EXECUTIVE CHAMBERS

HONOLULU

GEORGE R. ARIYOSHI
GOVERNOR

May 27, 1982

Mr. Roy R. Takemoto
Chairman
Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Takemoto:

Subject: Environmental Impact Statement for Kalia Road, Relief Drain, Waikiki, Oahu

Based upon the recommendation of the Office of Environmental Quality Control, I am pleased to accept the subject document as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes. This environmental impact statement will be a useful tool in deciding whether the action described therein should be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under applicable laws, and does not constitute an endorsement of the proposed action.

When the decision is made regarding the proposed action itself, I expect the proposing agency to weigh carefully whether the societal benefits justify the environmental impacts which will likely occur. These impacts are adequately described in the statement, and, together with the comments made by reviewers, provide a useful analysis of alternatives to the proposed action.

With warm personal regards, I remain,

Yours very truly,

George R. Ariyoshi

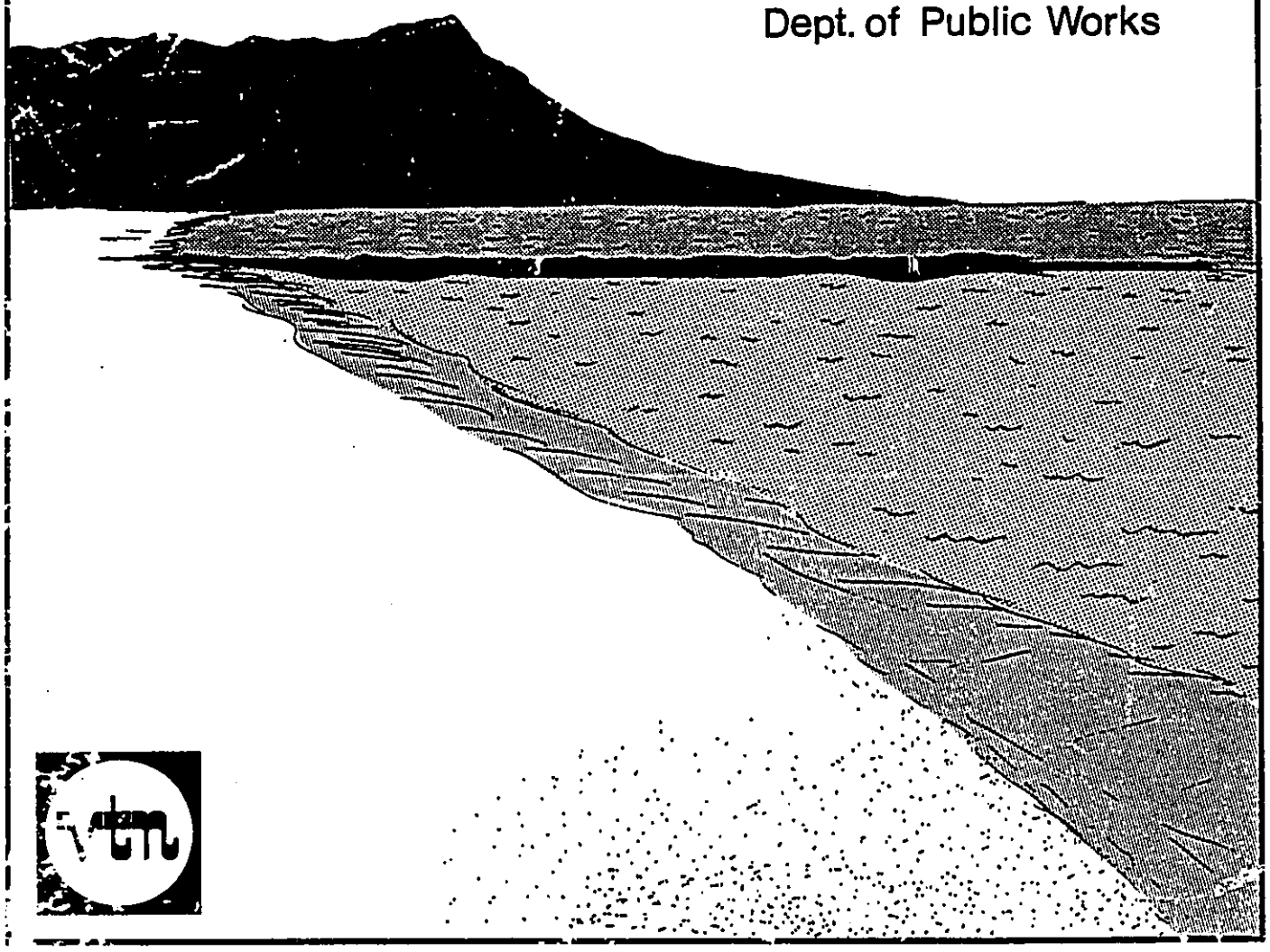
cc: Mr. Michael Chun, Director,
Department of Public Works

KALIA ROAD RELIEF DRAIN

REVISED ENVIRONMENTAL IMPACT STATEMENT

City & County of Honolulu

Dept. of Public Works



REVISED

ENVIRONMENTAL IMPACT STATEMENT

FOR

KALIA ROAD RELIEF DRAIN

Waikiki, Oahu, Hawaii
TMK:2-6-04:9, por. 10, 11, 12 and 2-6-05:por. 1, 8

Proposing Agency
Department of Public Works
Division of Engineering
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Accepting Authority
Governor, State of Hawaii

Submitted Pursuant to Chapter 343, HRS

Responsible Official: Michael J. Chun Date 3/10/82
Michael J. Chun
Director and Chief Engineer

Prepared By
VTN Pacific
1164 Bishop Street, Suite 906
Honolulu, Hawaii 96813

March 1982

SUMMARY

The County Department of Public Works has proposed three alternative drainage improvements for Kalia Road in Waikiki, Oahu. Alternative X consists of a new box culvert extending straight from Kalia Road, underneath the pedestrian right-of-way between the Halekulani and Cinerama Reef Hotels, to an outfall approximately 350 feet makai of the Halekulani seawall. Alternative Y consists of a new box culvert underneath the Halekulani right-of-way connected by a new box culvert beneath the beach to an existing box culvert at the southeastern edge of Fort DeRussy (Kalia Relief Drain). With Alternative Y, the existing Kalia Relief Drain outfall would need to be replaced with a larger box culvert makai of the point of connection. Alternative Z consists of raising the sidewalks, curbs, and driveways on Kalia Road between Saratoga Road and Lewers Street. Alternative Z also involves replacing the entire existing Kalia Relief Drain box culvert makai of Kalia Road with a larger box culvert. As with the existing Kalia Relief Drain, the new outfall would end approximately 350 feet makai of the Fort DeRussy seawall.

The DPW prefers Alternative Z. However, the final decision on which alternative is selected will take into consideration public and private comments concerning this EIS.

Alternative X would cost about $.8 million at 1981 prices, Alternative Y would cost about $1.4 million, and Alternative Z would cost about $1.2 million. All three alternatives would require use of both private and State property. Alternatives Y and Z would also require use of Federal property. As many as 18 different agency permits and approvals would be needed to construct Alternative Z.

Alternative X would require the shortest construction time and Alternative Y would require the longest. Construction of Alternative Y would substantially inhibit beach use for several months. All alternatives would require about two months of construction on Kalia Road and some rerouting of traffic.

Alternative X would create a new outfall approximately 280 feet east of the existing Kalia Relief Drain outfall, while Alternatives Y and Z would replace the existing outfall with a larger one. A new outfall would snag floating debris and limu during Kona winds. Otherwise, none of these alternatives would have substantial adverse impacts on water quality or recreational use of nearshore waters.

Alternative Y and Z outfalls would not create any risk of adverse impacts to existing beach processes. However, Alternative Y would require a new box culvert along the shoreline beneath the beach. Analysis of available aerial photos shows that if built during the 1950s, the proposed culvert beneath the beach would not have been exposed by wave action since then. But if this culvert were exposed by beach retreat, then the County would need to place sand makai of the culvert to restore the beach.

The new outfall required for Alternative X has the potential for affecting beach processes. However, long term adverse impacts are not considered likely. Construction of a 160 foot groin in 1929 in the same place as the proposed outfall and a 110 foot groin near the existing Kalia Relief Drain was followed over twenty years by gradual accretion of a beach extending from the middle of the Fort DeRussy seawall through part of the Halekulani seawall.

Other outfall locations considered were not felt to be desirable. Retention of storm water in ponds was not considered feasible. Because of cost, maintenance problems, and the risk of breakdowns, pumps were not considered an adequate substitute for a gravity flow drainage system. Disposal of storm water in the Ala Wai Canal was impractical without use of pumps.

C O N T E N T S

C O N T E N T S (Continued)

C O N T E N T S (Continued)

FIGURES

PLATES

C O N T E N T S (Continued)

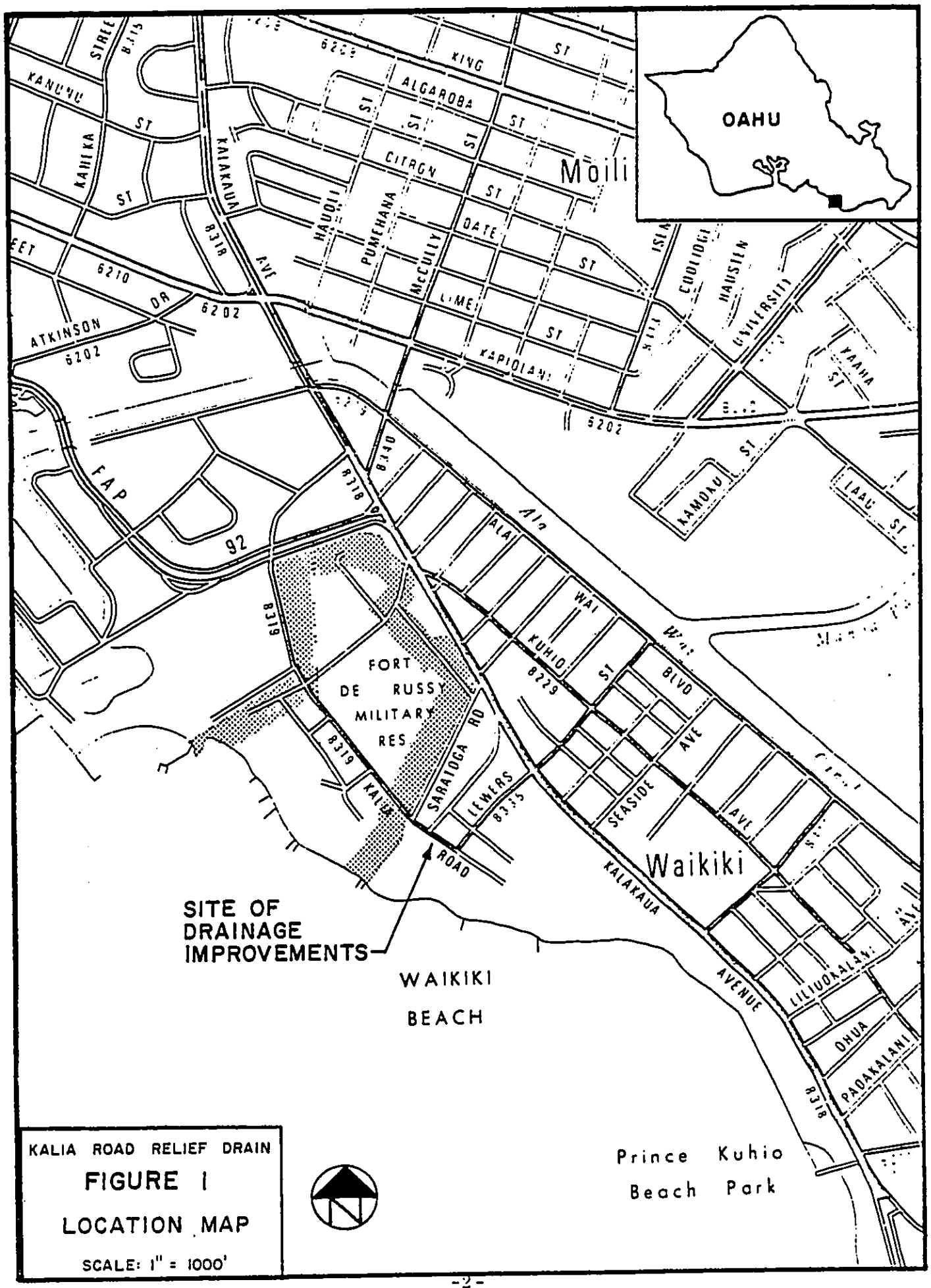
CHAPTER I. DESCRIPTION OF THE PROPOSED PROJECT

A. LOCATION AND LAND OWNERSHIP

The Department of Public Works (DPW) is proposing to construct drainage improvements at Kalia Road in Waikiki, Oahu. (Figure 1) Three alternative approaches are being considered to reduce flooding of Kalia Road. (Figure 2 and Figure 3) If feasible, then for Alternative X and Alternative Y undersized drainage pipes would be replaced beneath the intersection of Saratoga and Kalia Roads. Alternative X and Alternative Y would also consist of a new box culvert from Kalia Road underneath the existing 10-foot wide pedestrian right-of-way between the Halekulani and Cinerama Reef Hotels. (Figure 2) Alternative X consists of extending the new box culvert straight out to sea. Alternative Y consists of angling the new box culvert beneath the beach (fronting the Cinerama Reef Hotel and Waikiki Shore Apartments) to an existing undersized storm drain box culvert at the southeastern edge of Fort DeRussy (Kalia Relief Drain). Alternative Y also requires replacing the existing Kalia Relief Drain outfall makai of the point of connection. Unlike other alternatives, Alternative Z consists of replacing the entire existing Kalia Relief Drain box culvert makai of Kalia Road. (Figure 3) Alternative Z also would require raising the sidewalks, curbs, and driveways on Kalia Road between Saratoga Road and Lewers Street. With all three alternatives, the beach would completely cover all structures mauka of the high water mark at about the same elevation as the existing Kalia Relief Drain outfall.

The DPW prefers Alternative Z. However, the final decision on which alternative is selected will take into consideration public and private comments received by the DPW concerning this EIS.

All three alternatives would require use of State and private property. In addition, Alternatives Y and Z would require use of Army property at Fort DeRussy. Mauka of the Fort DeRussy seawall, the existing Kalia Relief Drain is located on Army property identified by Tax Map Key 2-6-05:Portion of Parcel 1. The pedestrian right-of-way between the Halekulani and Cinerama Reef Hotels and part of the

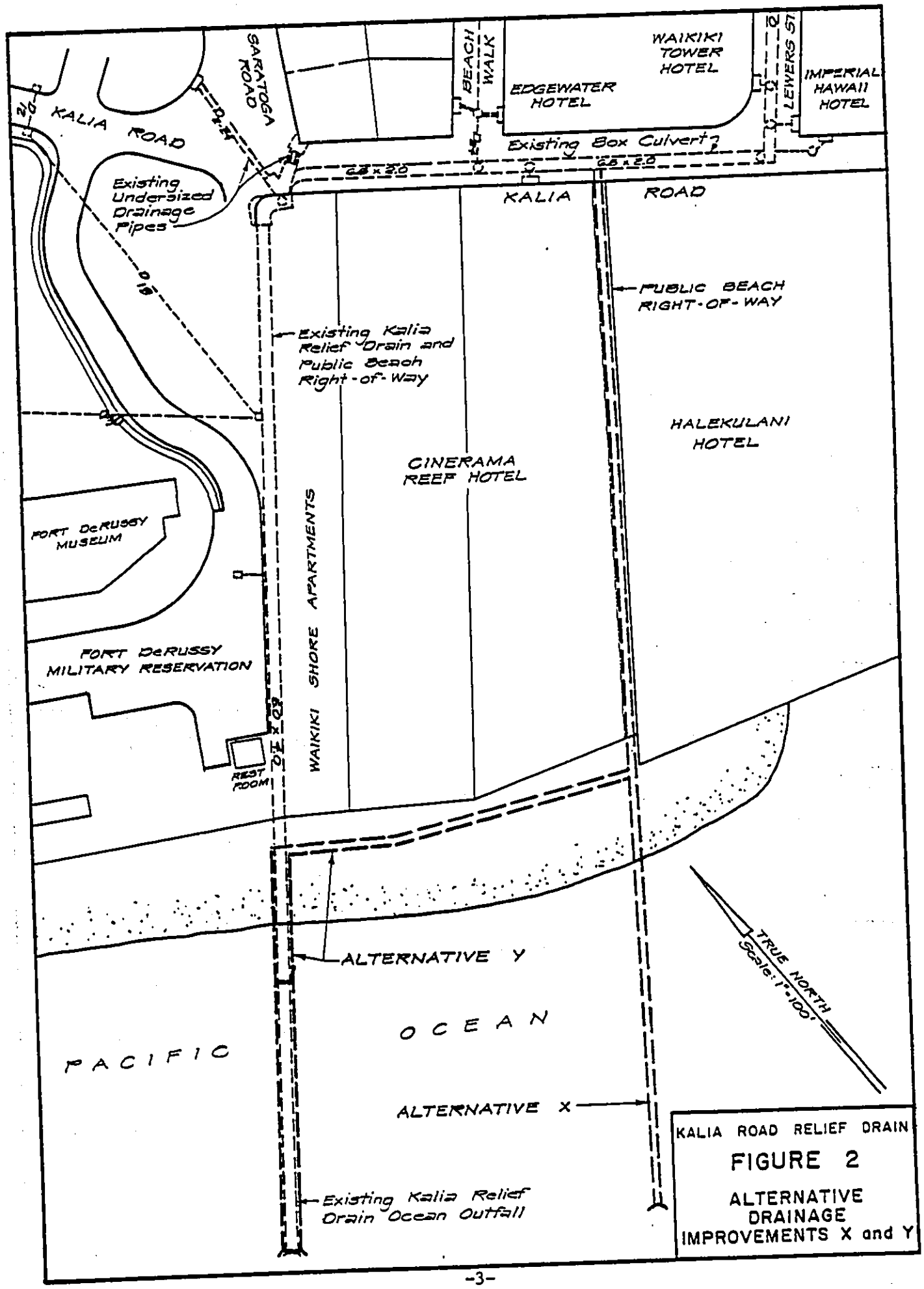


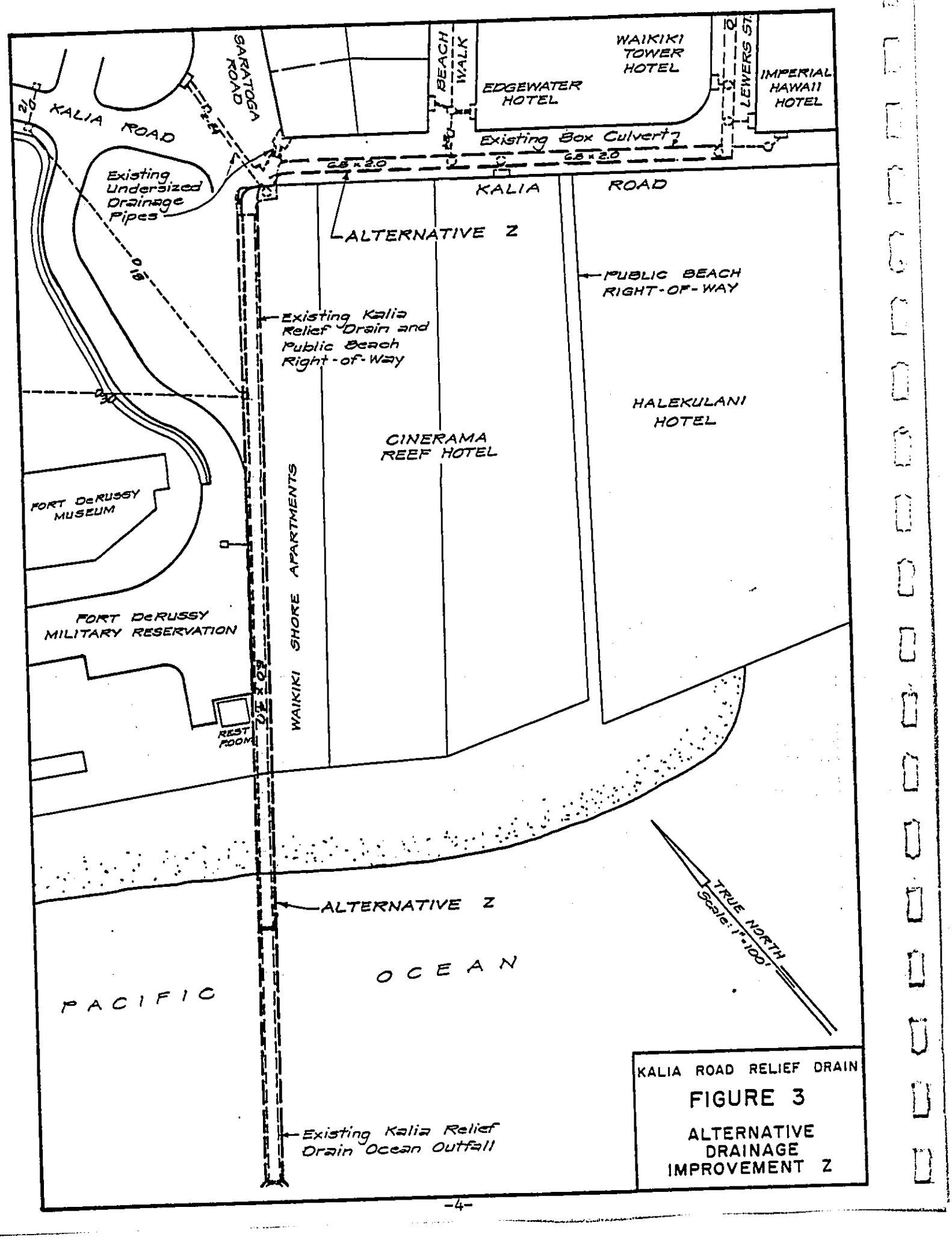
KALIA ROAD RELIEF DRAIN

FIGURE 1

LOCATION MAP

SCALE: 1" = 1000'

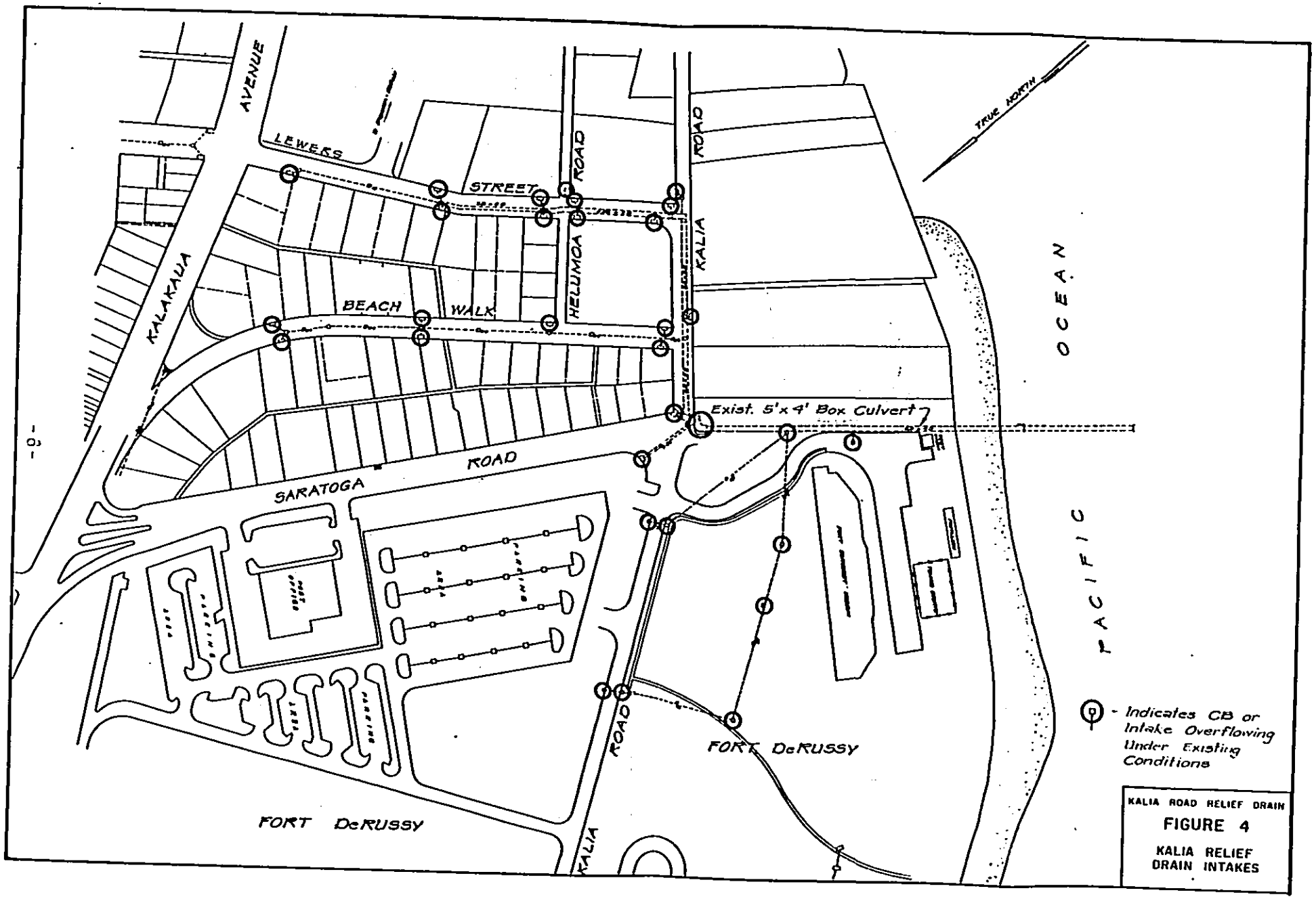

KALIA ROAD
SARATOGA ROAD
BEACH WALK
WAIKIKI TOWER HOTEL
EDGEWATER HOTEL
LEWERS ST
IMPERIAL HAWAII HOTEL
Existing Box Culvert
2.8 x 2.0
2.8 x 2.0
KALIA ROAD
Existing Undersized Drainage Pipes
PUBLIC BEACH RIGHT-OF-WAY
Existing Kalia Relief Drain and Public Beach Right-of-Way
HALEKULANI HOTEL
CINERAMA REEF HOTEL
FORT DeRUSSY MUSEUM
FORT DeRUSSY MILITARY RESERVATION
REST ROOM
WAIKIKI SHORE APARTMENTS
ALTERNATIVE Y
ALTERNATIVE X
PACIFIC OCEAN
Existing Kalia Relief Drain Ocean Outfall
TRUE NORTH
Scale: 1"=100'
KALIA ROAD RELIEF DRAIN
FIGURE 2
ALTERNATIVE DRAINAGE IMPROVEMENTS X and Y


KALIA ROAD
SARATOGA ROAD
BEACH WALK
WAIKIKI TOWER HOTEL
EDGEWATER HOTEL
LEWERS ST.
IMPERIAL HAWAII HOTEL
Existing Box Culvert
6.5 x 2.0
6.5 x 2.0
KALIA ROAD
Existing Undersized Drainage Pipes
ALTERNATIVE Z
PUBLIC BEACH RIGHT-OF-WAY
Existing Kalia Relief Drain and Public Beach Right-of-Way
HALEKULANI HOTEL
CINERAMA REEF HOTEL
FORT DeRUSSY MUSEUM
FORT DeRUSSY MILITARY RESERVATION
WAIKIKI SHORE APARTMENTS
REST ROOM
ALTERNATIVE Z
PACIFIC OCEAN
TRUE NORTH
Scale: 1"=100'
Existing Kalia Relief Drain Ocean Outfall
KALIA ROAD RELIEF DRAIN
FIGURE 3
ALTERNATIVE DRAINAGE IMPROVEMENT Z

abutting beach are City property identified by Tax Map Key 2-6-04: Parcel 9. The beach mauka of the mean high water mark fronting the Cinerama Reef Hotel is currently hotel property identified by Tax Map Key 2-6-04: Portion of Parcels 10 and 11. The beach mauka of the mean high water mark fronting the Waikiki Shore Apartments is currently Waikiki Shore Apartments property identified by Tax Map Key 2-6-04: Portion of Parcel 12. According to the State Attorney General, the Ashford and Sotomura decisions of the Hawaii State Supreme Court are not applicable to ownership of most of the beach east of Fort DeRussy because the Territory of Hawaii conveyed the beach to abutting property owners in 1928. (Ref. 14) The beach on which Kalia Relief Drain's outfall is located and all lands makai of the mean high water mark are owned by the State of Hawaii and are not identified by Tax Map Key. However, the beach west of Kalia Relief Drain fronting the Fort DeRussy seawall is State property identified by Tax Map Key 2-6-05:8. The Fort DeRussy beach is currently leased on a month to month basis by Surf Cats Hawaii, Inc.

B. NEED FOR THE PROJECT

The proposed drainage improvements are primarily intended to reduce the flooding of Kalia Road and adjacent areas. Because of flat topography, during times of mean higher high water elevation (1.07 feet above mean sea level), the existing Kalia Relief Drain is unable to accommodate storm flow exceeding about 80 cubic feet per second (cfs) without flooding occurring. By comparison, the storm flow generated within Kalia Relief Drain's service area by the "fifty year storm" is estimated as 183 cfs. (See Appendix B) During even moderate storms, roads in the project area flood as a result of water overflowing from nearly every drainage intake structure that feeds Kalia Relief Drain. (Figure 4) At a minimum this causes great inconvenience in a densely populated area. Severe storms result in flooding of sidewalks on Kalia Road and occasionally property damage such as flooding of parking garages. Flooding is particularly severe on Kalia Road because it receives floodwaters flowing makai down Beach Walk and Lewers Street.


AVENUE
LEWERS
STREET
ROAD
ROAD
TRUE NORTH
KALAKAUA
BEACH
WALK
HELUMOA
KALIA
OCEAN
Exist. 5'x 4' Box Culvert
SARATOGA
ROAD
ROAD
FORT DeRUSSY
FORT DeRUSSY
KALIA
PACIFIC
- Indicates CB or Intake Overflowing Under Existing Conditions
KALIA ROAD RELIEF DRAIN
FIGURE 4
KALIA RELIEF DRAIN INTAKES

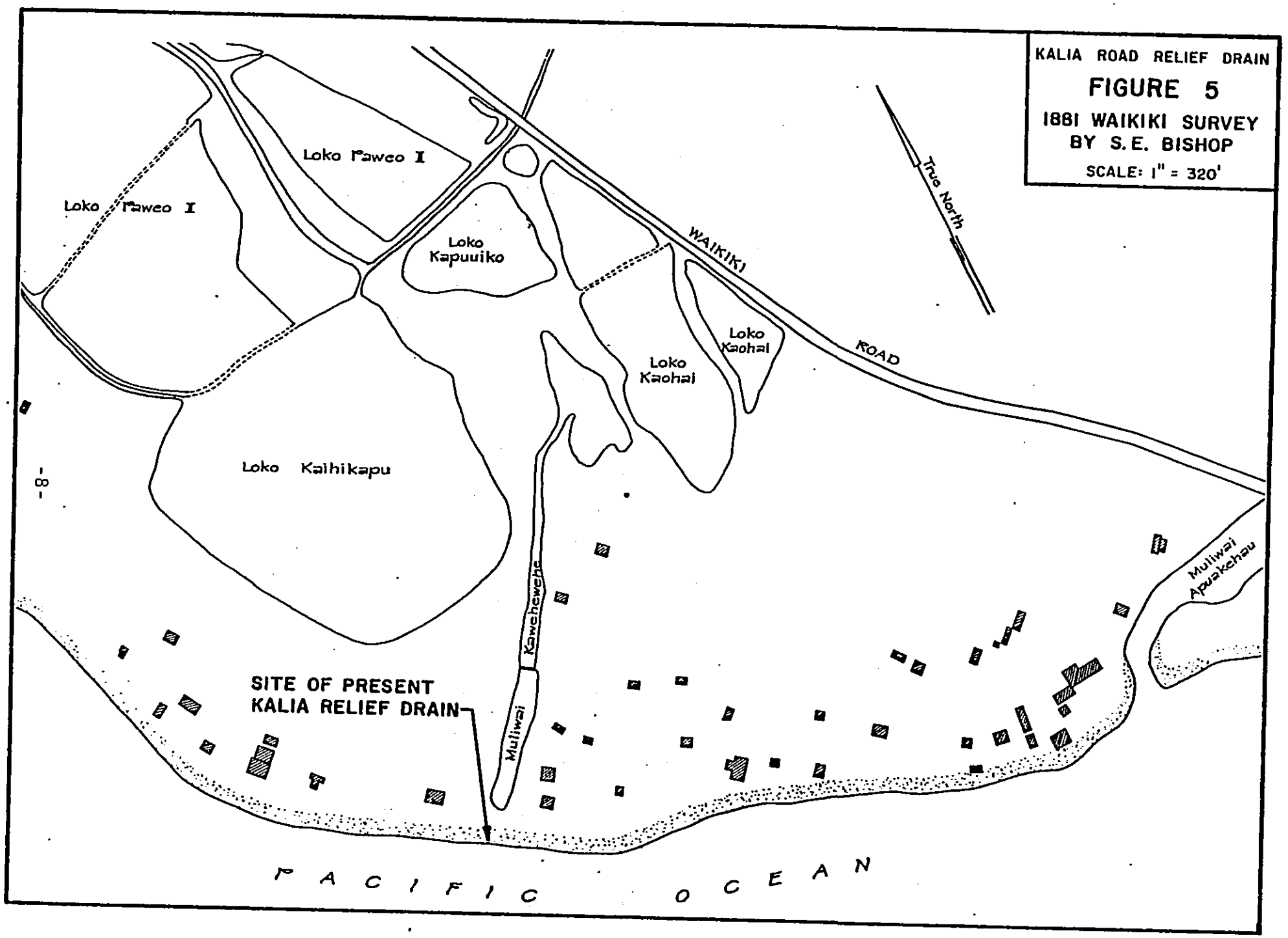
Existing storm drains on Beach Walk and Lewers Street are generally not large enough to accommodate storm flow from a fifty-year storm. Because of the relatively minor degree of flooding that occurs on these streets it is not considered economically justifiable to improve their drainage systems at this time. However, mauka flooding will be alleviated by the increased capacity of drainage conveyance facilities on Kalia Road.

C. HISTORIC PERSPECTIVE

A century ago, there were no seawalls or groins at Waikiki Beach. Marshes, fishponds, taro ponds, and rice fields covered sizable areas between the beach and what is now Kalakaua Avenue (formerly Waikiki Road). An 1881 survey for the Territory of Hawaii by S.E. Bishop (Figure 5) shows that the area where Saratoga Road and Kalia Relief Drain are presently located used to be a stream named Kawehewehe. A narrow barrier beach fronted the entire shoreline between what is now the Hilton Hawaiian Village and the Royal Hawaiian Hotel.

Since the last decade of the 19th century, dredging, filling, and construction have transformed Waikiki into a densely developed resort destination area fronted by a predominantly man-made shoreline. Former wetland areas have been filled and a series of storm drains constructed to carry surface runoff to the ocean. Because of the original flat topography, these drains have very low physical gradient.

The first Kalia drainage outfall was constructed in 1917 as a 3' x 4' concrete box running from the foot of Saratoga Road to the ocean across YWCA property adjoining Fort DeRussy. It proved inadequate to handle storm runoff and generated numerous complaints. On March 5, 1958, Waikiki was deluged with the heaviest storm ever recorded. Basements of hotels and apartments in the Kalia Road area were flooded between Lewers and Saratoga Road and parts of Fort DeRussy also flooded. A hui known as MKG Corporation offered to pay most of the cost of a larger storm drain if it would be relocated off of the YWCA


KALIA ROAD RELIEF DRAIN
FIGURE 5
1881 WAIKIKI SURVEY
BY S. E. BISHOP
SCALE: 1" = 320'
Loko Paweo I
Loko Paweo I
Loko Kapuuiko
Loko Kaohai
Loko Kaohai
Loko Kaihikapu
WAIKIKI ROAD
True North
Kawehewehe
Muliwai
Muliwai Apuakehau
SITE OF PRESENT
KALIA RELIEF DRAIN
PACIFIC OCEAN

property. Fort DeRussy offered an easement to the City and County for a larger storm drain if hook-ups to the Fort DeRussy drainage system would be allowed. In 1959, the City and County accepted these offers and began construction of a new 5' x 4' box culvert from the makai end of Saratoga Road across Fort DeRussy and then approximately 120' makai of the DeRussy seawall. Relocation of Kalia Relief Drain allowed MKG Corporation to construct the Waikiki Shore Apartments on a 50' wide parcel between Fort DeRussy and what is now the Cinerama Reef Hotel. (Ref. 5, Ref. 6, Ref. 17, Ref. 18, Ref. 19)

In 1969, to avoid clogging Kalia Relief Drain with sand from Fort DeRussy beach improvements, the Army Corps of Engineers extended the existing box culvert another 228' into the ocean. However, sand clogging continued to occur and resulted in major flooding of the Kalia Road area during a storm on May 12 and 13, 1977. As a result of this flooding, the City settled damage claims with twelve different parties totaling $121,258. Plate 1 shows a "reflecting pond" in the Cinerama Reef Hotel garage following the storm of May 1977. More recently, flooding of the Kalia area on February 2 and 3, 1979 has resulted in 8 more damage claims against the City. Some of these claims are still pending settlement. Since 1969, apart from serious property damage that occurred in 1977 and 1979, the Kalia area has undergone numerous minor floods as a result of the inherent inability of Kalia Relief Drain to efficiently handle storm runoff. (Ref. 5, Ref. 8, Ref. 17, Ref. 19)

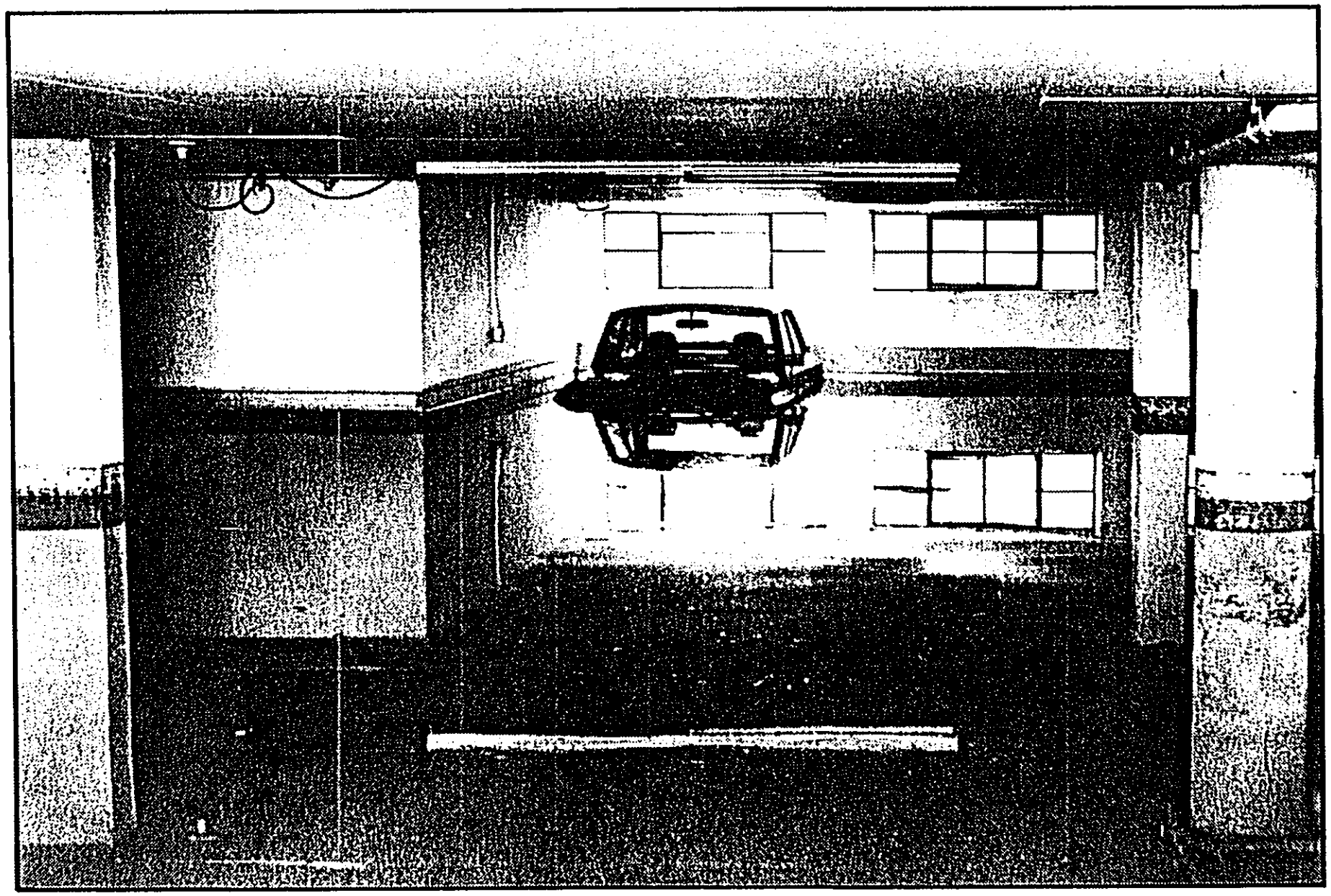


PLATE I

MAY 1977 FLOODING OF
CINERAMA REEF HOTEL PARKING LOT
PHOTOGRAPH BY HONOLULU STAR-BULLETIN

D. FACILITY PLAN

ALTERNATIVES X AND Y

Because of the presence of numerous buried utility wires and conduits, detailed engineering analysis will be needed to determine the most practical way to replace existing undersized drainage pipes beneath the intersection of Saratoga and Kalia Roads. Construction of a box culvert down the Halekulani right-of-way will face similar obstacles.

For Alternatives X and Y, a new concrete box culvert (exterior dimensions approximately 7' x 7') will be built makai of Kalia Road underneath the pedestrian right-of-way between the Halekulani and Cinerama Reef Hotels. Existing utilities will probably be relocated on top of the new box culvert. The mauka end of the new box culvert will connect to the existing box culvert, located makai of the center of Kalia road, which now carries runoff to the existing Kalia Relief Drain. (Figure 2) Hookup of the new box culvert will divert storm runoff that formerly would have overloaded the existing box culvert underneath Kalia Road.

Two different ocean outfalls are under consideration for the new box culvert makai of the Halekulani right-of-way. Plate 2 shows how the alternative drainage outfalls would look if seen from the air. Alternative X involves extending the new box culvert straight out to sea, creating a second outfall structure about 280 feet east of the existing Kalia Relief Drain outfall. The new box culvert would be protected from potential wave damage by rock revetments with a 2:1 slope as shown in Figure 6. Alternative Y involves angling the new box culvert beneath the beach to connect to the existing Kalia Relief Drain outfall. (Figure 7) The existing outfall would be replaced with a larger box culvert (exterior dimensions approximately 11.5' x 7.5') makai of the hookup point. This larger box culvert would be protected from potential wave damage by rock revetments with a 2:1 slope. (Figure 8) Outfalls for Alternative X and Alternative Y would become visible makai of the shoreline at about the same elevation as the existing Kalia Relief Drain outfall. (Figure 9)

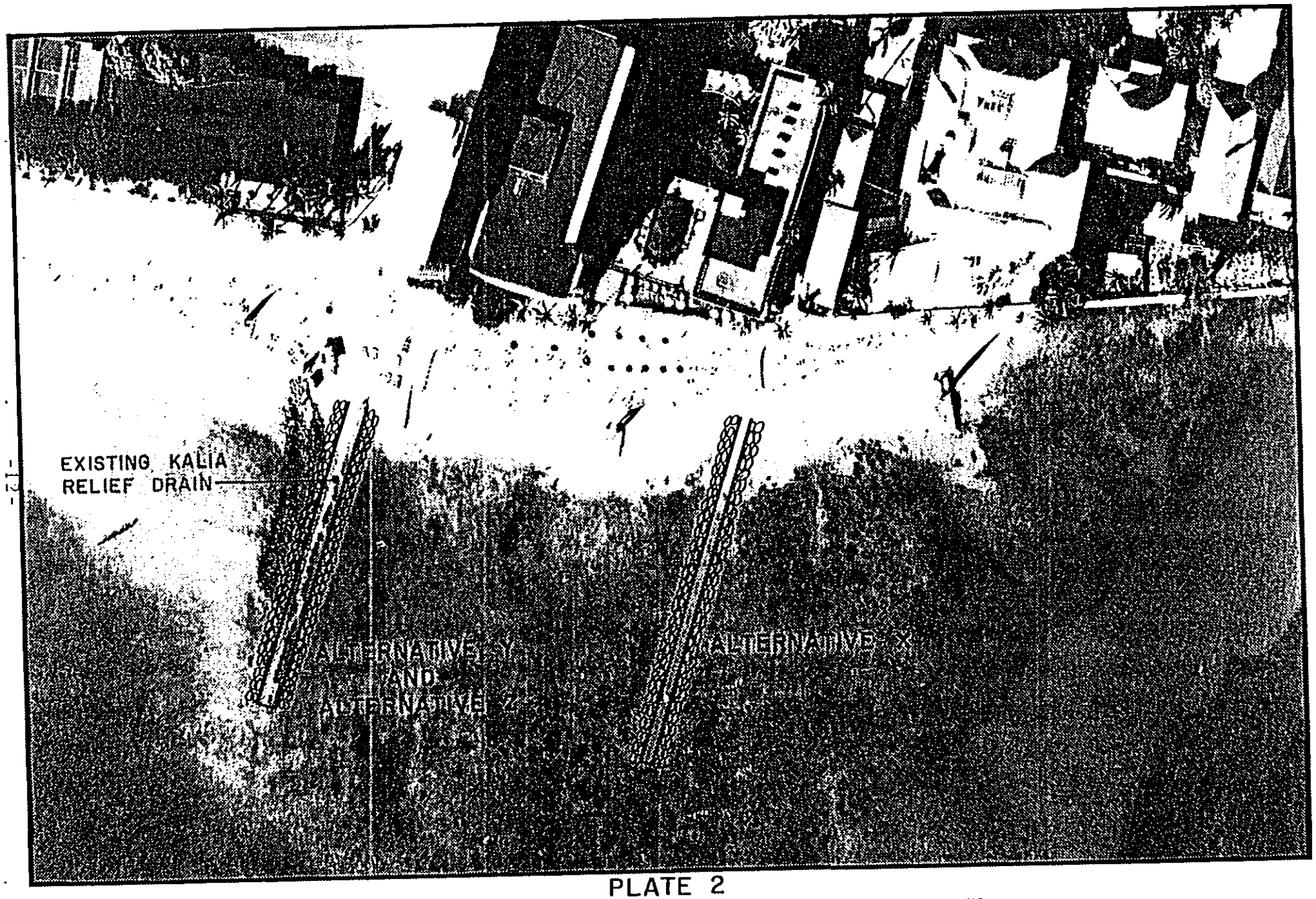


PLATE 2

APPEARANCE OF ALTERNATIVE DRAINAGE IMPROVEMENTS

OCTOBER 1979 PHOTOGRAPH BY AIR SURVEY HAWAII

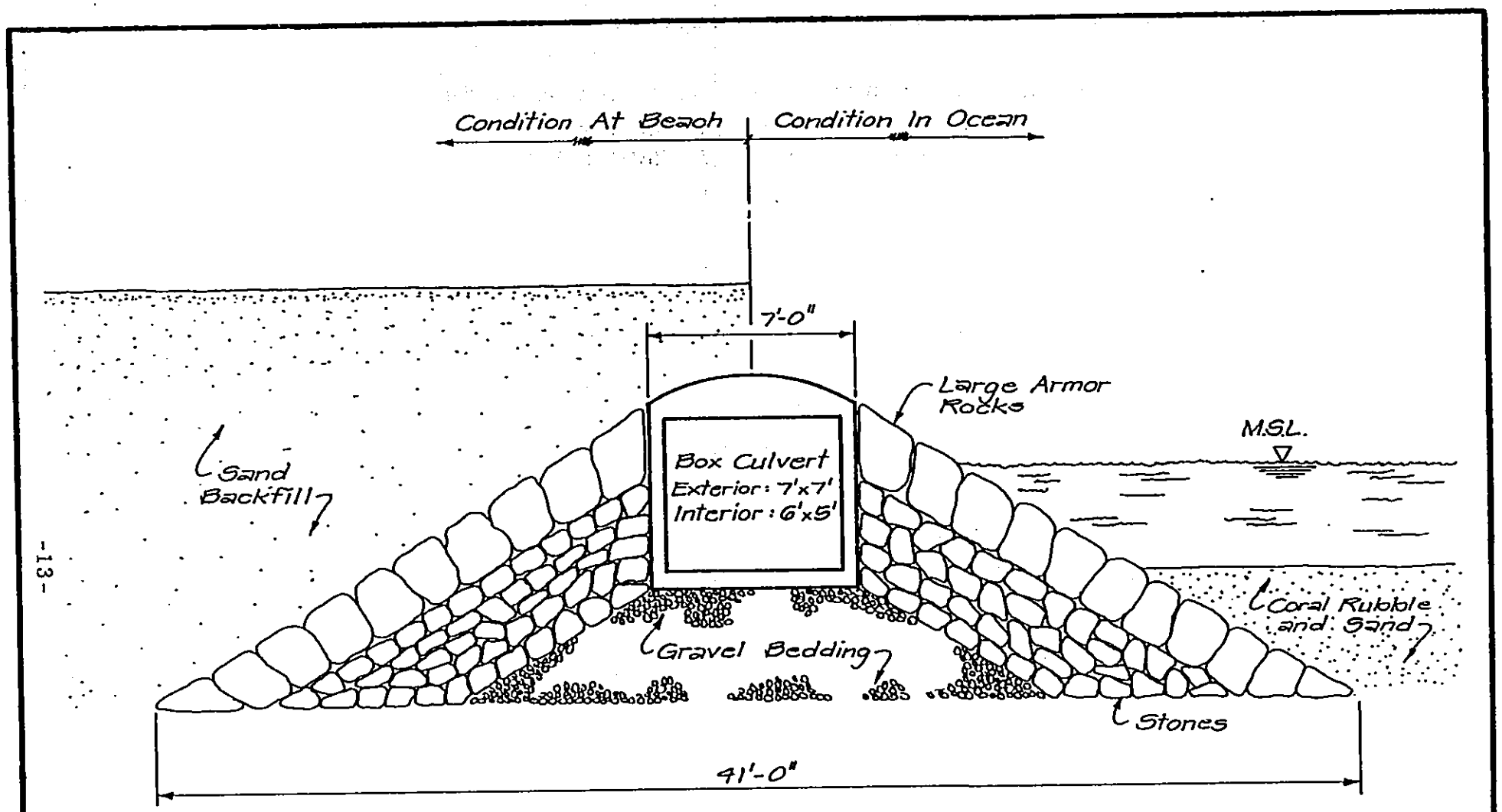


FIGURE 6

ALTERNATIVE X: CROSS SECTIONS OF NEW OUTFALL

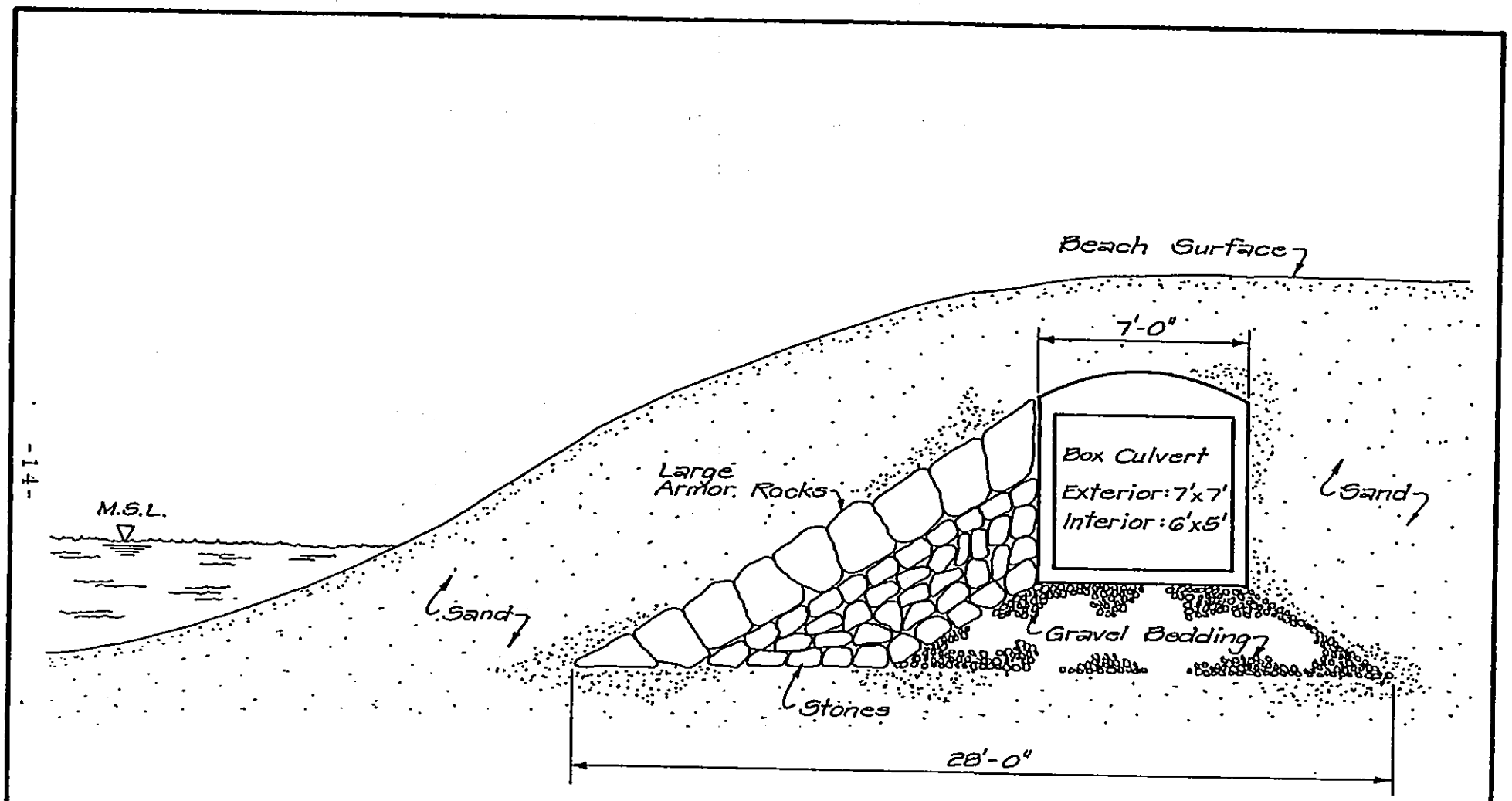


FIGURE 7

ALTERNATIVE Y: CROSS SECTION OF
NEW HOOK-UP TO KALIA RELIEF DRAIN

(UNDERNEATH THE BEACH LOOKING TOWARDS FORT DERUSSY)

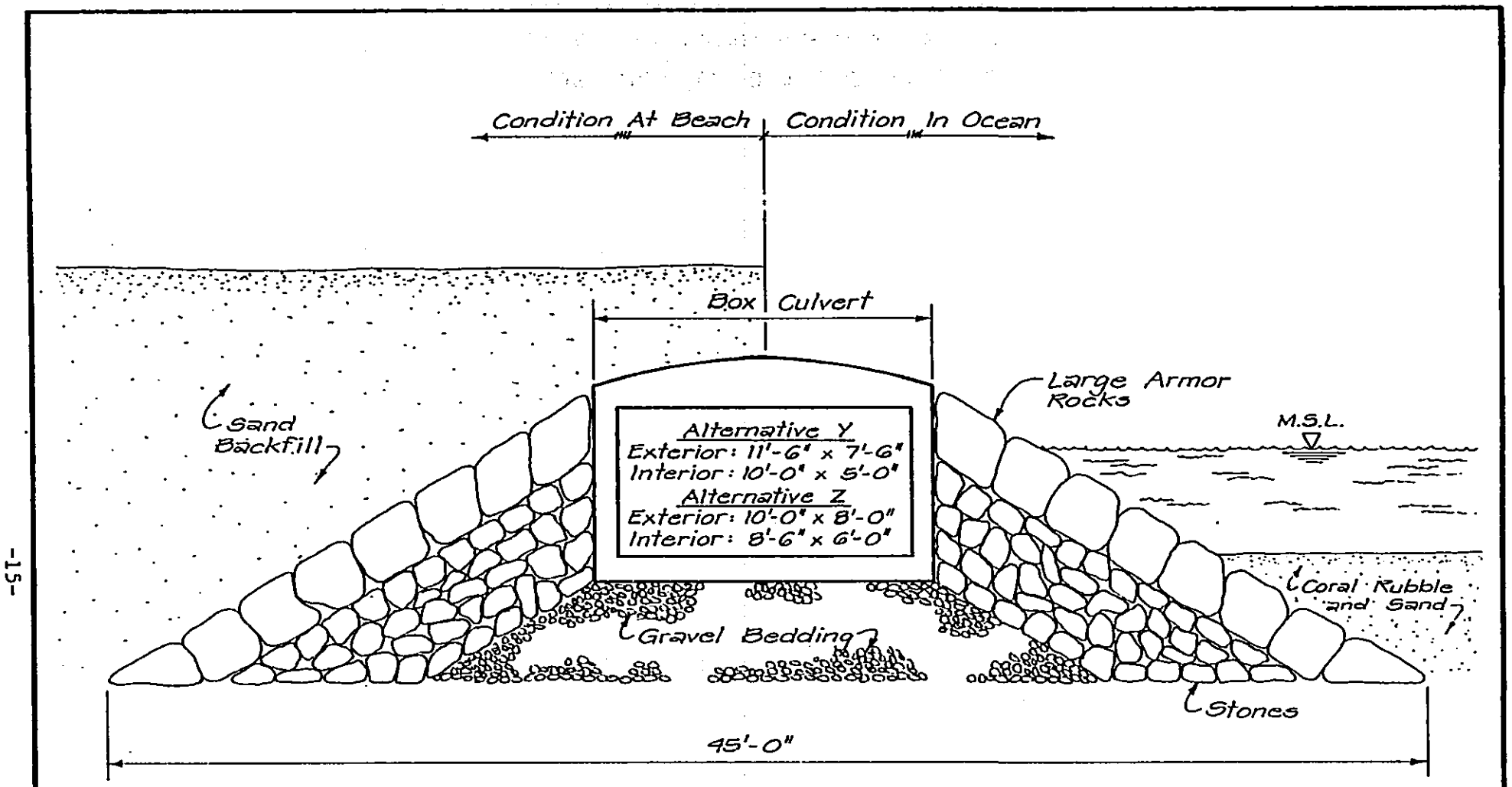


FIGURE 8

ALTERNATIVES Y AND Z: CROSS SECTION OF REPLACEMENT TO KALIA RELIEF DRAIN

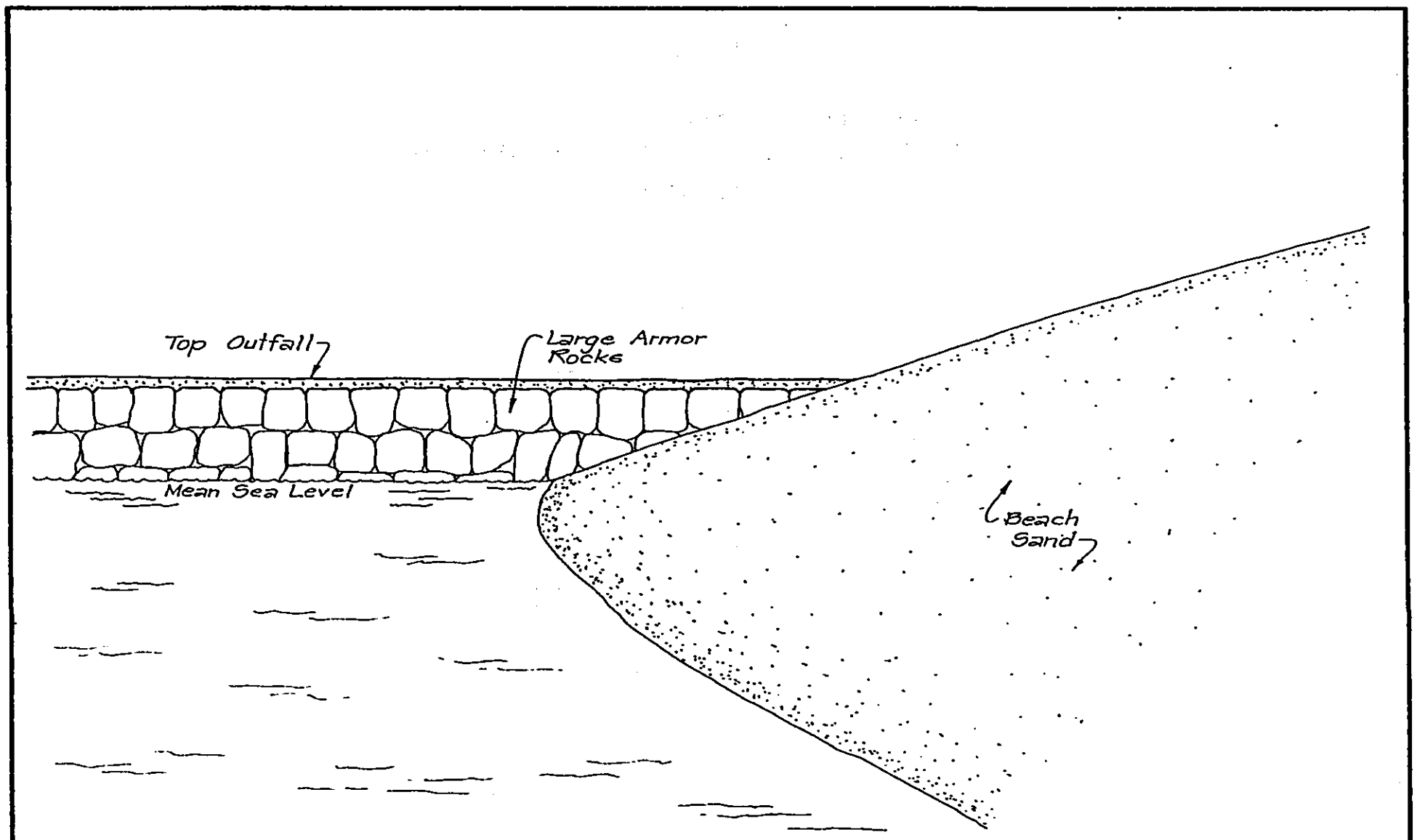


FIGURE 9

SIDE VIEW OF DRAINAGE OUTFALL

(NOTE: ALL ALTERNATIVES LOOK THE SAME)

ALTERNATIVE Z

For Alternative Z, sidewalks, curbs, and driveways will be replaced along Kalia Road between Saratoga Road and Lewers Street. Curbs will be raised to give standard 6" clearance above gutters. The entire existing Kalia Relief Drain will be replaced with a larger box culvert (exterior dimensions approximately 10' x 8') makai of Kalia Road. Makai of the Fort DeRussy seawall, this larger box culvert would be protected from potential wave damage by rock revetments with a 2:1 slope. (Figure 8) After completion, Alternative Z would look the same from the air or the ground as Alternative Y. (Plate 2 and Figure 9)

E. CONSTRUCTION PLAN

ALTERNATIVE X

Kalia Road would be partially blocked off for about 9 weeks to permit replacement of drainage pipes at the Saratoga/Kalia intersection, relocation of utilities, and in place casting of the beginning section of a new box culvert. Excavation would take place during the first 2 to 3 weeks, subject to noise limitations established by the State Department of Health. Traffic would have to be rerouted several times in order to provide access to property adjoining Kalia Road. Tour buses would be accommodated, and pedestrians would be able to use at least one sidewalk.

Construction of a new box culvert down the Halekulani pedestrian right-of-way would take about 10 weeks and require closing of the right-of-way. A backhoe would be used to dig a short length of trench. Next a small crane would be used to install 4' long pre-cast sections of box culvert. Then the backhoe would dig up another length of trench and use excavated material to backfill the installed box culvert sections. The crane would then move seaward on top of completed sections of box culvert.

Construction of outfall Alternative X from the Halekulani right-of-way to the ocean would take about 2 weeks. Pre-cast sections of box culvert would be used. A 70' - 80' wide trench would have to be incrementally dug across the beach. A 100' wide temporary construction easement would be incrementally fenced off to keep the public out of the trench. As construction proceeded seaward, the beach would be restored except for a 20' wide construction easement. The Halekulani right-of-way and the remaining construction easement would be used as a road for vehicular access and stay closed to the public during the duration of the project. Public access across the 20' wide construction easement would be limited to one crossing point.

Construction of outfall Alternative X makai of the shoreline would take about 13 weeks. A shallow draft barge (approximate dimensions 75' x 250') would be used as a platform for construction equipment. Completed sections of box culvert would be used as a road for trucks to carry pre-cast sections of box culvert and rock revetments out to the barge. Upon completion of the new outfall, the beach and the Halekulani right-of-way would be completely restored and reopened for public use.

ALTERNATIVE Y

The construction plan for Alternative Y on Kalia Road and the Halekulani right-of-way would be the same as for Alternative X. After that, about 8 weeks would be needed to extend the new box culvert from the Halekulani right-of-way to the existing Kalia Relief Drain. Pre-cast sections of box culvert would be used. A 60' - 70' wide trench would have to be incrementally dug along the beach fronting the Cinerama Reef Hotel and Waikiki Shore Apartments. An 80' wide temporary construction easement would be incrementally fenced off to keep the public out of the trench. As construction proceeded towards Kalia Relief Drain, the beach would be restored except for a 20' wide construction easement. The remaining construction easement would be used as a road for vehicular access from the Halekulani right-of-way. Public access across the 20' wide construction easement would be limited to a few crossing points. Upon completion of the box culvert between the Halekulani right-of-way and Kalia Relief Drain, the right-of-way and most of the beach would be completely restored and reopened for public use.

During the last 3 weeks that the box culvert was being built along the beach, most of the existing Kalia Relief Drain outfall would be removed. If the State Department of Transportation desired removal of the small groin fronting the Waikiki Shore Apartments (groin No. 5 on Figure 10), then this could be accomplished at the same time. A shallow draft barge (approximate dimensions 75' x 250') would be used as a platform for demolition equipment. Rubble from Kalia Relief Drain would be unloaded onto a second smaller barge for disposal at an approved landfill site.

After completion of the box culvert between the Halekulani right-of-way and Kalia Relief Drain, construction equipment would use the makai Battery Randolph Museum parking lot in Fort DeRussy as an access point and staging area for the remainder of the project. The top of Kalia Relief Drain makai of Fort DeRussy would be used as a road. A 20' wide construction easement would be fenced off around Kalia Relief Drain and public access would be limited to one crossing point.

It would take about 3 weeks to cast in place a hook-up between Kalia Relief Drain and the new box culvert fronting the Cinerama Reef Hotel and Waikiki Shore Apartments. Construction of a new Kalia Relief Drain outfall makai of the connection point would be done with precast sections in a manner similar to construction of outfall Alternative X. Armor rocks from the rubble groin on the Fort DeRussy side of the existing Kalia Relief Drain might be used for revetments for the new Kalia Relief Drain. Construction of a new Kalia Relief Drain outfall would require about 2 weeks on the beach and about another 12 weeks makai of the shoreline. Upon completion, the beach would be completely restored and public access would again be allowed on top of the makai portion of Kalia Relief Drain.

ALTERNATIVE Z

Construction of Alternative Z would begin at the Saratoga/Kalia intersection and simultaneously proceed east along Kalia Road and makai across Fort DeRussy. The makai Battery Randolph Museum parking lot would be used as a staging area and access point for construction equipment during replacement of the existing Kalia Relief Drain.

Excavating and recasting higher sidewalks, curbs, and driveways on Kalia Road would take about 2 months. Excavation would proceed incrementally during the entire two months, subject to noise limitations established by the State Department of Health. Improvements on one side of the road would be completed before construction began on the other side. One lane of Kalia Road would be intermittently closed to traffic while construction was taking place. Tour buses would be accommodated, and pedestrians would be able to use at least one sidewalk.

Replacement of the existing Kalia Relief Drain with a larger box culvert across Fort DeRussy would take about 10 weeks. The construction method would be similar to that used to install a box culvert down the Halekulani right-of-way.

Replacement of the existing Kalia Relief Drain outfall would require about 3 weeks on the beach and another 12 weeks makai of the shoreline. The construction method would be similar to that used with the Alternative Y outfall, including use of a shallow draft barge as a platform for demolition and construction equipment.

F. COST, FUNDING SOURCE, SCHEDULE

No estimate is available yet for the cost of replacing undersized drainage pipes at the intersection of Saratoga and Kalia Roads. Table 1 compares other construction cost estimates for Alternatives X, Y, and Z.

TABLE 1

PRELIMINARY CONSTRUCTION COST ESTIMATES
(1981 PRICES)

Alternative X..... $0.8 Million

Alternative Y..... $1.4 Million

Alternative Z..... $1.2 Million

Funds have not yet been appropriated to construct these drainage improvements. The Department of Public Works intends to seek a State grant in aid.

Construction will be contingent upon funding. To avoid traffic congestion, construction will probably be delayed until after completion of the new Halekulani Hotel facilities. Construction will be scheduled to minimize conflicts with beach use (which is heaviest during the summer) and proposed improvements to Battery Randolph Museum at Fort DeRussy.

CHAPTER II. DESCRIPTION OF THE ENVIRONMENTAL SETTING

A. BEACH AND WATER USES NEAR KALIA RELIEF DRAIN

The beach in front of Fort DeRussy is moderately and sometimes heavily used by sunbathers and swimmers. Hobie catamarans are rented from a concession on the beach fronting Army property. A small comfort station on Fort DeRussy (just west of Kalia Relief Drain) services beach goers from Fort DeRussy through the Halekulani Hotel.

The beach between Kalia Relief Drain and the Halekulani Hotel is usually crowded with sunbathers and swimmers. At least three commercial catamarans pull onto the beach to load and unload passengers. A commercial outrigger canoe operates from the beach near the right-of-way between the Cinerama Reef and Halekulani Hotels. Two small concessions front the Waikiki Shore Apartments and Cinerama Reef Hotel renting paddle boats, beach umbrellas, beach mats, surfboards, and beach related paraphernalia. Rental items are used on the beach during the day.

Aerial photos show that the concession in front of the Cinerama Reef Hotel apparently was in existence prior to enactment of the State Land Use Law which established the Conservation District. None of the commercial beach operations from Fort DeRussy through the Halekulani Hotel have a Conservation District Use Permit from the State Board of Land and Natural Resources.

Nearshore waters fronting Fort DeRussy, the Waikiki Shore Apartments, and the Cinerama Reef and Halekulani Hotels are used by swimmers, snorkelers, and sometimes sail boats and outrigger canoes. A shallow reef several hundred yards off-shore buffers beaches and water uses from waves and currents. A popular small wave surfing site "Number Threes" is located on the seaward side of the reef off the Cinerama Reef Hotel. A popular big wave surfing site "Number Fours" is located in front of Fort DeRussy.

Plates 3 to 11 show Kalia Road, Kalia Relief Drain, the Halekulani Beach right-of-way, and beach uses from Fort DeRussy through the Halekulani Hotel. Plate 2 gives an aerial perspective of beach uses.

B. BEACH OWNERSHIP

Makai of Saratoga Road, Kalia Relief Drain is entirely located within an easement across Federally owned land at Fort DeRussy. Fort DeRussy Beach is State property makai of the Army sea wall. The City owns a 10' wide right-of-way between the Cinerama Reef and Halekulani Hotels.

Ownership of the beach between Kalia Relief Drain and the Halekulani Hotel is governed by a complex set of rules created by a 1928 agreement between the Territory of Hawaii and the adjacent property owners. Among other things, this agreement included the following provisions: (Ref. 15)

1. A line was drawn on a map establishing the 1928 mean high water mark. Property owners were free to do as they pleased with their private beach mauka of this line.

2. Pursuant to Act 273, SLH 1927, the Board of Harbor Commissioners was responsible to attempt to expand the beach makai of the 1928 mean high water mark (until funds ran out).

3. Upon completion of beach improvements, the Territory of Hawaii was prohibited from constructing any kind of structure on the beach except for retaining walls or groins necessary for beach preservation.

4. The expanded beach (if any) and any natural accretion became the property of abutting property owners.

PLATE 3

KALIA ROAD LOOKING NORTHEAST
FROM LEWERS ST.

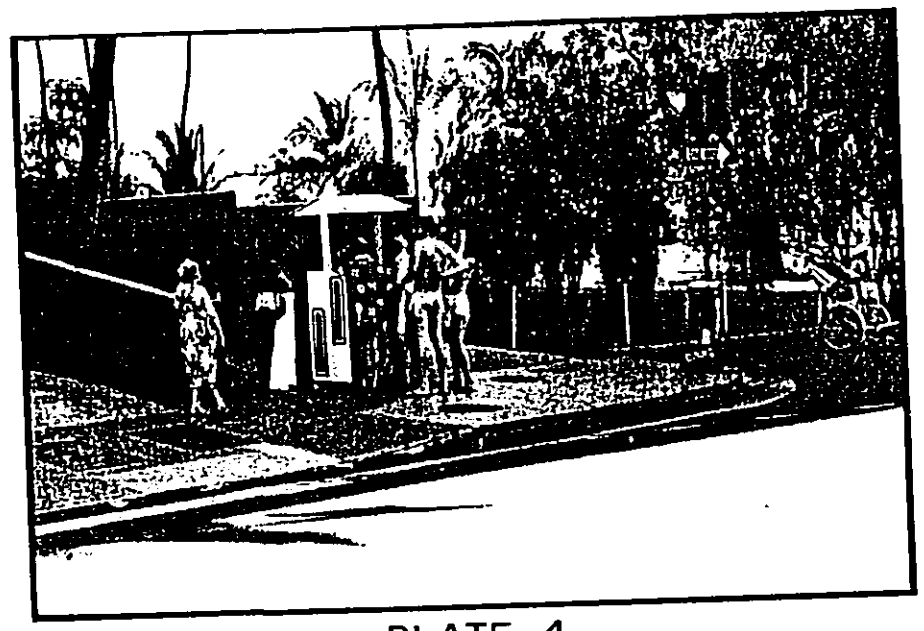


PLATE 4

NORTH CORNER OF WAIKIKI SHORE APTS.

PLATE 5

KALIA RELIEF DRAIN EASEMENT
ON FT. DERUSSY

PLATE 6

FORT DERUSSY COMFORT STATION
AND BEACH

PLATE 7

KALIA RELIEF DRAIN LOOKING MAUKA

PLATE 8

KALIA RELIEF DRAIN LOOKING MAKAI

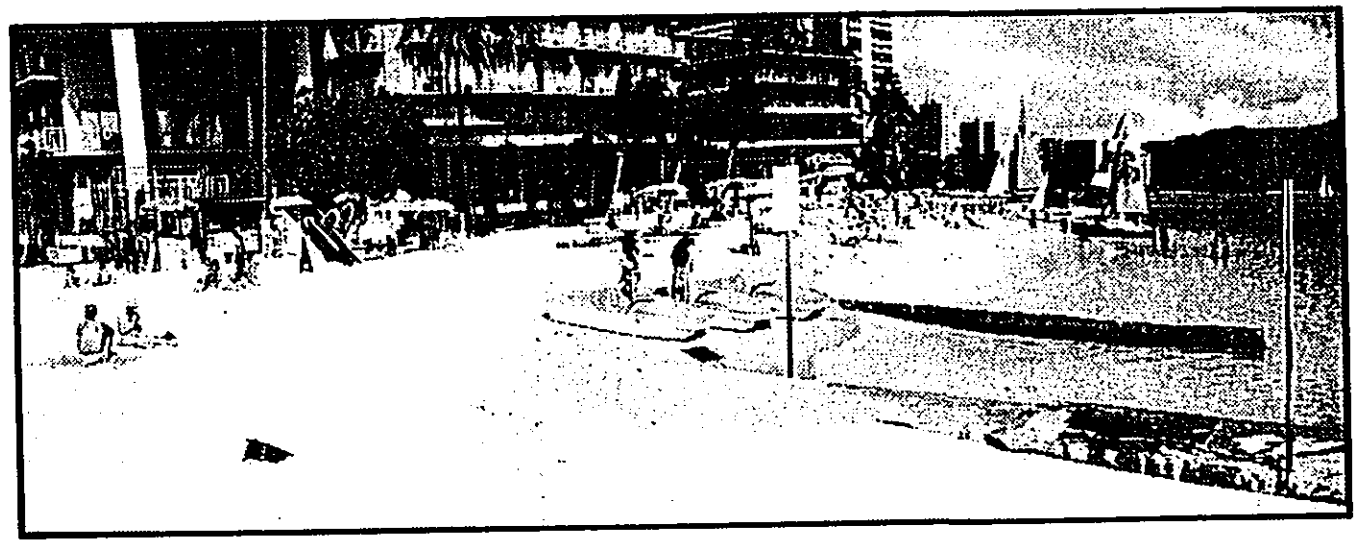
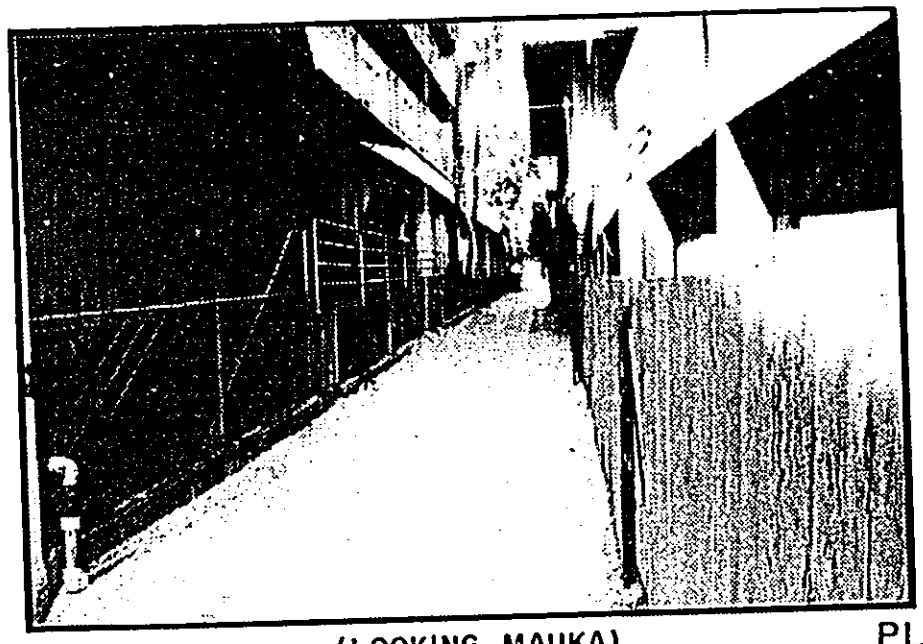
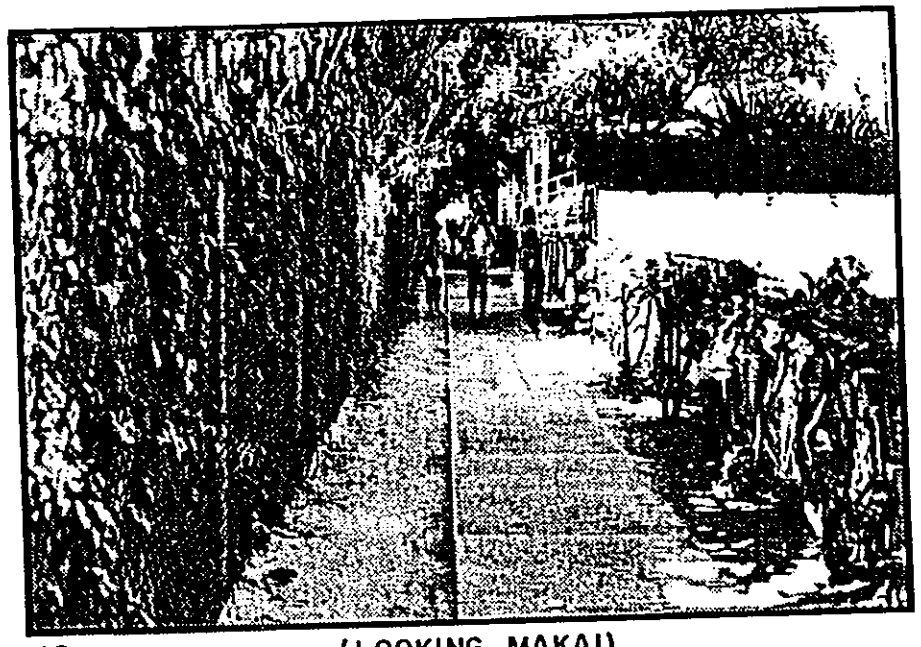


PLATE 9

BEACH USES NEAR KALIA RELIEF DRAIN



(LOOKING MAUKA)



(LOOKING MAKAI)

PLATE 10

RIGHT - OF - WAY BETWEEN HALEKULANI AND CINERAMA REEF HOTELS

PLATE II

BEACH USES NEAR HALEKULANI RIGHT - OF - WAY

5. If the current mean high water mark were less than 75 feet makai of the 1928 mean high water mark, then abutting property owners were prohibited from placing or constructing any structure closer to the water than the 1928 mean high water mark.

6. Removable structures including portable boundary fences were permitted on the expanded or accreted beach provided they were at least 75 feet mauka of the mean high water mark.

7. Public use of the expanded or accreted beach within 75 feet of the mean high water mark could not in any way be restricted by abutting property owners.

While the Board of Harbor Commissioners failed to place sand on the beach between the Halekulani pedestrian right-of-way and Kalia Relief Drain, the 1928 agreement still remains in effect. Consequently, the State Attorney General is of the opinion that if the beach erodes to the 1928 mean high water mark, then there is no beach legally available for public use. (Ref. 14) A second important implication is that the beach in front of the Cinerama Reef Hotel and Waikiki Shore Apartments is private property with an easement for public recreational use. Therefore, construction of a new storm drain across this beach requires modification of the 1928 agreement. (It also should be noted that the beach concessions fronting the Waikiki Shore Apartments and Cinerama Reef Hotel are located just mauka of the 1928 mean high water mark.)

Since 1971, the State DOT has been attempting to secure the agreement of Waikiki property owners to surrender all property rights makai of the 1928 mean high water mark. The DOT, in conjunction with the Corps of Engineers, hopes to widen Waikiki Beach between Kalia Relief Drain and the Surfrider Hotel. Planning for beach widening has been delayed pending sign-off by Waikiki property owners. Act 300, SLH 1980, has appropriated funds for environmental studies connected with beach widening and matching Corps of Engineers funds will be sought. (Ref. 7, Ref. 13, Ref. 16)

C. PAST SHORELINE ALTERATIONS

In 1881, there was a continuous natural beach along almost all of the Waikiki shoreline. (Ref. 9) But by 1928 most of Waikiki did not have a beach. (Ref. 10 and Ref. 15) After preparing a history of the marine structures on Waikiki Beach, Jerald Crane reached the conclusion that seawalls were probably the principal cause of the loss of the original beach at Waikiki. (Ref. 5, p. 20) In general, reflection of waves by seawalls causes beach erosion and increases littoral drift. Crane noted that Waikiki seawalls were not undercut by wave action because they were built on a coral shelf which underlay the beach.

While not well verified, holes and channels dredged in the reef might have contributed to the destruction of Waikiki beaches by trapping sand. (Ref. 21) Sand mining during the 19th century also might have contributed to beach erosion.

In 1928, as described in the previous section, the Territory of Hawaii reached a formal agreement with most Waikiki property owners to develop a quasi-public beach makai of the 1928 mean high water mark. Similar agreements were reached with other Waikiki property owners in 1929. Except for a short-lived experiment with an off-shore pumping plant in front of Gray's Beach, the Board of Harbor Commissioners did not actually place any sand on Waikiki Beach prior to 1939. (Ref. 5, Ref. 23) In 1929 and 1930, the Board of Harbor Commissioners constructed eleven experimental groins between the eastern edge of Fort DeRussy and the eastern edge of the Royal Hawaiian Hotel property. Figure 10 shows eight of these groins. The Board of Harbor Commissioners (and later Crane) concluded that these groins were very successful in capturing sand on their Diamond Head (eastern) side in front of the Royal Hawaiian Hotel. (Ref. 23) Crane also noted that for Waikiki as a whole,

> The beach of the late 1940s was not much different from that of the 1920s. There were only scattered pockets of sand along the beach and the only usable beaches were that beach fronting the Moana Hotel and the Royal Hawaiian Hotel and the moderate sized beach that had slowly collected on both sides of ... [groin No. 5 on Figure 10.] (Ref. 5, p. 16)

LEGEND

(1) Fort DeRussy seawall built in 1916.
(2) Pier and rubble groin built in 1918 and recently removed.
(3) Rubble mound groin built in 1971.
(4) Existing Kalia Relief Drain built in 1959 and extended in 1969.
(5, 6, 8, 10, 11, 12, 13, 15)
Experimental groins built in 1929 and 1930. Groin No. 5 is in good condition but others are mostly deteriorated.
(7) Halekulani Hotel seawall built about 1904.
(9) Deteriorated foundation of a 1928 experimental plant to pump sand ashore.
(14) Sheraton Hotel ewa seawall built groin built prior to 1928.

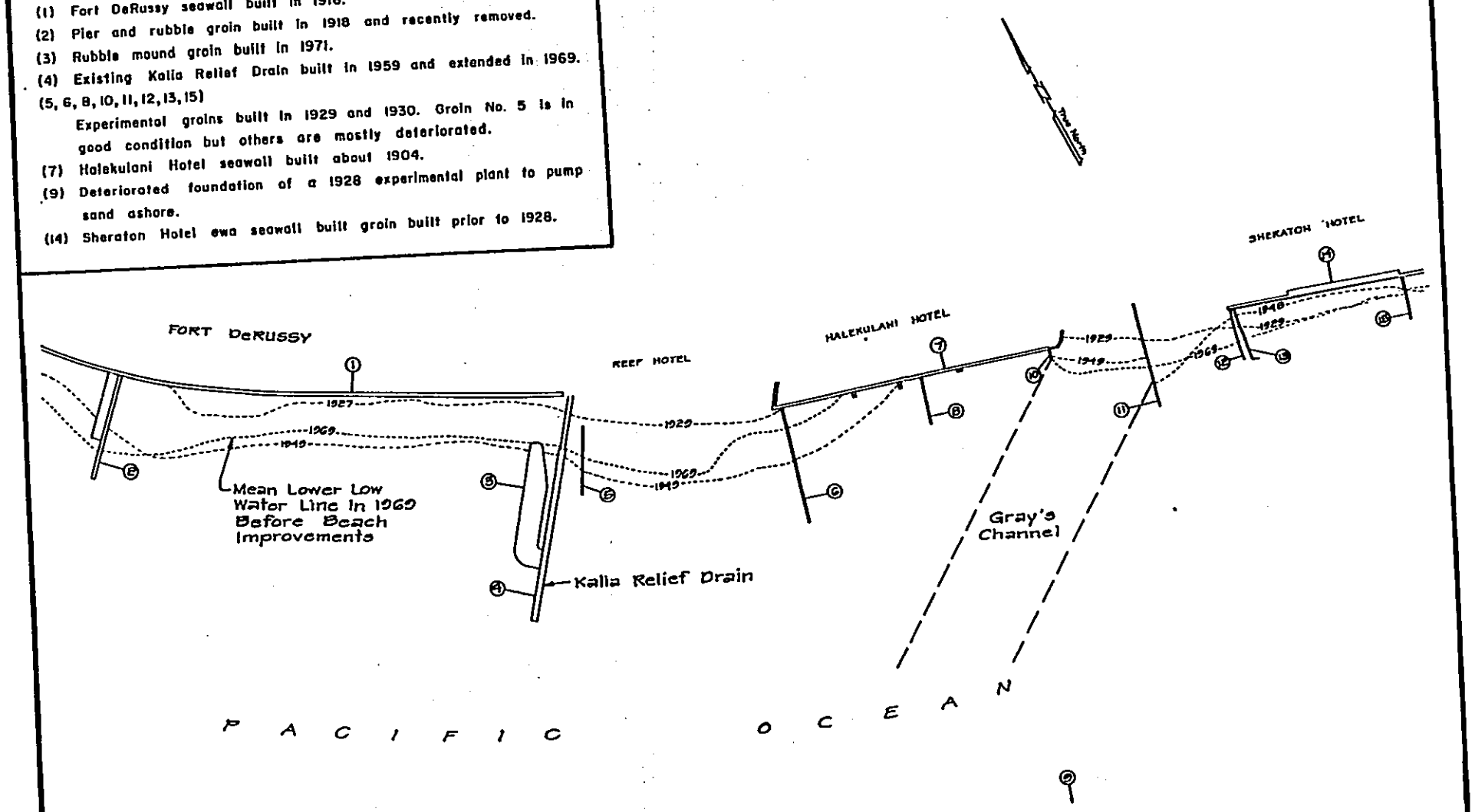


FIGURE 10
MARINE STRUCTURES IN PROJECT VICINITY
PREPARED BY JERALD CRANE
Scale: 1" = 200' Source: Ref. 5

Similarly, the Army Corps of Engineers reported that,

> Six groins of various lengths located westward from the Royal Hawaiian Hotel result in little sand retention. A large sand area lies in the Halekulani-YWCA-Fort DeRussy area where there are two groins. [groins No. 5 and No. 6 on Figure 10] During the investigation, [September 1948 to September 1949], very little change was noted in this area and it is thus presumed that the groins have accumulated the sand area and are very effectively holding it in place. (Ref. 37, p. 24)

The long term effects of the experimental groins built by the Board of Harbor Commissioners is of particular relevance in assessing potential impacts on beach processes which might occur if a new storm drain outfall were built off of the right-of-way between the Halekulani and Cinerama Reef Hotels. A 160' groin (groin No. 6 on Figure 10) extended directly off-shore from the western edge of the Halekulani seawall and a 64' groin (groin No. 8 on Figure 10) extended out from the middle of the Halekulani seawall. An October 1948 survey by the Army Corps of Engineers clearly indicates groins No. 5, 6, and 8 in good repair and a beach extending from the western third of the Halekulani seawall through Fort DeRussy. (Ref. 37) This survey does not show any scouring of the beach on either side of Groin No. 6. The 1949 beach (drawn in Figure 10) was the same size and shape as the beach surveyed in October 1948. A 1949 aerial photograph by George Bacon (Plate 12), which was the earliest aerial photograph that could be located, shows groins No. 5 and 6 in good repair and a beach starting just east of groin No. 6 and extending through Fort DeRussy.

Available aerial photos since 1949 show gradual deterioration of groin No. 6, but do not show significant scouring of the beach on either side of groin No. 6. However, the beach east of groin No. 6 has fluctuated considerably since 1949. A January 1959 aerial photo by R.M. Towill Corporation (Plate 13), taken shortly before construction of Kalia Relief Drain, shows that a beach ("Gray's Beach") had built up in front of the middle of the Halekulani Hotel. A May 1962 aerial photo by Photo Hawaii (Plate 14), made after construction of Kalia Relief Drain and the Waikiki Shore Apartments, shows that most of the beach in front of the Halekulani Hotel had retreated westward and that the seawall in front of the site of the Sheraton Hotel was completely

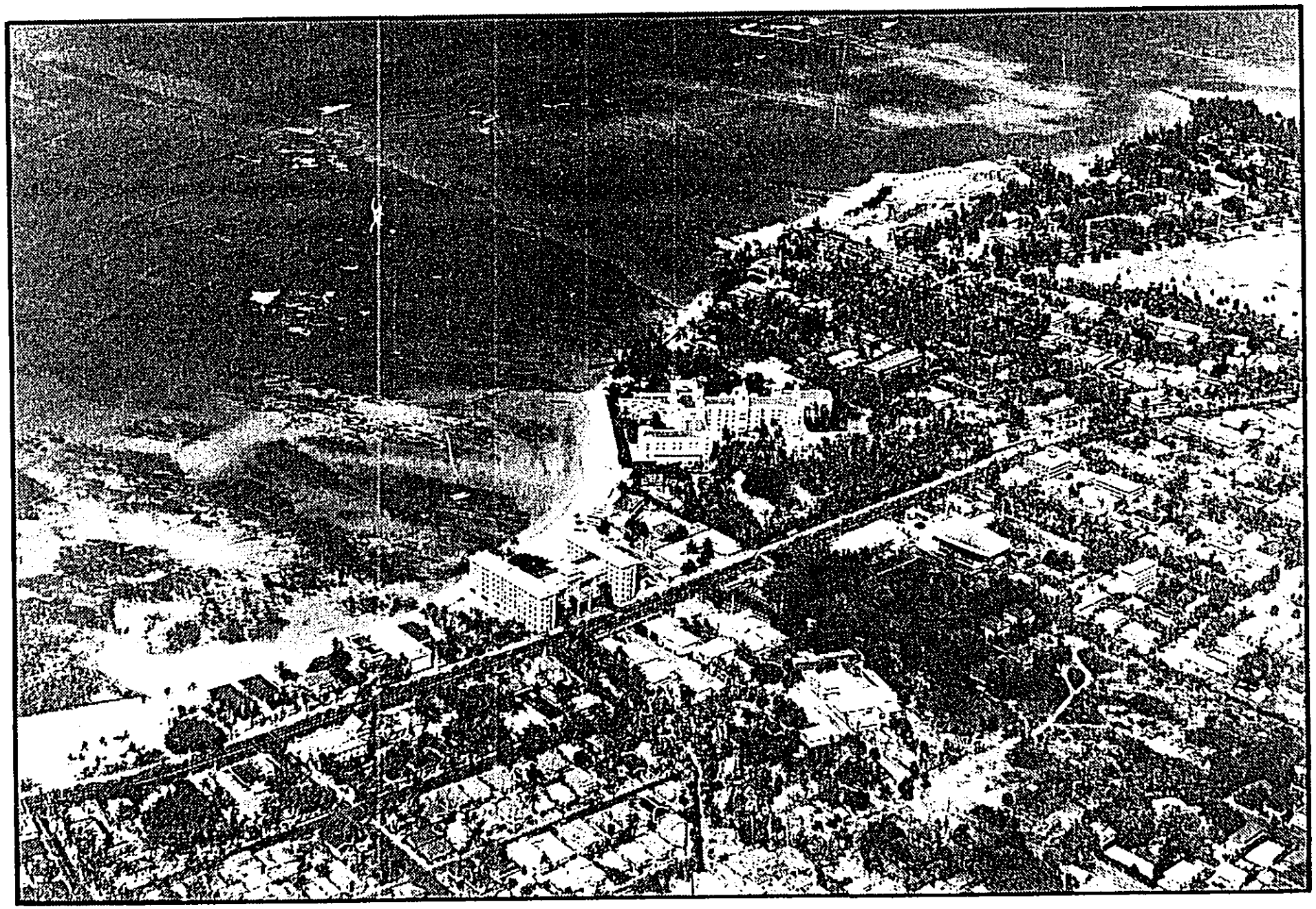


PLATE 12

1949 AERIAL PHOTOGRAPH OF WAIKIKI BEACH BY GEORGE BACON

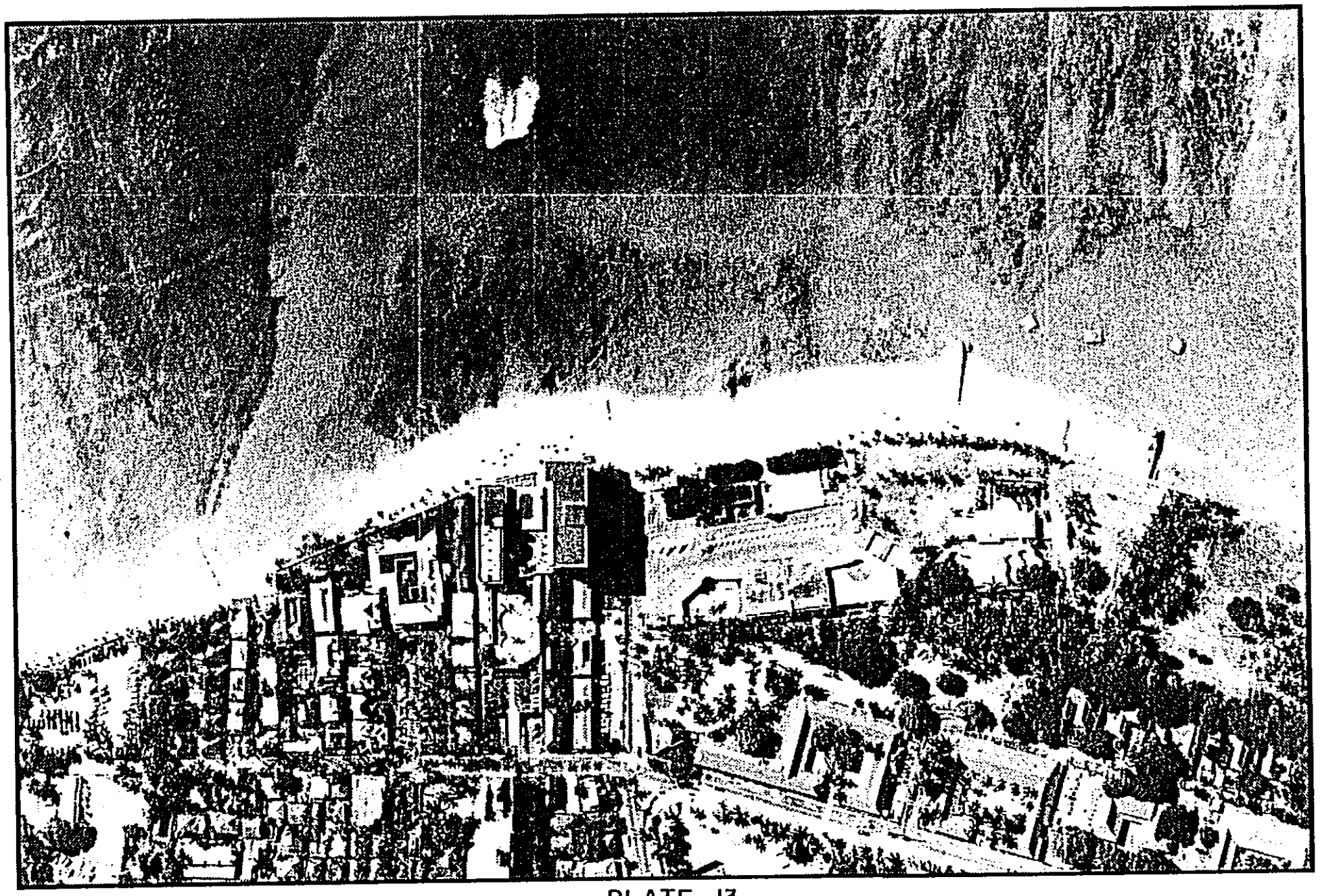


PLATE 13

JANUARY 1959 AERIAL PHOTOGRAPH OF WAIKIKI BEACH BY R.M. TOWILL CORP.

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

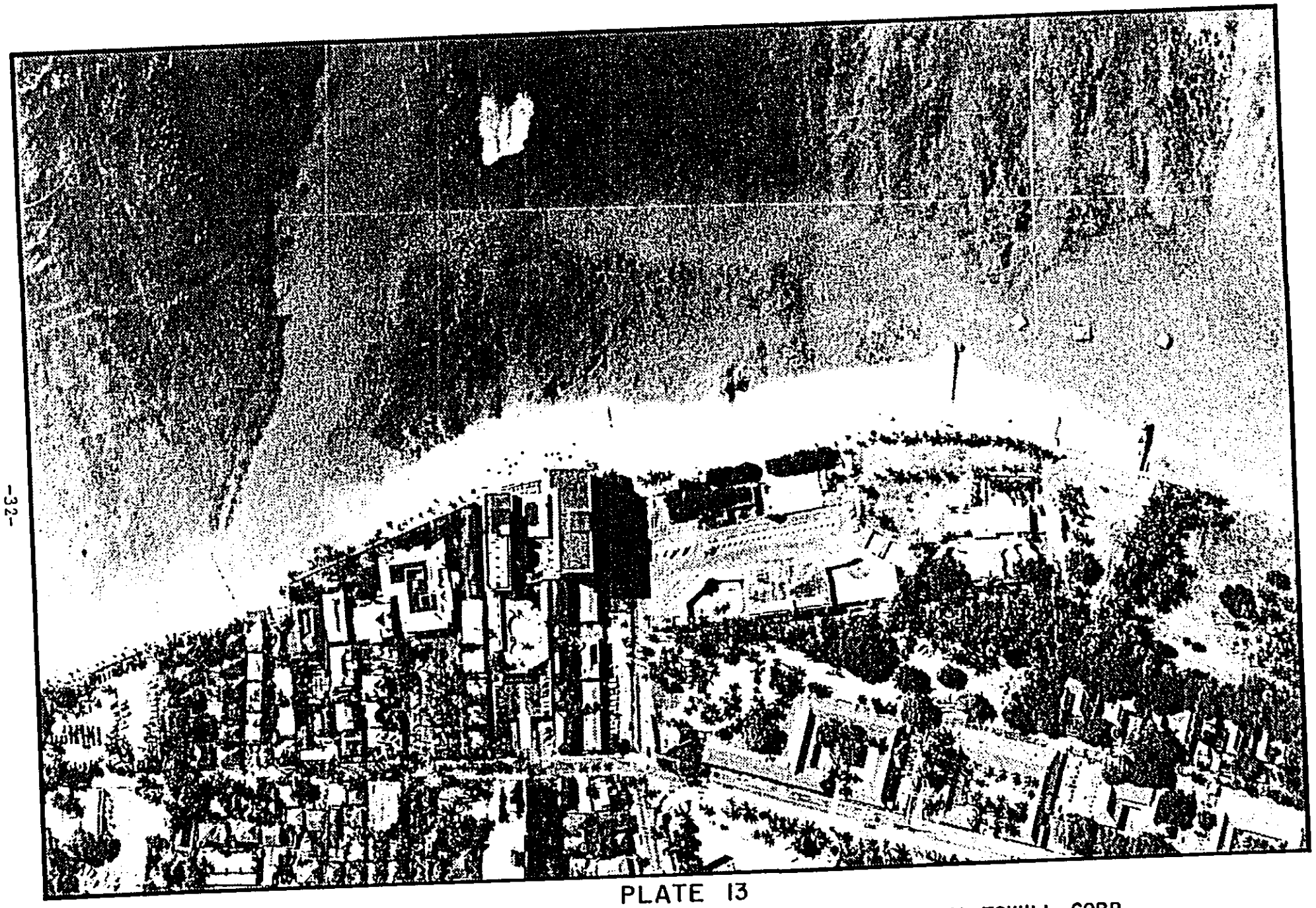


PLATE 13

JANUARY 1959 AERIAL PHOTOGRAPH OF WAIKIKI BEACH BY R.M. TOWILL CORP.

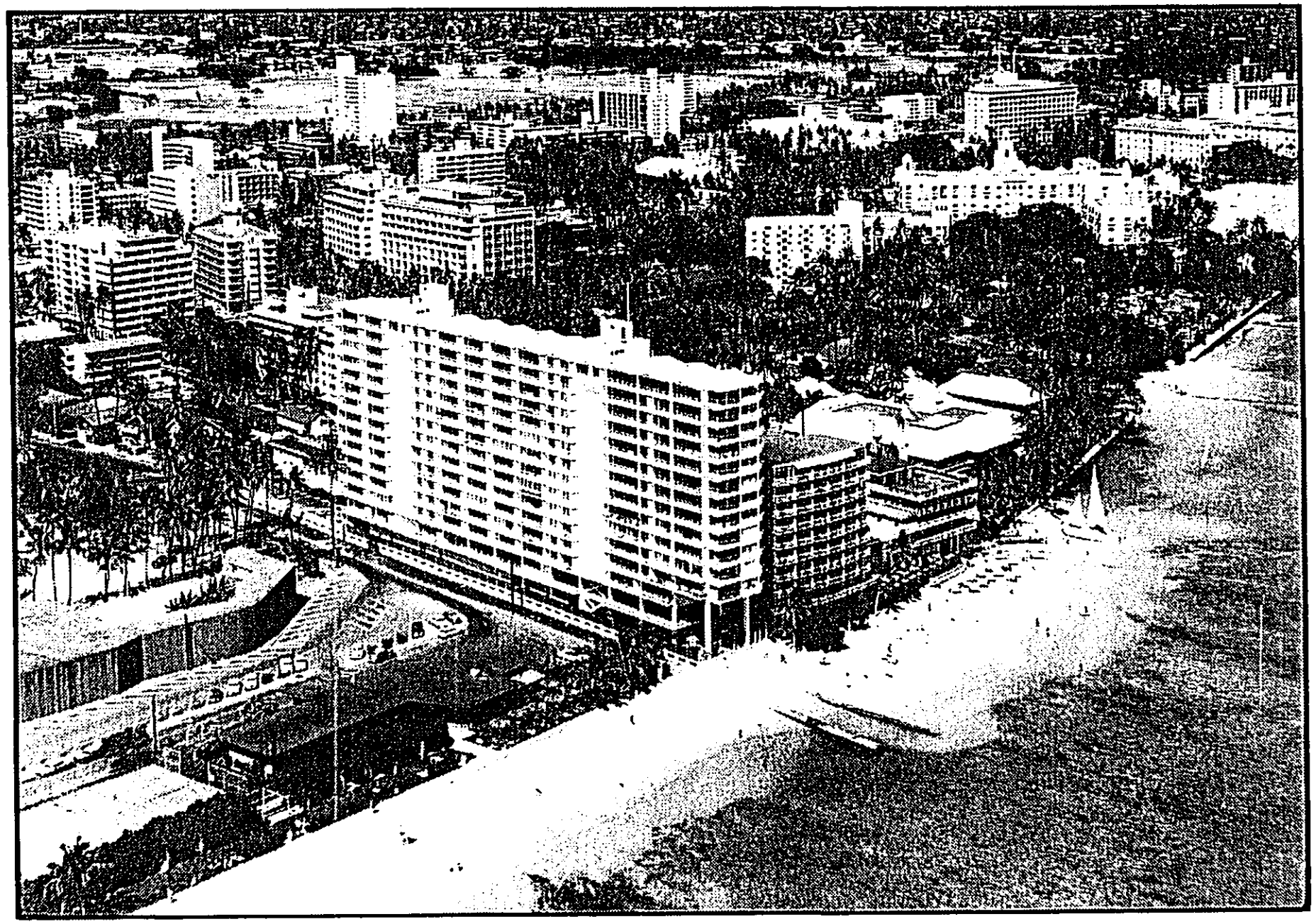


PLATE 14

MAY 1962 AERIAL PHOTOGRAPH OF WAIKIKI BEACH BY PHOTO HAWAII

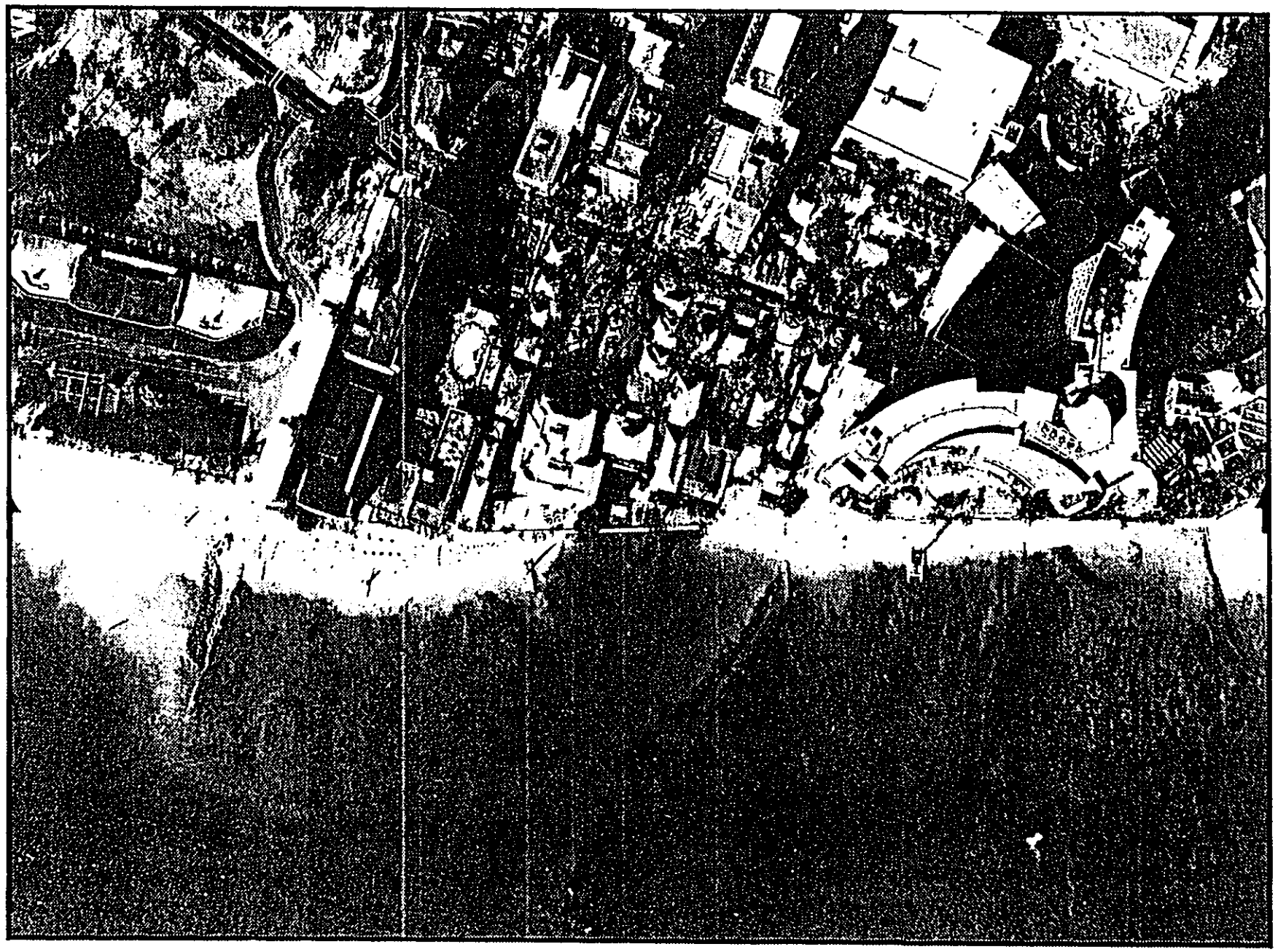


PLATE 15

OCTOBER 1979 AERIAL PHOTOGRAPH OF WAIKIKI BEACH BY AIR SURVEY HAWAII

fronted by water. (Groin No. 6 had almost completely deteriorated by this time.) An October 1979 photo by Air Survey Hawaii (Plate 15), shows the presence of a beach in front of a small part of the Halekulani Hotel seawall and most of the Sheraton Hotel seawall.

Figure 11 roughly illustrates how the shoreline has fluctuated between 1952 and 1980 between Fort DeRussy and the Halekulani Hotel. As is readily apparent, construction of Kalia Relief Drain in 1958 and its extension in 1969 have not hurt and on occasion have helped groin No. 5 to hold a beach in front of the Cinerama Reef Hotel. Given the history of beach accretion on the eastern side of Kalia Relief Drain, it is very likely, but not certain, that there will always be a beach in front the Cinerama Reef Hotel. However, without artificial nourishment, the beach in front of the Halekulani Hotel is likely to be highly unstable.

Over the past 40 years, many hundreds of thousands of cubic yards of sand have been placed on Waikiki Beach and then eroded. Available records indicate that except for a brief period in 1930, sand has never been directly placed on the shoreline between the Royal Hawaiian Hotel and the experimental groin No. 5 at the eastern edge of Fort DeRussy. However, sand placed on other parts of Waikiki Beach probably has been carried there by nearshore currents. Crane and Gerritsen report that sand was placed on Kuhio Beach in 1939, 1951, 1953, 1972, and 1975; by Queen's Surf in 1956; by the Colony Surf Hotel in 1963; and in front of Fort DeRussy in 1969 and 1975. (Ref. 3 and Ref. 5) Judge Samuel P. King's recollection that sand was placed in front of Fort DeRussy in the 1950s could not be verified because the Army Corps of Engineers did not maintain records for this project.

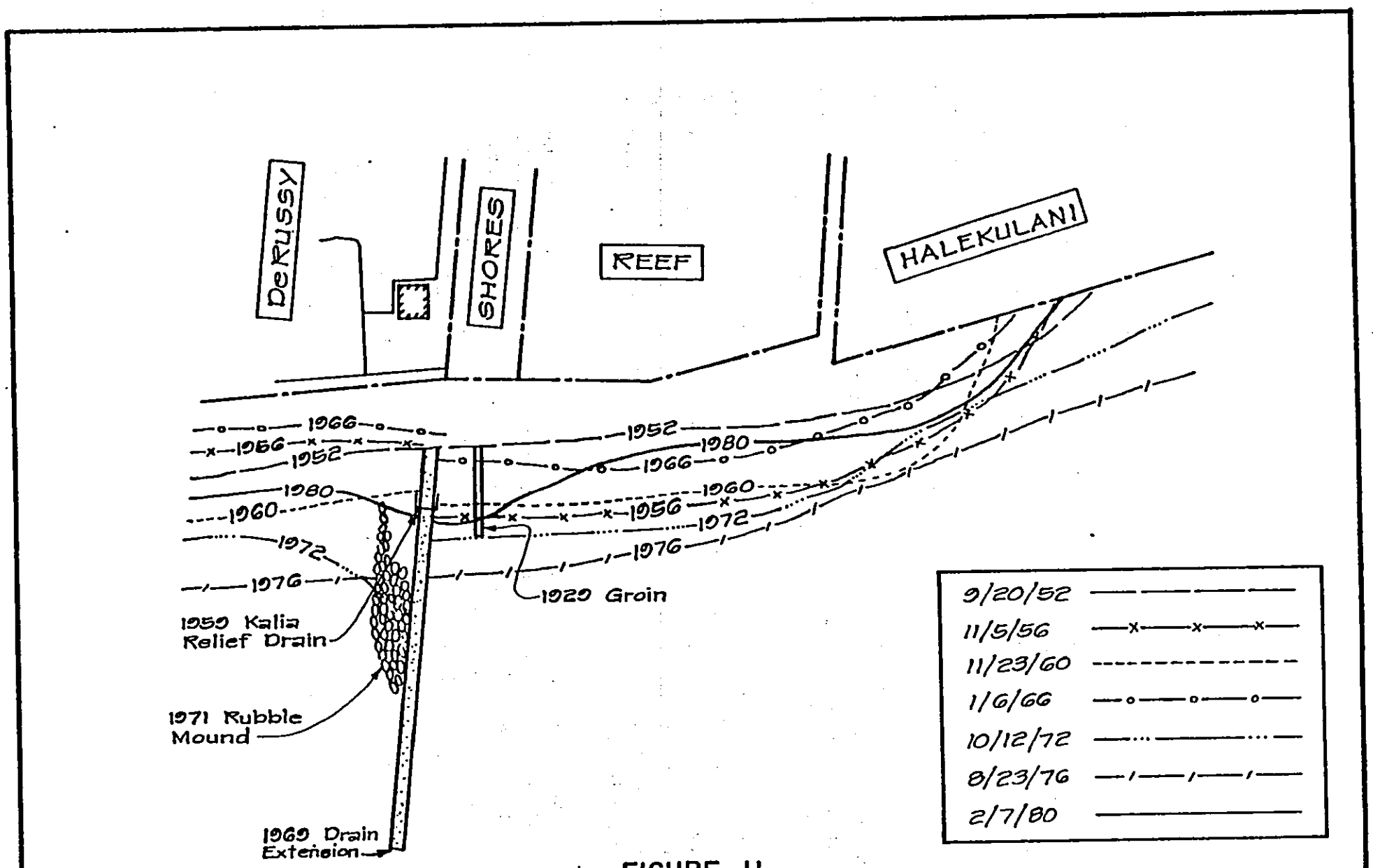


FIGURE II

BEACH MOVEMENTS IN PROJECT AREA SINCE 1952

PREPARED BY VTN PACIFIC FROM R. M. TOWILL AERIAL PHOTOGRAPHS

D. BEACH PROCESSES

In the 1920s, there was practically no beach from the Halekulani Hotel through Fort DeRussy. (Ref. 5 and Ref. 15) After construction of a groin in front of the future site of the Waikiki Shore Apartments, a moderate sized beach gradually built up on both sides of this groin. (Ref. 5, Figure 10, and Plate 12) One implication is that this groin captured sand which was being carried parallel to the shoreline by longshore currents. A second implication is that there is not a consistent direction of littoral drift in the vicinity of this groin. If there were a consistent direction of littoral drift, then the beach would be consistently larger on one side of the groin. Lee side erosion is a common effect of groins on littoral drift. By way of illustration, Plate 12 and Plate 15 clearly show that the beach has eroded on the western side of the large groin fronting the Royal Hawaiian Hotel due to the presence of westerly longshore currents. In contrast, Plate 15 also shows that nearshore currents have not scoured away the beach on either side of Kalia Relief Drain.

Rapid changes in beach size at Waikiki can be produced by unusually strong wave and wind conditions that occur relatively infrequently. Wave reflections off of seawalls probably increase the speed of longshore currents and hence, littoral drift. Franciscus Gerritsen's two year analysis of Waikiki Beach processes reached the following conclusions:

> The wave-induced longshore current is a major cause for the direction and magnitude of the littoral drift. Along Waikiki Beach the littoral drift is therefore mostly in the westerly direction. Occasionally waves from opposite directions cause a reversal of the littoral drift pattern. (Ref. 3, p. 44)

> Loss of sand from the beach takes place predominantly by means of a series of well-developed rip currents during high surf conditions. The major rip is situated off the Royal Hawaiian Hotel and carries a significant amount of sand from the beach seaward. (Ref. 3, p. 171)

Concerning the section of beach between the Royal Hawaiian Hotel and the Waikiki Shore Apartments, Gerritsen found:

> This section is presently undernourished because of impounding of the littoral drift by the Royal Hawaiian Hotel groin. Consequently, stability conditions are poor. Shoreline variations are induced by a change of wave approach. At times the YWCA groin (Kalia Relief Drain) acts as a barrier to the westerly littoral drift by which accretion occurs. At other times the drift is directed toward the east causing retrogradation of the same shoreline section. (Ref. 3, p. 76)

Although Gerritsen concluded that beach accretion in front of the Cinerama Reef Hotel is mostly due to sand being carried in a westerly direction by surf induced nearshore currents, available research indicates that weak currents frequently flow from west to east in front of the Cinerama Reef Hotel. Keith Chave and Robert Tait's study of nearshore currents at Waikiki Beach between March and July 1972 found that heavy surf on April 26, 1972 generated weak currents that moved in an easterly direction past Kalia Relief Drain. (Ref. 4) Figure 12 presents Chave and Tait's observations of nearshore currents on April 26, 1972. Gerritsen also found that during periods of small waves, tidal fluctuations generated weak easterly currents between Fort DeRussy and the Royal Hawaiian Hotel. (Ref. 3) Figure 13 presents Gerritsen's observations of nearshore currents due to tidal changes.

E. NATURAL HAZARDS AND PROBLEMS

1. Beach Retreat. Given the history of man-made alterations of the Waikiki shoreline, it is not possible to conclude for certain that there is a permanent beach in front of the Cinerama Reef Hotel. While beach retreat has never been more than a minor problem since the 1930s, beach stability may have been artifically enhanced by placement of sand in front of other Waikiki beaches. Hence, if a new box culvert were built beneath the beach from the Halekulani right-of-way to the existing Kalia Relief Drain, then

V = Variable Weak Currents
Thin Solid Arrow = Weak Currents, Less Than 0.5 ft./sec.
Thick Solid Arrow = Strong Currents, Between 0.5 ft./sec. and 4 ft./sec.

Source: Ref. 4, Fig. 6

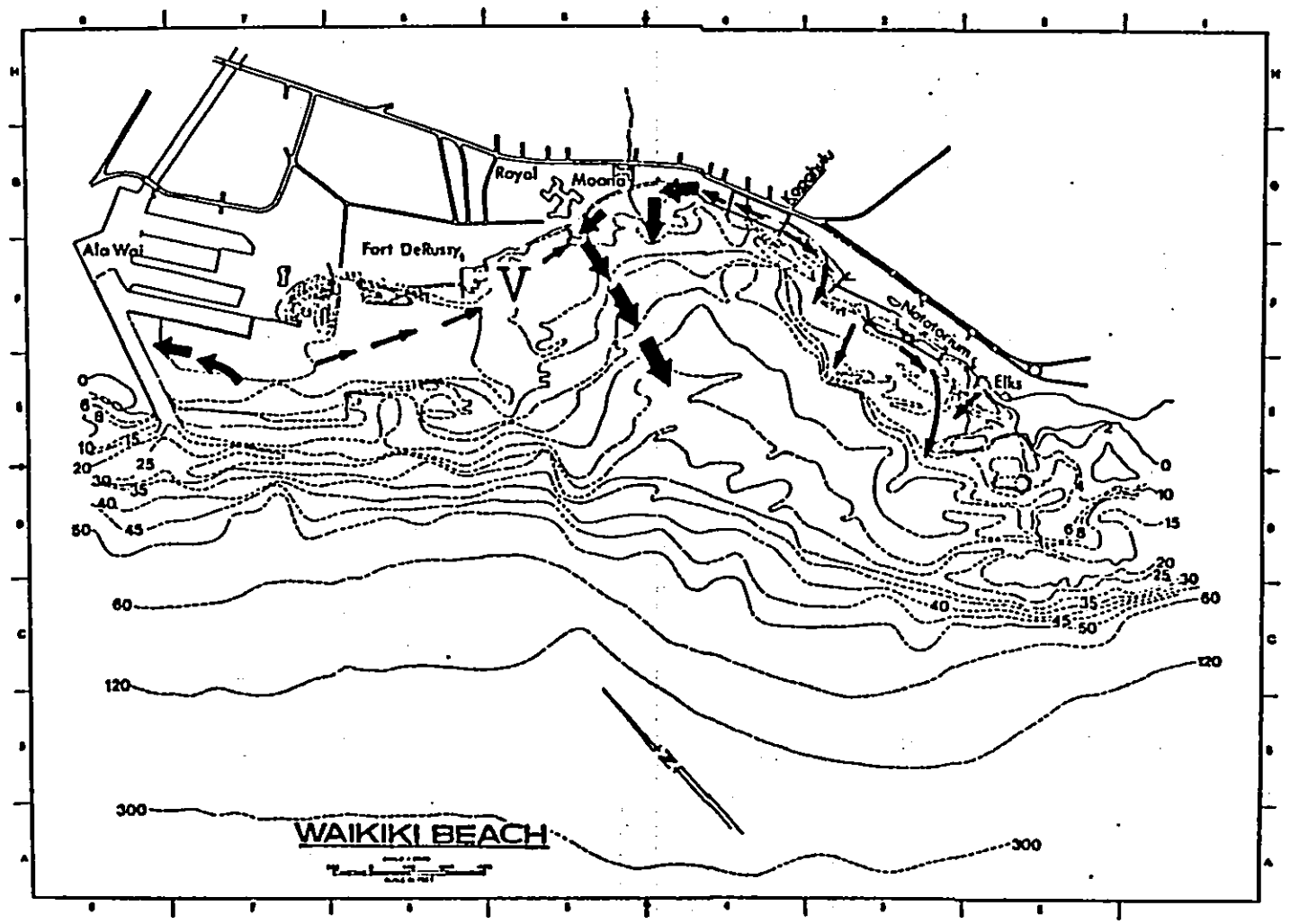


FIGURE 12

SURF ZONE CURRENTS UNDER HIGH-WAVE CONDITIONS AT WAIKIKI BEACH ON APR. 26, 1972

PREPARED BY K. CHAVE AND R. TAIT

Source: Ref. 3, Fig. 5.12

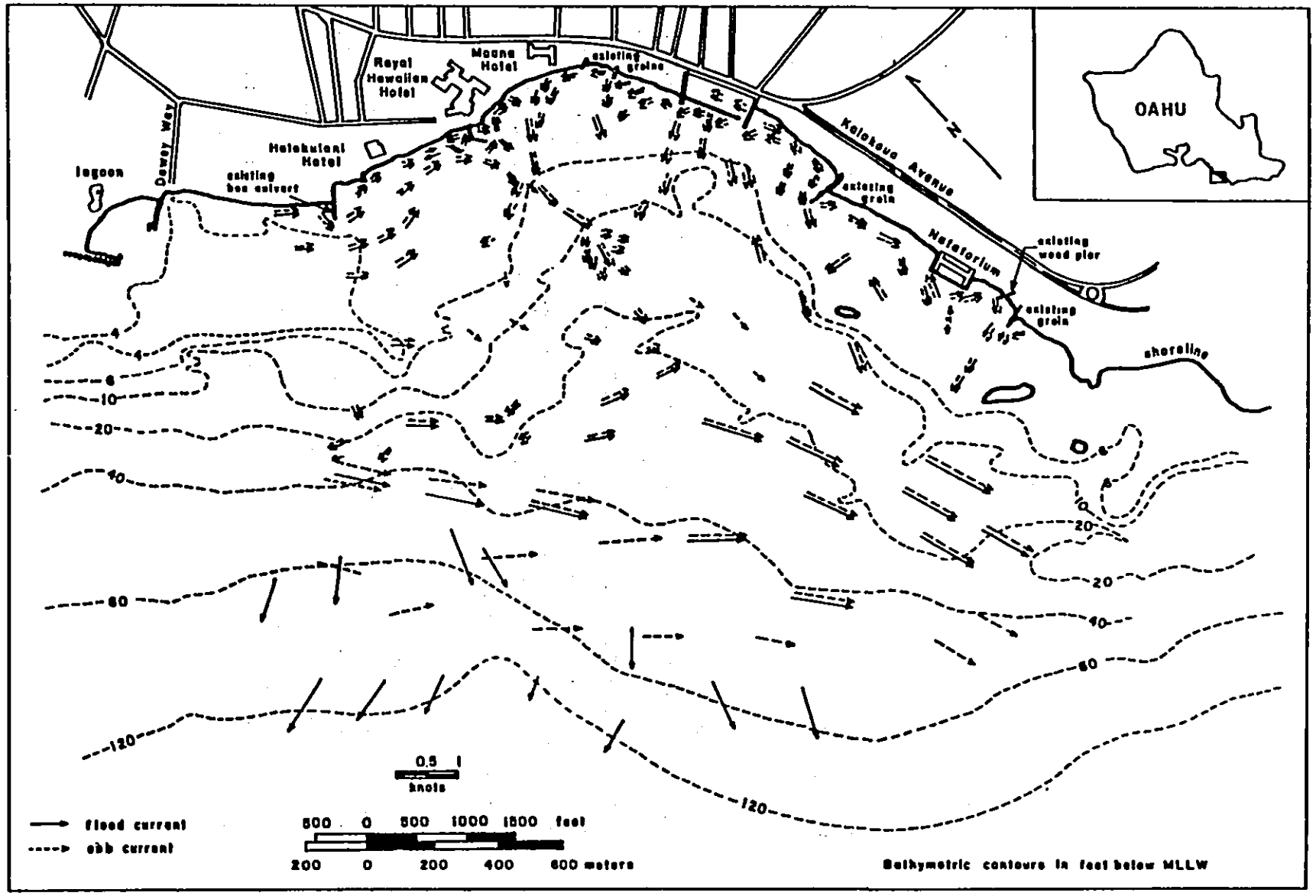


FIGURE 13

NEARSHORE CURRENTS DUE TO TIDAL FLUCTUATIONS AT WAIKIKI BEACH

PREPARED BY F. GERRITSEN

there is a slight risk that the box culvert might be exposed by beach retreat and in effect become a seawall like the one in front of the Halekulani. In such an event sand would need to be placed in front of the Cinerama Reef Hotel to restore the beach and protect the box culvert.

2. Sand Clogging. The existing Kalia Relief Drain is frequently clogged and sometimes completely blocked with sand. Storm water cannot drain from Kalia Relief Drain when the box culvert is blocked with sand. For that reason, at a total cost of roughly $10,000 per year, a County maintenance crew visits Kalia Relief Drain twice a week and uses a firehose to flatten the sand berm which builds up inside the box culvert (at about the same point as the beach berm outside the drain). When the sand berm inside Kalia Relief Drain is flattened, the outgoing tide and/or storm water from Waikiki carries sand out of the box culvert. (Ref. 12)

While more research is needed, preliminary study suggests that sand in suspension near the shoreline is carried into Kalia Relief Drain by small waves striking the eastern side of the box culvert. Waves visibly force water (and probably sand) through small cracks in the box culvert at its pre-cast joints. This kind of problem can be prevented in a new storm drain by use of watertight joints. Other solutions to the sand clogging problem may be developed during project engineering.

3. Storm Waves. The shallow reef fronting Waikiki dissipates most wave energy. Wave retraction inside the reef is complex and varies with the incidence of wave fronts. While waves rarely break inside the reef between the Halekulani Hotel and Fort DeRussy, kona winds from the southwest occasionally generate rough conditions. Consequently, a new drainage structure must be designed to withstand wave heights of approximately six feet.

4. Tsunami. Historically, Waikiki Beach has had only minor water level fluctuations from tsunamis. The highest recorded

tsunami heights in the project area were 6 feet in 1946 and 5 feet in 1960. County Flood Insurance Rate Maps (which currently are being revised) show the estimated 100-year shoreline tsunami height as 7 feet. The 1946 tsunami from the Aleutians and the 1960 tsunami from Chile both caused extensive damage in downtown Hilo on the Island of Hawaii, but none in Waikiki. (Ref. 24, pp. 15, 24)

The general pattern of tsunami inundation at Waikiki is expected to be a long period water level fluctuation with little or no wave formation. However, if inundation levels are unusually high, then the backrush of the water can carry large structures and objects. In this type of case, it would be unfeasible to design a new drainage structure to withstand potential forces.

F. BENTHIC ENVIRONMENT

In October 1980, a quick assessment was made by snorkelers of conditions from the shoreline to the reef flat between Kalia Relief Drain and the Halekulani Hotel. There was almost no live coral. The bottom was mostly sand and silt strewn over rubble and algae. Moderate deposits of sand were found in Gray's Channel (off the Halekulani Hotel) and in the along-shore channel between Gray's Channel and Fort DeRussy. Very few fish were seen. Despite calm conditions, the water was slightly turbid.

Diversity and abundance of fish appeared to have declined in the eight years since a 1971-72 study by John Stimson and Edith Chave. Stimson and Chave also noted a decline between 1971 and 1972. (Ref. 4, p. 57) This might have been due to turbidity and siltation which occurred following placement of a crushed coral beach in front of Fort DeRussy in 1969-70.

Figure 14 shows biological survey transect lines and stations used by Stimson and Chave. Station 2G on the reef flat was within the area checked by VTN staff in October 1980. Stimson and Chave's findings include the following: (Ref. 4, pp. 57-58)

Depth is in feet. The 6-foot contour approximates the reef crest.

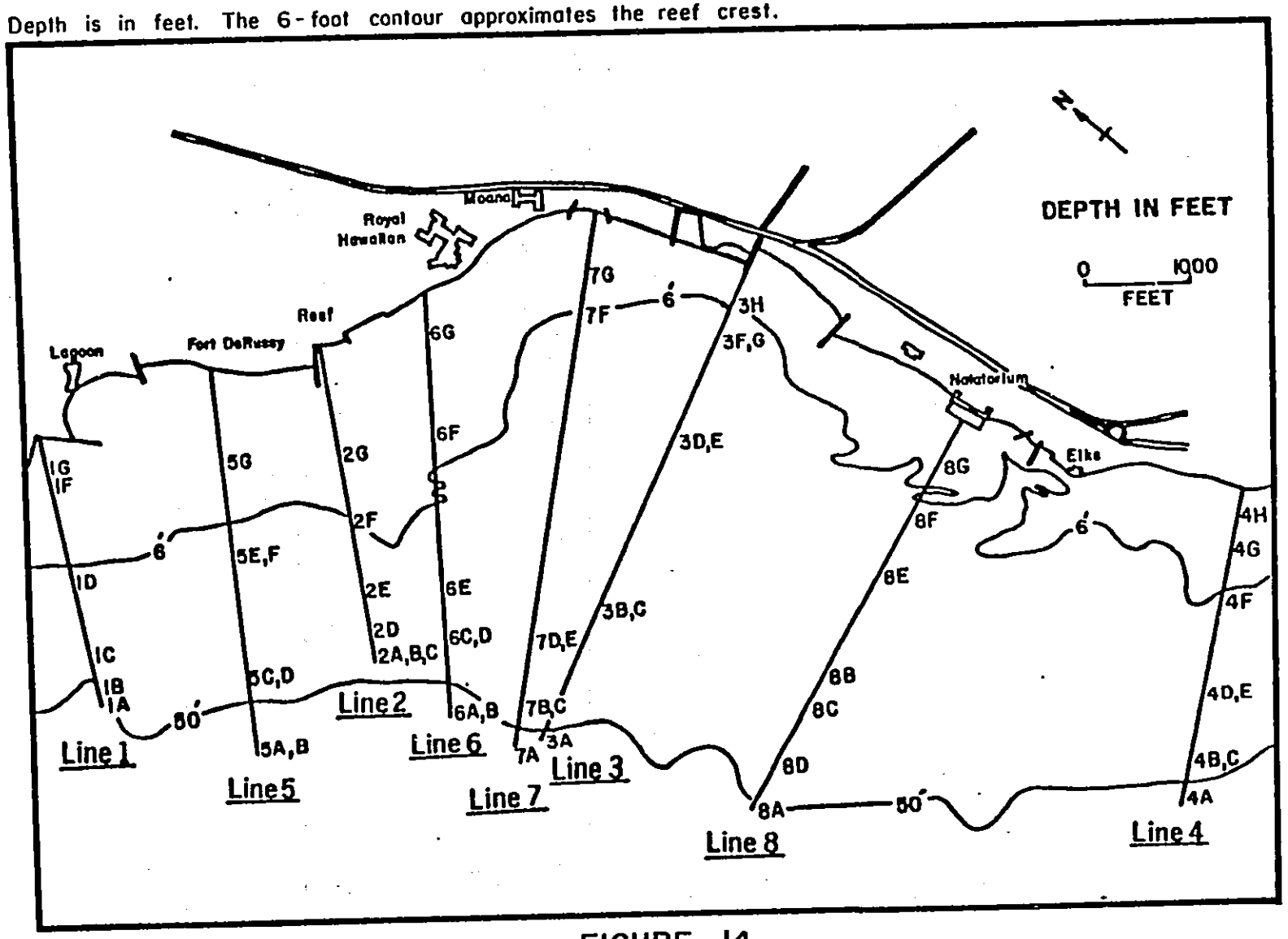


FIGURE 14

BIOLOGICAL SURVEY TRANSECT LINES AND STATIONS

PREPARED BY J. STIMSON AND E. CHAVE

1. Coral cover, abundance of fish, and diversity of fish species are highly correlated.

2. Coral cover in excess of 10 per cent was only observed outside the reef crest on transect lines west of the Royal Hawaiian Hotel (lines 1, 5, 2, and 6).

3. Algae cover was relatively high inside the reef crest and on transect lines east of Kapahulu Avenue (lines 3, 8, and 4).

4. Sponges, echinoderms, and molluscs were common in areas of high algae cover.

5. Abundance and diversity of all forms of biota was lowest on sand bottoms.

6. Different species of fish and algae predominated at shallow reef flats than at outer reef slopes with depths of 15 to 40 feet.

G. WATER QUALITY

Weak nearshore currents due to tidal fluctuations tend to carry storm runoff from the existing Kalia Relief Drain in an easterly direction past the Halekulani Hotel. Kona Winds from the southwest also would generate easterly currents while strong northeast trades would move storm runoff offshore. Figure 13 would approximate the most probable path of dispersion of storm water from Kalia Relief Drain.

Through 1977, the State Department of Health (DOH) monitored coliform content in shallow water fronting the Halekulani Hotel. Table 2 summarizes DOH data between 1973 and 1977.

TABLE 2

DEPARTMENT OF HEALTH FECAL COLIFORM COUNTS AT GRAY'S BEACH: 1973-1977

Fecal Coliform Per 100 Ml.	1973	1974	1975	1976	1977
Maximum	93	2300	540	920	240
Minimum	2	1	2	2	2
Geometric Mean	6.1	9.9	8.7	6.2	4.7
Total Samples	84	53	43	34	34

****

Current State water quality standards limit fecal coliform content for nearshore waters to a geometric mean of 200 per 100 ml. in ten or more samples collected during any 30-day period. (Use of a geometric mean has the effect of emphasizing long-term trends and de-emphasizing short-term extreme sample values.) While DOH data in Table 2 can not be strictly checked against current DOH water quality standards, the implication is that water quality has been good most of the time, despite the presence of Kalia Relief Drain.

The visible light spectrum of sunlight is the primary factor controlling the stability of fecal bacteria suspended in marine waters. At normal Hawaiian sea water temperatures, in the absence of light, populations of fecal coliform and fecal streptococcus bacteria are stable in marine waters for 1 to 3 days. However, in bright sunlight, 90% of fecal coliform bacteria will be destroyed within 30 to 60 minutes and 90% of fecal streptococcus bacteria will be destroyed within 1 to 3 hours. (Ref. 34, p. 31) Studies of the Sand Island outfall in 1970-71 also have found that 90% of total coliform bacteria were destroyed in less than 30 minutes. (Ref. 35, p. VII-35) The ratio of fecal coliform to fecal streptococcus bacteria in raw sewage is usually greater than 4. In storm water, the ratio is usually less than 1. (Ref. 34, p. 31)

The 1980 DOH Water Quality Management Plan indicates that after appropriate effluent limitations are imposed on point source wastewater discharges, virtually all of Oahu's coastal waters except for embayments and estuaries will meet State water quality standards. The significant areas of poor coastal water quality on Oahu all have relatively poor circulation and a long water retention time. (Marine organisms can generally tolerate exposure to dirty water for a few days.) Areas with poor water quality include Pearl Harbor, the Ala Wai Canal and Yacht Harbor, Keehi Lagoon, Honolulu Harbor, Kewalo Basin, and Kaneohe Bay. Because of the longshore currents, pollutants carried by storm runoff into open coastal waters (such as Waikiki shorewaters) are relatively quickly diluted and mixed with clean offshore waters and dispersed over a long stretch of coastline. (Ref. 25, pp. 8-7, 8, 14)

As shown in Figure 15, Kalia Relief Drain is located midway between two larger sources of storm water: the Ala Wai Canal and the Kapahulu Drain. (A small storm drain outfall at Fort DeRussy is not shown.) During a fifty-year storm the Ala Wai Canal discharges over 23,000 cfs as compared to the maximum possible 183 cfs generated by Kalia Relief Drain's drainage area. (Ref. 38, p. 5) During Kona storms, turbid waters from the Ala Wai Canal create murky conditions along the entire length of Waikiki Beach and mask the effect of storm water from Kalia Relief Drain.

Fresh water from Kalia Relief Drain's outfall probably is very rapidly diluted with sea water. While measurements are not directly available at Kalia Relief Drain, measurements have been taken for the Kapahulu Drain which has a much larger drainage basin. (Figure 15) Immediately after a 3-day storm in February 1972 during which 3 to 4 inches of rain fell, surface sample salinity values below 30 parts per thousand were only observed right at the mouth of the Kapahulu Drain. (Ref. 4, p. 59) By comparison, normal sea water has salinity of 35 parts per thousand. Coral can withstand prolonged exposure to sea water with salinity of 30 parts per thousand without damage. (Ref. 36) A large number of species of Hawaiian coral can endure dilution of sea water to 17 parts per thousand for 15 to 23 hours. (Ref. 35, p. III-22)

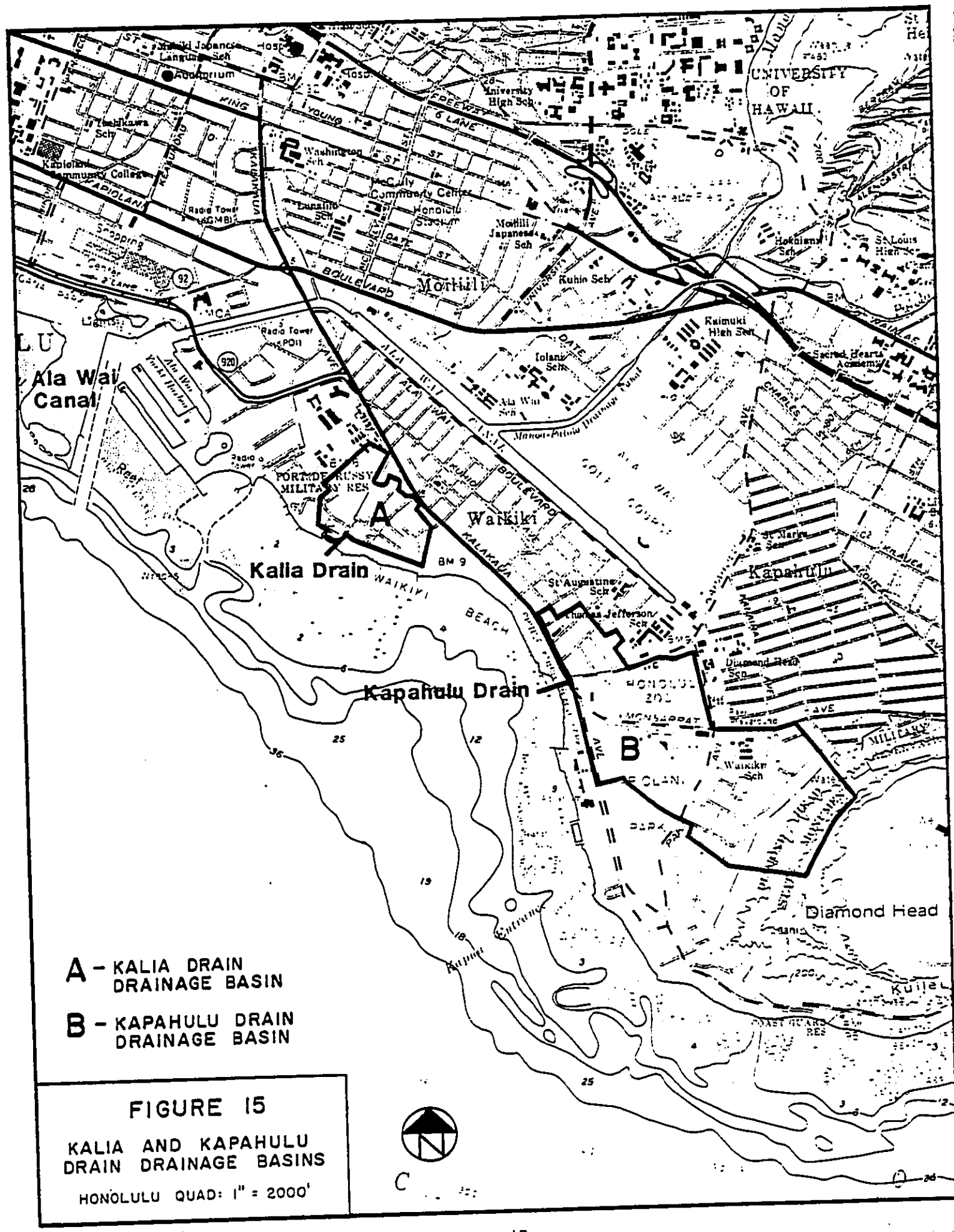


FIGURE 15

KALIA AND KAPAHULU DRAIN DRAINAGE BASINS

HONOLULU QUAD: 1" = 2000'

The University of Hawaii Water Resources Research Center has examined the sediments of Waikiki Beach for nitrogen, phosphorus, potassium, and heavy metals on the same transect lines and stations used by Stimson and Chave. (Figure 14). The Center reports that

> In nitrogen, phosphorus, and potassium the sediments at Waikiki are comparable to those observed previously in north Kauai.... Of the heavy metals, lead content of the Waikiki samples is similar to that found in coastal sediments at north Kauai, but about 1.5 to 2 times that reported for the one observation at the assumed pristine area of Kahana Bay. On the other hand, the cadmium content in the Kahana Bay sample was one order of magnitude greater than that for Waikiki. Essentially the same is true for the zinc content which was low for Waikiki compared to that for north Kauai and Kahana Bay. Mercury levels compare favorably with that observed at other stations. (Ref. 32, pp. 101-2)

CHAPTER III. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A. CONSTRUCTION RELATED IMPACTS

1. Beach and Water Uses. Outfall Alternative X would require closing of the Halekulani pedestrian right-of-way for a total of about 25 weeks as compared to 16 weeks for Alternative Y. Pedestrian access from Kalia Road to the beach would have to be diverted to the walkway on top of the existing Kalia Relief Drain during this period. Construction of Alternative Z would not affect use of the Halekulani right-of-way.

Construction of outfall Alternative X makai of the Halekulani right-of-way would interfere with public use of part of the beach in front of the Cinerama Reef and Halekulani Hotels for about 15 weeks. Beach use would be most affected during the 2 weeks of construction on the beach.

Construction of outfall Alternative Y would interfere with public use of much of the beach in front of the Cinerama Reef Hotel for about 8 weeks while a new box culvert was built from the Halekulani right-of-way to Kalia Relief Drain. Replacement of the existing Kalia Relief Drain outfall would interfere with public use of part of the beach in front of Fort DeRussy and the Waikiki Shore Apartments for about 19 weeks. Beach use would be most affected during the 13 weeks of construction on the beach.

Construction of outfall Alternative Z would interfere with public use of part of the beach in front of Fort DeRussy and the Waikiki Shore Apartments for about 16 weeks. Beach use would be most affected during the 4 weeks of construction on the beach.

Construction of outfall Alternative X would require use of a shallow draft barge for about 13 weeks as compared to 15 weeks for Alternative Y or Z. The presence of a barge would not prevent beach catamarans from sailing to and from the beach, but would make it much more difficult.

While it is not possible to quantify effects on beach use during construction of drainage improvements, it is likely that many beach goers will choose to avoid dust and noise. Beach concessions and commercial catamarans in the project vicinity will probably lose most business during periods when construction is taking place on the beach. One possible mitigation measure would be payment of compensation. However, the City would prefer not to compensate beach businesses for lost revenues provided that there is not a legal obligation to provide such compensation. Another possible (but controversial) mitigation measure would be for the Board of Land and Natural Resources to issue permits to allow temporary relocation of beach related businesses to Fort DeRussy Beach during construction of drainage improvements.

2. Biological Resources. Construction of Alternative X or Y would require removing foliage (panax and Chinese banyan) bordering the mauka part of the Halekulani right-of-way. Construction of Alternative Z would require removing foliage (octopus trees) bordering the Waikiki Shore Apartments. No rare or endangered species of plants are involved.

Construction of a new drainage outfall (or replacement of Kalia Relief Drain) will not adversely affect coral communities and related ecosystems. Silt curtains will be used during excavation and construction makai of the shoreline. A number of other impact mitigation measures have been suggested and details will be worked out when necessary permits are obtained for construction. However, it should be noted that the marine environment in the project area is already highly degraded.

3. Noise. While noise regulations established by the State Department of Health will be met, weekday construction noise will probably adversely affect hotel and restaurant businesses in the immediate vicinity. Measures suggested by the State DOH will be employed to control noise, including a system for handling complaints.

4. Traffic. Kalia Road will be partially blocked off for about two months during construction of Alternative X or Y. Access will be maintained to all property adjoining Kalia Road. However, west-bound traffic will be restricted to one lane. When necessary, (primarily during construction on Kalia Road), a policeman will be used to direct traffic.

Construction of Alternative Z will require intermittently closing one lane of Kalia Road during a two month period. Access will be maintained to property adjoining Kalia Road. If necessary, then a policeman will be used to direct traffic.

5. Battery Randolph Museum. Construction of Alternatives Y and Z would both restrict use of the makai museum parking lot. This would adversely affect museum personnel and visitors who use the parking lot.

B. LONG TERM IMPACTS

1. Beach Processes. Replacing the existing Kalia Relief Drain with a slightly wider outfall for Alternative Y or Z would not affect beach processes. However, Alternative Y would require construction of a new box culvert beneath the beach between the Halekulani right-of-way and Kalia Relief Drain. While beach retreat has not been a problem in this area since the 1930s, there still is a slight risk that the box culvert might become exposed and in effect become a seawall. In such an event the County would need to place sand in front of the Cinerama Reef Hotel to protect the box culvert and restore the beach.

Given the history of beach accretion in the project area after construction of a 160 foot groin at the western end of the Halekulani seawall, it seems likely that Alternative X will not adversely affect beach processes. However, the impact of a new outfall on beach processes is not definitely known.

2. Beach and Water Uses. None of the drainage alternatives would affect surfing at "No. Threes". The presence of a new storm drain outfall might make it slightly harder for beach catamarans to sail to and from the beach. The distance between outfall Alternative X and the existing Kalia Relief Drain would be comparable to the 250 foot wide Ala Wai Yacht Harbor entrance channel. Sail boats routinely negotiate the first few hundred feet of the Ala Wai channel using only sail power.

It is hoped that a new outfall with watertight joints would not have a sand clogging problem. However, if sand did get in, County maintenance crews might have to infrequently flatten sand berms clogging a new outfall. Otherwise, a new outfall would not affect existing beach and water uses.

Replacing the existing Kalia Relief Drain with a slightly wider outfall would have no adverse effect on existing beach and water uses. A beneficial effect would be that County maintenance workers would not have to continually return to flatten sand berms clogging the existing outfall.

3. Biological Resources. There is no reason to believe that improvement of drainage off of Kalia Road would significantly affect marine life. Over the long term, armor rock revetments will provide better marine habitat than the existing bottom adjacent to Kalia Relief Drain.

4. Aesthetics. The appearance of a new storm drain outfall has been illustrated in Plate 2 and Figures 6 and 9. The appearance of the existing Kalia Relief Drain is shown in Plates 7, 8, and 9. The appearance of a wider outfall replacing Kalia Relief Drain has been illustrated in Plate 2 and Figures 8 and 9.

5. Drainage. Due to existing physical constraints, it is not feasible to build a drainage system which would completely eliminate flooding of Kalia Road during extreme conditions. If a peak storm occurred during an unusually high tide, then the only

apparent way to prevent property damage would be to flood proof individual private garages and basements adjoining Kalia Road.

Tidal changes can substantially affect storm drain capacity. While drainage Alternative Z would be adequate to accommodate 183 cfs of storm flow during a tide of 1.07 feet above mean sea level, an unusually high tide could reduce the capacity of Alternative Z by over 50%. (An unusually high tide would have a similar effect on the 80 cfs capacity of the existing Kalia Relief Drain or on the 105 cfs capacity of Alternative X.)

About one-third of storm flow generated by the Kalia drainage basin originates from areas west of Saratoga Road and Kalia Relief Drain (i.e. from Fort DeRussy). Drainage of Fort DeRussy would not be significantly improved by any of the three alternatives unless undersized drainage facilties on Fort DeRussy were also replaced.

Existing storm drains on Beach Walk and Lewers Street are inadequate to accommodate runoff from peak storms. Storm runoff which cannot be accommodated by these drains ends up as surface flow onto Kalia Road. Drainage Alternatives X and Y would lower the hydraulic gradient, thereby reducing the amount of this surface flow. Storm water would no longer back up Kalia Relief Drain and the box culvert on Kalia Road and thus reduce the volume of storm water carried in mauka (upstream) drainage conveyances.

Drainage Alternatives X and Y would divert much of the storm water runoff off Kalia Road and down the Halekulani beach right-of-way. This would substantially reduce the flow down the box culvert on Kalia Road which presently carries runoff from Beach Walk and Lewers Street to the existing Kalia Relief Drain. (See Figure 2.) This also would prevent overloading of the existing Kalia Relief Drain during a fifty year storm.

Drainage Alternative Z would increase the capacity of Kalia Relief Drain to accommodate runoff from a fifty year storm. However, during peak storms, storm runoff would exceed the capacity of the existing box culvert on Kalia Road which carries runoff from Beach Walk and Lewers Street to Kalia Relief Drain. Hence, much of the

storm runoff would continue to reach Kalia Relief Drain as surface flow on Kalia Road. Raising sidewalks, curbs, and driveways along Kalia Road would aid in routing storm flow on the street. However, storm runoff from a fifty year storm would flow over curbs and sidewalks on Kalia Road.

Because of undersized drainage facilities on Kalia Road, drainage Alternatives X and Y are superior to Alternative Z. For example, assuming a tide of 1.07 feet above mean sea level during a fifty year storm, Alternative X or Y could accommodate flows of 105 cfs down the Halekulani right-of-way. With Alternative Z, because of the undersized box culvert on Kalia Road, most of this would otherwise end up as surface flow on Kalia Road.

6. Water Quality. Waikiki nearshore water quality will not be significantly affected by any of the alternatives. The proposed drainage improvements will not significantly increase the rate at which runoff from the drainage basin reaches the ocean except during intense storms. In turn, during intense storms, this means an increase in the rate at which pollutants reach the ocean, but probably not an increase in their quantity. A recent DOH study of storm runoff from Manoa commercial areas indicates that urban runoff has significantly higher concentrations of heavy metals (copper, zinc, lead, cadmium, chromium, nickel, mercury, and arsenic), suspended solids, biochemical and chemical oxygen demand, and various nutrients than nearshore waters. (Ref. 26, pp. 6, 8) It is probable that runoff from the Kalia drainage area would carry similar pollutants. However, these pollutants are not concentrated in Waikiki sediments and do not pose an environmental problem.

As is the case with the existing Kalia Relief Drain, discharge of storm water from a new (or expanded) outfall will create a visible plume of dirty water for a relatively short time following a storm. Street sweeping and municipal trash collection will mitigate, but not prevent, this impact. Once storm water is discharged, it will be carried along the shoreline by longshore currents and will mix with coastal waters. Within a few days, diffusion and dispersion of pollutants in the storm water will

completely restore water quality off Waikiki Beach.

During southerly winds, the proposed drainage improvements may create a minor water quality nuisance by snagging floating debris and limu. The City Department of Public Works would be responsible for cleanup in the event of citizen complaints. Replacing Kalia Relief Drain's outfall would create less chance of a problem than a new storm drain outfall.

C. UNAVOIDABLE ADVERSE IMPACTS

Construction related noise and inconvenience are unavoidable. Aesthetic impacts also are unavoidable. Destruction of foliage is unavoidable.

D. COMMITMENT OF RESOURCES, FUTURE OPTIONS, AND LONG TERM PRODUCTIVITY

Construction of a storm drain commits the County to maintenance of the drain, clearing of sand clogging, removal of debris snagged by the drain, and beach restoration if necessary to protect the drain. The shorewaters occupied by a storm drain would be permanently unavailable for recreation.

E. GOVERNMENTAL POLICIES OFFSETTING ADVERSE IMPACTS

Since Kalia Road services a densely developed resort destination area, improvements in drainage are felt to offset potential adverse impacts.

CHAPTER IV. SUMMARY OF UNRESOLVED ISSUES

1. Selection among drainage Alternatives X, Y, or Z is not resolved at this time.

2. Funding of drainage improvements is not resolved at this time.

3. The issue of how to modify the 1928 Waikiki Beach agreement is not resolved at this time.

4. The issue of possible compensation to beach businesses, is not resolved at this time.

5. Long-term impacts of drainage outfall Alternative X on beach processes cannot be <u>conclusively</u> known until after construction is completed.

6. Whether or not the beach fronting the Cinerama Reef Hotel might recede in the future is not <u>conclusively</u> known. If the beach did recede, then a box culvert fronting the hotel (Alternative Y) would be exposed.

7. A disposal site for rubble from the existing Kalia Relief Drain outfall is not resolved at this time.

CHAPTER V. ALTERNATIVES TO THE PROPOSED PROJECT

A. NO PROJECT

There is no direct cost or environmental impact from doing nothing. However, Kalia Road will continue to flood during relatively minor storms and heavy storms will probably result in property damage and future damage claims. Flooding will be aggravated unless the County continues existing bi-weekly maintenance activities to flatten the sand berm inside the existing Kalia Relief Drain. Flooding will occur regardless of how diligent the County is in preventing clogging of the existing Kalia Relief Drain.

B. PONDING BASINS

Fort DeRussy would be the only undeveloped area large enough to use as a ponding basin for storm water reaching Kalia Road. However, the Army would not be likely to authorize redevelopment of Fort DeRussy for this purpose.

C. PUMP

Because of cost, potential long-term maintenance problems, and the risk of breakdowns during an intense storm, pumps are not considered an adequate substitute for a gravity flow drainage system. Pumps are rarely used for drainage except when absolutely necessary.

D. BUILDING A STORM DRAIN TO THE ALA WAI CANAL

During a ten-year storm, flood water in the Ala Wai Canal at Lewers Street is at greater elevation than most of Kalia Relief Drain's drainage area. (Ref. 38, Backwater Computation Form) Hence, it would not be practical to dispose of storm water on Kalia Road with a storm drain to the Ala Wai Canal without use of pumps.

Although expensive, it is physically possible to pump storm water from Kalia Road to the Ala Wai Canal. A pump station and dry well would require use of about 10,000 square feet of Fort DeRussy next to the Waikiki Shore Apartments. Assuming that the land is provided at no cost to the City (which is unlikely), construction of a pump station and a half-mile force main to the Ala Wai would cost roughly $3.5 to $4 million, and operation and maintenance costs of the pump station would cost about $100,000/year (i.e., have a capitalized cost of about $1 million). By comparison, construction, operation, and maintenance of Drainage Outfall Alternative Z would cost one-fourth as much.

Despite the cost differential, a Fort DeRussy pump station would be about as effective as Alternative Z in reducing flooding of Kalia Road during normal tides. During peak storms, storm runoff would substantially exceed the capacity of the existing box culvert on Kalia Road which now carries runoff from Beach Walk and Lewers Street to Kalia Relief Drain. Hence, much of this runoff would continue to reach the corner of Saratoga and Kalia Roads as surface flow on Kalia Road. Drainage of Fort DeRussy would not be significantly improved by a pump station unless existing undersized drainage facilities on Fort DeRussy were also replaced.

During intense Kona storms, turbid water from the Ala Wai Canal mixes with nearshore coastal waters between Fort DeRussy and the Royal Hawaiian Hotel and masks the visible effect of water from Kalia Relief Drain. Hence, pumping storm water from Kalia Road to the Ala Wai Canal would have much more effect on Waikiki water quality during minor storms than during intense storms.

E. ENLARGING DRAINAGE FACILITIES ON KALIA ROAD, BEACH WALK, AND LEWERS STREET

Effectiveness of drainage Alternatives X, Y, or Z could be increased by enlarging undersized mauka drainage conveyances on Kalia Road, Beach Walk, or Lewers Street. However, it is not considered economically justifiable at this time. By way of illustration, because of the necessity to relocate a maze of buried utilities, construction of the existing box culvert on Kalia Road in 1974-75 took 8-1/2 months and proved a major inconvience for property owners on Kalia Road. Because of underground "congestion", replacement of the box culvert on Kalia Road between Saratoga Road and Lewers Street with an adequate box drain, if possible at all, could entail as long as a year and cost as much as $1 million.

F. ALTERNATIVE STORM DRAIN ALIGNMENTS

Several different ocean outfalls were considered, including Alternative X and Alternative Y shown in Figure 2. A third alternative, which was rejected, involved an ocean outfall close to shore with an outlet near the Diamond Head end of the Halekulani seawall. Total cost for this alternative was estimated at $0.8 million at 1981 prices.

The major problem with an ocean outfall near the Halekulani seawall is the potential for sand blocking the outlet. Because the beach in front of the Halekulani seawall is unstable, an intensive maintenance effort would be needed to ensure that the storm drain outlet remained unplugged. Presence of a new outfall structure parallel to the Halekulani seawall would probably interfere with accretion of a beach in front of the Halekulani Hotel. If current planning efforts to widen the beach in the project area are successful, then a long ocean outfall would have to be added to extend the outlet into open water.

CHAPTER VI. PROJECT RELATIONSHIP TO LAND USE PLANS, POLICIES AND CONTROLS

Proposed drainage improvements are neither clearly required nor prohibited by adopted public land use plans and policies. Selection among project alternatives and impact mitigation measures is more a matter of judgement than one of law. Regulatory authority over the project is shared by 12 different public agencies. As indicated in Chapter VII, as many as 18 different permits and approvals would be necessary to construct Drainage Alternative Z.

A. FEDERAL LAND USE CONTROLS

The U.S. Army Corps of Engineers regulates dredging and construction makai of the mean higher high water mark, including inland sections of Kalia Relief Drain which are subject to tidal influence. The Corps is responsible to protect the public interest in navigation, economic development, recreation, flood mitigation, and environmental quality. Generally, the Corps accepts the advice of the U.S. Fish and Wildlife Service concerning environmental matters and the advice of the U.S. Coast Guard concerning navigation. The Corps is responsible to consider economics as well as environmental impacts when selecting among proposed drainage alternatives.

Because the State Coastal Zone Management (CZM) Program has been approved by the U.S. Department of Commerce, Corps permits cannot be given without prior approval of the State Department of Planning and Economic Development (DPED). DPED review is based on the objectives and policies of Chapter 205A, Hawaii Revised Statutes (HRS). Relevant policies include the following:

> Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas. (Section 205A-2(c)(1)(B)(i), HRS)
>
> Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites and sandy beaches, when such resources will be unavoidably be damaged by development; or requiring reasonable monetary

compensation to the State for recreation when replacement is not feasible or desirable. (Section 205A-2(c)(1)(B)(ii), HRS)

Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline. (Section 205A-2(c)(3)(B), HRS)

Preserve valuable coastal ecosystems of significant biological or economic importance. (Section 205A-2(c)(4)(B), HRS)

Direct the location and expansion of coastal dependent development to area presently designated and used for such developments. (Section 205A-2(c)(5)(C), HRS)

The criteria set forth in Chapter 205A, HRS, would favor but not require selection of drainage Alternative Z. Alternative X would involve a new outfall structure which would affect views along the shoreline and beach catamaran service. Alternative X also might affect beach processes. Alternative Y would require a new box culvert along the shoreline beneath the beach. If this culvert were exposed by beach retreat, then the County would need to place sand makai of the culvert to restore the beach.

The U.S. Army Support Command Directorate of Engineering and Housing controls Army property at Fort DeRussy. Use of the Battery Randolph parking lot as a staging area during construction of Alternative Y or Z would require a real estate license from the Directorate of Engineering and Housing. Army concerns primarily are to maximize public recreational use of Fort DeRussy beach and minimize project impacts on use of Battery Randolph Museum. These concerns would best be addressed by Alternative X.

B. STATE LAND USE CONTROLS

The policies of the State Plan (Chapter 226, HRS) and the State CZM Law (Chapter 205A, HRS) by law are binding on permits and approvals by State agencies. Theoretically, this is supposed to prevent myopic decision making. In practice, no State agency has amended its regulations to specifically incorporate the policies of the State Plan or State CZM Law. Relevant policies of Chapter 205A have been previously discussed. In addition, one policy of Chapter 226 is pertinent:

> Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimal. (Section 226-104(c)(4), HRS)

As indicated in this EIS, mitigation measures will be employed to minimize environmental impacts, regardless of which drainage alternative is selected.

Pursuant to Chapter 205, HRS, and the State Land Use District Regulations of the State Land Use Commission, lands mauka of the shoreline are in the Urban District and subject to County regulation while lands makai of the shoreline are in the Conservation District and subject to regulation by the Board of Land and Natural Resources (BLNR). Permit applications for development in shoreline areas must be accompanied by a recent shoreline survey certified by the State Surveyor (DAGS Survey Division). A shoreline survey meeting State requirements will be conducted following final approval of this EIS. The standard usually used for identifying the "shoreline" is the makai edge of vegetation. In the absence of vegetation, the makai edge of permanent structures such as the Fort DeRussy and Halekulani seawalls and the Cinerama Reef Hotel parking garage are usually used to indicate the "shoreline".

The BLNR has placed Waikiki Beach and its shorewaters in the Resource Subzone of the Conservation District. BLNR Regulation No. 4 provides:

> The objective of this subzone is to develop with proper management, areas to ensure sustained use of the natural

resources of those areas. (Section 2 (D))

Flood control projects, such as proposed drainage improvements, are a permitted use in the Resource Subzone. Regulation No. 4 Section 6 also requires the BLNR to impose conditions on Conservation District Use Permits in order to preserve environmental quality and mitigate hazards and adverse impacts.

The BLNR controls disposition of State property at Waikiki Beach. To varying degrees, all proposed drainage alternatives would require permanent drainage easements across State land and authorization for temporary use of State land during construction. The only laws which provide policy guidance concerning County use of State land are the State Plan and the State CZM Law.

The State Department of Transportation (DOT) Harbors Division regulates dredging and construction on shores and shorewaters "... belonging to or controlled by the State of Hawaii ...." (DOT Harbors Division Rules and Regulations and Tariff No. 4, paragraph 3801) The only laws which provide policy guidance concerning DOT Shore and Shorewaters Construction permits are the State Plan and State CZM Law.

The DOT Harbors Division is responsible to enforce the 1928 Waikiki Beach agreement (described in Chapter 2(B) of this EIS) which prohibits construction of permanent structures (<u>including storm drains</u>) on the public beach easement fronting the Waikiki Shore Apartments and Cinerama Reef Hotel. The Harbors Division has partially incorporated responsibilities established by the 1928 agreement into Rules and Regulations Governing Waikiki Beach. In particular, these regulations provide that:

> **WAIKIKI BEACH:** Means any and all lands along the shores from the Diamond Head Boundary of the Elks Club ... to the Diamond Head boundary of Fort DeRussy ... over which the State of Hawaii now has or may hereafter acquire an easement for the use of the public as a bathing beach .... (Section 2.08)
>
> **STRUCTURES AND OBSTRUCTIONS PROHIBITED:** No person shall construct, erect, place, deposit or set up any building, structure, booth, wall, obstruction or any improvement, real

or personal, of any kind, whether temporary and/or portable or permanent in nature, on or at Waikiki Beach, except such as may be approved by the Department for sporting events, public safety or for use in connection with beach construction, repairs, preservation or cleaning. (Section 3.03)

All proposed drainage improvements, to varying degrees, would require some construction on a public beach easement. Hence, it would be necessary to amend the 1928 Waikiki Beach agreement and obtain the DOT's approval to build a storm drain on Waikiki Beach before beginning construction. Such actions are felt to be justified because proposed improvements would reduce future property damage and public inconvenience resulting from flooding of Kalia Road.

The State Department of Health regulates marine dredging and construction which may "... degrade marine bottoms ...." (Public Health Regulations Chapter 37-A Section 3.4 (B)) From the standpoint of water quality, DOH preference is to diffuse potential storm water impacts on marine ecosystems by use of multiple small drainage outfalls. Given the degraded quality of the bottom beneath the existing Kalia Relief Drain and fronting the Halekulani beach right-of-way, DOH Regulations do not provide a firm basis for selecting among proposed drainage alternatives.

C. COUNTY LAND USE CONTROLS

A special management area (SMA) permit would be needed from the Honolulu City Council before any other State or County permit could be given to construct proposed drainage improvements. State CZM Law guidelines require the City Council to impose conditions on SMA permits to minimize adverse impacts from developments. Also SMA permits cannot be granted unless the City Council finds:

(A) That the development will not have any substantial adverse environmental or ecological effect, except as such effect is minimized to the extent practicable and clearly outweighed by

public health, safety, or compelling public interest....

(B) That the development is consistent with the ... policies ... of this chapter....

(C) That the development is consistent with the county general plan.... (Section 205A-26(2), HRS)

Relevant policies of the 1977 County General Plan Objectives and Policies include the following:

Design surface drainage and flood-control systems in a manner which would help preserve their natural settings. (Natural Environment Objective A Policy 5)

Protect the natural environment from damaging levels of air, water, and noise pollution. (Natural Environment Objective A Policy 6)

As previously discussed, the policies set forth in Chapter 205A, HRS, would favor but not require selection of drainage Alternative Z. SMA permit guidelines (including General Plan policies) also favor but do not require selection of Alternative Z.

The State Shoreline Setback Law requires that two public hearings be held before a public agency decides to undertake construction or development within a 40 foot strip mauka of the shoreline. Before building one of the proposed drainage alternatives, the Department of Public Works (DPW) will need to hold two public hearings.

A Waikiki Special Design District Development Conformance Certificate would be needed for construction of a new box culvert mauka of the shoreline. The Department of Land Utilization is not given relevant standards by the Waikiki Special Design District ordinance for selecting among proposed drainage alternatives.

DPW grading/grubbing permits and Building Department building permits are essentially ministerial. While they set performance standards for construction methods, they do not authorize agency selection among proposed drainage alternatives.

CHAPTER VII. NECESSARY APPROVALS

Approval	Agency	Public Hearings
EIS (Chapter 343, HRS)	Governor	----------
Approval of Shoreline Survey	DAGS	----------
Special Management Area Permit	City Council	1 hearing
Shoreline Setback Requirements	DPW	2 hearings
Waikiki Special Design District Development Conformance Certificate	DLU	1 hearing
Grading/Grubbing Permit	DPW	----------
Building Permit	BD	----------
Conservation District Use Permit	BLNR	----------
Easement for Permanent Use of State Land	BLNR	----------
Right of Entry for Temporary Use of State Land	BLNR	----------
Shore and Shorewaters Construction Permit	DOT	----------
Waikiki Beach Regulations Approval	DOT	----------
Approval of Drainage Outfall	DOH	----------
EIS (NEPA)	COE	----------
Permit for Construction in Navigable Waters	DPED & COE	Op. COE hearing
Bridge Construction Permit	CG	----------
Real Estate License for Temporary Use of Army Land at Fort DeRussy	DA	----------

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DPW - County Department of Public Works
BD - County Building Department
DLU - County Department of Land Utilization
DAGS - State Department of Accounting and General Services, Survey Div.
BLNR - State Board of Land and Natural Resources
DOT - State Department of Transportation, Harbors Division
DOH - State Department of Health, Pollution, Technical Review Branch
DPED - State Department of Planning and Economic Development, Coastal Zone Management Branch
COE - U.S. Army Corps of Engineers, Honolulu District
CG - U.S. Coast Guard
DA - U.S. Army Support Command Directorate of Engineering and Housing

CHAPTER VIII. AGENCIES AND PERSONS CONSULTED

A. LIST OF CONSULTED PARTIES

1. **Federal Government**
   - * U.S. Army Corps of Engineers, Honolulu District Engineer
   - # * U.S. Army Support Command, Director of Engineering and Housing
   - * U.S. Fish and Wildlife Service
   - * U.S. Coast Guard, Fourteenth Coast Guard District
   - * Post Commander, Fort DeRussy

2. **State Government**
   - # * Department of Health
   - # * Department of Land and Natural Resources
   - # * Department of Planning and Economic Development
   - # * Department of Transportation
   - # * State Office of Environmental Quality Control
   - # * University of Hawaii Environmental Center
   - # * University of Hawaii Water Resources Research Center
   - State Senator Neil Abercrombie
   - State Senator Ann Kobayashi
   - State Senator Clifford Uwaine
   - State Senator Wadsworth Yee
   - State Representative Kinau Kamalii
   - State Representative Paul Lacy

3. **County Government**
   - # * Department of Land Utilization
   - # * Department of Transportation Services
   - # Department of Parks and Recreation
   - # * Department of General Planning
   - # * Police Department
   - # * Board of Water Supply

4. **Private**
   - Waikiki Improvement Association
   - Waikiki Neighborhood Board
   - # * Waikiki Residents Association
   - Sheraton-Waikiki Hotel
   - * Halekulani Hotel
   - # Cinerama Reef Hotel
   - Waikiki Shore Apartments
   - Life of the Land
   - Hawaii Surfing Asssociation
   - Nathan Napoleon
   - * Ted Bush
   - Don Lipton
   - * Raymond Rillamas

* Parties commenting on the Environmental Assessment.
\# Parties commenting on the Environmental Impact Statement.

B. COMMENTS AND RESPONSES

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

HAR 23 3 16 PM '81

POED-PV

16 March 1981

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

Dear Mr. Chun:

Thank you for the opportunity to review the environmental assessment for "Kalia Road Relief Drain". Based on this review, we provide the following comments:

a. A new ocean outlet, as proposed, for this project requires a Department of the Army (DA) permit under section 10 of the River and Harbor Act of 1899 (33 USC 403) and section 404 of the Clean Water Act (33 USC 1344). As indicated in Chapter V of the EA (pg 49), the DPW is aware of the DA permit requirement, but has not yet submitted a permit application for this project.

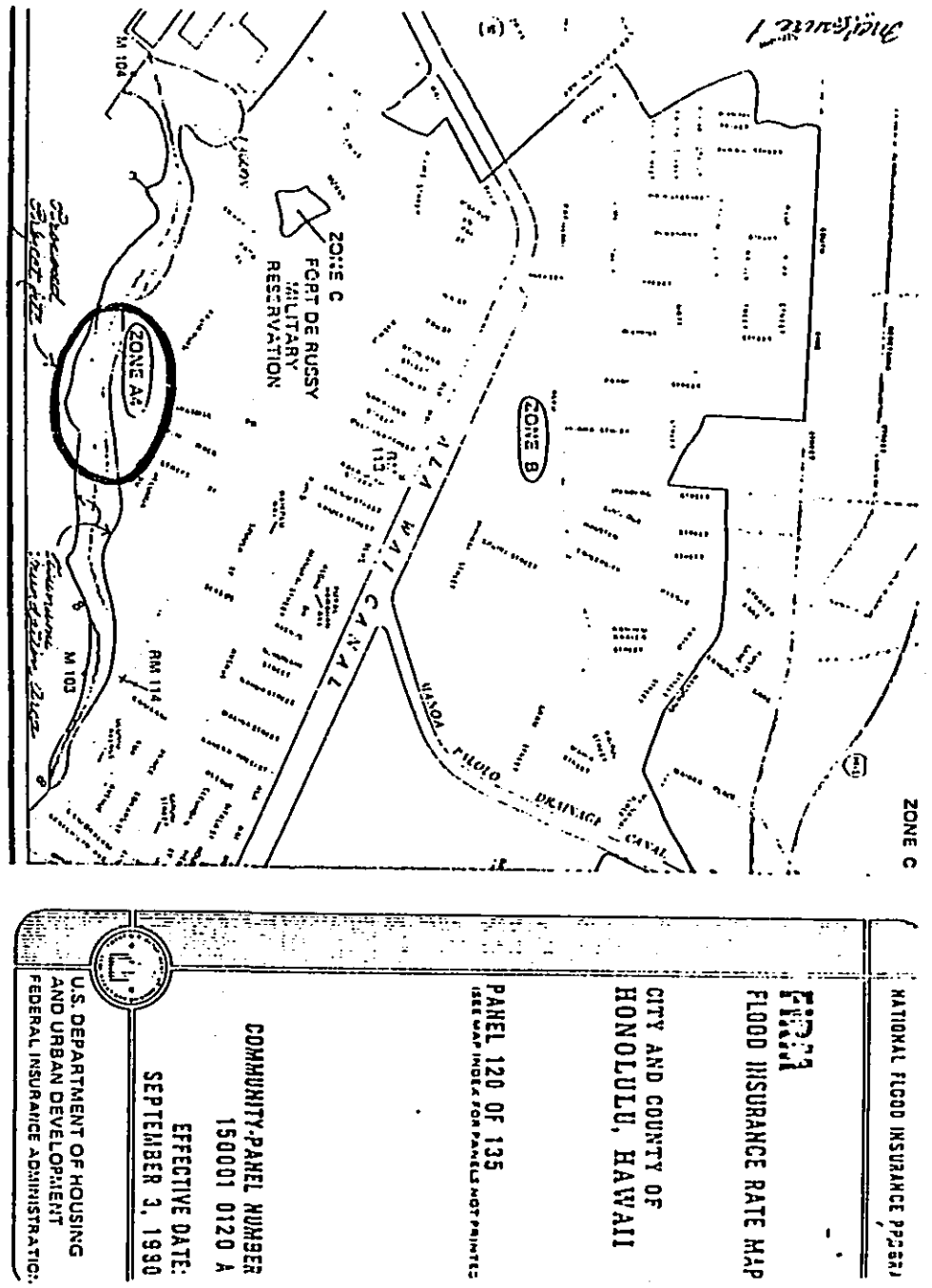
b. Reference is made to pages 37-38. Current flood maps (dated 3 Sep 80) for the Waikiki area (Incl 1) show the site of the proposed drainage improvements lies in flood prone areas designated Zones B and A4. The Waikiki area flood designations, however, are currently being revised by the Federal Insurance Administration. On the updated maps, tsunami inundation areas will most likely extend further inland and the remaining area will be designated shallow flooding zone.

Sincerely,

for KISUK CHEUNG
Chief, Engineering Division

1 Incl
As stated

-68-



ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood, base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.
*	The numerals indicate the magnitude of difference between the 100-year and 10-year flood elevations. For numerals between 1-20, the difference is one half of the value; for values greater than 20, the difference is 10 less than the numerals shown. This information is used in establishing insurance rates.
——18——	100-year tsunami or riverine elevation line, with elevation in feet above mean sea level.
———	Zone boundary line

-69-

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0191

April 22, 1981

Mr. Kisuk Cheung, Chief
Engineering Division
Department of the Army
U. S. Army Engineer District,
Honolulu
Fort Shafter, Hawaii 96858

Dear Mr. Cheung:

Subject: Your Letter of March 16, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

Thank you for your comments on the proposed project. In order to address additional public concerns, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. Following acceptance of the EIS by the Governor, we will be applying for all necessary Corps permits. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

If at all possible, then we would like to coordinate our plans with those of the Corps of Engineers to construct a Regional Visitor Center at Battery Randolph, Fort DeRussy. We would appreciate information concerning your schedule for development of the Visitor Center.

He ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SUPPORT COMMAND, HAWAII
FORT SHAFTER, HAWAII 96858

REPLY TO ATTENTION OF:
APZV-EHE-E

MAR 17 3 58 PM '81

13 MAR 1981

Dr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

DEPT OF PUBLIC WORKS
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Dear Dr. Chun:

The Environmental Assessment (EA) for the Kalia Road Relief Drain Project, Waikiki, Oahu, Hawaii has been reviewed and we have the following comments to offer:

a. As indicated on page 17 of the EA, Alternative Y would require use of the Battery Randolph Museum makai parking lot at Fort DeRussy as an access point and staging area during a portion of the project. A real estate license permitting such temporary use will have to be obtained from the Real Estate Management Branch, Directorate of Engineering and Housing, US Army Support Command, Hawaii (USASCH). The proposed use of the parking lot will have a temporary adverse impact on museum personnel and visitors to the area.

b. Should the museum parking lot be used for the Kalia Road Relief Drain Project, coordination with the Pacific Ocean Division (POD), Corps of Engineers is suggested. Future construction of a Regional Visitor Center by POD at Battery Randolph could further compound the parking problem. While your construction schedule is contingent upon funding and the timing of renovations to the Halekulani Hotel, construction of the Regional Visitor Center should also be considered in the planning process.

c. USASCH concurs with your conclusion (page 45) that the project will only slightly improve drainage at Fort DeRussy.

Thank you for providing us the opportunity to comment on the EA. If you have any questions concerning our comments, please contact the Environmental Management Branch, Directorate of Engineering and Housing at 655-0691/0694.

Sincerely,

ADOLPH A. HIGHT
COL, EN
Director of Engineering and Housing

-70-

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

EILEEN H. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0197

April 22, 1981

Colonel Adolph A. Hight
Director of Engineering and Housing
Department of the Army
Headquarters U. S. Army Support
Command, Hawaii
Fort Shafter, Hawaii 96858

Dear Colonel Hight:

Subject: Your Letter of March 13, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

We appreciate your comments and will coordinate our plans with the Corps of Engineers. In order to address additional public concerns, the proposed relief drain project will be delayed while we prepare an Environmental Impact Statement (EIS). The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

He ke aloha pumehana,

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

Study

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United States Department of the Interior
FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P O BOX 50167
HONOLULU, HAWAII 96850

DEPT OF PUBLIC WORKS
28 5 2 12 PM '81
Room 6307

February 23, 1981

Mr. Michael J. Chun
Director and Chief Engineer
City Department of Public Works
650 South King Street
Honolulu, Hawaii 96813

Re: Environmental Assessment (EA)
Kalia Road Relief Drain
Waikiki, Oahu, Hawaii

Dear Mr. Chun:

We have reviewed the subject Environmental Assessment (EA) and offer the following comments.

The proposed project will have little if any long range adverse impact on fish and wildlife resources in the area. However, construction activities have the potential for an adverse impact unless care is exercised.

The Service recommends the following precautions be taken, in addition to those required by applicable laws and regulations.

1. Extreme care will be taken to insure that no debris, petroleum products, or other deleterious materials be allowed to fall, flow, leach, or otherwise enter the water.

2. All construction activities within and adjacent to the water will be conducted so as to minimize turbidity and control erosion.

3. If a bucket dredge is used, there shall be no stockpiling of materials in the water to obtain full buckets.

We appreciate this opportunity to comment.

Sincerely yours,

for Kevin D. Holmberg
Deputy Project Leader for
Environmental Services

cc: HDFS
HDF&G
EPA, San Francisco

CREATIVE AMERICAS ENERGY

Save Energy and You Serve America!

-71-

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0195

April 22, 1981

Fish and Wildlife Service
Environmental Services
U. S Department of the Interior
P. O. Box 50167
Honolulu, Hawaii 96850

Gentlemen:

Subject: Your Letter of February 23, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

We appreciate your comments and will incorporate suggested impact mitigation measures in our construction plans if the proposed project is implemented. In order to address additional public concerns, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

He ke aloha pumehana,

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

8/0113

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

COMMANDER (dpl)
Fourteenth Coast Guard District
Prince Kalanianaole Federal Bldg.
300 Ala Moana Blvd
Honolulu, Hawaii 96850

ENVIR
ENG

11000
Serial 532
25 February 1981

Mr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

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DEPT. OF PUBLIC WORKS
ENGINEERING

Dear Mr. Chun:

The Fourteenth Coast Guard District has reviewed the Environmental Assessment for the Kalia Road Relief Drain Project and has no objection or constructive comments to offer at the present time.

Sincerely,

J. E. SCHWARTZ
Commander, U. S. Coast Guard
District Planning Officer
By Direction

-72-

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0193

April 22, 1981

Commander J. E. Schwartz
Department of Transportation
U. S. Coast Guard
Fourteenth Coast Guard District
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

Dear Commander Schwartz:

Subject: Your Letter 11000, Serial 532, of February 25, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

We appreciate your comments on the proposed project. In order to address additional public concerns, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

He ke aloha pumehana,

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY SUPPORT COMMAND, HAWAII
FORT SHAFTER, HAWAII 96858

APR 6 9 04 PM '81

REPLY TO ATTENTION OF:

APZV-DFD

Mr. Michael J. Chun
Director and Chief of Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Chun,

Reference Environmental Assessment Report for the Kalia Road Relief Drain Project, Waikiki, Oahu, Hawaii.

It is noted that both the Army Corps of Engineers and U.S. Army Support Command, Director of Engineering and Housing, are listed as Federal agencies to be consulted. This office will, therefore, defer any comments on the environmental aspects of the proposed project to those agencies.

There are two aspects of the project which will need to be coordinated through this office when the project is scheduled - traffic control and use of the parking area for contractor use. Request coordination be established with the Post Commander, Fort DeRussy prior to start of project so that appropriate plans and use permits can be made without delay of work.

Point of contact will be Captain Richard G. Hooter, Post Commander, Fort DeRussy, 543-2670, or 543-2690.

Richard G. Hooter
RICHARD G. HOOTER
Captain, IN
Post Commander, Fort DeRussy

-73-

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0203

April 22, 1981

Captain Richard G. Hooter
Post Commander, Fort DeRussy
Department of the Army
Headquarters U. S. Army Support
Command, Hawaii
Fort Shafter, Hawaii 96858

Dear Captain Hooter:

Subject: Your Letter of April 6, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

We appreciate your comments and will continue to coordinate our plans with you. In order to address additional public concerns, the proposed relief drain project will be delayed while we prepare an Environmental Impact Statement (EIS). The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

He ke aloha pumehana,

William A. Bonnet
for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

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DIV. OF ENGINEERING
MAR 3 4 00 PM '81

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

February 27, 1981

Mr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City & County of Honolulu
650 S. King St.
Honolulu, Hawaii 96813

Dear Mr. Chun:

Subject: Request for Comments on Environmental Assessment for Kalia Road Relief Drain Project, Waikiki, Oahu, Hawaii, TMK 2-6-04: 9, Por. 10, 11, 62

Thank you for allowing us to review and comment on the subject environmental assessment. Please be informed that we do not have any objections to this project.

We submit the following comments for your information and consideration:

Water Quality

Construction activities should be free of trash, silt, oil and grease, floatable and settleable solids during and after construction. In addition, silt barriers to minimize turbidity should be used. Construction plans and specifications should specify these water pollution control measures.

Noise

1. Construction activities for the proposed project must comply with the provisions of Public Health Regulations, Chapter 44B, Community Noise Control for Oahu. The contractor must comply with the conditional use of the permit as specified in the regulations and the conditions issued with the permit.

2. Traffic noise from heavy vehicles travelling to and from the construction site must be minimized in residential areas and must comply with the provisions of Public Health Regulations, Chapter 44A, Vehicular Noise Control for Oahu.

3. If sites for the stockpiling of material, equipment maintenance, or storage should be necessary within the project area, special precautions must be taken to minimize noise impacts on adjacent residents.

4. Due to the close proximity of hotels and businesses to the proposed project, it is recommended that special construction noise control strategies be implemented.

a. Site noise control - The use of temporary barriers, work hour restrictions for noisy equipment, job site traffic control and equipment location.

b. Equipment noise control - Substitution of quieter equipment and processes, modification of existing equipment for quieter operation, periodic maintenance of equipment, and contractor/operator education.

c. Community relations - Public relations and information for residents of affected areas, including a complaint management center for direct handling of complaints.

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,

for MELVIN K. KOIZUMI
Deputy Director for
Environmental Health

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN H. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0201

April 22, 1981

Mr. Melvin K. Koizumi
Deputy Director for Environmental
Health
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Koizumi:

Subject: Your Letter of February 27, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

We appreciate your comments and will incorporate suggested impact mitigation measures in our construction plans if the proposed project is implemented. In order to address additional public concerns, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

He ke aloha pumehana,

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

-75-

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

April 16, 1981

REF. NO.: CPO-2805

MEMORANDUM

TO: Mr. Michael J. Chun, Director and Chief Engineer
Department of Public Works

FROM: Susumu Ono, Chairman
Board of Land and Natural Resources

SUBJECT: Kalia Road Relief Drain Project Environmental Assessment (EA)

We have received the Environmental Assessment and have the following to offer:

A. The applicant proposes general improvements to drainage for the Kalia Road vicinity of Waikiki. Improvements are necessitated since existing drainage facilities are inadequate to accommodate "10-year" storms without flooding. Such floods in 1977 cost the City and County $121,258 in damage settlements; further claims, some still pending, have resulted from a 1979 storm.

The subject EA proposes, "if feasible," to replace an existing 4'x5' box culvert under Kalia and Saratoga roads with a 7'x7' culvert and to install beneath an existing, public, pedestrian right-of-way (which passes from Kalia Road to Gray's Beach, which fronts the Cinerama Reef and Halekulani Hotels) a new culvert. Two major alternatives are proposed for the new culvert: 1) lateral extension of the new culvert, beneath the beach, to intersect with the existing Kalia Relief Drain Ocean Outfall, which would consequently require enlargement (extraction of the existing outfall and istallation of the enlarged version); or 2) seaward extension of the new culvert to form a new ocean outfall, paralleling the existing outfall.

The twin-outfall alternative is expected to cause interference with beach access, use (at this location restricted to sunbathing, swimming, and commercial catamaran sailing), or both, for approximately four months; the project cost, in 1980 dollars, would be $660,000. The single-outfall alternative would require about six months of interference and cost $1,760,000 (1980). The applicant intends to seek a State grant-in-aid to fund the project.

B. Comments:

We understand from a March 18 telephone conversation with staff of the applicant's Engineering Division, Wastewater section, that 1) the twin-outfall alternative may (or may not) also involve installation of additional protective "armor rocks" about the existing outfall, 2) reconsideration is being given to enlarging the entire existing culvert beneath Kalia and Saratoga Roads (presumably no new culvert would then be required), although this alternative was rejected in the EA for reasons of cost, and 3) the entire matter will be the subject of a forthcoming EIS for which preparation is soon to be initiated.

The applicant notes that commercial operations on the affected beach (three commercial catamarans, a commercial outrigger canoe, and two operations offering rental of beach paraphernalia) are operating without any permits from this Department (p. 20), and proposes Departmental permits as a means of mitigating construction impacts on these ventures (p. 43). The applicant further notes that the existing Kalia Relief Drain (outfall) was extended in 1969 without any permit from this Department.

We believe that to evaluate the proposed alternatives there is needed a clear statement of applicable policy objectives and the order of their priorities. On the basis of the information provided, it appears that four major objectives are involved (not necessarily listed in order of priority):

-to provide clean, sandy beaches with safe, clear, inshore waters for the benefit of the Haikiki tourism industry and beach going public;

-to protect the public natural resources of the nearshore environment for present and future public use;

-to provide dry streets and to protect certain hotels and retail premises in the Kalia vicinity from flooding; and

-to minimize cost to the taxpaying public of the State.

We submit that the importance of the Haikiki tourism industry to the State's economy is such that the first of the above, or "tourism objective," merits more attention than it has received in the subject EA. Moreover, this industry is directly dependent on environmental quality: tourists are attracted by, and expect to find, a gentle climate, clean beaches, and clear, tropical waters. We believe the importance of this environment has been overlooked. While dumping stormwaters just off Gray's Beach may be the simplest engineering solution to the existing drainage problem, we suggest it is inconsistent with the tourism objective.

The inconsistencies are particularly apparent with respect to health and water clarity. Data on fecal coliform bacteria are presented (Table 2) to show that "water quality has been good most of the time, despite the presence of [the existing] Kalia Relief Drain" (p. 41); however, the EA notes that these data "can not be strictly checked against this [DOH water quality] standard" (loc. cit.), and elsewhere acknowledges "the proposed drainage improvements will increase the rate of [sic] which runoff from the drainage basins reaches the ocean...in turn, this means an increase in the rate at which pollutants reach the ocean..." (p. 45). Therefore, to adequately evaluate the potential impact of the proposed project on the toursim objective (and on resident beachgoers) are needed fecal coliform counts from periods during and immediately following storms. Such information could avoid a conceivable necessity for posting signs warning against polluted waters at Gray's Beach after every large storm. We further note from Table 2 that with the existing drainage system the maximum values for fecal coliform bacteria have exceeded current State standards in each of the years included. The EA predicts that "as is the case with the existing...Drain, discharge of storm water from a new (or expanded) outfall will create a plume of dirty water for a relatively short time following a storm. Once discharged it will be carried along the shoreline...and will mix with coastal waters" (p. 46). We suggest that since much of Waikiki's rainfall appears to occur with Kona storms, wind-driven surface currents and storm waves will combine to concentrate "dirty water, fecal coliform bacteria, other contaminants, and debris in inshore waters and may even drive it up on the beach. The resultant health hazard and environmental degradation must inevitably impact recreational use by tourist and resident beachgoers.

Therefore, we suggest consideration be given to other alternatives than those addressed in the subject EA. For example, storm waters from Kalia Road could be routed across Kalakaua and discharged into the Ala Wai Canal, a facility designed, constructed, and presently operating for storm drainage purposes. Thus, while we expect that initial construction costs may be much higher for such unconsidered options as an "Ala Wai alternative," we suggest that long-term economic impacts be included in the evaluation of a wider range of alternative solutions.

From the standpoint of aquatic resources, we note that marine organisms would inevitably suffer short-term effects from the proposed construction and at least some degree of adverse long-term impacts from the operation of the proposed drainage improvements. The EA states "there is no reason to believe that improvement of drainage off Kalia Road would significantly affect marine life" (p. 44). We question this assessment since the "marine environment in the project area is already highly degraded as a result of siltation..." (p. 43), and it is not indicated that adequate measures would be taken to control 1) soil erosion and

and transport of sediments during construction activities proposed for emergent lands, and 2) turbidity sitework on submerged lands. The EA suggests that "silt curtains will be used if warranted" (loc. cit.); we submit that the use of silt curtains (plus additional methods as necessary) is warranted, all the more since this environment is already severely stressed. It appears to us that the natural resource objective could best be met by discharging storm waters elsewhere than directly into the ocean. We note that the Ala Wai Canal, for example, is already subject to large volumes of runoff from mauka lands. Therefore, the additional impact of drainage discharge from Kalia Road would be insignificant. In this instance the objectives for tourism and natural resources are congruent.

The third objective, the immediate aim of the proposed project, presumably would be served by any except the "No Project" alternative (p. 47). The economic impacts of this alternative, on the City & County and on the Kalia Road hotels, have been addressed in the subject EA but may require reevaluation in light of the tourism objective.

The fourth objective, of minimizing expense to taxpayers, clearly points to the no-action alternative as an immediate resolution since the reported amounts of the damage claims are far lower than the projected construction costs. It may be possible to show that this objective would best be met over a longer interval by taking action to improve drainage, in which case the logical choice would seem to be the shortest, most direct route to the ocean. However, as discussed above, we suggest that extending the evaluation to a longer range and including as a factor net economic impact on the Waikiki tourism industry and the State's economy may produce different conclusions. In such an analysis an option such as the "Ala Wai alternative" may be revealed to exact the minimum, long-range, net cost from taxpayers.

The environmental assessment proposes to relieve flooding on Kalia Road by diverting storm waters with a new box culvert down the Halekulani pedestrian right-of-way rather than placing the existing Kalia relief drain due to high cost, heavy traffic, and numerous buried utility wires and conduits. Additionally, two alternative ocean outfalls are proposed. The attached figure 2 shows alternative "X" and alternative "Y".

We suggest that alternavie "Y" be pursued because it follows the existing Kalia relief drain ocean outfall. We feel that the construction of new outfalls in Waikiki should be minimized to lessen the potential sand erosion problem and to minimize the number of outfalls placed in the near-shore areas.

Also, the applicant should take measures to prevent beach erosion of the adjacent shoreline areas as a result of the subject drainage project.

-77-

During construction every effort should be made to minimize detrimental impacts resulting from construction equipment, water turbidity and unsightliness.

Thank you for allowing us the opportunity to comment. Should you have any further questions, please feel free to contact Mr. Roger C. Evans of my staff at 548-7837.

SUSUMU ONO

-78-

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

101-12-0217

April 30, 1981

Mr. Susumu Ono, Chairman
Board of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

Subject: Your Letter CPO-2805 of April 16, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

We appreciate your comments on the proposed project. In order to adequately address the public and your department's concerns about other drainage alternatives, beach processes, and water quality, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

He ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: YTN Pacific

-79

STATE OF HAWAII

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

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5/01/81
DIRMR
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called
6:54

March 12, 1981

Ref. No. 2849

Mr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Chun:

Subject: Environmental Assessment for the Kalia Road Relief Drain Project, Waikiki, Oahu

We have reviewed the subject environmental assessment and offer the following comments with respect to the relevant objectives and policies of the Hawaii Coastal Zone Management Program.

1) Recreational Resources: Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation.

   It is identified that activities involving the beach (construction on the beach and ocean outfall) may last from 15 to 19 weeks. Because it is not known when beach construction will occur, the use of the beach may be impaired when demand for sunbathing, swimming, canoeing, and sailing is the greatest.

   We, therefore, recommend that this phase of the construction be performed at a time of the year when use of the beach is in the least demand.

   Further, we note that the environmental assessment does not mention the anticipated permanent effects of the proposed new outfall created in Alternative X upon local surfing sites known as "Numbers Threes."

2) Recreational Resources: Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by adopting water quality standards and regulating point and non-point sources of pollution to protect and where feasible, restore the recreational value of coastal waters.

The environmental assessment mentions that discharged storm water would be carried along the shoreline by longshore currents and will mix with coastal waters. May we suggest that this process be illustrated by a map depicting the probable dispersion of pollutants from both alternative outfall configurations.

3) Coastal Ecosystems: Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs.

As discussed previously, an illustration of the dispersal of pollutants from each alternative outfall would be useful in analyzing their effects on nearshore waters and marine habitats.

4) Coastal Hazards: Prevent coastal flooding from inland projects.

This project will improve the capacity of the drainage system to transport and discharge storm runoff. However, this assessment also states that storm drains on Lewers Street, Beachwalk Avenue, and in Fort DeRussy, which feed the system, are incapable of handling runoff during intense storms. This implies that a flood hazard would still exist. We believe that this concern should be discussed in greater detail.

I-80

5) Coastal Hazards: Control development in areas subject to storm wave, tsunami, flood erosion, and subsidence hazard.

An ocean outfall may act like a groin by interrupting the natural transport of sand along a beach. An explanation of groins and how they affect beach sand transport is attached for your review.

Alternative Y only widens the present outfall but may act like a groin nonetheless, blocking transport of sand from Fort DeRussy to the Halekulani Hotel. This pattern can be observed in Figure 10 of the assessment.

Alternative X creates a new groin that may accrete sand on the side facing the Cinerama Reef Hotel at the expense of the beach fronting the Halekulani Hotel. Further, erosion may occur in front of the Waikiki Shores Apartments because sand transported from there cannot be replenished by sand from Fort DeRussy as it is blocked by the present outfall.

The analogy drawn with the 160 foot groin at the western end of the Halekulani seawall does not seem valid in light of the fact that this groin is in a deteriorated condition and would not affect sand transport as a structurally sound groin would.

Thank you for the opportunity to comment on this matter.

Sincerely,

Hideto Kono

Enclosure

cc: Office of Environmental Quality Control

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EUGENE M. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0192

April 22, 1981

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

Dear Mr. Kono:

Subject: Your Letter No. 2849 of March 12, 1981
concerning the Environmental Assessment
for the Kalia Road Relief Drain Project

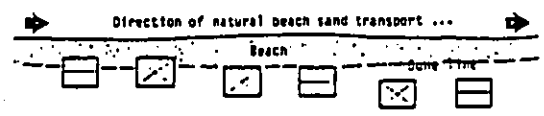
We appreciate your comments on the proposed project and will try to incorporate your suggested impact mitigation measures in our construction plans if the proposed project is implemented. In order to adequately address the public concerns about beach transport processes, water quality, and flooding, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

Ke ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

I. SHORELINE EROSION THREATENS POORLY PLACED COTTAGES:

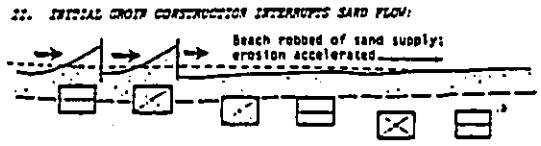


(a) Cottages on beach lack protection against shoreline erosion. Option: Construct groins to widen beach.

(b) Cottages atop dune line are not threatened by shoreline erosion as long as the beach remains.

(c) Cottages behind dunes are protected.

II. INITIAL GROIN CONSTRUCTION INTERRUPTS SAND FLOW:

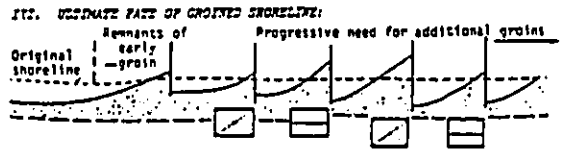


(a) Groins disrupt dynamics of beach system. Note portions of beach narrow as widening occurs behind groins.

(b) Beach nourishment cut off so that beach erosion is increased. Cottages now threatened. Option: Construct groins.

(c) Long-term sand supply is cut off, so these cottages will eventually face same conditions as (a) and (b).

III. ULTIMATE FATE OF GROINED SHORELINE:



(a) Beach narrow or absent. Dune line receding due to lack of sand nourishment. Cottages lost to erosion in spite of groins. Original groins damaged or destroyed.

(b) Cottages threatened as beach loss continues to move down drift. Dune line retreat creates situation like III-a.

(c) Heavily engineered shoreline. Beach and dune loss approaching III-b condition. Ultimate fate is the same as III-c.

Fig 19 Evolution of a groined shoreline

Fig. 19. Evolution of a groined shoreline

pernaps a better term. Nevertheless, beach replenishment is usually less harmful to the total dynamic equilibrium than the following methods.

Groins and Jetties

Groins and jetties are walls built perpendicular to the shoreline. A jetty, often very long (sometimes miles), is intended to keep sand from flowing into a ship channel. Groins, much smaller walls built on straight stretches of beach away from channels and inlets, are intended to trap sand flowing in the longshore (surf-zone) current. There are groins present today on many North Carolina beaches, including Cape Hatteras, Cape Lookout, Bogue Banks, Kure Beach, Fort Fisher, and Yaupon Beach. Groins can be made of wood, stone, concrete, steel, or (increasingly in North Carolina) nylon bags filled with sand. Nylon-bag groins are also common in areas where beaches and property are threatened by inlet migration. The ends of Topsail Beach, Bogue Banks, and Long Beach are examples of such areas.

Both groins and jetties are very successful sand traps. If a groin is working correctly, more sand should be piled up on one side of it than on the other. The problem with the groin is that it traps sand that is probably flowing to a neighboring beach. Thus, if a groin on one beach is functioning well, it must be causing erosion elsewhere by "starving" another beach (Figure 19).

Miami Beach, Florida, illustrates the results of groin usage. After one was built, countless others had to be constructed—in self-defense. Prior to the 1977 beach-renourishment project, Miami Beach looked like an Army obstacle course; groins obstructed both pedestrian and vehicular traffic. Groins and other forms of shoreline engineering destroyed Miami Beach. Now, only through an eternal commitment to beach renourishment can the artificial beach be maintained.

Seawalls

Seawalls, built back from and parallel to the shoreline, are designed to receive at least once the full impact of the sea during a tidal cycle. Present in almost every highly developed coastal area, seawalls are fairly common along the North Carolina coast. A more

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PILKEY, NEAL, PILKEY AND PILKEY; FROM CURRITUCK TO CHADASH: LIVING WITH NORTH CAROLINA'S BARRIER ISLANDS; NORTH CAROLINA SCIENCE & TECHNOLOGY RESEARCH CENTER; 2ND ED 1980

RECEIVED
DEPT OF ENGINEERING
MAR 19 4 01 PM '81

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION

STP 8.7122

March 12, 1981

Dr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Dr. Chun:

Environmental Assessment for the
Kalia Road Relief Drain Project
Waikiki, Oahu, Hawaii

Thank you for the opportunity to review the subject environmental assessment.

We offer the following comments for your consideration:

Alternate X

1. Since a new groin is in effect being created, it is important that the consignees of such an action are thoroughly investigated before this alternative is selected. Consultation with the Corps of Engineers is recommended.

2. The location of the line is within an area that is covered by our Federal/State Waikiki Beach Improvement Project. Again, we feel discussions with the Corps, co-sponsors of the project, would be of benefit.

3. An important Agreement between the Waikiki landowners and the State was made in 1928 which lists several conditions and restrictions related to beach improvements in the area of the proposed drain line location. It is suggested, therefore, that the Agreement be thoroughly reviewed for possible conflicts with its intent.

Alternate Y

1. The portion of the proposed drain line from the Halekulani Hotel site to the existing Kalia Road Relief Drain running parallel to the shore may become a hazard to beach goers should erosion occur. To get to the water, people would have to cross over the armor rocks. If this alternate is chosen, care should be taken to insure the structure remains buried. Perhaps scheduled inspections should be considered at the appropriate intervals in order to monitor the situation.

2. According to the 1928 Agreement mentioned above, it appears the location of any new drain lines in the proposed beach area may require easements from adjoining property owners. This should be verified.

General Comments

1. It is important that any structure extending into the water does not pose a hazard to navigation. Coordination with the Corps and our own agency is recommended.

2. We should be able to review the draft and final EIS for this proposal if and when one is determined to be needed.

Very truly yours,

Ryokichi Higashionna

Ryokichi Higashionna
Director of Transportation

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0194

April 22, 1981

Dr. Ryokichi Higashionna, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Dr. Higashionna:

Subject: Your Letter STP 8.7122 of March 12, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

We appreciate your comments and will definitely coordinate our plans with both the Corps of Engineers and your Department. In order to address additional public concerns, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

An issue has arisen concerning the right of beach concessions to be compensated for loss of business during construction of a new relief drain. Resolution of this issue could possibly be based on the 1928 agreement between Waikiki shoreline property owners and the Territory of Hawaii to which you referred in your letter.

1. Are we correct in assuming that the State Department of Transportation is the agency responsible for enforcing the 1928 agreement?

2. Under the terms of the 1928 agreement, can private beach concession umbrellas, paddle boats, outrigger canoes, surfboards, and beach chairs be legally stored within 75 feet of the mean highwater mark on the beach in front of the Waikiki Shore Apartments and Cinerama Reef Hotel?

He ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

-183-

RECEIVED
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION

STP 8.7275

May 19, 1981

Mr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Chun:

The following are in response to your questions posed in your letter 101-12-0194, dated April 22, 1981:

1. The Department of Transportation, Harbors Division, is responsible for enforcing the provisions of the 1928 Agreement.

2. Beach concessionaires are prohibited from storing any rental equipment within the 75-foot width of beach above the high water mark, and are required to operate within private property fronting the beach. It is not expected that beach concessions would suffer any great loss of business unless construction practices precluded access between the private properties and the water.

Very truly yours,

Ryokichi Higashionna

Ryokichi Higashionna
Director of Transportation

876352

GEORGE R ARIYOSHI
GOVERNOR

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HARRY Y. AKAGI
Acting Director
TELEPHONE NO
548 6915

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

550 HALEKAUWILA ST
ROOM 301
HONOLULU HAWAII 96813

March 5, 1981

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

SUBJECT: Environmental Assessment for the Kalia Road Relief Drain Project, Waikiki, Oahu, Hawaii

Dear Dr. Chun:

We have reviewed the subject document and conclude that the proposed action may have significant environmental impacts. Our major concern is the impact of the relief drain on sand transport and, consequently, its effect on Waikiki Beach. Currently, Waikiki Beach has been eroding in the project area. The possibility of any reduction of the beach area there or any other place in the vicinity should be carefully examined in both the short-term and long-term. Therefore, it is our opinion that an environmental impact statement should be required for the proposed action.

If you should have any questions regarding this matter, please do not hesitate to contact us.

Sincerely,

Harry Y. Akagi
Acting Director

-43-

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0199

April 22, 1981

Mr. Harry Y. Akagi, Acting Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street
Room 301
Honolulu, Hawaii 96813

Dear Mr. Akagi:

Subject: Your Letter of March 5, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

In order to adequately address the public concerns about the proposed project, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

We would appreciate information on any recent studies that you are aware of concerning beach retreat in the project area.

He ke aloha pumehana,

William A. Bonnet

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

University of Hawaii at Manoa

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Engr.

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

Office of the Director

March 20, 1981
RN:0066

Dr. Michael J. Chun
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Dr. Chun:

Environmental Assessment
Kalia Road Relief Drain Project
Waikiki, Honolulu, Oahu

The Environmental Center has reviewed the environmental assessment for the Kalia Road Relief Drain Project with the assistance of Frans Gerritsen, Ocean Engineering; Dennis Hwang, Oceanography; Jacquelin Miller and Alexis Cheong Linder, Environmental Center.

Our reviewers had numerous misgivings concerning Alternative X which proposes the construction of an additional outfall from the Halekulani Hotel right-of-way. The construction of this relief drain would be a barrier to the implementation of a comprehensive groin plan for the Waikiki Beach area and thus was considered highly unacceptable. The need for a comprehensive groin plan in Waikiki would be beneficial in assessing the impacts of sand transport and beach erosion control. Other points regarding Alternative X were noted:

1) It is highly probable that construction of the Halekulani right-of-way outfall will affect the shoreline processes in the area.

2) Alternative X would decrease the ease of beach accessibility by catamarans (p. 44) and consequently decrease the recreational utility of the area.

3) Maintenance of the existing relief drain would need to be continued; additional maintenance would be required for Alternative X (this infers an increase in labor costs).

4) Based on cost assessment alone, Alternative X appears more feasible. However, it is uncertain what effects this proposal would have on beach accreation and erosion and since it will become a negative component to the development of a long-range groin plan in Waikiki this alternative is viewed as unacceptable.

AN EQUAL OPPORTUNITY EMPLOYER

The proposal to hook-up the Kalia Road Relief Drain with the new box culvert fronting the Waikiki Shore Apartments, Alternative Y, was considered to be more acceptable, but again with some reservations. While this proposal would appear to have the least effect on nearshore sand transport processes of those discussed in the document, additional information is required. (For example, the report states that beach retreat may expose the culvert between the Halekulani Hotel and Kalia Relief Drain). How close to the water line will construction occur? How far offshore will the culvert extend? The Kalia Road-Fort De Russy hook-up represents an increase in the dimensions of the culvert from 5'x4' to 10'x5'. We feel that while the increase in culvert size is probably required to meet drainage needs for the area this represents an increase in total effluent volume at this site which may alter existing sand transport patterns and water quality parameters in the beach area.

During what seasons were the aerial photographs taken? If they were all taken during the summer months then perhaps the data is biased in indicating that beach retreat has not been a problem. We note that during southerly winds Alternative Y represents less of a water quality problem than Alternative X. The impacts on recreational utility and maintenance costs would also be less of a problem with Alternative Y. Regardless of the additional costs incurred if Alternative Y should be adopted we believe it would be the more advantageous than Alternative X in terms of long range planning efforts to optimize beach esthetics (an important aspect of tourist attraction) as well as minimize the negative effects of sand transport and beach erosion.

I-98-1

An alternative to both proposals would be to investigate the possiblity of directing drainage into the Ala Wai Canal. Has consideration been given to this alternative?

Since the proposals represent significant impacts on shoreline accretion and erosion processes, water quality and long-range planning for the Waikiki Beach area we strongly urge that the Department of Public Works conduct an expanded assessment or an EIS of the proposed project.

Thank you for the opportunity to comment on this assessment.

Yours truly,

Diane C. Drigot, Ph.D.
Acting Director

LMK

cc: Office of Environmental Quality Control
Frans Gerritsen
Dennis Hwang
Jacquelin Miller
Alexis Cheong Linder

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

EILEEN N. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0202

April 22, 1981

Dr. Diane C. Drigot
Acting Director
Environmental Center
University of Hawaii at Manoa
2550 Campus Road
Crawford 317
Honolulu, Hawaii 96822

Dear Dr. Drigot:

Subject: Your Letter RH:0066 of March 20, 1981
concerning the Environmental Assessment
for the Kalia Road Relief Drain Project

We appreciate your comments on the proposed project. In order to adequately address the public and Environmental Center's concerns about other drainage alternatives, beach processes, and water quality, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

He ke aloha pumehana,

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VFN Pacific

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University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 283 • 2540 Dole Street
Honolulu, Hawaii 96822

19 March 1981

Dr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

RECEIVED
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TO

Dear Mike:

Subject: Environmental Assessment for Kalia Road Relief Drain Project, Waikiki, Oahu, Hawaii

We have reviewed the subject environmental assessment and have the following comments:

1. It would be highly desirable to divert these stormwaters to the Ala Wai Canal. The Kalia storm drain is about the only remaining drain that empties directly into Waikiki Beach. Considering the vast economic importance of good water quality at the beach, it is incongruous to jeopardize this asset by increasing the pollution capacity.

   This is an opportunity to correct an unfortunate circumstance, rather than to perpetuate it. The impact of continuing the flow of the Kalia drain directly into Waikiki Beach goes beyond the relative construction and operating costs of the several alternatives presented. The direct ocean outfall is a threat to Waikiki Beach, which is the keystone of the tourist industry in Hawaii, the State's No. 1 industry.

2. No detailed chemical and biological characteristics of the storm waters were provided. This together with water quantity data would be desirable for a water quality impact analysis.

3. The environmental assessment is unclear in explaining the clogging of the outlet pipe and the necessity for flattening the sand berm twice a week. Perhaps an appropriate self-flushing outlet structure can be employed.

This material was reviewed by WRRC and affiliate personnel. Thank you for the opportunity to comment.

Sincerely,

Edwin T. Murabayashi
EIS Coordinator

ETM:jm
cc: Y.S. Fok
H. Gee
C. Lau

AN EQUAL OPPORTUNITY EMPLOYER

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0200

April 22, 1981

Mr. Edwin T. Murabayashi
EIS Coordinator
Water Resources Research Center
University of Hawaii at Manoa
Holmes Hall 283
2540 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Murabayashi:

Subject: Your Letter of March 19, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

We appreciate your comments on the proposed project. However, you should be aware that there are other storm drains that empty into nearshore coastal waters at Fort DeRussy and at Kapahulu Avenue. In order to adequately address your concerns about other drainage alternatives and water quality, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

Me ke aloha pumehana,

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
DIV OF ENGINEERING 650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4611

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EILEEN N. ANDERSON
MAYOR

MICHAEL M. McELROY
DIRECTOR

81/EC-2(MK)
LU2/81-906

March 13, 1981

MEMORANDUM

TO : DR. MICHAEL J. CHUN, DIRECTOR & CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM : MICHAEL M. McELROY, DIRECTOR

SUBJECT : ENVIRONMENTAL ASSESSMENT
KALIA ROAD RELIEF DRAIN

We have reviewed the Environmental Assessment for the Kalia Road Relief Drain project and have the following comments:

1. Cross sections of the box culverts (Figures 5, 6, 7) do not indicate the depth of the culverts to be buried in the right-of-way between the Halekulani and Cinerama Reef Hotels, along the beach fronting the hotels, and the depth of the outfall in the ocean. This information should be provided in order to assess potential beach erosion problems.

2. The Army Corps of Engineers (COE) has recently submitted a request to replenish the sand beach fronting Fort DeRussy. This work could interfere with construction of the relief drain culverts and outfall. What effects will this additional sand have on the proposed project? We suggest that the Department of Public Works (DPW) coordinate its construction plans with the Army COE.

3. Has a construction schedule been prepared for the proposed project? Will any construction take place during the winter months? Construction work performed during the winter months may contribute to the seasonal erosion problems which already exist. A discussion on the construction schedule should be included.

4. Since the proposed project will be constructed in the Special Management Area, it will be necessary to obtain a Special Management Area Use Permit (SMP).

5. A Shoreline Variance, however, is not necessary for this project. Construction of public facilities are permitted within the 40-foot Shoreline Setback Area and are exempt from the Shoreline Setback Rules and Regulations (Section 14.6). DPW is the agency responsible for conducting the two required public hearings. The first public hearing required for the shoreline setback exemption and the public hearing required for the SMP may be held concurrently.

6. A certified shoreline boundary should be included in the assessment.

If you have any questions, please contact Marge Kimmerer of our staff at 523-4077.

for MICHAEL M. McELROY
Director of Land Utilization

MMM:sl

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0185

April 21, 1981

MEMORANDUM

TO: MR. MICHAEL H. McELROY, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: YOUR MEMORANDUM 81/EC-2(MK), LUZ/81-906 OF MARCH 13, 1981 CONCERNING THE ENVIRONMENTAL ASSESSMENT FOR THE KALIA ROAD RELIEF DRAIN PROJECT

We appreciate your comments on the proposed project. In order to adequately address the public concerns about project design, Corps of Engineers plans, and project scheduling, we will be preparing an Environmental Impact Statement (EIS) for the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

William G. Bonnet

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

-89-

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

RECEIVED
DIV. OF ENGINEERING
MAR 30 12 00 PM '81

EILEEN R. ANDERSON
MAYOR

ROY A. PARKER
DIRECTOR

TE2/81-385

March 23, 1981

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MEMORANDUM

TO: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM: ROY A. PARKER, for DIRECTOR

SUBJECT: ENVIRONMENTAL ASSESSMENT FOR THE KALIA ROAD RELIEF DRAIN PROJECT, WAIKIKI, HAWAII, TMK: 2-6-04: 9, POR. 10, 11 AND 12 (REFERENCE: 101-12-0079)

We have the following comments on Chapter III of the Environmental Assessment:

1. The section on traffic, Chapter III A, page 43, should address the impact of the project on pedestrians. It is not indicated whether sidewalks will be kept open during construction.

2. The lane that would be kept open during construction should be wide enough to accommodate tour buses.

RAP:dy

TO: DEPT OF PUBLIC WORKS
81 MAR 31 AM 8:47

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0186

April 21, 1981

MEMORANDUM

TO: MR. ROY A. PARKER, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: YOUR MEMORANDUM TE2/81-385 OF MARCH 23, 1981
CONCERNING THE ENVIRONMENTAL ASSESSMENT FOR
THE KALIA ROAD RELIEF DRAIN PROJECT

We appreciate your comments and intend to take necessary measures to accommodate pedestrian and vehicle traffic. In order to address other public concerns, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

William A. Bonnet
for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

DEPARTMENT OF GENERAL PLANNING

CITY AND COUNTY OF HONOLULU

550 SOUTH KING STREET
HONOLULU, HAWAII 96813

DEPT OF ENGINEERING
MAR 11 4 50 PM '81

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DEP
Chf Eng

EILEEN R. ANDERSON
MAYOR

WILLARD T. CHOW
CHIEF PLANNING OFFICER

March 6, 1981

MEMORANDUM

TO: Mr. Michael J. Chun, Director and Chief Engineer
Department of Public Works

SUBJECT: Environmental Assessment for the Kalia Road Relief
Drain Project, Waikiki, Tax Map Key: 2-6-04: 9,
Por. 10, 11, 12--Comments Requested February 6, 1981

We have reviewed the environmental assessment and fee[l] that discussion on the following topic should be expanded.

Long Term Impact on Beach Water Quality

The proposed drainage outfall (either a new or an expanded outfall) is expected to substantially increase the rate at which urban runoff from the drainage basin reaches the ocean during intense storms. This means a higher level of concentration of pollutants (suspended solids, biochemical and chemical oxygen demand, and various nutrients) could result along Waikiki Beach upon implementation of the project.

For example, in the area of the Kalia Relief Drain now in use, a lesser rate of storm water discharge creates a visible plume of dirty water following a storm. The discharge is carried along the shoreline by longshore currents and mixes with coastal waters until such time as chemical interactions between sea water and diluted pollutants in the storm water completely restore the water quality. Additionally, during southerly winds when wave patterns drift toward the shoreline, the runoffs create a water quality nuisance in the form of floating debris and limu. The result is restricted beach use, adverse effect on marine life in the immediate outfall area and its vicinity, and unsightly appearances on a scenic stretch of Waikiki Beach.

Beach Ownership

There have been instances where groins extending into the ocean were successful in capturing sand in front of the Royal

Hawaiian Hotel and the Cinerama Reef Hotel. A still-in-effect 1928 agreement between the Territory of Hawaii and the adjacent property owners provides that any natural accretion becomes the property of abutting owners. Before the Kalia Road Relief Drain project begins, the State/City should secure written agreements from abutting property owners to surrender all property rights makai of the 1928 mean high water mark for public use. There are precedents in this type of arrangement in the creation of man-made Kaiser lagoon and the beach frontage of Maunalua Bay. Also, this is the position being taken by the State with respect to other Waikiki Beach improvements proposed.

As expressed in the General Plan, the protection of our environment from damaging levels of pollution and provision of recreational facilities and services for residents deserve high priority. Every effort should therefore be made to protect and preserve this ocean environment.

The assessment should provide more than a brief and general discussion of the project's long term impact but should also include supporting documents as well as suggesting ways to maintain our natural features.

-91-

Willard T. Chow

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0189

April 22, 1981

MEMORANDUM

TO: DR. WILLARD T. CHOW, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: YOUR MEMORANDUM OF MARCH 6, 1981 CONCERNING THE ENVIRONMENTAL ASSESSMENT FOR THE KALIA ROAD RELIEF DRAIN PROJECT

We appreciate your comments on the proposed project. In order to adequately address the public concerns about water quality, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

We are in complete agreement with your suggestion that some public agency should secure property rights to the beach makai of the 1928 mean high water mark in the project vicinity. The fact that littoral accretion will become private property has delayed State and Federal plans to widen the beach for almost ten years.

for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

Signed

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

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DEPT OF [illegible]
FEB 25 2 13 PM '81

EILEEN R. ANDENSON
MAYOR

FRANCIS KEALA
CHIEF

OUR REFERENCE MS-ES

February 24, 1981

TO : MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM : FRANCIS KEALA, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT : ENVIRONMENTAL ASSESSMENT FOR THE KALIA ROAD
RELIEF DRAIN PROJECT

-92-

The drainage improvements proposed for Kalia Road in Waikiki should provide a welcome alleviation of the flooding in this densely populated area. We have no preference between Alternative X or Alternative Y outfalls.

We have noted that provision of police services is planned for traffic direction during construction on Kalia Road.

FRANCIS KEALA
Chief of Police

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDENSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0188

April 21, 1981

MEMORANDUM

TO: MR. FRANCIS KEALA, CHIEF OF POLICE
POLICE DEPARTMENT

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: YOUR MEMORANDUM OF FEBRUARY 24, 1981 CONCERNING THE ENVIRONMENTAL ASSESSMENT FOR THE KALIA ROAD RELIEF DRAIN PROJECT

We appreciate your support for the proposed project. However, because of expressed public concerns, the proposed relief drain project will be delayed while we prepare an Environmental Impact Statement (EIS). The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA
HONOLULU, HAWAII 96843

RECEIVED
BY DEPT OF PUBLIC WORKS
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ENVIR

EILEEN ANDERSON, Mayor
YOSHIE H. FUJINAKA, Chairman
DAT DUON PANG, Vice Chairman
RYOKICHI HIGASHIONNA
Donna H. Howard
Michael J. Chun
ROBERT A. SOUZA
CLAUDE T. YAMAMOTO

KAZU HAYASHIDA
Manager and Chief Engineer

February 27, 1981

TO : DR. MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF FEBRUARY 6, 1981 REQUESTING COMMENTS ON THE ENVIRONMENTAL ASSESSMENT FOR THE KALIA ROAD RELIEF DRAIN PROJECT, WAIKIKI, OAHU, HAWAII, TMK: 2-6-04: 9, POR. 10, 11, 12

We have no comments on the proposed relief drain project, except to note that construction plans for the project must be submitted for our review and approval.

If you have questions or require additional information, please call Lawrence Whang at 548-5221.

Kazu Hayashida
KAZU HAYASHIDA
Manager and Chief Engineer

-93-

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

EILEEN H. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0187

April 21, 1981

MEMORANDUM

TO: MR. KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: YOUR MEMORANDUM OF FEBRUARY 27, 1981 CONCERNING THE ENVIRONMENTAL ASSESSMENT FOR THE KALIA ROAD RELIEF DRAIN PROJECT

We appreciate your comments on the proposed project. In order to address additional public concerns, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. Following acceptance of the EIS by the Governor, we will send construction plans for your review and approval. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

William C. Bonnet
for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

RECEIVED
DEPT OF PUBLIC WORKS
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DEPT OF PUBLIC WORKS 2161 Kalia Road, 1206
CITY & COUNTY OF HONOLULU Honolulu, Hi.,96815
MAR 10 2 43 PM '81

Michael J. Chun
Chief Engineer
Department of Public Works
650 South King Street
Honolulu, Hi.,96813

Re:Kalia Road Relief Drain

Dear Mr. Chun,

The Waikiki Residents Association strongly endorses the need for the improvement of drainage from the Kalia Road,Lewers, and Beach Walk areas. This project is long overdue. We welcome immediate construction to take care of this severe drainage problem during storms.

Our Board of Directors has reviewed you Environmental Assessment Survey and have recommended Alternative Y for the following reasons:

1.A second relief drain ocean outfall(alternative X)a few yards from the present Kalia Relief Drain will most certainly create a swimming area that will be highly polluted. It will be more or less a dead area, as flushing from the ocean will be slowed.There is a considerable problem in the area already from beach debris--drink cups, cigarette butts, match covers, band-aids etc.. This condition would be highly aggravated, not only from such debris, but also from a higher fecal coliform count brought on by a more stagnant area.

2. Shoreline alteration along the beach areas of Waikiki Shores, Reef and Halekalani Hotels will certainly change with extension of a second relief drain (X). We are not certain what this second relief drain will do to shifting sands on the present beach. On the other hand, we have a"known" situation with the present relief drain. Thus it seems logical to enlarge the present drain and not disturb the present favorable beach situation.

3.A second relief drain will do tremendous damage to the present reef. The on-shore reef has been revitalized in the last few years by personal observation. It harbors many species of fish and is a real inspiration for beginning snorkelers. building a second relief drain will again cover that area with sand and coral particals. Enlarging the present Kalia Relief Drain will not affect the reef to the same extent.

4. From a visual standpoint a second relief drain will detract from the Diamond Head view along the Waikiki Shore and Reef Hotel beach front.

5. Although the cost of alternative Y is greater than X the survey has not taken into account the good possibility that a Rubble Mound groin may need to be added next to alternative X in order to prevent sand erosion. This was necessary on the DeRussy side of the present Kalia Relief Drain. The cost of suchRubble Mound has not been taken into account in the data presented in the survey.

6. Presently catamarans service tourists in this area with rides across the reef. With the construction of a second relief drain the ingress and egress of such boats will be much hampered. Coming into the beach between two drains will be most difficult, especially when such boats are not motorized.

We appreciate receiving you fine environmental assessment report and hope the enclosed recommendations will be of assistance to you. Please keep us posted on any public hearings on the project.

Very truly yours,

Roger J. Khulle, Chairman
Committee on Drainage.

PS Letter approved by Membership of Waikiki Residents Association on March 5, 1981

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0196

April 22, 1981

Mr. Roger J. Schulte
Waikiki Residents Association
Committee on Drainage
2161 Kalia Road, #1208
Honolulu, Hawaii 96815

Dear Mr. Schulte:

Subject: Your Letter of March 5, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

We appreciate your comments and support on the proposed project. In order to address expressed public concerns, the proposed relief drain project will be delayed while we prepare an Environmental Impact Statement (EIS) on the project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

The Environmental Quality Commission will notify you when the EIS is ready for public review. We have asked the Department of Land Utilization to add your name to their list of persons to contact concerning public hearings for development permits in Waikiki.

He ke aloha pumehana,

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

RECEIVED
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February 18, 1981

Mr. Michael J. Chun
Director and Chief Engineer
DEPARTMENT OF PUBLIC WORKS
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Re: Environmental Assessment for the Kalia Road Relief Drain Project, Waikiki, Oahu, Hawaii
Tax Map Key: 2-6-04: 9, Por. 10, 11, 12

Dear Mr. Chun:

Thank you for your excellent report on the Kalia Road Relief Drain. I've read the material carefully and I can't see any reason why you can't proceed. The new Relief Drain will certainly help cure the very bad drainage problem that now exists.

If there is any help you need from us at the Halekulani with this project, please let me know.

Warmest regards,

Robert W. Burns
President

cc: Lawrence W. L. Chang

/kec

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

EILEEN H. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0204

April 22, 1981

Mr. Robert A. Burns, President
Regent International Hotels
C/o Halekulani Hotel
2199 Kalia Road
Honolulu, Hawaii 96815

Dear Mr. Burns:

Subject: Your Letter of February 18, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

We appreciate your supporting statement. However, because of expressed public concerns, the proposed relief drain project will be delayed while we prepare an Environmental Impact Statement (EIS). The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

He ke aloha pumehana,

Willi A. Burns

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

-96-

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DIR MJC
DEP Dir
Engr

965 Prospect Street #410
Honolulu, Hawaii 96822
March 17, 1981

Mr. Michael J. Chun, Director
Department of Public Works
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Chun,

Subject: Kalia Road Relief Drain Project

Thank you very much for sending me your Environmental Assessment Report on the subject matter. I appreciate the study and man hours that were put into this report and, even more so, the concern for the project's objective to relieve the flooding problems of the affected areas. However, even though I agree with you that the flooding must be eliminated, I do not agree on the proposed Project (X) or its alternative (Y) as the solutions.

Before I continue on this matter, let me introduce myself and, at the same time, clear up a discrepancy in your EA Report. My name is Ted Bush, dba Waikiki Beach Services, Inc. I have been incorporated for over 3 years and licensed to do business in the State of Hawaii as a Beach Concession of the Cinerama Reef Hotels. I have public records (exhibits) of my business and also rental records filed with the Cinerama Hotels to substantiate my legality. I also carry all the necessary permits required by the D.O.T. (not the DLNR) which allows me to do business during the day. I resent the implication by the report on page 20, second paragraph, that I am illegally operating and storing my equipment on the beach during the day. I cannot speak for the other concession fronting the Waikiki Shore Apartments, but I am definitely a legal beach business as recognized by the State of Hawaii as were all my predecessors going back as early as 1955.

On the proposed project, you can now see the evident consequences or impact on my business. Being out of business or partially inoperable for approximately 25 weeks for Project (X) or 18 weeks for Alternative (Y) will deal a severe blow to my only means of support. As suggested in your EA Report that we be temporarily relocated to Ft. DeRussy in the interim would be impossible. The DeRussy beach, because of its location and content (crushed coral rocks) draws very few beachgoers. However, and more importantly as history has already proven, this will incite "beach wars" among the beach concessions as previously publicized in the media.

The business impact is definitely my main concern, however, just as important or maybe more important are the short and long term environmental and aesthetic impacts I contend the proposed Project and Alternative may incur. I am referring to: 1) increased fecal coliform content as well as other pollutants being present and closer to the more congested and traditional bathing areas of Waikiki; 2) an increase in stagnation particularly between existing Kalia Relief Drain and Project (X); 3) quick and complete

erosion of almost all beaches between groin 5 and Project, because as sand shifts down towards proposed Drain (X) during its normal seasonal migration it will become very unstable in front of the seawall (#7) due to the intensified wave action caused by the adjacent walls. This will cause the sand to move along Project (X) until it spills into the channel to be carried elsewhere by prevailing long stream currents. This does not happen to most other groins because they abutt reef areas. Project (X) abutts a deep channel area; 4) stagnation between Project (X) and Kalia Drain will certainly threaten all existing marine life as well as creating a highly polluted and undesirable swimming area; 5) the proposed Drain (X) will provide another hazardous obstruction for beachgoers; 6) destroy one of the truly beautiful vistas left of Diamond Head and Waikiki Beach; and 7) cause irreparable damage to remaining fishing holes outside reef areas just as the extension of the Kalia Drain did.

In studying the EA proposals, I find myself questioning the true effectiveness and realistic dollar expenditure. It's said that one of the main problems with the Kalia Drain is clogging. Be assured this will happen with Project (X), even more easily. The strong wave and tidal surges in this area intensified by the present channel will constantly keep this drain inoperable. As for the dollars, the city claims it will replenish any loss of sand incurred by Project (X) or Alternative (Y). Project (X) will erode completely on its east side as I mentioned earlier by the sea, and Alternative (Y) by the wind. A beach's protection against strong winds is to pack itself tightly together. However, through displacement of sand for the Culvert (Y), the sand will be loosened and, because of the hard concrete, the sand will not "hold" but will run off in the direction of the wind. Therefore, using the replenishing of sand at Kuhio Beach and the fill-up of top sand at Ft. DeRussy as performance indicators and then converting to present dollars, this will give you an inflated cost in the millions of dollars.

There is complete agreement that the flooding on Kalia Road is a problem. But does it warrant the destroying of a historically beautiful area that is compounded by its commercial value? Will Hawaii and its number one industry, tourism, allow this obviously detrimental project? Are we not besetged enough by bad crime publicity, poor incentive advertising, inflated air fares, labor strikes, etc., to add another blight to our tourism picture? Surely this project will have a negative effect.

I have some suggestions. I am a lay person but I offer these suggestions in an effort to provide solutions: 1) run a drain up Lewers Street to the Ala Wai Canal. Was this not the initial purpose of the canal, to create a receptacle for Waikiki drains as well as streams and rivers and then flushing it out to sea through an unpopular bathing area; 2) dig bigger and deeper "holding wells" where the present storm drains are located along Lewers and Beachwalk streets. These will immediately catch the street drain off and, at the same time with the incorporation of hydraulics (or other methods), allow slow, methodical movement of the run-off through existing Relief Drain; 3) increase the culvert at Kalia Road and Saratoga and increase the inside dimensions of existing Kalia Relief Drain as

mentioned in the EA Report. This will still carry more pollutants to the ocean but it will not be as close to the more congested bathing areas. Also, this will eliminate another structure hence stagnation, etc.

The beach has always been my "home". I've worked there for 15 years and prior to that I grew up and spent almost all my time there as did my uncles, father and grandfather. We have seen many manmade changes through the years. All of them seemed well planned at the time but most of them ended with unpredictable results: erecting sea walls to hold back beaches; groins to catch sand or restrict sand migration; fill-ins to create beaches or to replenish old beaches. Most of these plans over the years have not hit their respective targets.

I stand on the beach in front of the Cinerama Reef Hotel and look around at all the scenes and areas I have become accustomed to. I don't expect to see these views if the proposed Project (X) or Alternative (Y) is constructed because, like all the other manmade structures before, we will not know the true outcome and results until its too late.

Respectfully submitted,

Ted K. Bush, President
Waikiki Beach Services

cc: Governor George Ariyoshi
Mayor Eileen R. Anderson
Department of Health
Department of Land and Natural Resources
Department of Transportation
State Senator Neil Abercrombie
State Senator Ann Kobayashi
State Representative Kinau Kamalii
Waikiki Improvement Association
Halekulani Hotel
Cinerama Reef Hotel
Don Lipton
Raymond Rillamas

P.S. A note of interest. Occasionally throughout the year we have complaints about the high fecal coliform content that is present in the waters fronting the Waikiki Shores condominium by our visitors. These concern people claim that their findings are substantiated by special pollutant indicator instruments. Normally, nothing much is done, however, in light of the present situation we made an exception. Just recently, on March 11, 1981, I was approached by such an individual. This person, a visiting Canadien, approached my beachstand fuming mad about the high pollution that was found in the said area through his research. He said he was "extremely appalled by the heavy pollution" that was prevalent in the water. He also claimed that it was so bad that "it was unfit for human bathing".

Unlike other complainants I took his name and address. In doing so I informed him of the proposed project and asked for his future cooperation to which he agreed. His name and address are:

O. H. Buck
497 Fifth St.
Nanaimo, B.C.
Phone # 754-5496

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0190

April 22, 1981

Mr. Ted K. Bush, President
Waikiki Beach Services
965 Prospect Street, #410
Honolulu, Hawaii 96822

Dear Mr. Bush:

Subject: Your Letter of March 17, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

We appreciate your comments and will be contacting the State Department of Transportation. However, you should be aware that the State Board of Land and Natural Resources (BLNR) has the legal authority to regulate commercial beach concessions pursuant to Sections 205-5 and 183-41, HRS, and BLNR Regulation No. 4 (Amended) Section 2(I).

In order to adequately address your concerns about other drainage alternatives, beach transport processes, and water quality, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. If you will furnish us with more detailed personal observations of seasonal and surf induced sand movements in the project area, we could incorporate this information in our impact analysis. All correspondence will be included in an appendix to the EIS. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

He ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

S/C 1943

1001 Ala Moana Blvd.
Suite #02
Honolulu, HI 96815
(808) 947-6533
March 8, 1981

Richard J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Chun:

Subject: Kalia Road Relief Drain Project

Thank you for sending us a copy of the environmental assessment report on the Kalia Road Relief Drain Project. We have reviewed the content of the report thoroughly and have also drawn from personal and professional expertise concerning the area of the beach and ocean involved. Captain Hondo was born and raised on Oahu and has frequented Waikiki Beach since he was a small boy. His love for the beautiful Waikiki Beach led him to pursue a career in this location. His many years of canoeing, swimming, sunbathing, snorkeling, surfing, diving, underwater photographing, fishing and sailing have made him want to share this wonderful paradise with people all over the world. As a result he has been sailing catamarans for over ten years and has become a well-respected expert of Waikiki Beach and the inland waters. His main area of concentration has been the beach adjoining the Cinerama Reef Hotel, Halekulani Hotel, Fort DeRussy Military Reservation and the Sheraton-Waikiki Hotel. Now that we have outlined Captain Hondo's area of expertise we would be happy to provide our comments on the proposed project.

We found your report interesting, however, we could not support either Alternative X nor Alternative Y for numerous reasons. We will outline our reasons for rejecting the Alternatives in the following paragraphs.

We reject Alternative X for these reasons. We are strongly opposed to creating another site of pollution in this Waikiki Beach area. One source of drainage for pollutants into the ocean is more than enough for this small area of ocean, environmentally speaking. With two sewage systems draining simultaneously this would greatly increase the amount of waste material in this area of ocean. We were also disturbed by the high fecal coliform counts generated when the existing relief drain was made patent. We must also take into consideration the problem of stagnation that would exist, were a new seawall created. The two walls would disrupt the normal currents in this area which are needed to take the pollutants out to the deep sea. Thus we would be creating a dangerously polluted swimming area for both tourists and residents. Residents are especially at risk because they spend a greater percentage of time in the water, as opposed to the tourist who spends perhaps a few weeks a year. Worst of all, we must consider the effect of the high pollution count on the marine life. We feel your report was erroneous in stating that there was almost no live coral and very few fish in Gray's Channel vicinity. Captain Hondo has seen beautiful live coral and many various types of fish daily, also turtles, and delights in showing them to his passengers. We would hate to deprive both residents and tourists alike, of this wonderful sealife by killing it off with pollution generated by another drain and stagnation caused by trapping the wastes between two adjacent seawalls. We would also like to mention the fact that much of the marine life thrives on salt water, and the fresh water dumped from the drains upsets the natural sealife ecology.

Besides the pollution problems generated by Alternative X, we are concerned with the effects of the project on the coral in the area. Obviously, with construction of a new seawall, much coral will be destroyed. Coral is an essential part of sealife ecology. It is an integral part of the life cycle of much marine life. Also, the beauty of the natural reef will be lost to mankind. Will will also have to contend with the broken and crushed coral, which is unpleasant to walk or lie on. This we feel will make this part of the beach undesirable for beachgoers.

We feel Alternative X will also contribute to the severe erosion problem suffered in this area of Waikiki Beach. As noted in the report, most episodes of significant sand erosion have been precipitated by construction. With creating another seawall, we can expect at least as much erosion as with the existing seawall; perhaps more. It will most likely be necessary to provide a Rubble Mound groin to control the sand erosion. It should be noted that the existing beach in the vicinity is already small, and sand continues to be washed into the ocean. If this problem is aggravated by further construction, soon there may be no beach at all in this area. As the report shows, replacing eroded sand is futile -- it just continues to erode. We feel strongly that the natural shoreline should not be tampered with. Once done, we will not be able to replace it on a permanent basis.

Another concern we fear is the aesthetic problem a new seawall may create. First, there is the eyesore of the construction period itself. We feel the second relief drain will further mar the beauty of the natural shoreline. It's another of the many manmade structures that detract from the Diamond Head view from the beach. Along with the seawall is the inevitable "warning"sign. Danger is not the message we want to give the beachgoer. In addition, the sign warning swimmers to stay away from the seawall will also mean a smaller recreation area. There is also the danger of the seawall itself to consider, such as the slippery moss, occasional high surf whereby people may be injured, and the liability of a collision with the wall by a person or object.

Alternative X will also interfer with catamaran service in the vicinity. Waikiki Beach catamarans are a tradition, and also provide a recreation

source for residents and tourists. It is one of the major means by which passengers can enjoy the beauty of the Waikiki shoreline and the underwater loveliness of the coral, fish and other marine life. With the creation of a second relief drain, the transport of such boats will be impaired. For easier access it would be necessary to equip the catamarans with engines which would detract from the natural wind power tradition of sailing.

Another consideration is the loss of jobs for catamaran, canoe, surfing, snorkeling, and beach concession services during the period of construction. Loss of livelihood may continue after construction is completed due to the beach becoming less desirable to beachgoers. Hotels and other businesses in the vicinity will most likely suffer from the construction and afteraffects with such problems as a lower occupancy rate and decreased sales.

We would now like to discuss our concerns regarding Alternative Y, and our numerous reasons for rejecting this proposal. Reviewing the blueprint , Alternative Y seems a very impractical way of draining the Kalia Road vicinity, while also trying to minimize clogging problems with the system. We feel that with so many right angles in the drainage route, clogging of Alternative Y is inevitable. We predict that this will become a serious chronic problem as debris and sand become trapped in the L sections. When we are having so much difficulty keeping the existing straight Kalia Relief Drain patent, why would we propose to make a more complicated system?

We reject Alternative Y for aesthetic reasons also. One of our major concerns is the disruption of the existing foliage in the construction area. We are again hesitant to disturb the natural beauty in the vicinity in any way, whether it be with rare or endangered species or not. The wonderful forest of coconut, banyan, and various other species of trees and foliage we once called Waikiki hardly exists any longer due to the massive construction already done to this once magnificent area. We cannot endorse any means of threatening what little greenery that has survived the industrial revolution. Alternative Y poses a threat to the Hau tree, the coconut palms, the Chinese banyans, panax and other forms of foliage in the proposed construction area. We must not only consider the foliage that we see above the sand level, but also the roots which lie beneath. We would also like to note that this area is likely to be assaulted more than once (due to the construction itself). There is also the re-excavation that is inevitable due to maintenance on Alternative Y throughout the years for various problems which may occur. Clogging problems are already anticipated as previously mentioned.

Alternative Y will also contribute to the severe erosion problem already experienced in the vicinity. As noted in the report, most episodes of significant sand erosion have been precipitated by construction. With excavating the beach and disrupting the natural sand environment; it will be necessary to artificially replace the beach

involved. This procedure, as past history shows, will become futile because replacement sand continues to erode. What we are left with is another chronic erosion problem. The present beach has already eroded to such a small area, it's in poor judgement to risk what little is left of it. It is a disservice to residents and tourists alike.

We reject Alternative Y also because of the lengthy disruption of recreation and business in the vicinity. This project would generate a loss of livelihood for catamaran, canoe, surfing, snorkeling, and beach concession services during the period of construction which could easily take up to one year. Relocation of such beach operations is neither desirable nor feasible for most businesses. Loss of livelihood may continue after the initial construction is completed due to the beach area becoming less desirable to beachgoers as the result of such construction. Also, re-excavation is highly probable due to Alternative Y requiring frequent maintenance. Hotels and other businesses in the vicinity will most likely suffer from the construction and aftermath shown by such effects as lower occupancy rates and decreased sales. Residents of the Kalia Road vicinity will also be adversely affected by the disadvantages of the proposed project. As a result, they may have to travel to find a suitable beach for suntathing.

We strongly recommend enlarging the existing Kalia Relief Drain. It is important to reduce the flooding of Kalia Road and the adjacent areas. We have observed the affects of severe storm flooding of this area and sympathize with the problems of people of this densely populated region. A solution to this problem is badly needed, but we need to plan carefully. We must not make a hasty decision that will leave us with long term negative environmental impacts. We feel strongly that either Alternative X or Alternative Y will long be regretted should they be created. Enlarging the existing Kalia Relief Drain is the only means by which we can aid the flooding problem and preserve the environment. We feel it is much more practical to replace the box culvert on Kalia Road than to risk destroying the beach and inland ocean waters at the proposed construction site. Surely the beauty of the beach, the welfare of the marine life, the recreation of the people and the livelihoods of nearby businesses must hold some value!

Sincerely,

Raymond P. Rillamas

Captain Raymond P. "Hondo" Rillamas
Lehua Catamaran Corporation, Pres.

Linda G. Coleman-Rillamas

Linda G. Coleman-Rillamas R.N., B.S.
Lehua Catamaran Corporation, Vice Pres.

cc: see page 5

RPR/LGCR/lgcr

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

101-12-0198

April 22, 1981

Captain Raymond P. Rillamas,
President
Lehua Catamaran Corporation
1909 Ala Wai Boulevard
Suite 802
Honolulu, Hawaii 96815

Dear Captain Rillamas:

Subject: Your Letter of March 8, 1981 concerning the Environmental Assessment for the Kalia Road Relief Drain Project

We appreciate your comments on the proposed project. In order to adequately address the public concerns about other drainage alternatives, beach processes, water quality, and marine life, we will be preparing an Environmental Impact Statement (EIS) on the proposed relief drain project. The Environmental Assessment that you reviewed will become the basis of an EIS Preparation Notice and will be submitted to the Environmental Quality Commission.

He ke aloha pumehana,

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

cc:

Governor George Ariyoshi

Mayor Eileen R. Anderson

County Department of Public Works

State Department of Transportation Harbors Division

State Department of Health Pollution Technical Review Branch

State Board of Land and Natural Resources

State Department of Planning and Economic Development Costal Zone Management Branch

State Representative Kinau Kamalii

Waikiki Improvement Association

Waikiki Neighborhood Board

Waikiki Residents Association

Cinerama Reef Hotel Hank Koppleman General Manager

Waikiki Shore Apartments Roger Schulte Board of Directors

Ted Bush Reef Hotel Beach Concession

1 -101-

United States Department of Agriculture

Soil Conservation Service

P. O. Box 50004
Honolulu, Hawaii
96850

810669

NOV 13 9 03 AM '81

November 9, 1981

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

RECEIVED
JAN 5 1982
VTN PACIFIC

Gentlemen:

Subject: Environmental Impact Statement for the Kalia Road Relief Drain, Waikiki, Oahu, Hawaii

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

Thank you for the opportunity to review this document.

Sincerely,

JACK P. KANALZ
State Conservationist

cc:
Department of Public Works, City and County of Honolulu

The Soil Conservation Service is an agency of the Department of Agriculture

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, PH.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0066

January 26, 1982

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

Dear Mr. Kanalz:

Subject: Your Letter of November 9, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS.

Me ke aloha pumehana,

for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

RECEIVED
Nov 6 10 15 AM '81

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SUPPORT COMMAND, HAWAII
FORT SHAFTER, HAWAII 96858

AFZV-EH-E

2 NOV 1981

Office of Environmental Quality Control
550 South Beretania Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

The Environmental Impact Statement (EIS) for the Kalia Road Relief Drain, Waikiki, Oahu, Hawaii has been reviewed and we have no additional comments to offer at this time.

Thank you for forwarding their comments on the environmental assessment for the project into the final EIS.

Sincerely,

FOR THE COMMANDER:

RALPH A. HIGHT
Col., EN
Director of Engineering and Housing

Copy Furnished:
Department of Public Works
City and County of Honolulu
Division of Conservation
650 South King Street
Honolulu, Hawaii 96813

-103-

S107561
Encl!
Eisy

RECEIVED
JAN 5 1982
VTN PACIFIC

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0076

January 27, 1982

Colonel Adolph A. Hight
Director of Engineering and Housing
Department of the Army
Headquarters United States Support
Command, Hawaii
Fort Shafter, Hawaii 96858

Dear Colonel Hight:

Subject: Your Letter APZV-EHE-E of November 2, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS.

Me ke aloha pumehana,

for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING (PACAF)
HICKAM AIR FORCE BASE, HAWAII 96853

Nov 6 10 AM '81

810756

ENV ill
Engrg

2 NOV 1981

REPLY TO ATTN OF: DEEV (Mr Yamada, 449-1831)

SUBJECT: Kalia Road Relief Drain Environmental Impact Statement

RECEIVED
JAN 5 1982
VTN PACIFIC

TO: Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, HI 96813

1. This office has reviewed the subject EIS and has no comment to render relative to the proposed project.

2. We greatly appreciate your cooperative efforts in keeping the Air Force apprised of your project and thank you for the opportunity to review the document.

ROSS W. J. LUM
Dep Dir of Civil Engineering

Cy to: ~~Department of Public Works~~
~~City and County of Honolulu~~
~~Division of Engineering~~
650 South King Street
Honolulu, HI 96813

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0072

January 27, 1982

Mr. Ross W. J. Lum
Deputy Director of Civil Engineering
Department of the Air Force
Headquarters 15th Air Base Wing (PACAF)
Hickam Air Force Base, Hawaii 96853

Dear Mr. Lum:

Subject: Your Letter DEEV of November 2, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS.

Me ke aloha pumehana,

for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

#10 7350

RECEIVED
Nov 9 11 26 AM '81

HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860

IN REPLY REFER TO:
002A:RLE:cg
Ser 2206
4 NOV 1981

Env.

RECEIVED
JAN 5 1982
VTN PACIFIC

Environmental Quality Commission
550 Halekauwila Street
Honolulu, Hawaii 96813

Gentlemen:

Environmental Impact Statement
Kalia Road Relief Drain

The Environmental Impact Statement for the proposed Kalia Road Relief Drain has been reviewed and the Navy has no comments to offer. As requested, the subject EIS is returned as enclosure (1).

The opportunity to review the subject EIS is appreciated.

Sincerely,

M. M. DALLAM
CAPTAIN, CEC, U. S. NAVY
FACILITIES ENGINEER
BY DIRECTION OF THE COMMANDER

Enclosure a/s

Copy to:
Department of Public Works
C&C HONO

-105-

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

201-12-0061

January 26, 1982

Captain M. M. Dallam
Facilities Engineer
Headquarters
Naval Base Pearl Harbor
P. O. Box 110
Pearl Harbor, Hawaii 96860

Dear Captain Dallam:

Subject: Your Letter 002A:RLE:cg Ser 2206 of November 9, 1981, to EQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS.

He ke aloha pumehana,

William C. Bennett

for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

Nov 4 1981

(P)1919.1

RECEIVED
JAN 5 1982
VTN PACIFIC

Office of Environmental
Quality Control
550 Halekauwila Street,
Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement for the Kalia Road Relief Drain

Thank you for this opportunity to review and comment on the subject project.

The project will not have any adverse environmental effect on any existing or planned facilities serviced by our department.

Very truly yours,

RIKIO NISHIOKA
State Public Works Engineer

MI:jl

cc: C & C, Department of Public Works

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0073

January 27, 1982

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

Dear Mr. Nishioka:

Subject: Your Letter (P)1919.1 of November 4, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS.

Me ke aloha pumehana,

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

810 7103

JACK K. SUWA

ENV

Engrg

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

RECEIVED
JAN 5 1982
VTN PACIFIC

(October 30, 1981)

To: Office of Environmental Quality Control

Subject: Environmental Impact Statement
Kalia Road Relief Drain
TMK: 3rd: 7 pcr.13,11,12 and 2-6-06 por.1,9
Honolulu, Oahu

The Department of Agriculture has reviewed the subject Environmental Impact Statement and does not have any comment to offer. No further action is required.

Thank you for the opportunity to review.

Jack K. Suwa
Chairman, Board of Agriculture

cc: Department of Public Works
City and County of Honolulu

-107-

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0075

January 27, 1982

Mr. Jack K. Suwa
Chairman
Board of Agriculture
State of Hawaii
1428 South King Street
Honolulu, Hawaii 96814

Dear Mr. Suwa:

Subject: Your Memorandum of October 30, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS.

Me ke aloha pumehana,

William D. Bennett
for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

RECEIVED

Oct 30 3 14 PM '81

State of Hawaii
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 Diamond Head Road
Honolulu, Hawaii 96816

27 OCT 1981

HIENG

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Gentlemen:

Kalia Road Relief Drain

Thank you for providing us the opportunity to review your proposed project, "Kalia Road Relief Drain" Environmental Impact Statement.

We have completed our review and have no comments to offer at this time.

Yours truly,

JERRY M. MATSUDA
Captain, HANG
Contr & Engr Officer

cc: DJ Commission w/EIS
Dept of Public Works,
C&C of Honolulu

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0074

January 27, 1982

Captain Jerry M. Matsuda, HANG
Contr. & Engr. Officer
Department of Defense
Office of the Adjutant General
State of Hawaii
3949 Diamond Head Road
Honolulu, Hawaii 96816

Dear Captain Matsuda:

Subject: Your Letter HIENG of October 27, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS.

Me ke aloha pumehana,

for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

810787

GEORGE R. ARIYOSHI
Governor of Hawaii

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

RECEIVED
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
Nov 13 12 37 PM '81

GEORGE A. L. YUEN
Director of Health

JOHN F. CHALMERS, M.D.
Deputy Director of Health

HENRY H. THOMPSON, M.A.
Deputy Director of Health

EILEEN R. ANDERSON
Deputy Director of Health

ANELIMA MAUNO SHAW, M.A., J.D.
Deputy Director of Health

November 10, 1981

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

MEMORANDUM

To: Office of Environmental Quality Control

From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement (EIS) for Kalia Road Relief Drain, Waikiki, Oahu

Thank you for allowing us to review and comment on the subject EIS. On the basis that the project will comply with all applicable Public Health Regulations, please be informed that we do not have any objections to this project.

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.

-109-
1

for HELVIN R. KOIZUMI

cc: Division of Engineering, Dept. of Public Works ✓

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

EILEEN R. ANDERSON
Mayor

MICHAEL J. CHUN, Ph.D.
Director and Chief Engineer

201-12-0065

January 26, 1982

Mr. Melvin K. Koizumi
Deputy Director of Health
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Koizumi:

Subject: Your Memorandum EPHS-SS of November 10, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS.

Me ke aloha pumehana,

for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

RECEIVED
JAN 5 1982
VTN PACIFIC

GEORGE R. ARIYOSHI
Governor of Hawaii

JAN 11 2 24 PM '82

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS
P. O. BOX 621
HONOLULU, HAWAII 96809

DIVISIONS:
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

RECEIVED
JAN 15 1982
VTN PACIFIC

January 5, 1982

DEPT. OF PUBLIC WORKS
JAN 7 1 56 PM '82
TO

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

Dear Mr. Chun:

Subject: EIS, Kalia Road Relief Drain, Waikiki, Oahu
TMK: 2-6-04:9, por 10, 11, 12 & 2-6-05:por 1, 8

The proposed undertaking is within the Waikiki archaeological district and immediately adjacent to the Halekulani Hotel, State Site No. 9957. Recent construction activities within a few feet of the project's location have disturbed five human burials, a dog burial, a goat burial, and numerous other significant archaeological features. Consequently, it is recommended that an archaeological consultant be hired to scientifically excavate and write a final report on all burials and other significant features disturbed during the proposed construction excavations.

-110-

Should you have any questions, please contact our office at 548-7460.

Sincerely yours,

RALSTON NAGATA, Director
Historic Sites Program

cc: Ld. Utilization, C&C of Hon.

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0053

January 26, 1982

Mr. Ralston Nagata, Director
Historic Sites Program
Division of State Parks
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Nagata:

Subject: Your Letter of January 5, 1982, concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS. As requested, we will hire an archaeological consultant in the event it proves necessary to evaluate burials or historic artifacts uncovered by excavation. The cost for this work will be included under an allowance item in the contract proposal.

Me ke aloha pumehana,

William C. Bonnet

for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

RECEIVED
BY ENVIRONMENTAL
DEC 4 23 PM '81

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

81-249
G. Nudel

Melvin Koizumi
Deputy Director
TELEPHONE NO.
548 6915

RECEIVED
JAN 5 1982
VTN PACIFIC

December 4, 1981

Michael J. Chun, Ph.D.
Director and Chief Engineer
Department of Public Works
City and County of Honolulu

RECEIVED
DEPT. OF PUBLIC WORKS
DEC 11 1 55 PM '81
TO

Dear Dr. Chun:

SUBJECT: Environmental Impact Statement for Kalia Road Relief Drain, Waikiki

We have reviewed the subject statement and offer the following comments:

Page 7. An estimate of the size of the March 5, 1958 and May, 1977 storms (i.e., 10 year, 50 year) should be provided.

11-1

Page 21. Federal funding of the project might also be explored since the project will also benefit Fort DeRussy.

Page 28. The continued necessity for the groin built in 1971 and the experimental groin (#5 on page A-2) appears to decrease with the implementation of either alternate Y or Z. Consideration might be given to the removal of these groins as part of this project.

Page 41. The solution to the sand clogging problem might incorporate the use of a self-flushing outlet. The proposed rubble mound breakwater may help protect the box culvert and may reduce the forcing of water and sand through the joints.

Page 52. The additional surface area created by the rubble mound breakwater for alternate Y or Z would benefit marine life.

Michael J. Chun, Ph.D.
December 4, 1981
Page 2

Page 66. We wish to make clear that acceptance of the statement by the Governor is not an approval of the project. It is only a determination that the statement meets the requirements of Chapter 343, HRS and the Environmental Impact Statement Regulations.

We note that of the three alternatives under consideration alternative Z appears to have the least environmental impacts.

Comments not previously forwarded are enclosed for your information.

Thank you for allowing us to review this statement.

Yours truly,

Melvin Koizumi

George Yuen
Director for Department of Health

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0089

February 1, 1982

Office of Environmental Quality
Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Your Letter of December 4, 1981, concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

Thank you for your comments on the EIS. The County Storm Drain Standards indicate that for purposes of storm drain design, rainfall intensity in the Kalia area is 2.8 inches/hour from a 50-year storm and 2.2 inches/hour from a 10-year storm. Unfortunately, there is no source of hourly rainfall data for Waikiki. Although rainfall at the airport weather station on any particular days is not comparable to Waikiki rainfall, it is the best data available. Peak rainfall at the airport weather station was 1.86 inches/hour on March 5, 1958; 0.48 inches/hour on May 13, 1977; and 1.15 inches/hour on February 3, 1979.

It is unlikely that Federal funds will be made available for replacement of the Kalia Relief Drain. Pursuant to the agreement which allowed construction of the Kalia Relief Drain on an easement across U. S. Army property (and hookup of Fort DeRussy storm drains), the Army has no obligation to share in the costs of a larger box culvert. Drainage of Fort DeRussy would not be significantly improved by replacement of Kalia Relief Drain without improving the drainage facilities on Fort DeRussy.

The State Department of Transportation has jurisdiction over the removal of the experimental groin fronting the Waikiki Shore Apartments. Armor rocks from the Federal rubble groin

on the Fort DeRussy side of the existing Kalia Relief Drain might be used for new revetments (shown in Figure 8) if Kalia Relief Drain is replaced with a larger outfall. We concur that armor rock revetments, in the long term, will provide better marine habitat than the existing bottom adjacent to Kalia Relief Drain.

As discussed on page 41 of the EIS, we are hopeful that a new outfall with watertight joints will not have a sand clogging problem. Unfortunately, it is not possible to design a self-flushing drainage outfall at the site of Kalia Relief Drain.

We understand that acceptance of this EIS does not constitute approval of the project. Alternate 2 continues to be our preferred option.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific

COPY

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

November 18, 1981

NOV 25 11 42 AM '81

Ref. No. 3904

RECEIVED
JAN 15 1982
VTN PACIFIC

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Attention: Mr. Melvin Koizumi

Dear Mr. Koizumi:

SUBJECT: Kalia Road Relief Drain
Draft Environmental Impact Statement

Thank you for the opportunity to review the subject Draft Environmental Impact Statement (EIS). Upon our review of this more detailed representation of the proposed project, we have found that the concerns expressed in our letter of March 12, 1981, have been satisfactorily addressed and incorporated into the EIS.

Although none of the alternatives presented will completely alleviate the flooding problem, apparent differences exist in potential coastal zone management (CZM) impacts. Alternative X would compound the existing visual and environmental problems of the existing box culvert and outfall by adding another one. While stagnation of shore waters may not be a serious problem with parallel outfalls since they will be almost a hundred yards apart, two outfalls would more likely add to the problems of beach retreat.

Alternative Y would require a new box culvert along the beach and parallel to the shoreline where it would connect to the existing outfall. Although the EIS states that the beach portion would be completely underground, further beach retreat potentially resulting from the enlargement of the existing outfall could make it visible and a barrier to public access to the water.

Alternative Z essentially maintains the existing shoreline impacts, although enlargement of the outfall may exacerbate shoreline erosion. Accordingly, since Z appears to pose the least additional impacts, we concur with the Department of Public Works' preference for this alternative.

Should any questions arise concerning this matter, please feel free to contact us at any time.

Sincerely,

Hideto Kono

cc: ✓Dept. of Public Works
City and County of Honolulu

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0055

January 26, 1982

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

Dear Mr. Kono:

Subject: Your Letter Ref. No. 3904 of November 18, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS. Alternative Z continues to be our preferred option.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

810644

Nov 12 11 55 AM '81

STATE OF HAWAII
DEPARTMENT OF SOCIAL SERVICES AND HOUSING

November 3, 1981

RECEIVED
JAN 5 1982
VTN PACIFIC

Office of Environmental
Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Kalia Road Relief Drain
Environmental Impact Statement

The Hawaii Housing Authority has reviewed the EIS for the construction of drainage improvements at Kalia Road in Waikiki, Oahu and has no specific comments to offer relative to the proposed action.

Thank you for the opportunity to comment on this matter.

Sincerely,

FRANKLIN Y. K. SUNN
Director

cc: Department of Public Works

-1114-

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER

201-12-0064

January 26, 1982

Mr. Franklin Y. K. Sunn, Director
Department of Social Services and
Housing
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Sunn:

Subject: Your Letter of November 3, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION

December 3, 1981

STP 8.7887

RECEIVED
JAN 5 1982
VTN PACIFIC

MEMORANDUM

TO: Office of Environmental Quality Control

FROM: Director of Transportation

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT
KALIA ROAD RELIEF DRAIN

Thank you for the opportunity to participate in the subject EIS.

Of the three alternative concepts presented, we prefer Alternative 2 since there will be minimal inconvenience and disruption to pedestrian traffic along the beach. Additionally, we suggest that public access to the beach be maintained during the construction period.

We also feel that from the list of approvals found on page 66, it will not be required to amend the Waikiki Beach Regulations since storm drainage improvements are necessary as a matter of public safety [Sec. 19-91-6(d)].

Ryokichi Higashionna
Director of Transportation

-1113-

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

January 26, 1982

201-12-0057

Dr. Ryokichi Higashionna
Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Dr. Higashionna:

Subject: Your Memorandum STP 8.7887 of December 3, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

Thank you for your comments on the EIS. As described on pages 18 to 20 of the EIS, we plan to maintain public beach access during construction of drainage improvements.

The EIS discussion of necessary approvals will be corrected as recommended in your letter.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

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University of Hawai'i at Manoa
Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

TO Engrg

Office of the Director

December 8, 1981

RE:0342

Mr. Melvin Koizumi
Office of Environmental Quality Control
550 Halekauwila Street
Room 301
Honolulu, Hawaii 96813

RECEIVED
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VTN PACIFIC

Dear Mr. Koizumi:

Kalia Road Relief Drain
Waikiki, Honolulu, Oahu

1191

The Environmental Center has reviewed the above cited EIS with the assistance of Brent Gallagher, Oceanography; Frans Gerritsen, Ocean Engineering; Jacquelin Miller and Diana Shepherd, Environmental Center.

The EIS for the Kalia Road Relief Drain Project covers most of the major areas of potential impacts and alternatives. There are, however, several specific areas of omission which are of sufficient importance to cause us to question the adequacy of the statement upon which planners and decision-makers can evaluate the environmental significance of the actions proposed. We would like to call to your attention some of these areas of concern.

Building a Storm Drain to the Ala Wai Canal (pp. 57-58)

Though the Ala Wai Canal Storm Drain alternative and pump-system are briefly mentioned in this document (and listed as non-practical solutions), no information is provided regarding pumping costs and maintenance. Without this information, it is impossible to evaluate the potential costs/benefits of such a system.

We recognize that at times of extreme high tides the water level of the Ala Wai Canal may exceed the street level to be drained. However, the pumping costs should be evaluated in terms of the difference in cost between maintenance costs for clearing the existing or proposed outfall and energy costs for the pump. Such costs certainly may well be balanced if a significant improvement in water quality at Waikiki Beach can be achieved. Perhaps it should be noted that many areas in other parts of the world rely on pumping to discharge storm waters and have done so for literally hundreds of years, in Holland. Pumping should not be dismissed as an alternative without much more careful documentation of the overall costs and benefits.

Water Quality (pp. 40-48, 52-54)

Storm water discharge to Waikiki Beach presents a significant negative impact on the water quality of Waikiki and hence to the State's leading industry, tourism. While we agree that a large drain does not in itself cause a change in total volume of water reaching the shore, it should be recognized that the speed of delivery of the total volume will be considerably greater, hence the visible affect (and potential biolgical/health related impacts) will be greater.

The Kalia and Kapahulu storm drains appear to be the only remaining drains which empty directly into Waikiki Beach. Considering the great economic importance of good water quality at the beach, it would seem undesirable to increase the rate at which pollutants from the Kalia are discharged to the ocean at the present discharge point, and desirable to investigate thoroughly alternatives such as discharge via the Ala Wai Canal that would reduce the discharge rate and substitute a less objectionable point of discharge, even if these alternatives are monetarily more costly.

Flow-rate improvements (pp. 52-53)

The EIS states, "Due to existing physical constraints, it is not feasible to build a drainage system which would completely eliminate flooding of Kalia Road during extreme conditions." However, no figures are given regarding run-off rates for the various streets and drains, making it difficult to evaluate the various alternatives - drains, raised curbs, sidewalks and driveways, etc. There also do not seem to be any assurances that this project will solve the existing problem. It seems obvious that some improvement will be affected, but to what extent can the damage-causing flooding really be eliminated? If damage suits from, say, 10-year storms turn out to be equivalent after completion of the project, then the project will have been an economically and environmentally poor choice.

Proposed shore-line structures (pp. 19-20, 41, 52, 57)

Concerning this and the associated subject of shoreline impacts (beach erosion, water quality, etc.), Alternative Z appears the most preferable. It introduces no new unknown factors into the existing shoreline dynamics. The other alernatives each have the potential to produce unknown and possiblynegative impacts.

Currently, the EIS states, "The existing Kalia Relief Drain is frequently clogged and sometimes completely blocked with sand. Storm water cannot drain when the box culvert is blocked with sand. For that reason, a county maintenance crew visits Kalia Relief Drain twice a week and uses a firehose to flatten the sand berm which builds up inside the box culvert." What are the costs of this maintenance operation? To what extent will this problem of sand clogging exist for the proposed Alternatives X, Y, and Z and necessary maintenance costs?

Beach concessions - compensation (pp. 49-50)

The unresolved issue of possible compensation to beach businesses is problematic. By undertaking this project, the city would be making a major investment for the benefit of a localized group of property owners and businesses. Therefore, it seems inappropriate

for the city to have to compensate for lost revenues. The other possible though controversial, mitigation measure is for the Board of Land and Natural Resources to issue permits to allow temporary relocation of beach related business to Fort DeRussy Beach during construction of drainage improvements, seems more acceptable.

In conclusion, we wish to acknowledge our shared concern with the points raised by the University of Hawaii Water Resources Research Center and the Department of Land and Natural Resources in their reviews of the environmental assessment for this project and the joint recognition of the need to eliminate flood hazards, yet maintain good water quality at Waikiki Beach for tourist/recreational purposes. The present document is difficult in its evaluation of the pumping-maintenance alternatives and the economic and alternate gravity-flow routes. Little information regarding the Ala Wai Canal -pump system option, or maintenance costs for the gravity-flow systems are included in this EIS. We strongly urge a cost analysis of these alternative, with the major emphasis being on maintaining good water quality in this area.

Sincerely,

Doak C. Cox
Director

cc: Department of Public Works
Brent Gallagher
Frans Gerritsen
Jacquelin Miller
Diana Shepherd

-117-

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0088

January 29, 1982

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

Dear Dr. Cox:

Subject: Your Letter RE:0342 of December 8, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

Thank you for your comments on the EIS. Although expensive, it is physically possible to pump storm water from Kalia Road to the Ala Wai Canal. A pump station and dry well would require use of about 10,000 square feet of Fort DeRussy next to the Waikiki Shore Apartments. Assuming that the land is provided at no cost to the City (which is unlikely), construction of a pump station and a half-mile force main to the Ala Wai would cost roughly $3.5 to $4 million; and operation and maintenance costs of the pump station would cost about $100,000/year, i.e., have a capitalized cost of about $1 million. By comparison, construction, operation, and maintenance of Drainage Outfall Alternative 2 would cost one-fourth as much.

Despite the cost differential, a Fort DeRussy pump station would be about as effective as Alternative 2 in reducing flooding of Kalia Road during normal tides. During peak storms, storm runoff would substantially exceed the capacity of the existing box culvert on Kalia Road which now carries runoff from Beach Walk and Lewers Street to Kalia Relief Drain. Hence, much of this runoff would continue to reach the corner of Saratoga and Kalia Roads as surface flow on Kalia Road. Drainage of Fort DeRussy would not be significantly

improved by either a pump station or Alternative Z without improving the drainage facilities on Fort DeRussy.

In addition to existing major storm water discharges at Kapahulu Avenue and the mouth of the Ala Wai Canal, there are smaller discharges at Kalia Relief Drain and Fort DeRussy. Expansion of the capacity of Kalia Relief Drain would not significantly affect the rate at which runoff from the Kalia drainage basin reached the ocean except during major storms. During intense Kona storms, turbid water from the Ala Wai Canal mixes with nearshore coastal waters between Fort DeRussy and the Royal Hawaiian Hotel and masks the visible effect of water from Kalia Relef Drain. Hence, pumping storm water from Kalia Road to the Ala Wai Canal would have much more effect on Waikiki water quality during minor storms than during intense storms.

As requested, the Revised EIS will contain an appendix summarizing the runoff rates for various portions of the Kalia drainage basin. About one-third (61.3 cfs) of the estimated 183 cfs of storm flow generated by the Kalia drainage basin originates from areas west of Saratoga Road and Kalia Relief Drain.

Because of undersized drainage facilities on Kalia Road, drainage Alternatives X and Y are superior to Alternative Z. For example, assuming a tide of 1.07 feet above mean sea level during a fifty year storm, Alternative X or Y could accommodate flows of 105 cfs down the Halekulani right-of-way. With Alternative Z, because of the undersized box culvert on Kalia Road, most of this would otherwise end up as surface flow on Kalia Road.

Tidal changes can substantially affect storm drain capacity. While drainage Alternative Z would be adequate to accommodate 183 cfs of storm flow during a tide of 1.07 feet above mean sea level, an unusually high tide could reduce the capacity of Alternative Z by over 50%. (An unusually high tide would have a similar effect on the 80 cfs capacity of the existing Kalia Relief Drain or on the 105 cfs capacity of Alternative X.)

Our consultants estimate the cost of sand berm flattening in the existing Kalia Relief Drain to be roughly $10,000 per year. We believe the problem will be negligible in a new storm drain built with watertight joints (as discussed on page 41 of the EIS).

The City would prefer not to compensate beach businesses for lost revenues provided that there is not a legal obligation to provide such compensation. It is not in the City's power to allow temporary relocation of beach businesses to Fort DeRussy Beach.

Me ke aloha pumehana,

MICHAEL J. GIBON
Director and Chief Engineer

cc: VTN Pacific
OEQC

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University of Hawaii at Manoa

TO Envir Engrg

Water Resources Research Center
Holmes Hall 283 • 2540 Dole Street
Honolulu, Hawaii 96822

3 December 1981

RECEIVED
JAN 5 1982
VTN PACIFIC

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: EIS for Kalia Road Relief Drain,
Waikiki, Oahu, Hawaii, October 1981

We have reviewed the subject EIS and offer the following comments:

1. Disposal of storm drain waters directly into Waikiki Beach continues to be an ill-advised course of action. Therefore, our comment (March 19, 1981) to the earlier Environmental Assessment bears repeating:

"It would be highly desirable to divert these stormwaters to the Ala Wai Canal. The Kalia storm drain is about the only remaining drain that empties directly into Waikiki Beach. Considering the vast economic importance of good water quality at the beach, it is incongruous to jeopardize this asset by increasing the pollution capacity.

"This is an opportunity to correct an unfortunate circumstance, rather than to perpetuate it. The impact of continuing the flow of Kalia drain directly into Waikiki Beach goes beyond the relative construction and operating costs of the several alternatives presented. The direct ocean outfall is a threat to Waikiki Beach, which is the keystone of the tourist industry in Hawaii, the State's No. 1 industry."

Further in this regard, the EIS contains a letter (pp. 76, 77, & 78) from Mr. Susumu Ono of the Department of Land and Natural Resources, expressing a similar viewpoint and concern (on p. 2, 3, & 4 of his letter).

The EIS has not addressed this larger potential impact on tourism. Is there something inherently wrong with using pumps to help protect the State's No. 1 industry? This has not been answered in the EIS.

2. A model study of the groin alternatives would be highly desirable.

This EIS has been reviewed by URRC personnel. Thank you for the opportunity to comment.

Sincerely,

Edwin T. Murabayashi
EIS Coordinator

ETM:ja

cc: Y.S. Fok
H. Gee
Environmental Center, UH
DPW, C & C of Honolulu

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0090

February 1, 1982

Mr. Edwin T. Murabayashi
EIS Coordinator
Water Resources Research Center
Holmes Hall 283
2450 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Murabayashi:

Subject: Your Letter of December 3, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

Thank you for your comments on the EIS. Although expensive, it is physically possible to pump storm water from Kalia Road to the Ala Wai Canal. A pump station and dry well would require use of about 10,000 square feet of Fort DeRussy next to the Waikiki Shore Apartments. Assuming that the land is provided at no cost to the City (which is unlikely), construction of a pump station and a half-mile force main to the Ala Wai would cost roughly $3.5 to $4 million; and operation and maintenance costs of the pump station over time would have a discounted present value of about another $1 million. By comparison, construction, operation, and maintenance of Drainage Outfall Alternative 2 would cost one-fourth as much.

Despite the cost differential, a Fort DeRussy pump station would be about as effective as Alternative 2 in reducing flooding of Kalia Road during normal tides. During peak storms, storm runoff would substantially exceed the capacity of the existing box culvert on Kalia Road which now carries runoff from Beach Walk and Lewers Street to Kalia Relief Drain. Hence, much of this runoft would continue to reach the corner of Saratoga and Kalia Roads as surface flow on Kalia Road.

A model study of alternative drainage outfalls would be desirable. However, costs of an adequate study are estimated in excess of $50,000. Long-term observations of the effects of existing groins between Fort DeRussy and the Royal Hawaiian Hotel are probably as reliable as attempting to model unusual wave and wind conditions which produce littoral drift in the project area.

He ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

BOARD OF WATER SUPPLY

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Mr. George A. L. Yuen
Director
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Attention: Mr. Melvin K. Koizumi

-121-

Dear Mr. Yuen:

Subject: Environmental Impact Statement for Kalia Road Relief Drain, Waikiki, Oahu

We have no additional comments to the environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

for KAZU HAYASHIDA
Manager and Chief Engineer

cc: Mr. Michael J. Chun

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, PH.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0054

January 26, 1982

MEMORANDUM

TO: MR. KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: YOUR LETTER OF NOVEMBER 3, 1981, TO THE STATE DEPARTMENT OF HEALTH CONCERNING THE ENVIRONMENTAL IMPACT STATEMENT FOR THE KALIA ROAD RELIEF DRAIN PROJECT

We appreciate your review and comments on the EIS.

for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

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

EILEEN R. ANDERSON
MAYOR

WILLARD T. CHOW
CHIEF PLANNING OFFICER

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OFFICE OF ENVIRONMENTAL QUALITY CONTROL
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DGP10/81-3695

November 6, 1981

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JAN 5 1982
VTN PACIFIC

Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

-122-

Kalia Road Relief Drain

We have no further comments on the subject environmental impact statement. Our earlier comments have been acknowledged by the applicant and are discussed in the EIS.

Sincerely,

Ralph Kawamoto

RALPH KAWAMOTO
Planner

APPROVED:

W. T. Chow

WILLARD T. CHOW

cc: DPW

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, P.E.
DIRECTOR AND CHIEF ENGINEER

201-12-0062

January 26, 1982

MEMORANDUM

TO: DR. WILLARD T. CHOW, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: YOUR LETTER DGP/81-3695 OF NOVEMBER 6, 1981, TO OEQC CONCERNING THE ENVIRONMENTAL IMPACT STATEMENT FOR THE KALIA ROAD RELIEF DRAIN PROJECT

We appreciate your review and comments on the EIS.

Willard T. Chow

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

October 28, 1981

Mr. Melvin Koizumi, Deputy Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Koizumi:

Subject: Environmental Impact Statement (EIS) for
Kalia Road Relief Drain Project
Waikiki, Oahu

We have reviewed the subject EIS and have no comments to offer at this time.

We appreciate the opportunity to comment on this matter.

Sincerely,

CHARLES K. TORIGOE
for JOSEPH K. CONANT

cc: Dept. of Public Works,
Division of Engineering

-123-

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

EILEEN H. ANDERSON
MAYOR

MICHAEL J. CHUN, PH.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0063

January 26, 1982

MEMORANDUM

TO: MR. JOSEPH K. CONANT, DIRECTOR
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: YOUR LETTER OF OCTOBER 28, 1981, TO OEQC
CONCERNING THE ENVIRONMENTAL IMPACT STATEMENT
FOR THE KALIA ROAD RELIEF DRAIN PROJECT

We appreciate your review and comments on the EIS.

Michael J. Chun

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET

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MICHAEL H. McELROY
DIRECTOR

81/EC-2(HK)

November 10, 1981

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Office of Environmental
Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Comments to Draft Environmental Impact Statement (EIS)
Kalia Road Relief Drain
Waikiki, Oahu

1 We have reviewed the Draft EIS for the above project and feel that the document adequately addresses the potential impacts of the three alternatives to the proposed project. We, too, prefer the selection of Alternative Z, as this configuration seems most compatible with meeting the policies and objectives of the State's Coastal Zone Management law and the City's Shoreline Protection Ordinance.

If there are any further questions, please contact Marge Kimmerer of our staff at 523-4077.

Very truly yours,

MICHAEL H. McELROY
Director of Land Utilization

MHM:mk

cc: DPW, Division of Engineering

-124-

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, PH.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0067

January 27, 1982

MEMORANDUM

TO: MR. MICHAEL H. McELROY, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: YOUR LETTER 81/EC-2(HK) OF NOVEMBER 10, 1981, TO OEQC CONCERNING THE ENVIRONMENTAL IMPACT STATEMENT FOR THE KALIA ROAD RELIEF DRAIN PROJECT

We appreciate your review and comments on the EIS. Alternative Z continues to be our preferred option.

for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

DEPARTMENT OF PARKS AND RECREATION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

ROBERT K. MASUDA
DIRECTOR

SAM L. CAMP
DEPUTY DIRECTOR

OSCAR R. ASAHINA
EXECUTIVE ASSISTANT

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JAN 5 1982
VTN PACIFIC

December 1, 1981

Mr. Donald Bremner, Chairman
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Bremner:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT FOR
THE KALIA ROAD RELIEF DRAIN PROJECT

-1251 We have reviewed the EIS for the Kalia Road drainage improvements and offer the following comments.

1. We have no objections to the implementation of Alternate Z.

2. Should Alternates X or Y be determined the most desirable alternatives, we would like to review the detailed construction drawings and inspect and approve all restoration work to the Halekulani right-of-way.

3. For the preservation of beach processes, aesthetics and beach use purposes, we recommend against an additional outfall.

Sincerely yours,

ROBERT K. MASUDA, Director

RKM:vc

cc: DPW

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DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0071

January 27, 1982

MEMORANDUM

TO: MR. ROBERT K. MASUDA, DIRECTOR
DEPARTMENT OF PARKS AND RECREATION

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: YOUR LETTER OF DECEMBER 1, 1981, TO OEQC
CONCERNING THE ENVIRONMENTAL IMPACT STATEMENT
FOR THE KALIA ROAD RELIEF DRAIN PROJECT

Thank you for your comments on the EIS. Alternative Z continues to be our preferred option. Detailed construction drawings will be made available when we apply for a special management area permit.

for MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

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October 29, 1981

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Kalia Road Relief Drain

Our review of the subject plan has generated no new concerns regarding it. We therefore have no comments on it at this time.

Sincerely,

FRANCIS KEALA
Chief of Police

By
EARL THOMPSON
Assistant Chief
Administrative Bureau

cc: Department of Public Works

-126-

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0070

January 27, 1982

MEMORANDUM

TO: MR. FRANCIS KEALA, CHIEF
HONOLULU POLICE DEPARTMENT

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: YOUR LETTER HK-ES OF OCTOBER 29, 1981, TO OEQC CONCERNING THE ENVIRONMENTAL IMPACT STATEMENT FOR THE KALIA ROAD RELIEF DRAIN PROJECT

We appreciate your review and comments on the EIS.

Willi S. Bennet

For MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

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

EILEEN R. ANDERSON
MAYOR

ROY A. PARKER
DIRECTOR

TE10/81-3564

November 10, 1981

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement for
Kalia Road Relief Drain

We recently reviewed plans for the construction of a proposed development on the Halekulani Hotel site. We recommend that efforts be made to coordinate the sidewalk reconstruction for the drain project on Kalia Road with the Halekulani Hotel development.

Very truly yours,

ROY A. PARKER
Director

cc: Dept. of Public Works

-127-

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JAN 5 1982
VTN PACIFC

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, PH.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0059

January 26, 1982

MEMORANDUM

TO: MR. ROY A. PARKER, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: YOUR LETTER TE10/81-3564 OF NOVEMBER 10, 1981, TO OEQC CONCERNING THE ENVIRONMENTAL IMPACT STATEMENT FOR THE KALIA ROAD RELIEF DRAIN PROJECT

Thank you for your comments on the EIS. Your suggestion for coordination is ideally desirable, but we anticipate that it will take so long to get the permits and approvals necessary for a new storm drain that the Halekulani Hotel improvements will already have been completed.

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

Waikiki Residents Association

1720 Ala Moana Honolulu, HI 96815 537-5384 Engrg

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December 9, 1981

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii. 96813

Subject: Kalia Road Relief Drain

Gentlemen:

The Waikiki Residents Association has reviewed the Environmental Impact Statement relating to the above project. We note that since our March, 1981 letter to the Department of Public Works that a third alternate to the proposal has been added (alternate Z). This alternate seems a better choice than either X or Y. However, all proposals have certain limitations.

Our Association, at this point, is non-committal as to which alternative is best. We wish to leave the final determination to the professional engineering staff of the City and County of Honolulu.

The studies being made seem most comprehensive. We appreciate knowing that the drainage proposals for the Kalia Road area are moving forward.

Sincerely,

Roger J. Schulte, Drainage Comm.
Waikiki Residents Assoc.

cc: Department of Public Works
Georgia Miller, President, Waikiki Residents Association

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

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

201-12-0060

January 26, 1982

Mr. Roger J. Schulte
Drainage Committee
Waikiki Residents Association
1720 Ala Moana Boulevard
Honolulu, Hawaii 96815

Dear Mr. Schulte:

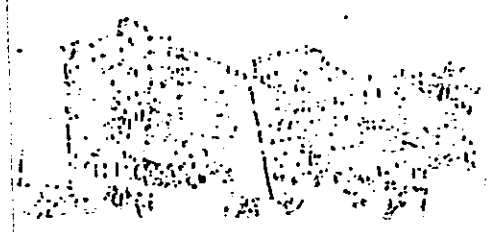
Subject: Your Letter of December 9, 1981, concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC



November 12, 1981

RECEIVED
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VTN PACIFIC

Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Reference: Kalia Road Relief Drain

Gentlemen,

We have taken the time to read very thoroughly the Environmental Impact Statement prepared by VTN Pacific regarding the proposed Kalia Road Relief Drain Project.

Cinerama Reef Hotels would definitely favor Alternative Z, involving the replacement of the entire existing Kalia Relief Drain box culvert makai of Kalia Road with a larger box culvert. This would be the least disruptive to all concerned in the immediate area and would be the most logical solution to the flooding problem.

Alternative X would create new beachfront problems for guests and the beach services of our hotel group and would also be economically disruptive to the hotel during construction. The Waikiki Beach area does not need another groin spoiling the vista and impeding canoes and catamarrans.

Alternative Y is unacceptable due to the need for construction of a new box culvert directly in front of the Cinerama Reef Hotel. The loss of the hotel's beachfront access for our thousands of hotel guests and other tourists using the beach would be an impossible burden to bear. There is also concern for the eventual exposure of the box culvert by tidal changes of the beach sand and the potential of heavy storm damage to the area.

We look forward to the eventual resolution of the flooding and drainage problems in the Kalia Road area.

Aloha,

CINERAMA HAWAII HOTELS

Hank Koppelman
Vice President
and General Manager

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

EILEEN N. ANDERSON
MAYOR

MICHAEL J. CHUN (M.S.)
DIRECTOR AND CHIEF ENGINEER

201-12-0056

January 26, 1982

Mr. Hank Koppelman
Vice President and General Manager
Cinerama Hawaii Hotels
227 Lewers Road
Honolulu, Hawaii 96813

Dear Mr. Koppelman:

Subject: Your Letter of November 12, 1981, to OEQC concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

We appreciate your review and comments on the EIS. Alternative Z continues to be our preferred option.

He ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

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RECEIVED
DEC 6 2 45 PM '81

HAWAIIAN ELECTRIC COMPANY, INC.
P.O. Box 2750 Honolulu, Hawaii 96840

TO _____

December 4, 1981

ENV 2-1
NV/G

RECEIVED
JAN 5 1982
VTN PACIFIC

Dr. Michael J. Chun
Director and Chief Engineer
Department of Public Works,
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Dr. Chun:

-130-

Subject: Comments on the Kalia Road Relief Drain Environmental Impact Statement

Review of the Kalia Road Relief Drain EIS indicates there may be conflicts between the City's proposed relief drain and HECO's ductlines on Kalia Road as shown on the enclosed prints 2033-23, 15317 Revision 2, and 16633 Revision 1. These possible conflicts should be recognized in the EIS.

Sincerely,

Richard L. O'Connell
Manager, Environmental Department

JFB:cal

Enclosures

cc: Office of Environmental Quality Control
(w/o enclosures)

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

EILEEN M. ANDERSON
MAYOR

MICHAEL J. CHUN, P.E.
DIRECTOR AND CHIEF ENGINEER

201-12-0058

January 26, 1982

Mr. Richard L. O'Connell, P.E.
Manager, Environmental Department
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, Hawaii 96840

Dear Mr. O'Connell:

Subject: Your Letter ENV 2-1, NV/G of December 4, 1981, concerning the Environmental Impact Statement for the Kalia Road Relief Drain Project

Thank you for your comments on the EIS. Conflicts between HECO's ductlines and the proposed drainage improvements will be resolved during detailed project design.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: VTN Pacific
OEQC

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APPENDIX A

HISTORY OF SHORELINE ALTERATIONS IN THE PROJECT VICINITY

LEGEND

(1) Fort DeRussy seawall built in 1916.
(2) Pier and rubble groin built in 1918 and recently removed.
(3) Rubble mound groin built in 1971.
(4) Existing Kalia Relief Drain built in 1959 and extended in 1969.
(5, 6, 8, 10, 11, 12, 13, 15)
Experimental groins built in 1929 and 1930. Groin No. 5 is in good condition but others are mostly deteriorated.
(7) Halekulani Hotel seawall built about 1904.
(9) Deteriorated foundation of a 1928 experimental plant to pump sand ashore.
(14) Sheraton Hotel ewa seawall built groin built prior to 1928.

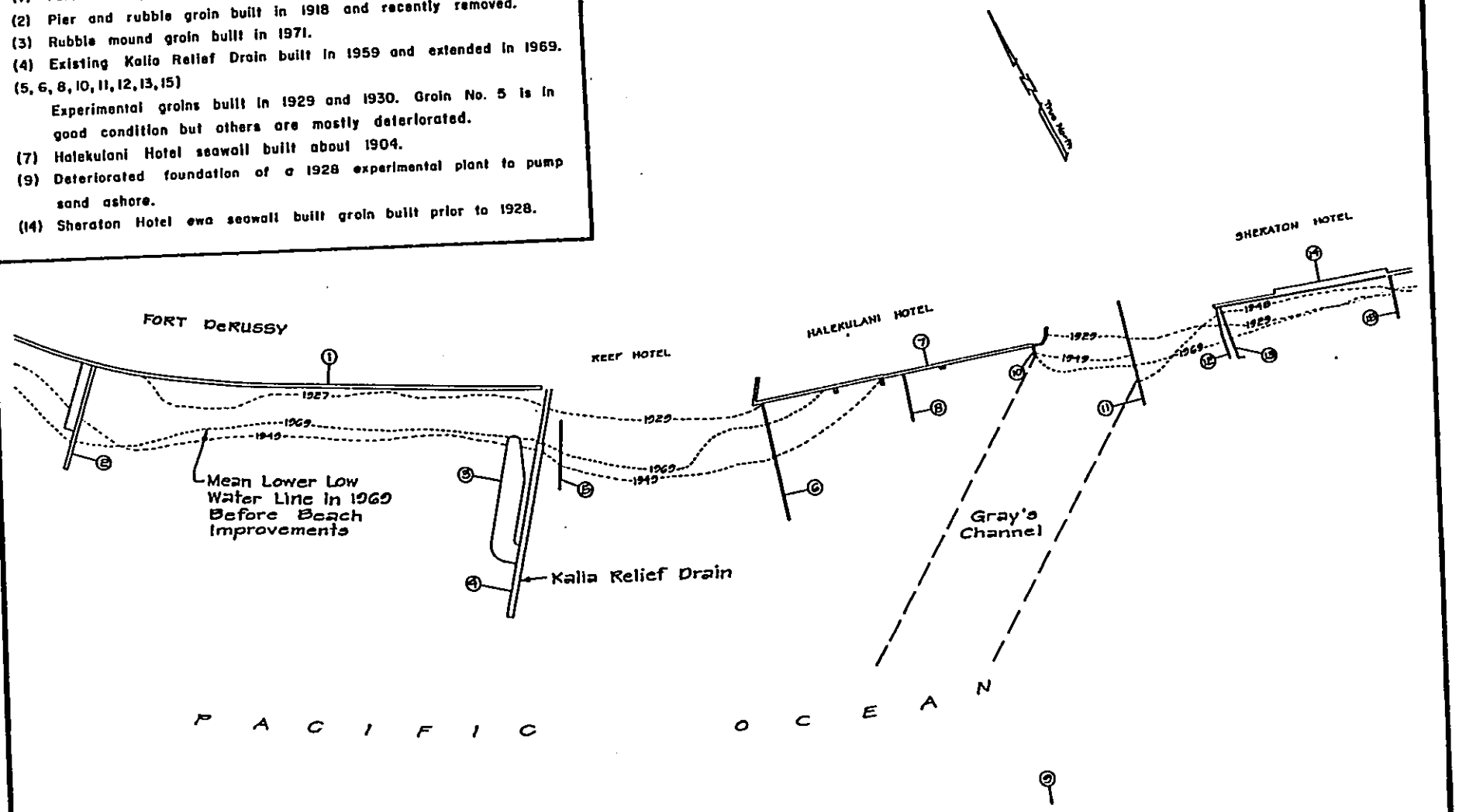


FIGURE A

MARINE STRUCTURES IN PROJECT VICINITY

PREPARED BY JERALD CRANE

Scale: 1" = 200' Source: Ref. 5

FIGURE A NOTES

(1) A concrete seawall (partially shown in Figure A) was built fronting Fort DeRussy in 1916 as a seashore walk. Dimensions: 1,775' long x 6' wide x 6' high. The seawall extended 114' makai of the original shoreline at the western end of Fort DeRussy and added 1.7 acres to army property. Aerial and offshore photos show that through 1969, the western half of the seawall was fronted by water while a beach was gradually captured between groins on the eastern half of the seawall during the 1930s and 1940s. During the 1950s, Judge Samuel P. King recalls that the Army nourished the beach along the eastern end of the seawall. Between 1969 and 1970, most shoreline structures fronting the Fort DeRussy seawall were removed and a crushed coral beach laid down. In May 1975, a 12" layer of natural sand was placed on top of the crushed coral. The top of the original seawall was left exposed as a walkway mauka of the beach. Since 1970, the Fort DeRussy beach has shifted slightly at its eastern and western ends but does not appear to have lost much sand. (Ref. 2, Ref. 3, Ref. 5, Ref. 6, Ref. 11)

The Army Corps of Engineers has recently applied for a Conservation District Use Permit to remove coral fragments that have become exposed on the beach and in shallow water fronting Fort DeRussy. A small quantity of natural sand will be placed on the beach to replace the coral. Only beach maintenance is involved, and the Corps does not see any need to further enlarge Fort DeRussy Beach or replace sand lost due to erosion. (Ref. 29)

About 1909, during construction of Battery Randolph at Fort DeRussy, a channel was dredged parallel to the shoreline and then out Gray's channel, a natural channel which fronts the Halekulani property. Big guns were then floated in on barges. Immediately offshore of the middle of Fort DeRussy Beach, a rectangular area of reef was dredged in 1917 for material to fill marshes and ponds on Fort DeRussy property. Littoral sand movement has deposited sizable amounts of sand in the channel and dredged area fronting Fort DeRussy. Mr. Richard K. Kimball recalls that large quantities of sand placed near the Kapahulu

storm drain in the early 1950s promptly eroded, drifted westward past the Halekulani Hotel, and then ended up in the deep rectangular hole offshore of Fort DeRussy. (Ref. 2, Ref. 3, Ref. 5, Ref. 21)

(2) This pier and rubble groin were built in 1918 off the Fort DeRussy seawall for recreation and sand retention. The pier was removed in 1962 and the groin in 1970. (Ref. 5)

(3) This rubble mound groin was built in 1971 to keep sand from Fort DeRussy beach improvements from washing over Kalia Relief Drain onto the beach fronting the Cinerama Reef Hotel. Field observations during large summer south swells and aerial photos indicate that this groin has blocked most nearshore littoral drift in both directions. Dimensions: 160' long x 15' to 30' wide x 7' high. The groin appears to be in good condition. (Ref. 5)

(4) Kalia Relief Drain, a concrete box culvert, was built in 1959 to replace a smaller structure (built in 1917) which had proved inadequate to drain the Kalia area. The box culvert was extended in 1969 to avoid clogging from Fort DeRussy beach improvements. Dimensions: 350' makai of the Fort DeRussy seawall x 5' to 7.5' wide x 3' high. There is minor deterioration of the structure. (Ref. 5, Ref. 6, Ref. 18)

(5) (6) (8) (10) (11) (12) (13) (15)
These experimental hollow tongue and groove concrete block groins were constructed by the Territory of Hawaii Board of Harbor Commissioners in 1929 and 1930. Except for groin No. 5 in front of the Waikiki Shore Apartments, these groins are now mostly deteriorated and some are completely submerged. Groin No. 5 appears to have been renovated and is in good condition. Its dimensions are: 110' long x 1' wide x 5.4' to 2.8' high. (Ref. 5)

At the time these groins were constructed, seawalls from Fort DeRussy through the Sheraton Hotel site were fronted by water or extremely narrow beaches. Small pocket beaches existed inland along stretches of the shoreline where no seawalls had been constructed, i.e., between the Fort DeRussy and Halekulani seawalls (No. 1 and No. 7)and between the Halekulani and Sheraton seawalls (No. 7 and No. 14). Analysis of historical changes in the shoreline by Jerald Crane shows that of the groins shown on Figure A, only groin No. 5 permanently captured a moderate sized beach. In particular, beach accretion in front of the eastern end of Fort DeRussy and the future site of the Cinerama Reef Hotel during the 1930s and 1940s probably resulted from construction of groin No. 5. (Ref. 5, Ref. 6, Ref. 15)

(7) J. Atherton Gilman recalls his uncle building this seawall in front of the Halekulani property about 1904 and subsequently adding a 1' wide lip to reflect waves back to the ocean. Dimensions: 430' long x 2' wide x 6.2' high. The seawall is slightly deteriorated. Gilman remembers being able to walk on a narrow beach in front of seawalls between the site of the Royal Hawaiian Hotel and Fort DeRussy prior to 1925. The seawalls apparently prevented formation of a permanent beach because Gilman also remembers diving into deep water from the Halekulani seawall as a child. (Ref. 5, Ref. 22)

Crane's studies (and aerial photos) indicate that most of the Halekulani seawall was intermittently fronted by water prior to 1969. However, aerial photos show that following extension of Kalia Relief Drain and placement of a crushed coral beach at Fort DeRussy in 1969-1970, the sand beach in front of the Cinerama Reef Hotel temporarily expanded to front much of the Halekulani seawall. But by 1978, this beach receded and over half of the Halekulani seawall was again exposed. Ted Bush has observed that the beach in front of the Halekulani seawall temporarily shifts towards the Cinerama Reef Hotel during the summer and moves back during the rest of the year. Refraction of the summer south swell in Gray's Channel probably is the primary cause of summer-time sand movement. (Ref. 5, Ref. 28)

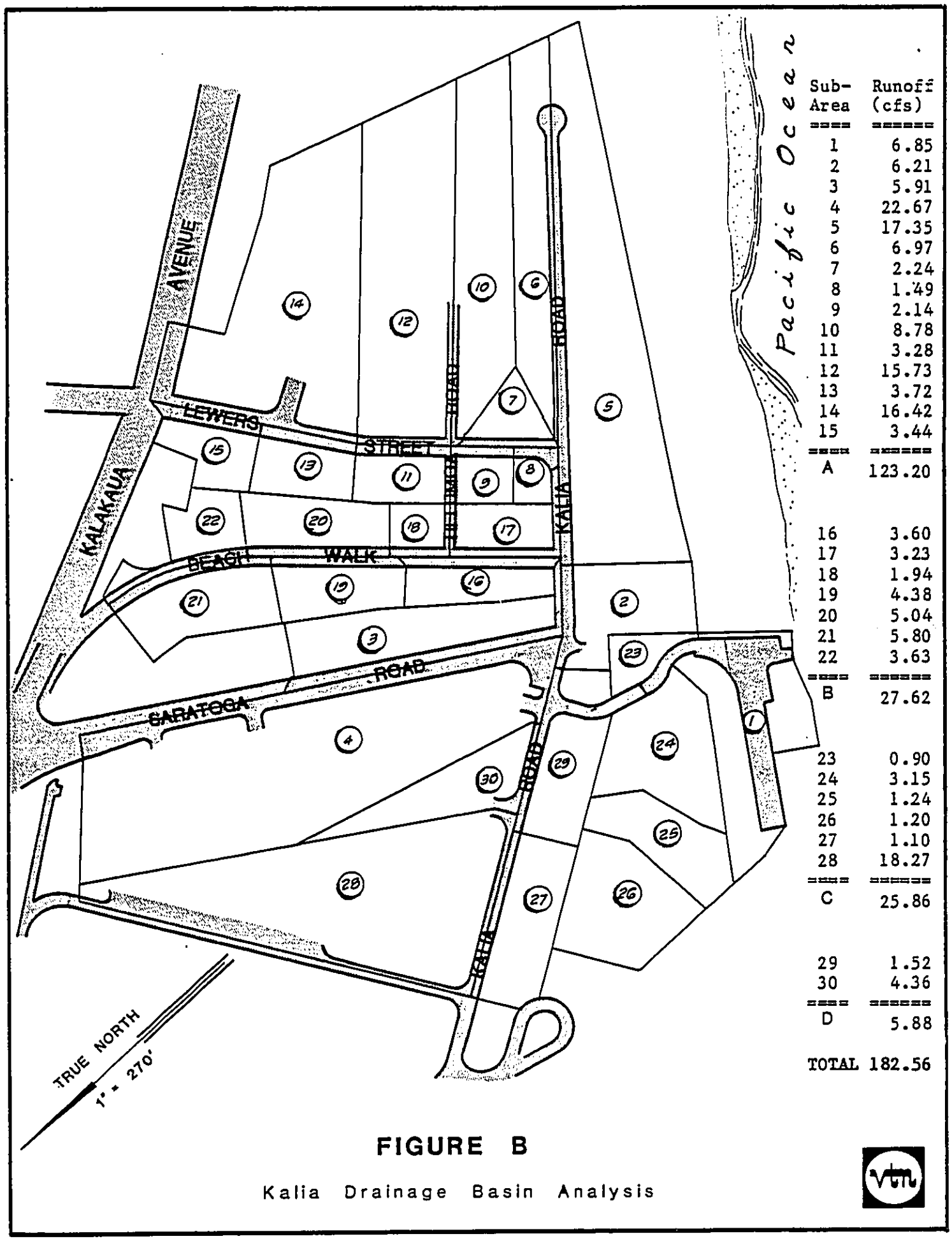
Gray's Channel now serves as a source of sand gain for beaches from the Sheraton Hotel through the Waikiki Shore Apartments. A four-month study of the movement of dyed sand within Gray's Channel found that between January 23 and May 22, 1970, the net direction of sand transport was landward. Subsequently, Franciscus Gerritsen found that during the large southern swell of March 1972, currents in the channel were parallel to shore, "...possibly with a very small shoreward component". (Ref. 3, p. 66)

(9) Concrete foundations were built off-shore of the Halekulani Hotel in 1929 for an experimental plant to pump sand ashore. Dimensions: unknown length x unknown width x 2' high. The foundations have mostly deteriorated. Richard K. Kimball recalls that the plant was unsuccessful and that as a result the Territory of Hawaii failed to implement a 1928 agreement to widen the beach in front of the Halekulani Hotel. (Ref. 5, Ref. 21)

(14) This concreted rubble seawall was built sometime prior to 1928 to protect the ewa end of the Sheraton Hotel property from beach retreat. Dimensions: 225' long x 2.5' wide x 10' high. The seawall is slightly deteriorated. Aerial photos and Crane's analysis show that a narrow sand beach is usually found in front of the seawall, but is subject to seasonal fluctuations. (Ref. 5)

APPENDIX B

KALIA DRAINAGE BASIN ANALYSIS



Sub-Area	Runoff (cfs)
1	6.85
2	6.21
3	5.91
4	22.67
5	17.35
6	6.97
7	2.24
8	1.49
9	2.14
10	8.78
11	3.28
12	15.73
13	3.72
14	16.42
15	3.44
A	123.20
16	3.60
17	3.23
18	1.94
19	4.38
20	5.04
21	5.80
22	3.63
B	27.62
23	0.90
24	3.15
25	1.24
26	1.20
27	1.10
28	18.27
C	25.86
29	1.52
30	4.36
D	5.88
TOTAL	182.56

FIGURE B

Kalia Drainage Basin Analysis