbol for a sewage pump station, site determined,  
within six years, is indicated on the Koolauopoko  
Development Plan Public Facilities Map.
3. The proposed project is consistent with the City and  
County Development Plan for Koolauopoko and the General  
Plan objectives for waste disposal.

Should you have any questions, please contact Tim Hata of  
our staff at 527-6070.

Sincerely,

ROBIN FOSTER  
Chief Planning Officer

RF:ft

**GK &  
ASSOCIATES**

294 AWAKEA RD. • KAILUA, HAWAII 96734 • TEL/FAX (808) 262-2120

July 27, 1993

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

Dear Sirs:

Subject: Draft Environmental Assessment for Kaneohe Bay South  
Wastewater Pump Station, Force Main and Relief Force Main

Thank you for your letter of May 26, 1993. It is understood that the proposed pump  
station site is indicated on the Koolauopoko Development Plan Public Facilities Map, and  
that the proposed project is consistent with the City and County Development Plan for  
Koolauopoko and the General Plan objectives for waste disposal.

Sincerely,

George Krasnick  
President

DEPARTMENT OF TRANSPORTATION SERVICES  
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING  
650 SOUTH KING STREET  
HONOLULU HAWAII 96813



FRANK CASE  
DIRECTOR

JOSEPH M. HAGALDI, JR.  
DIRECTOR  
AMAR SAPPAL  
DEPUTY DIRECTOR

TE-1907  
PL93.1.196

May 28, 1993

Mr. George Krasnick  
President  
GK & Associates  
294 Awakea Road  
Kailua, Hawaii 96734

Dear Mr. Krasnick:

Subject: Kaneohe Bay South Wastewater Pump Station No. 5  
Draft Environmental Assessment (EA)  
TRK: 4-4-07: 25 and 31

This is in response to your letter of May 13, 1993 requesting our comments on the subject project.

Based on our review, we have no objections to the proposed pump station at this time. However, we recommend the access road be constructed to accommodate two-way traffic.

Should you have any questions, please contact Lance Watanabe of my staff at 523-4199.

Sincerely,

JOSEPH M. HAGALDI, JR.  
DIRECTOR

**GK &  
ASSOCIATES**

294 AWAKEA RD. • KAILUA, HAWAII 96734 • TEL/FAX (808) 262-2120

July 27, 1993

City and County of Honolulu  
Department of Transportation Services  
650 South King Street  
Honolulu, Hawaii 96813

Dear Sirs:

Subject: Draft Environmental Assessment for Kaneohe Bay South  
Wastewater Pump Station, Force Main and Relief Force Main

Thank you for your letter of May 28, 1993. The proposed access road is 14 feet wide to accommodate tanker trucks and smaller vehicles. There will be ample space at the pump station to turn vehicles around. The projected low frequency of usage of the access road and the residential setting would make a two-lane road excessive in terms of capacity and visual intrusiveness.

Sincerely,

George Krasnick  
President

The Gas Company  
A Division of BHP Petroleum  
1000 Ala Moana Blvd., Suite 600  
Honolulu, HI 96813  
Telephone: (808) 547-3333  
Telex: 547333  
Fax: (808) 547-3333



**BHP**  
Petroleum

**GK &  
ASSOCIATES**

294 AWAKEA RD. • KAILUA, HAWAII 96734 • TEL/FAX (808) 262-2120

June 4, 1993

GK & ASSOCIATES  
294 Awakea Rd.  
Kailua, Hawaii 96734

Attention: Mr. George Krasnick  
President

Gentlemen:

Subject: Draft Environmental Assessment for  
Kaneohe Bay South Wastewater Pump Station No. 5  
Kaneohe, Koolauokoko, Oahu, Hawaii

In response to your letter dated May 13, 1993, we have reviewed the Draft Environmental Assessment for the subject project. It has been determined that the area is currently clear of utility gas facilities.

Should there be any questions, or if additional information is desired, please call me at 547-3574.

Very truly yours,

*Edwin N. Sawa*  
Edwin N. Sawa, P.E.  
Manager, Engineering

ENCLOSURE  
9-178  
Attachment: Plans

July 27, 1993

The Gas Company  
P.O. Box 3379  
Honolulu, Hawaii 96842

Dear Sirs:

Subject: Draft Environmental Assessment for Kaneohe Bay South  
Wastewater Pump Station, Force Main and Relief Force Main

Thank you for your letter of June 4, 1993. The information provided concerning the lack of utility gas facilities in the proposed project area will be provided to the engineers and contractors.

Sincerely,

*George Krasnick*  
George Krasnick  
President

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JUN-22-1993 08:49 FROM MAR-ADMINISTRATION TO

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JOHN VAHUTE  
DIRECTOR

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OFFICE OF PUBLIC WORKS  
JUN 22 9 26 AM '93



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813  
JUNE 10, 1993

RECD JOHNSON  
DALLAS  
DEPT OF PUBLIC WORKS  
JOHN VAHUTE  
JEANNE K. SCHWARTZ  
CALVINIA TUDUA  
WORKS REFER TO:  
HWY-25  
2.7137

92-202-7  
POST OFFICE  
CITIZENS  
WOMEN'S CLUB

**GK &  
ASSOCIATES**

271 AWAKEA RD. • KAILUA, HAWAII 96734 • TEL/FAX (808) 262-2120

July 27, 1993

Department of Transportation  
869 Punchbowl Street  
Honolulu, Hawaii 96813

Dear Sirs:

Subject: Draft Environmental Assessment for Kaneohe Bay South  
Wastewater Pump Station, Force Main and Relief Force Main

Thank you for your letter of June 10, 1993. Construction plans for work to be done within State highway rights-of-way will be submitted for your review and approval.

Sincerely,  
*George Krasnick*  
George Krasnick  
President

Mr. C. Michael Street  
Director  
Department of Public Works  
City and County of Honolulu  
650 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Street:

Subject: Draft Environmental Assessment for Kaneohe  
Bay South Wastewater Pump Station No. 5,  
Kaneohe, Koolauapoko, Oahu, Hawaii  
TMK: 4-4-07-25 and 4-4-07-33

Thank you for transmitting the subject document for our review and comments.

Construction plans for work to be done within our highway rights-of-way must be submitted for our review and approval.

Sincerely,  
*Rex D. Johnson*  
Rex D. Johnson  
Director of Transportation

Post-it<sup>®</sup> brand fax transmittal memo 7671

To	George Krasnick	From	Howard Emdin
Cx	GK Associates	On	SEY
Dept.		Phone	734-5916
Fax	762-2120	Fax	734-5916

BOARD OF WATER SUPPLY  
CITY AND COUNTY OF HONOLULU  
630 SOUTH BERETANIA STREET  
HONOLULU HAWAII 96813



June 14, 1993

FRANK F. FASI, Mayor  
WALTERO WATSON, JR., Chairman  
MAURICE H. YAMASATO, Vice Chairman  
SHERIL D. DALRYMPLE, Director, O.S.T.  
JOHN W. AMERSON, JR.  
FELIX JOHNSON  
KEUSAY J. LUI  
C. MICHAEL STREET  
KAZU HAYASHIDA  
Manager and Chief Engineer

Mr. George Kramnick  
GK & Associates  
294 Awakea Road  
Kailua, Hawaii 96734

Dear Mr. Kramnick:

Subject: Your Letter of May 13, 1993 Regarding the Draft Environmental Assessment for the Proposed Kaneohe Bay South Wastewater Pump Station, Force Main and Relief Force Main. TMK: 4-4-07: 25 and 33, Kaneohe Bay Drive

Thank you for the opportunity to review and comment on the proposed wastewater system project. We have the following comments to offer:

1. There is no existing water service to the parcel. However, there are existing water services that may be affected by the installation of the force mains along Kaneohe Bay Drive and Aina Moi Place. The construction drawings showing all affected water services with meter numbers should be submitted for our review and approval.
2. The availability of water will be confirmed when the building permit application is submitted for our review and approval. When water is made available, the applicant will be required to pay our Water System Facilities Charges for source-transmission and daily storage and any applicable meter installation charges.
3. The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.
4. An approved reduced pressure principle backflow prevention assembly should be installed on the domestic waterline immediately after the property valve and prior to any branch piping.

If you have any questions, please contact Roy Doi at 527-5235.

Very truly yours,

  
KAZU HAYASHIDA  
FOR  
Manager and Chief Engineer

**GK &  
ASSOCIATES**

294 AWAKEA RD. • KAILUA, HAWAII 96734 • TEL/FAX (808) 262-2120

July 27, 1993

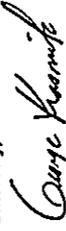
City and County of Honolulu  
Board of Water Supply  
630 South Beretania Street  
Honolulu, Hawaii 96813

Dear Sirs:

Subject: Draft Environmental Assessment for Kaneohe Bay South Wastewater Pump Station, Force Main and Relief Force Main

Thank you for your letter of June 14, 1993. Construction drawings showing all affected water services with meter numbers will be submitted for your review and approval. It is understood that the availability of water will be confirmed when the building permit application is submitted for your review and approval, and that the applicant will be required to pay our Water System Charges for source-transmission and daily storage, as well as any applicable meter installation charges. On-site fire protection requirements will be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department. An approved reduced pressure principle backflow prevention assembly will be installed on the domestic waterline immediately after the property valve and prior to any branch piping.

Sincerely,

  
George Kramnick  
President



**GK &  
ASSOCIATES**

294 AWAKEA RD. • KAILUA, HAWAII 96734 • TEL/FAX (808) 262-2120

July 27, 1993

Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Sirs:

**Subject:** Draft Environmental Assessment for Kaneohe Bay South  
Wastewater Pump Station, Force Main and Relief Force Main

Thank you for your letter of June 25, 1993. Because the proposed site is so close to Kaneohe Bay, special precautions will be required of the contractor to avoid environmental impacts of erosion and dewatering. If possible, site work will be scheduled during expected dry weather periods. A NPDES permit will be required for the work. Conditions attached to that permit will regulate discharge of dewatering effluent, storm water and hydrotesting water. The contractor will be required to have his proposed methods for erosion control and treatment and discharge of effluent waters approved by the City and the State Department of Health.

Sincerely,

  
George Krasnick  
President