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FINAL

ENVIRONMENTAL IMPACT STATEMENT

FOR

KULAMANU STREET RELIEF DRAIN

HONOLULU, OAHU, HAWAII

THIS ENVIRONMENTAL DOCUMENT IS SUBMITTED
PURSUANT TO CHAPTER 343, HRS

ACCEPTING AGENCY - MAYOR, CITY AND COUNTY OF HONOLULU

Prepared by

Division of Engineering
Department of Public Works
City and County of Honolulu

April 1975

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EXHIBIT NO. 1	General Location Map
EXHIBIT NO. 1-A	Location Map
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EXHIBIT NO. 3	Pictures Showing the Existing Condition of The Project Area

APPENDIX

I. PROJECT DESCRIPTION

The "Kulamanu Street Relief Drain" project is located in the Diamond Head-Kahala District of Honolulu. The project starts from the intersection of Kahala Avenue and Kulamanu Street, goes along Kulamanu Street and Kulamanu Place and ends in the ocean at the end of Kulamanu Place. The total length of this project is approximately 1,200 feet and consists of catch basins, drain manholes and reinforced concrete pipes ranging from 24" to 42" in diameter. The system will be installed within the street right-of-way and no private property will be affected (see the location maps for the general location of the project).

The estimated cost of this project is \$250,000.00 and construction has been funded in the City's FY-1975 Capital Improvement Program budget. The construction of this project is scheduled to begin in August 1975 and will require 180 calendar days for completion. State funds and land are not involved in the project.

The suitable materials excavated from the construction of the project will be used for backfill. Surplus material will become the property of the contractor who will be required to haul and dispose of it at a site to be approved by the City engineer.

II. EXISTING CHARACTERISTICS AND CONDITIONS OF THE PROJECT AREA

A. Physical

The drainage system for this part of Kulamanu Street consists of two catch basins and an 18-inch diameter drain line. This line is part of the overall system draining the area above Kahala Avenue and Diamond Head Road. The main branch runs down Kulamanu Street and Kulamanu Place and the outlet terminates at the beach at the end of Kulamanu Place. The existing drain system in the project area is shown on Exhibit No. 2 - Sketch of The Proposed Project. The maximum capacity of this system is approximately 110 cubic feet per second (cfs).

The project area is currently zoned as single-family residential. Single-story homes are predominant in the neighborhood. A community profile of the area (Census Tract 6) from the State of Hawaii DATA BOOK 1974 for 1970 includes a resident population of 2025 from 538 households. Most of the homes are resident occupied (78.8 percent) and median annual income is \$22,253, twice the State total median. Homes in the area are substantial and above the average. Flood damages caused by street runoff overflow could result in heavy losses.

The average rainfall in this area is 29 inches per year. The average temperature varies from 72° to 81°F all year round.

B. Biological

The existing drainage system discharges storm runoff onto the beach front at the end of Kulamanu Place. The beach is narrow and rocky but clear from any visible debris in the beach vicinity and the number of beachgoers is small even on sunny days (see the attached pictures). There is no sediment deposited at or near the existing storm drainage outlet. There are no shoreline plants or grasses on the sand beach except some algae growing on top of coral rubble in the wave-breakage area. However, this algae has no known commercial value.

The ground material beyond the outlet is a mixture of sand boulders and coral and the sea bottom consists of sand and coral rubble. There is no appearance of any animal or bird population along the beach. Marine life consists of gastropods and the common varieties of reef fish, such as manini and hinalea. No rare or endangered species were noticed and none will be affected by this project.

C. Flood Problems

The existing drainage system was installed in 1953 and used to service the areas makai of Kahala Avenue to Papu Circle. Subsequent urban development on the mauka side of Kahala Avenue in 1956 has increased the runoff and overloaded

the system without providing additional capacity. This has resulted the overflow and flooding problems along Kulamanu Street.

The drainage basin comprises an area of about 50 acres and is bounded by Papu Circle on the northeast, Paiku Street to the rim of Diamond Head on the northwest, Kaalawai Place and the ocean on the southwest. The 50-year frequency storm discharge is estimated at 160 cfs in accordance with the City and County of Honolulu Storm Drainage Standards.

The flooding which resulted from the heavy rainstorms in March 1958, November 1965 and December 1967 has indicated that the existing system cannot handle, and drain the runoff generated by a heavy rainstorm. Storm water backed up from the system in the low-lying area along Kulamanu Street and overflowed the street into private properties. The residents have also complained of drain manhole covers popping up during heavy rainstorms. This had caused traffic hazards and inconvenience to the residents in the area.

Due to the lack of drainage facilities and street improvements in this area, some residents along the makai side of the street have built walls, fences and curbing to stop street water from running into their properties. However, these measures have not been effective in preventing the entry of water into the private properties.

III. DESCRIPTION OF THE PROPOSED IMPROVEMENTS

The proposed project will include the construction of two additional catch basins on Kahala Avenue, modification of one catch basin on Kulamanu Street and the installation of 1,200 linear feet of drain pipe ranging from 24" to 42" in diameter. The project begins at Kahala Avenue runs down Kulamanu Street and Kulamanu Place and terminates at the beach. The existing drain system will be retained and modified to complement the new system. Exhibit No. 2 illustrates the drain sizes and alignments and the general location of the existing and new systems.

Exhibit No. 2-A - Outlet Details shows the relationship of the new and existing outlets. An abandoned 18-inch diameter drain pipe outlet near the existing outlet will not be disturbed by this project.

The installation of the new drainage system on Kulamanu Street will reduce the potential flood damages to the properties. Also, the new system will provide additional capacity to relieve the downstream portion of the existing system and to correct the hydraulic deficiency of the existing system. The completion of the new system will reduce the possibility of storm water backing up from the existing system and overflowing into private properties. This project will also reduce the possible traffic inconvenience and hazards in the area during periods of heavy rainfall.

IV. ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT

There are about 25 single-family houses within the project area. The current ownership of the properties along the project site is shown on the State Tax Map Key 3-1-40.

The environmental impact of the proposed project will include the following:

1. **Dust and Noise Emission:** The discharge of dust into the atmosphere will occur during the construction period. However, this is only a short-term effect on the environment and can be controlled by sprinkling of water during the excavation, pipe laying, and backfill operations.

Some noise will be generated by construction equipment such as compressor, jackhammer and backhoe during construction. This noise level increase cannot be avoided but can be limited to only daylight hours. The Contract Specification will state that the construction work will be limited from 7:30 a.m. to 3:30 p.m.

2. **Traffic:** Local traffic inconvenience will be created during construction. One lane will be closed during normal working hours to facilitate construction of the drainage system. This traffic inconvenience is unavoidable since the drain line is located within the street right-of-way. Only local traffic will be affected, and the contractor will be required to provide temporary access to

all properties and the necessary signs and flagmen to control the traffic.

3. Beach Usage: The combined system will have a total capacity of 160 cfs, an increase of 50 cfs discharging onto the beach at the end of Kulamanu Place. The additional 50 cfs of water represents the storm flows which now overflows onto the streets and private properties. The existing and proposed additional discharge will require the use of the beach to accept and disperse the flow and will affect the usage of the beach during storms. However, the number of people using the beach during adverse storm periods will be limited. The impact of the additional discharge onto the beach and in the surrounding near shore area is negligible.

4. Water Pollution: The installation of the new system will increase the total storm water quantity as well as the pollutant load discharging to the beach area at the end of Kulamanu Place. However, due to the reduction or elimination of overland flood water, reduction of the pollutant load from the surface of makai properties can be expected. The overall total pollution effect on the receiving water will therefore be equalized or reduced.

Pollutants will include debris, silt and a small amount of petrochemical products deposited on the roadway by cars. These pollutants will be dispersed and carried out to deeper waters by wave actions and the prevailing ocean tides. The relationship between magnitude of runoff volume and concentration of constituents has not been established due to the variation of storm

intensity, duration, interval and condition of the area. A review of the report by Thomas Fugiwara entitled "Characterization of Urban Stormwater Discharges from Separate Sewers," May 1973, also did not clearly describe the relationship between the storm water quantity and its constituent loads. Therefore, the increase of pollutant loads from the storm runoff onto the sand beach has not been quantified.

Water quality data taken off the Diamond Head area during the Water Quality Program for Oahu (1972) indicate waters of the highest quality. Water quality standards for temperature, salinity, dissolved oxygen, nutrients, pH and coliform were being met. This has indicated that the direct effects on the receiving water quality by the storm water discharge are not significant.

5. Flora and Fauna: There are no rare or endangered flora and fauna existing in the project area.

6. Archaeological and Historical Significance: There are no known archaeological or historical sites in the project area.

7. Social-Economical Considerations: The project will not displace any residents, will not require any new right-of-way or easement and will not affect adversely the beach or off-shore waters. The project will provide additional drainage capacity and relieve the residents from possible flooding and damages to their properties.

8. Public Utilities: The new drain line will cross a number of electric, telephone, gas and water lines. These utilities will be protected from damage during the construction period by special provisions to the specifications and construction notes shown on the drawings. The contractor will be responsible for informing all affected agencies prior to the commencement of the construction and for performing the works with extreme care.

V. UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

- A. Airborne emissions at the project site will include dust and exhaust emissions generated from the operation of trucks, tractors and other construction equipment.
- B. Noise emissions will be caused by construction equipment.
- C. Some inconvenience to motorists, pedestrians and abutting owners will be experienced during the construction.

VI. ALTERNATIVES TO THE PROPOSED PROJECT

- A. Forego the project construction and maintain the existing environmental setting in the project area. However, this course of action will not reduce the flood hazard and improve the well-being of the residents in the area.

- B. Regrade the properties and elevate or flood proof the houses that are situated in low-lying and flood-prone areas. Since each owner will be required to voluntarily take the initiative and provide private financing, this alternative is not practical and manageable.

- C. Use detention ponds and dry wells to control and drain waters. This is not feasible since there are no suitable sites or large acreage of land to effect this alternative.

- D. The proposed project itself and is funded in the City's CIP budget. This project will install two new catch basins and modify the existing system to handle the street runoff and improve the hydraulic deficiencies of the existing system.

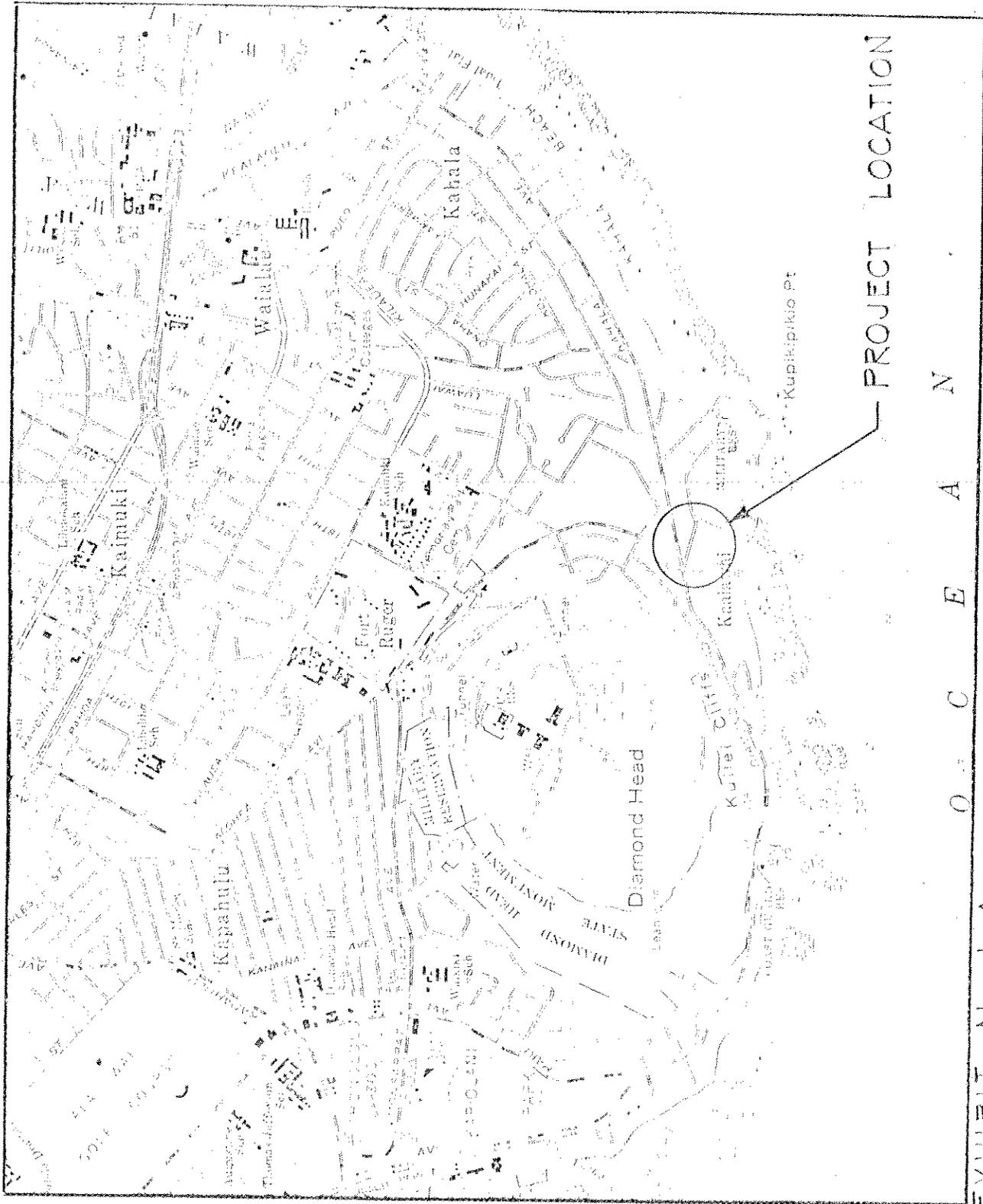
VII. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The project will not require any acquisition of land for the project right-of-way. The removal of the flood hazard and the attendant upgrading of the social and economic well-being of the residents are permanent and continual benefits.

VIII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH
WOULD BE INVOLVED IN THE PROPOSED PROJECT SHOULD IT BE IMPLEMENTED

The construction materials and labor utilized in the project would be irretrievable.

EXHIBITS

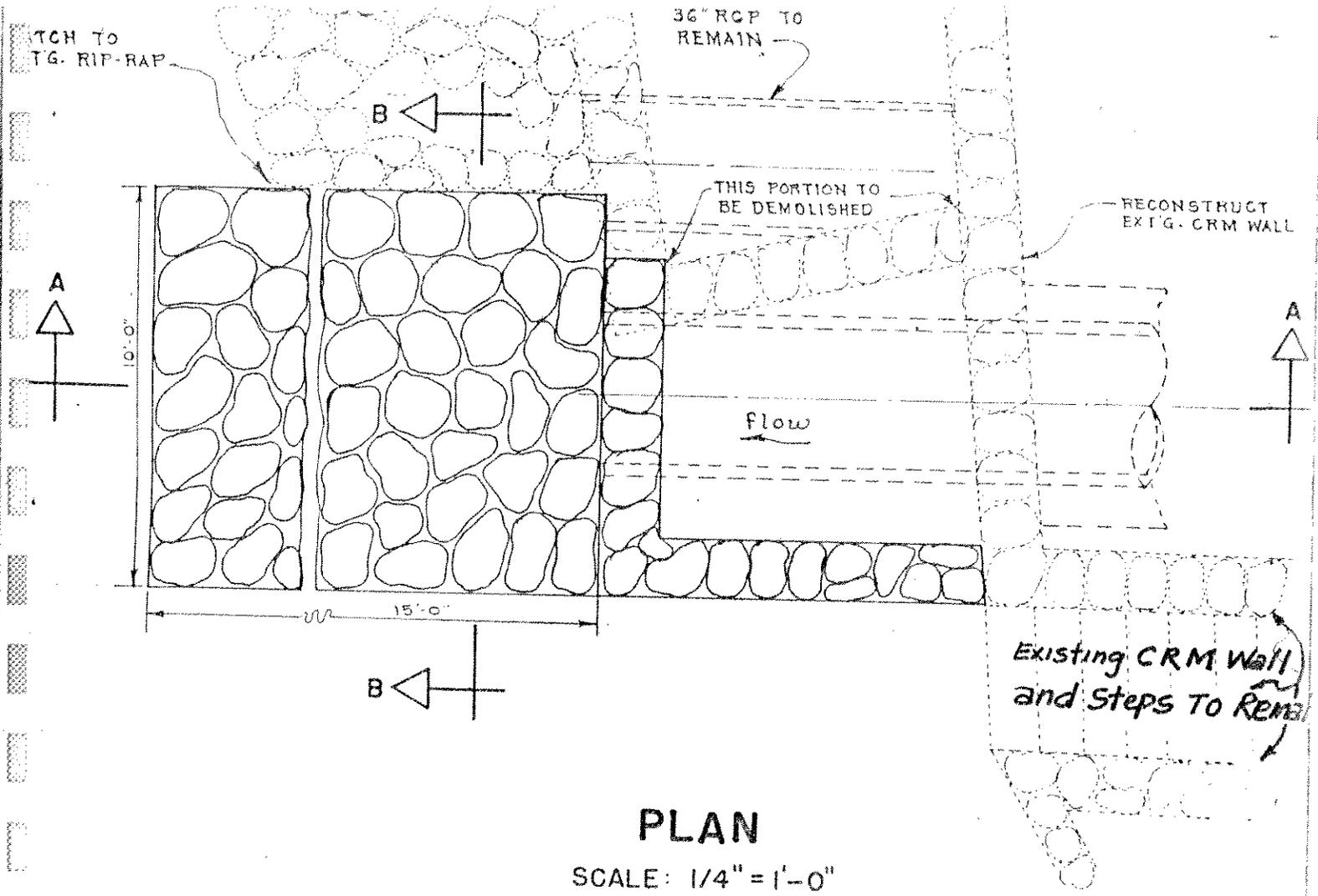


O C E A N

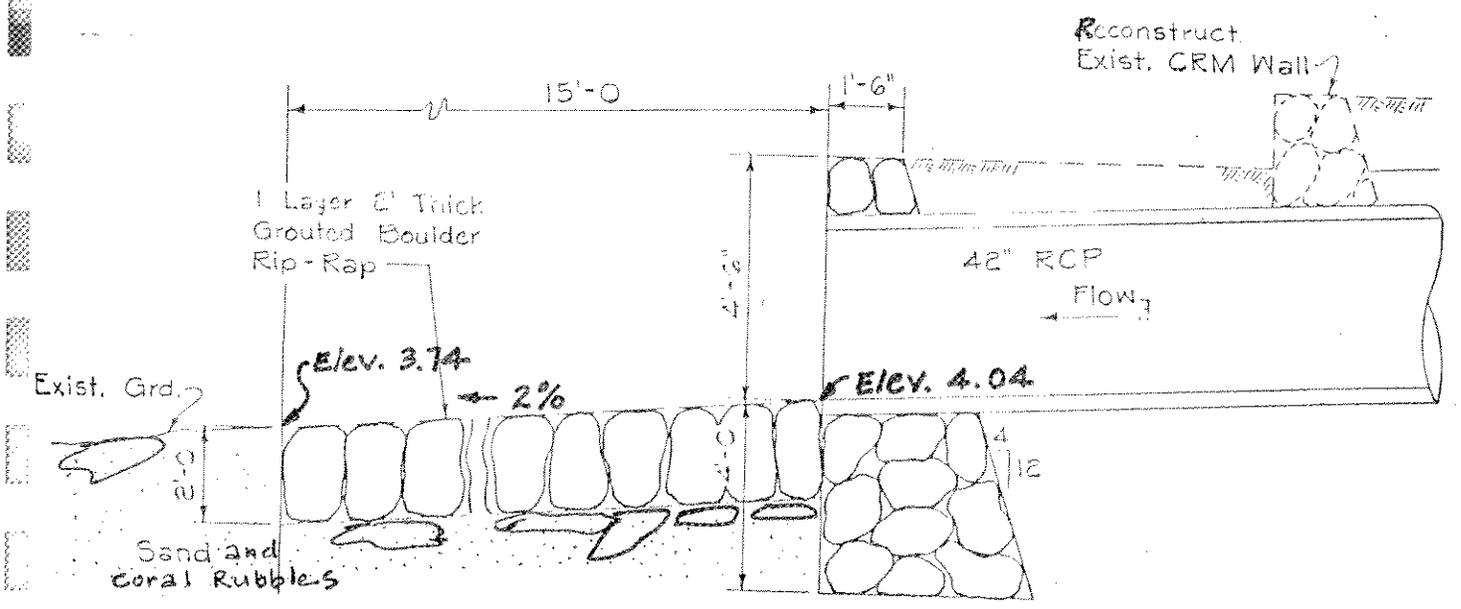
PROJECT LOCATION

EXHIBIT No. 1-A

LOCATION MAP
Scale: 1" = 2000'



PLAN
 SCALE: 1/4" = 1'-0"



SECTION

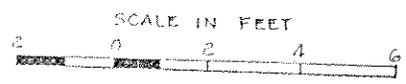
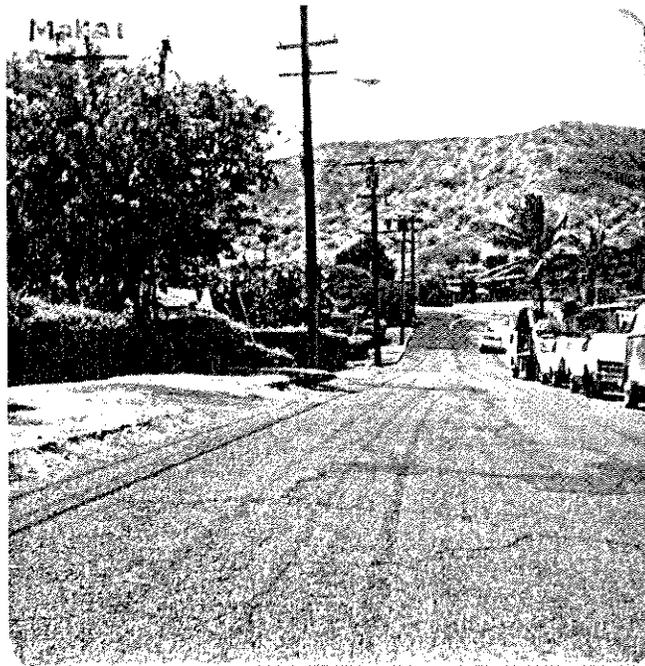
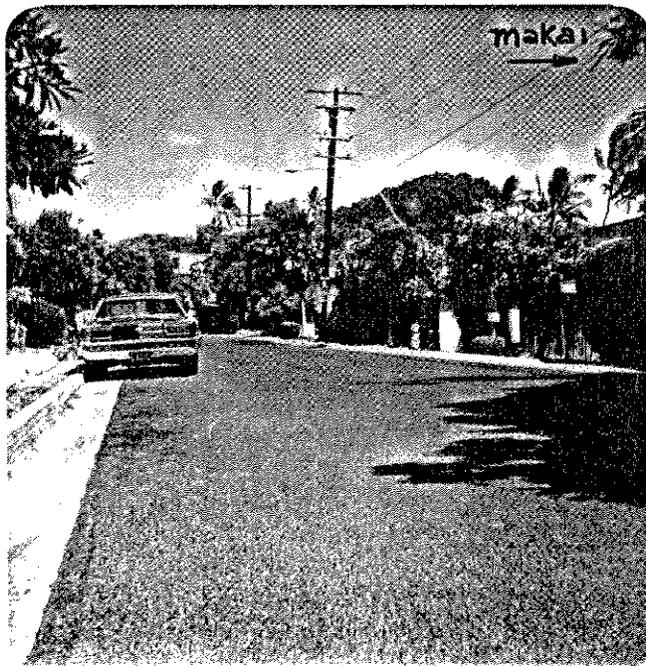


EXHIBIT NO. 2A OUTLET DETAILS

EXHIBIT NO. 3



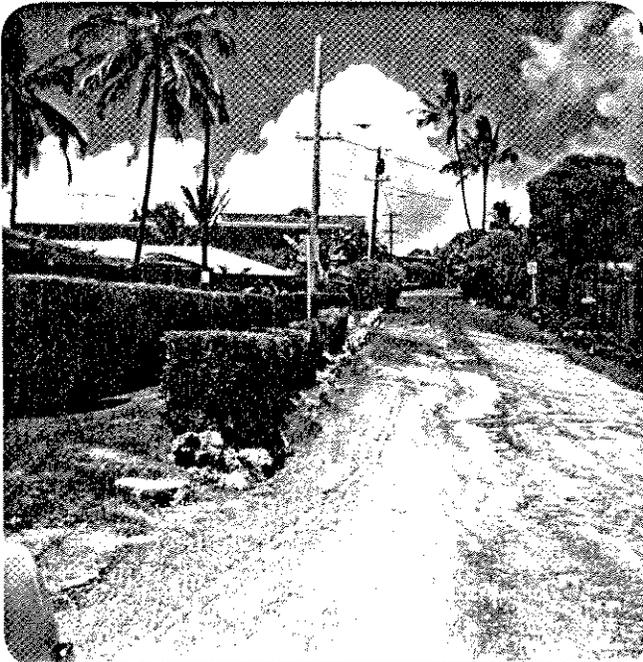
Picture A. Looking at the intersection of
Kahala Avenue and Kulamanu Street



Picture B and C. Typical View of Kulamanu Street.
(Note: No curb and gutter at makai
side of the road and floor level is
usually lower than the road.)



Picture D. Right Turn to Kulamanu Pl.



Picture E and F. Kulamanu Place and the Existing 36" outlet (The proposed new relief drain outlet will be at the right side of the existing outlet).



Picture G and H. Conditions of the existing unnamed beach and outlet.

APPENDIX

GEORGE R. ARIYOSHI

GOVERNOR



RECEIVED
FEB 27 1975

RICHARD E. MARLAND, Ph.D.

DIRECTOR

TELEPHONE NO.

48-6915

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

DIR [Signature]
DEP
(1) ENVUW
(2) Engrg

RECEIVED
FEB 3 9 32 AM '75

February 27, 1975

Kazu Hayashida
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
Honolulu, Hawaii 96813

SUBJECT: Draft Environmental Impact Statement for the Kulamanu Street Relief Drain, Honolulu, Oahu

Dear Mr. Hayashida,

This Office has completed its review of the subject above. As of this date, we have received a total of thirteen comments from various agencies and organizations as given in the attachments.

In reviewing the EIS, we find that certain areas could be expanded upon. These concerns are provided below for your consideration.

General Comments

1. It is not clear in the EIS whether the new drainage system will replace the old system or if it will be an entirely new system. From the caption for Pictures E and F in Exhibit No. 3, it seems that the 42" will be placed Kokohead of the 36", which could mean an entirely new system. However, nowhere else in the EIS is this elaborated in discussion for full understanding. A diagram of the old and new system would also be helpful.
2. On our site visit, we noted an 18"(?) drain outlet Diamond Head of the 36". Is this 18" now non-functional? With the installation of the 42" outlet will the 36" also become non-functional?
3. If the 18" and/or 36" are no longer needed, would it not seem preferable to have them removed and the rockwall filled?

4. If the new system is to supplement the old system, the EIS should evaluate the impact of the total discharge of 270 cfs [110 cfs(36") + 160 cfs(42")].
5. What provisions will be made to prevent siltation or debris to empty onto the beach?

Specific Comments

1. Page 3, item #4, first sentence. We suggest that it be revised to read: "The increased discharge transported from the streets and properties will probably increase the amount of pollutants on the beach front". An estimate of the actual amount of such an increase would help.
2. We agree with the University of Hawaii's Environmental Center and the Water Resources Research Center that the water quality data from the Water Quality Program for Oahu does not necessarily reflect changes due to storm water discharges from Kulamanu Place. We suggest that nearshore samples be instead taken for chemical and biological effects. It would also be useful if these samples reflected periods of maximum discharges.
3. Will the existing rip-rap be removed?

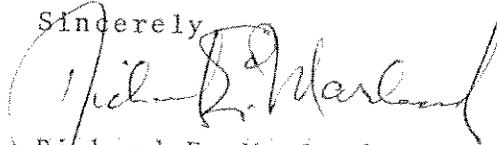
Recommendations

For brevity, we have not attempted to summarize each agency/organization's comments. We recommend that they each be given individual concern with written responses sent to them indicating how specific concerns were considered, evaluated, and disposed. This Office would also appreciate a copy of these responses.

For the final EIS, we recommend that: 1) all comments and your responses be incorporated as an appendix to the final EIS and 2) a copy of the final EIS be sent to those individuals who provided substantive comments to the draft EIS.

Thank you for the opportunity to review the subject draft environmental impact statement. We sincerely look forward to the final environmental impact statement.

Sincerely,



Richard E. Marland
Director

Attachments

LIST OF COMMENTORS

STATE

*Department of Agriculture	January 24, 1975
Department of Health	January 27, 1975
*Department of Transportation	January 27, 1975
Department of Planning and Economic Development	January 30, 1975
Department of Land and Natural Resources	February 13, 1975

FEDERAL

*Soil Conservation Service	January 31, 1975
U.S. Army Corps of Engineers	February 10, 1975
*Department of the Army	February 18, 1975

CITY AND COUNTY

*Department of Transportation Services	January 10, 1975
Department of General Planning	January 30, 1975
*Department of Land Utilization	January 30, 1975

UNIVERSITY OF HAWAII

Water Resources Research Center	February 4, 1975
Environmental Center	February 18, 1975

*No Comment

AFZV-SG-EC

J 1 1 - B 1975

Richard E. Marland, PhD
Interim Director
Office of Environmental Quality Control
State of Hawaii
Room 301, 550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Dr. Marland:

The Draft Environmental Impact Statement for Kulamau Street Relief Drain was reviewed by this office and we have no comments to offer.

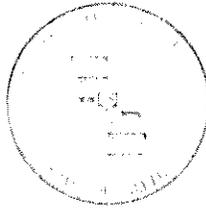
Thank you for the opportunity to review the statement.

Sincerely,

LEE C. HERWIG, JR.
Colonel, MSC
Environmental Consultant to Commander,
U.S. Army Support Command, Hawaii

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

SUITE 2180 PACIFIC TRADE CENTER
190 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK F. EAST
MAYOR

PAUL DEVENS
MANAGING DIRECTOR

GEORGE S. MORIGUCHI
DIRECTOR

WILLIAM E. WANKET
DEPUTY DIRECTOR

LUL/75-123 (BAM)

January 28, 1975

MEMORANDUM

TO : DR. RICHARD E. MARLAND, ACTING DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM : GEORGE S. MORIGUCHI, DIRECTOR OF LAND UTILIZATION

SUBJECT : DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR KULAMANU
STREET RELIEF DRAIN

We have reviewed the above, are in agreement with the objectives of the proposed action, and feel that the statement submitted adequately describes potential effects on the environment.

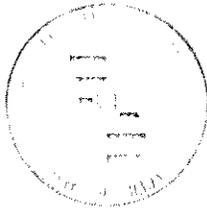
Thank you for the opportunity to review and comment on this document.

Handwritten signature of George S. Moriguchi in cursive script.
GEORGE S. MORIGUCHI
Director

GSM:rh

cc: Department of General Planning

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
CITY HALL ANNEX
HONOLULU HAWAII 96813



FRANK F. FASI
MAYOR

GEORGE C. VILLEGAS
DIRECTOR

February 4, 1975

PL-3005-75

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

Gentlemen:

Subject: Review of Draft EIS for Kulāmanu Street
Relief Drain

The department has no comments to offer following
review of the subject matter.

Very truly yours,

A handwritten signature in cursive script that reads "Clifford Y. Nohara".

CLIFFORD Y. NOHARA
Chief, Traffic Engineering

GEORGE S. ABIYOSHI
GOVERNOR



F. ALVEY WRIGHT
DIRECTOR

DOUGLAS S. SAKAMOTO
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

IN REPLY REFER TO:
ATP 8.2928

January 23, 1975

Dr. Richard E. Marland
Interim Director
Office of Environmental
Quality Control
550 Malakauwila St., Room 301
Honolulu, Hawaii 96813

Dear Dr. Marland:

Subject: Draft Environmental Impact Statement
Kulamau Street Relief Drain

In reference to the subject environmental statement, we have no
comments to offer as it relates to and affects our transportation
program.

Sincerely,

Douglas S. Sakamoto
for F. ALVEY WRIGHT
Director

GEORGE R. ARIYOSHI
GOVERNOR



JOHN FARIAS, JR.
CHAIRMAN, BOARD OF AGRICULTURE

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

January 23, 1975

MEMORANDUM

To: Dr. Richard E. Marland, Interim Director
Office of Environmental Quality Control

Subject: Draft EIS for Kulamau Street Relief Drain

The Department of Agriculture has reviewed this draft statement
and finds no agricultural impact.

Thank you for the opportunity to review this matter.

A handwritten signature in cursive script that reads "John Farias, Jr.".

John Farias, Jr.
Chairman, Board of Agriculture

JF:d:h

TO: Richard E. Marland, Interim Director
Office of Environmental Quality Control

RE: EIS for Kulamani Street Relief Drain

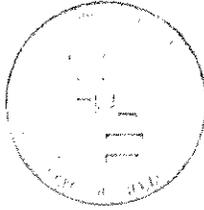
- We have no comments to offer.
 EIS returned: project does not pertain to SCS activities and/or responsibilities.
 EIS received; undergoing review.

Francis C. H. Lum
Francis C. H. Lum
State Conservationist

1/29/75
Date

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
SUITE 2100 PACIFIC TRADE CENTER
190 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK P. CASE
MAYOR



ROBERT R. WAY
CHIEF PLANNING OFFICER
DONALD A. CLEGG
DEPUTY CHIEF PLANNING OFFICER

DGPI/75-133 (JB)

January 28, 1975

Dr. Richard E. Marland, Interim Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Dr. Marland:

Kulamanu Street Relief Drain
Draft Environmental Impact Statement

This is in reference to the above-captioned subject matter.

By Resolution No. 467, dated May 23, 1972, the City Council approved the comprehensive Storm Drainage Plan developed for the City and County of Honolulu, and the proposed project is an element of that plan.

The Capital Improvement Budget for fiscal year July 1, 1974 to June 30, 1975 for the City and County of Honolulu, adopted by Ordinance No. 4313, appropriated \$165,000 toward the development of this specific proposal.

While the need for this project has been adequately stated, the project's impact upon existing above-grade and underground utility facilities should be made explicit.

We appreciate the opportunity to review this project.

Sincerely,

A handwritten signature in dark ink, appearing to read "Robert R. Way".

ROBERT R. WAY
Chief Planning Officer

RRW:fmt

501-12-0198

March 24, 1975

Mr. Robert R. Way
Chief Planning Officer
Department of General Planning
City and County of Honolulu
Suite 2100 Pacific Trade Center
190 South King Street
Honolulu, Hawaii 96813

Dear Mr. Way:

YOUR LETTER TO DR. RICHARD MARLAND OF THE
STATE OEQC DATED January 28, 1975 RELATING
TO THE DRAFT EIS FOR THE KULAMANU STREET
RELIEF DRAIN

Thank you for your comments on the draft EIS.

The new drain line will cross a number of electric, telephone, gas and water laterals. Specific provisions to protect the utilities from damage during construction period have been indicated on the drawings and in the contract specifications. The contractor will be responsible for informing all affected agencies prior to the commencement of the project construction and will perform his work with extreme care to avoid damage to the existing facilities.

A final EIS incorporating your comments will be forwarded to you at a later date.

Very truly yours,

Wallace M. Hayashida
KAZU HAYASHIDA
Director and Chief Engineer

/PCRYN:csi

cc: OEQC



University of Hawaii at Manoa

Environmental Center
Maile Bldg. 10 • 2540 Maile Way
Honolulu, Hawaii 96822
Telephone (808) 948-7361

Office of the Director

February 14, 1975

MEMORANDUM

TO: Richard Marland
FROM: Doak Cox *Doak Cox*
RE: Review of DEIS for Kulamano Street Relief Drain

This Environmental Center review has been prepared with the assistance of the following members of the University faculty:

- Harold Baker, Agricultural Economics
- Doak Cox, Environmental Center
- Robert Grace, Civil Engineering
- Nancy Lopez, Hawaii Environmental Simulation Lab
- Jacquelin N. Miller, Environmental Center

The general comment expressed by each of our reviewers was that the present DEIS is lacking in certain specific areas necessary to the adequate evaluation of the environmental impact of the project. A discussion of these areas is as follows:

p. 1 Physical

We note the existing drainage system "consists of two catch basins and an 18-48" diameter drain pipe with a maximum capacity of 110 cfs. The proposed drainage system would include catch basins, drain manholes and reinforced concrete pipes ranging from 36" to 42" in diameter.

For purposes of evaluation of the project a diagram should be provided which indicates the specific locations and pipe diameters of the existing drainage facilities. A similar diagram of the proposed facilities would allow better evaluation of the impact of the project. For example, the removal of an 18" line and its replacement with a 42" line may have quite a different impact than removal of a 36" or 48" line and its replacement with a 42" line.

The proposed relocation of Kapiolani College to the Fort Ruger site will require construction of drainage facilities. Will the design of the Kulamano Storm drain be affected by the necessary drainage for the Fort Ruger area and has this drainage need been considered in the design of the proposed project?

We have a few specific concerns with the outlet structure. The proposed new outlet structure (Exhibit 2) is 10 feet wide and will extend 15 feet across the existing sand beach. How far will the seaward terminus of this structure be from the maximum reach of high tide? How far will the new grouted concrete-rock

apron extend beyond the existing apron? Will the old apron be removed? Will the seasonal movement of sand on and off shore at this beach?

In our visits to the proposed outfall site we have noted a small (18") drain outlet just Diamond Head and adjacent to the present 36" outlet described in the DEIS. We note also that the proposed new 42" outlet will be on the Koko Head side and adjacent to the existing 36" outlet (caption on picture E and F). Will the two existing outlets be removed? If not, why not? The presence of yet a third drain outlet at that location certainly will do nothing to improve the visual appearance of that beach. When was the existing 36" drain installed and the grouted concrete and rock apron extending seaward of the present outlet? Have repairs to these structures been necessary due to erosion or sand movement since their construction? Does the existing 36" outfall drain the same total area as the proposed 42" outfall? What approximate level of flood protection for the property in the area will be achieved by the proposed project? 10 years? 50 years? The demonstration of the adequacy of this new facility to meet present and possible future needs should be incorporated into the impact statement.

One cannot help but wonder at the historical sequence of drainage systems for this area. It would appear from our visit to the site that the original drain was the 18" pipe. More recently, the 36" drain was added. Now the present project recommends 42". If our interpretation of the sequence of drainage structures is correct we hope that a very careful appraisal of the needs of the area is made prior to installation of the 42" outfall so that additional excavation and funds will not be required in the future for a 48" drain.

p. 2

The homes in this area are estimated to be in the \$150,000 price range. Thus the comment is made that "Flood damages caused by street runoff overflow could result in severe suits against the City." There is an implication here presumably not intentional, that flood protection is more justified for people living in expensive homes with high incomes!

p. 2 Biological

Have the residents of the adjacent property been questioned with respect to visible affects of the discharge on the nearshore flora and fauna following severe storms? It would appear from the description of the discharge area that the biological environmental affects of the existing discharge may be fairly severe, i.e., "There are no shoreline plants or beach grasses and weeds." "There is no appearance of any animal or bird population along the beach." Is this lack of flora and fauna restricted to the immediate area of the present discharge or is it characteristic of this entire beach area?

p. 3

The discussion and comparison of water quality data from the Water Quality Program for Oahu and the outfall area is inappropriate. The WQPO data was taken at an ocean sampling station and would not be expected to reflect a single storm drain discharge at the beach. The biological and chemical effects of the discharge however could be measured by adequate nearshore samples which apparently were not undertaken. Sampling during periods of maximum discharge would provide the most useful information as to the magnitude and extent

of any negative affects of the discharge.

p. 4

The project will "relieve the residents from possible flooding and damages to their properties." Does the agency expect that the project will eliminate all flooding in the area? It would seem unlikely that all flood hazard would be removed. Should residents of the area still consider additional protection for their property such as flood-proofing and insurance? How many residences are currently entered under the flood insurance program?

We appreciate the opportunity to review this DEIS.

March 24, 1975

Dr. Doak Cox
Environmental Center
University of Hawaii
Maile Building 10
2540 Maile Way
Honolulu, Hawaii 96822

Dear Dr. Cox:

YOUR LETTER TO DR. RICHARD MARLAND OF THE
STATE OEQC, DATED FEBRUARY 14, 1975 RELATING
TO THE DRAFT EIS FOR THE KULAMANU STREET
RELIEF DRAIN

Thank you for your comments and suggestions on the draft EIS.

The existing drainage system will be retained. The new 42-inch drain pipe will be constructed parallel to the existing 36-inch pipe and will be located on the Koko Head side of Kulamanu Place. A diagram of the existing and proposed system will be attached in the final EIS.

The proposed project will not be affected by the drainage requirements for the future Kapiolani College area. The drainage basins are separate with different systems.

The invert of the 42-inch outlet will be 4.04 feet above the MSL (Mean Sea Level) and the outlet apron will extend about 10 feet at 2% slope. The elevation of the makai end of the apron will be 3.74 feet above MSL and will be about 1.35 feet above the elevation of the highest tide (2.39 feet above the MSL) recorded by the U. S. Coast and Geodetic Survey in the Oahu area. The new outlet apron will be adjacent to and match the existing one.

Dr. Doak Cox
March 24, 1975
Page two

The seasonal movement of sand on and off shore at this beach has not been measured. However, residents in the area have indicated that the sand movement is not noticeable.

The existing drainage system was installed in 1953 to serve the drainage areas makai of Kahala Avenue to Papu Circle. Subsequent urban development on the mauka side of Kahala Avenue has increased the runoff and overloaded the drainage system without providing additional capacity. This has resulted in the overflow and flooding problems along Kulamanu Street.

As a result of an evaluation and analysis of the problem and alternative solutions, it was determined that the proposed project was required to provide adequate drainage for a 50-year storm recurrence interval design.

Your inference on the justification of the project is in error. We do not concur that the impact statement implies that flood protection is more justified for high income areas.

Residents in this area have stated that the existing storm water discharge onto the sand beach has not created any noticeable effects to the indigenous flora and fauna. There are no shoreline plants or animals except for a small quantity of algae and reef fish. This is the characteristic of the entire beach and is not because of the presence of the existing storm discharge.

We concur that sampling during periods of maximum discharge would provide some sort of information as to the concentration of pollutants. However, a review of the report by Thomas Fujiwara entitled "Characterization of Urban Storm Water Discharges from Separate Storm Sewers", May 1973, did not clearly describe the relationship between magnitude of runoff volume and concentration of constituents.

We have concluded that since the relief drain project will eliminate the overland flood flow across private properties, the total pollution effect in the receiving water will be reduced.

Consideration for flood-proofing and insurance to provide additional protection is a private and individual matter. This area has not been designated as flood-prone

Dr. Doak Cox
March 24, 1975
Page three

and would not qualify for the Federal Government's subsidized insurance program.

A final EIS incorporating your comments will be forwarded to you at a later date.

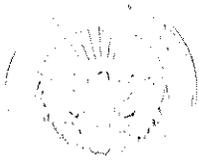
Very truly yours,

Wallace Hayashida

W. KAZU HAYASHIDA
Director and Chief Engineer

PC/RYN:csi

cc: OEQC



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BLDG. 210, F. E. SHAFER
APO SAN FRANCISCO 96388

POED-P

5 February 1975

Dr. Richard E. Marland, Interim Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Dr. Marland:

We have reviewed the draft environmental impact statement for Kulamanu Street relief drain and have the following comments:

- a. The outlet detail plan (Exhibit No. 2) shows sand underneath riprap. The photograph indicates only a thin sand covering over rock or reef pavement. If there is a considerable depth of sand beneath the riprap, a bedding layer should be provided.
- b. A Department of the Army Section 10 permit may not be required if no work is to be done below mean high water; however, elevations at the outlet project site are needed prior to making a determination.
- c. As stormwater runoff is a pollutant source, EPA should be contacted. Consideration to controlling runoff flows by ponding or flow restriction to reduce mass volume freshwater discharge could be given in the alternative analysis.

Sincerely yours,

Kisuk Chung
for KISUK CHUNG
Chief, Engineering Division

501-12-0197

March 24, 1975

Mr. Kisuk Cheung
Engineering Division
Department of the Army
U. S. Army Corps of Engineers
Building 230, Fort Shafter
APO San Francisco 96558

Dear Mr. Cheung:

YOUR LETTER TO DR. RICHARD MARLAND OF THE
STATE OFFICE OF ENVIRONMENTAL QUALITY CONTROL
DATED FEBRUARY 5, 1975 RELATING TO THE DRAFT
EIS FOR THE KULAMANU STREET RELIEF DRAIN

Thank you for your comments on the draft EIS.

A field inspection has indicated that the existing ground at the proposed outlet consists of coral rubble and a thin layer of sand. The proposed two foot thick grouted boulder rip-rap will rest on the rubble and a bedding layer is not necessary.

The final elevation of the proposed apron will be 3.7⁴ feet above the Mean Sea Level (MSL) or 2.67 feet above the Corps' Permit requirement. A clearance with the Corps for construction of this project has already been obtained.

The local EPA office has been contacted but offered no comments for this project.

Detention ponds and dry wells to control and drain storm water in this area have been considered as one of the alternatives. However, this is not feasible since there are no suitable sites or available large acreage of land to implement these alternatives.

Mr. Kisuk Cheung
March 24, 1975
Page two

A final EIS incorporating your comments will be forwarded to you at a later date.

Very truly yours,


TAKAZU HAYASHIDA
Director and Chief Engineer

PC/RYN:csi

cc: OEQC

UNIVERSITY OF HAWAII

Water Resources Research Center
Office of the Director

MEMORANDUM

January 28, 1975

MEMO TO: Richard E. Marland
Interim Director, OEQC

FROM: Reginald H. F. Young^{RHF}
Asst. Director, WRC

SUBJECT: Review of the Draft EIS for Kulamanu Street Relief Drain

The following review comments are submitted for your consideration:

1. In the EIS, there has been no clear indication that the existing 36" pipe will be removed or replaced by the new 42" pipe although it implies that the 36" pipe will be replaced.
2. A layout plan for the proposed 36" to 42" pipes should be included.
3. In the Item II A. physical, it states, "This existing system consists of drain pipe ranging from 18" to 48" in diameter." Should the number 48" be read as 36"? We cannot find the number 48" stated anywhere.
4. The design looks reasonable and the draft EIS is well presented for this small project.
5. Water quality data (p. 3) taken during WQPO study does not necessarily reflect changes due to storm water discharges at Kulamanu Place because the station sampled (Sta. 1 of OWQP Report) is an ocean sampling site, not a shoreline station. All data obtained reflect ocean water quality after pollutants have been widely dispersed. Any environmental impact of storm water discharges would be closer to the shoreline than the water quality station cited.
6. Under biological section B (p. 2), there is an incomplete biological analysis of the area that is affected by the storm sewer. The discharge area is within a reef and aren't there any algae, gastropods or interstitial fauna found?

RHFY:jmn

cc: Y. Fok
H. Gee
Env. Ctr.

501-12-0199

March 24, 1975

Dr. Reginald H. F. Young
Assistant Director
Water Resource Research Center
University of Hawaii
Honolulu, Hawaii 96822

Dear Dr. Young:

YOUR LETTER TO DR. RICHARD MARLAND OF THE
STATE OEQC, DATED JANUARY 28, 1975 RELATING TO
THE DRAFT EIS FOR THE KULAMANU STREET RELIEF
DRAIN

Thank you for your comments and suggestion on the EIS.

The existing drainage system will be retained. The new 42-inch drain pipe will be constructed parallel to the existing 36-inch pipe and will be located on the Koko Head side of Kulamanu Place. A diagram of the existing and proposed systems will be attached in the final EIS.

The 48-inch pipe referred to is an existing line which runs between the lots from Kahala Avenue to Kulamanu Street and is connected to the downstream 36-inch line.

The use of the WQPO data as a reference is to show that the discharge of storm water from the drain does not have adverse effect on the quality of the receiving water. Storm water sampling and chemical and biological analysis would provide data as to the concentration of pollutants. However, a review of the report by Thomas Fujiwara entitled "Characterization of Urban Storm Water Discharges from Separate Storm Sewers", May 1973, did not clearly describe the relationship between magnitude of runoff volume and concentration of constituents.

Mr. Reginald H. F. Young
March 24, 1975
Page two

We have concluded that since the relief drain project will eliminate the overland flood flow across private properties, the total pollution effect in the receiving water will be reduced.

There are no shoreline plants or grasses on the sandy beach except for some algae growing on the top of coral rubbles in the shallow littoral zone. Other fauna which may be found are gastropods and reef fish at a very small number.

A final EIS incorporating your comments and suggestions will be forwarded to you at a later date.

Very truly yours,

Osaka Hayashida
OSAKAZU HAYASHIDA
Director and Chief Engineer

PC/RYN:csi

cc: OEQC

George P. Ariyoshi
GOVERNOR OF HAWAII



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

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

February 10, 1975

MEMORANDUM

TO: Hon. Richard E. Marland, Director
Office of Environmental Quality Control

FROM: Christopher Cobb, Chairman and Member
Board of Land and Natural Resources

SUBJECT: Draft EIS for Kulamanu Street Relief Drain by the
Department of Public Works, City and County of
Honolulu.

The proposed drainage will discharge into the ocean area at the end of Kulamanu Place and a Conservation District Use Application will be required. We understand that the Dept. of Public Works is in the process of preparing an application for the proposed project.

In regards to the Draft EIS, we find that the effects of the proposed drain will differ only slightly from that of the existing drain. After construction, increase in the discharge volume will occur only during times that the present drain's capacity is exceeded.

From the fisheries standpoint, the Draft EIS would be acceptable if:

1. It indicates the precautions that will be taken to prevent silt runoff from entering the sea during construction;
2. It indicates that the project meets the requirements of Section 3 (Classification of Water Uses) in Chap. 37-A of the Public Health Regulations, Dept. of Health, State of Hawaii.

Thank you for the opportunity to comment on the EIS.

BOARD OF LAND AND NATURAL RESOURCES

C. Cobb
Chairman

501-12-0203

March 24, 1975

Mr. Christopher Cobb, Chairman and Member
State Board of Land And Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Cobb:

YOUR LETTER TO DR. RICHARD MARLAND OF THE
STATE OEQC, DATED FEBRUARY 10, 1975 RELATING
TO THE DRAFT EIS FOR THE KULAMANU STREET
RELIEF DRAIN

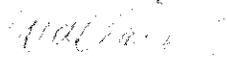
Thank you for your comments on the draft EIS.

The project specifications will require the contractor to take all precautions to prevent environmental pollution during construction operations. These will include but not be limited to the following: (a) The length of construction activity at any one time shall be limited and controlled; (b) The excavated material shall be stored and confined by suitable bulkheads or other devices; and (c) The contractor shall be responsible for complying with all applicable Federal, State and City and County laws and regulations concerning the environmental pollution control and abatement.

The drainage basin will not be changed and the total volume of storm runoff to the ocean will remain the same. The project mainly provides a relief drain system to eliminate overland flow and flooding of private properties. This will possibly reduce the total pollution of the near shore waters although the concentration in the area of the outlet could conceivably increase with the additional discharge. Insofar as meeting the requirement of Section 3, PHR#374, there is no prohibition of discharging storm runoff in Class A waters. The discharge is not subject to effluent limitation nor is a NPDES permit required. In addition, the runoff will be in compliance with the basic water quality standards applicable to all water areas.

A final EIS will be forwarded to you at a later date.

Very truly yours,


KAZU HAYASHIDA
Director and Chief Engineer

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



GEORGE A. L. YUEN
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH

P. O. BOX 3378
HONOLULU, HAWAII 96801

In reply, please refer to
File # 1975-1008

January 23, 1975

Dr. Richard E. Marland, Interim Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Dr. Marland:

Subject: Draft Environmental Impact Statement for
Kulamanu Street Relief Drain

Our staff has reviewed the subject statement for adequacy and compatibility with our official concerns in the environmental protection area.

We question the logic which results in a new discharge to one of the few public beaches in the area. The benefit to the property owners subjected to potential flooding is substantial but the benefit to the rest of the public is not apparent.

The increased volume of water and the additional debris will not have a positive effect on the beach or the quality of the water.

It is our opinion that other alternatives to the proposed project should be considered in depth before construction of this drainage project.

Sincerely,

A handwritten signature in cursive script, appearing to read "Shinji Soneda".

SHINJI SONEDA, CHIEF
Environmental Protection and
Health Services Division

HJY/jcn

501-12-0196

March 25, 1975

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

Dear Mr. Soneda:

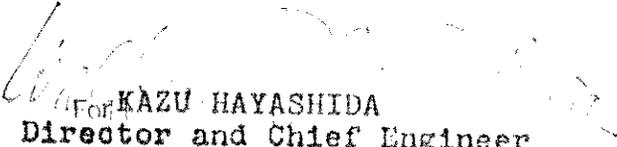
YOUR LETTER TO DR. RICHARD MARLAND OF THE STATE OEQC,
DATED JANUARY 23, 1975 RELATING TO THE DRAFT EIS
FOR THE KULAMANU STREET RELIEF DRAIN

Thank you for your comments on the draft EIS.

Some residents in the vicinity of the drain outlet were interviewed. They stated that the existing storm water discharge onto the sand beach has not created any noticeable adverse effects to the beach area. Littering by the beach goers is a more serious problem. The portion of the beach adjacent to the outlet apron is seldom used by beach goers because of the coral rock and sandstone-scattered over the area (see attached pictures G and H in the EIS). Therefore, the adverse effect to the public due to the increased quantity of storm water discharging on the beach is considered negligible. The proposed project should not be considered as a new discharge as indicated in your letter since there is already an existing drain outlet at the beach. Other alternatives to this project have been considered.

A final EIS will be forwarded to you at a later date.

Very truly yours,


For KAZU HAYASHIDA
Director and Chief Engineer

PC/RYN:kk
cc: OEQC



DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

Kamohāuli Building, 250 South King St., Honolulu, Hawaii • Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

GEORGE R. ARIYOSHI
Governor

HIDETO KONO
Director

FRANK SKRIVANER
Deputy Director

January 28, 1975

Ref. No. 2866

MEMORANDUM

TO: Dr. Richard E. Marland, Interim Director
Office of Environmental Quality Control

FROM: Hideto Kono, Director *[Signature]*

SUBJECT: Draft Environmental Impact Statement for Kulamānu Street Relief
Drain, Oahu

We have reviewed the subject draft and have the following comments to offer.

On page 3 of the draft, section 4 entitled Water Pollution, infers that "the amount of pollutants transported from the inland area will probably increase as a result of the increased discharge along the beach front." The rationale behind this statement appears to be somewhat confusing. Perhaps the reverse cause and effect relationship were intended.

In addition, that section also hypothesizes that the pollutants carried by the flood waters will be reduced to nil. As the report does not adequately substantiate this claim, it is not clear how this reduction is to be achieved prior to entrance into the receiving waters.

In view of these comments, we would like to suggest that they be clarified and further elaborated upon in the final report so that a more meaningful review can be conducted.

We appreciate the opportunity to review and comment on the subject statement.

501-12-0208

April 15, 1975

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

Dear Mr. Kono:

SUBJECT: YOUR LETTER TO DR. RICHARD MARLAND OF THE
STATE OEQC, DATED JANUARY 28, 1975 RELATING
TO THE DRAFT EIS FOR THE KULAMANU STREET
RELIEF DRAIN

Thank you for your comments on the draft EIS.

The proposed project will collect the street storm runoff from Kulamanu Street and relieve part of the storm flow from the existing system. This will reduce the overland flood water that may overflow from the existing system because of its inadequate capacity. The total storm water discharge to the beach area at the end of Kulamanu Place as well as the pollutant load that will be carried in the storm water will be increased. However, due to the elimination or reduction of overland flood waters the pollutant load from the surface of makai properties carried by the overland flow will be reduced. The overall total pollution of the receiving waters will therefore be equal to or less than the present load.

The relationship between magnitude of runoff volume and concentration of constituents has not been established due to the variation of storm intensity, duration, interval and conditions of the area. Also, the relationship of storm intensity and average flow cannot be established for non-perennial storm runoff. Based on these reasons, pollution loads from storm runoff cannot be quantified.

A final EIS incorporating your comments will be forwarded to you at a later date.

Very truly yours,

KAZU HAYASHIDA
Director and Chief Engineer

PC/RYN:rk
cc: OEQC