DEPARTMENT MASTER APPLICATION FORM

I. LANDOWNER/WATER SOURCE OWNER
(If State land, to be filled in by Government Agency in control of property)
Name: State of Hawaii
Address: Dept. Of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813
Telephone No. 548-3205

SIGNATURE
Date: MAY 3, 1983

II. APPLICANT (Water Use, omit if applicant is landowner)
Name: Board of Water Supply
Address: City & County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843
Telephone No. 527-6138 (L. Whang)

Interest in Property 20-Inch Water Main at Kalanui Stream
(Indicate interest in property; submit written evidence of this interest)

*SIGNATURE
Date: APR 17, 1983

III. TYPE OF PERMIT(S) APPLYING FOR
( ) A. State Lands
( ) B. Conservation District Use
( ) C. Withdraw Water From A Ground Water Control Area
( ) D. Supply Water From A Ground Water Control Area
( ) E. Well Drilling/Modification

IV. WELL OR LAND PARCEL LOCATION REQUESTED
District: Hauula
Island: Oahu
County: Honolulu
Tax Map Key: 5-3-09:47
Area of Parcel: 7496 Sq. ft.
Term (if lease)

*If for a Corporation, Partnership, Agency or Organization, must be signed by an authorized officer.
V. Environmental Requirements

Pursuant to Chapter 343, Hawaii Revised Statutes, and in accordance with Title 11; Chapter 200, Environmental Impact Statement Rules for applicant actions, an Environmental assessment of the proposed use must be attached. The Environmental assessment shall include, but not be limited to the following:

1. Identification of applicant or proposing agency;

2. Identification of approving agency, if applicable;

3. Identification of agencies consulted in making assessment;

4. General description of the action's technical, economic, social, and environmental characteristics;

5. Summary description of the affected environment, including suitable and adequate location and site maps;

6. Identification and summary of major impacts and alternatives considered, if any;

7. Proposed mitigation measures, if any;

8. Determination;

9. Findings and reasons supporting determination; and

10. Agencies to be consulted in the preparation of the EIS, if applicable.

VI. Summary of Proposed Use (what is proposed)
DESCRIPTION OF PARCEL

A. Existing Structures/Use:

The existing structures in the vicinity of the proposed project are the two-lane Kamehameha Highway bridge structure over Kaluanui Stream and a single-family residence on each bank at the stream outlet.

B. Existing Utilities:

Overhead utility lines for telephone and electricity exist along the mauka side of the Kamehameha Highway. The existing 12-inch waterline is located along the mauka edge of the Kaluanui bridge structure.

C. Existing Access:

The project site is located within the Kamehameha Highway right-of-way along the makai side of the Kaluanui bridge structure.

D. Vegetation:

Mainly, Hau trees and Naupaka Kahakai plants line the banks of Kaluanui Stream.

E. Topography:

Kaluanui Stream at the proposed pipeline crossing is sandy and level. Most of the flow infiltrate into the stream bed, and the depth of the stream at the project site is about 1 to 3 feet.

F. Shoreline Area:

The proposed pipeline will be located about 100 feet from the shoreline. The shoreline at the mouth of the stream is sandy.

G. Existing Covenants, Easements, Restrictions:

The proposed pipeline will be located within the State highway right-of-way.

H. Historic Sites Affected:

There are no known historic sites within the proximity of the proposed work.
INFORMATION REQUIRED FOR ALL USES

I. Description of Parcel

A. Existing structures/Use. (Attach description or map).

B. Existing utilities. (If available, indicate size and location on map. Include electricity, water, telephone, drainage, and sewerage).

C. Existing access. (Provide map showing roadways, trails, if any. Give street name. Indicate width, type of paving and ownership).

D. Vegetation. (Describe or provide map showing location and types of vegetation. Indicate if rare native plants are present).

E. Topography; if ocean area, give depths. (Submit contour maps for ocean areas and areas where slopes are 40% or more. Contour maps will also be required for uses involving tall structures, gravity flow and other special cases).

F. If shoreline area, describe shoreline. (Indicate if shoreline is sandy, muddy, rocky, etc. Indicate cliffs, reefs, or other features such as access to shoreline).

G. Existing covenants, easements, restrictions. (If State lands, indicate present encumbrances).

H. Historic sites affected. (If applicable, attach map and descriptions).

II. Description: Describe the activity proposed, its purpose and all operations to be conducted. (Use additional sheets as necessary). SEE ATTACHED DRAWINGS

III. Commencement Date: Upon approval of CDUA.

Completion Date: 12 months after initial construction.

IV. TYPE OF USE REQUESTED (Mark where appropriate)

1. Permitted Use (exception occasional use):
   DLNR Title 13, Chapter 2, Section _____; Subzone _____.

2. Accessory Use (accessory to a permitted use):
   DLNR Title 13, Chapter 2, Section _____; Subzone _____.

3. Occasional Use: Subzone ________

4. Temporary Variance: Subzone ________

5. Conditional Use: Subzone _______
Area of Proposed Use 7,406 sq. ft.  
(Indicate in acres or sq. ft.)

Name & Distance of Nearest Town or Landmark  
Kaluanui Stream at Kamohameha Highway.

Boundary Interpretation (If the area is within 40 feet of the boundary of the Conservation District, include map showing interpretation of the boundary by the State Land Use Commission).

Conservation District Subzone Resource (R)  
County General Plan Designation Agriculture

V. FILING FEE:

1. Enclose $50.00. All fees shall be in the form of cash, certified or cashier's check, and payable to the State of Hawaii.

2. If use is commercial, a defined, submit additional public hearing fee of $50.00.

INFORMATION REQUIRED FOR CONDITIONAL USE ONLY

I. Plans: (All plans should include north arrow and graphic scale).

A. Area Plan: Area plan should include but not be limited to relationship of proposed uses to existing and future uses in abutting parcels; identification of major existing facilities; names and addresses of adjacent property owners.

B. Site Plan: Site plan (maps) should include, but not be limited to, dimensions and shape of lot; metes and bounds, including easements and their use; existing features, including vegetation, water area, roads, and utilities.

C. Construction Plan: Construction plans should include, but not be limited to, existing and proposed changes in contours; all buildings and structures with indicated use and critical dimensions (including floor plans); open space and recreation areas; landscaping, including buffers; roadways, including widths; offstreet parking area; existing and proposed drainage; proposed utilities and other improvements; revegetation plans; drainage plans including erosion sedimentation controls; and grading, trenching, filling, dredging or soil disposal.

D. Maintenance Plans: For all uses involving power transmission, fuel lines, drainage systems, unmanned communication facilities and roadways not maintained by a public agency, plans for maintenance shall be included.

E. Management Plans: For any appropriate use of animal, plant, or mineral resources, management plans are required.

F. Historic or Archaeological Site Plan: Where there exists historic or archaeological sites on the State or Federal Register, a plan must be submitted including a survey of the site(s); significant features; protection, salvage, or restoration plans.

II. Subzone Objective: Demonstrate that the intended use is consistent with the objective of the subject Conservation District Subzone (as stated in Title 13, Chapter 2).
INFORMATION REQUIRED FOR CONDITIONAL USE ONLY

I. Plans:

A. Area Plan (attached)
B. Site Plan (see attached Environmental Assessment)
C. Construction Plans (attached)
D. Maintenance Plans (none required)
E. Management Plans (none)
F. Historic or Archaeological Site Plan: (see attached Environmental Assessment)

II. Subzone Objective:

Development of water collection, pumping, storage, control and transmission is consistent with the subject Conservation District Subzone.
PURPOSE: PROVIDE BETTER WATER SERVICE

DATUM: MSL = 0.00

ADJACENT PROPERTY OWNER: BERNICE P. BISHOP ESTATE

VICINITY MAP

PROPOSED 20 INCH SUBAQUEOUS WATER MAIN

IN: KALUANUI STREAM

AT: HAULUA

CITY & COUNTY OF HONOLULU

APPLICATION BY: BOARD OF WATER SUPPLY

650 S. BERETANIA STREET
HONOLULU, HAWAII 96843

SHEET 1 OF 4 DATE 10/7/87
TMK: 5-3-09: 47
5-3-10: 30

1. TRENCH EXCAVATION = 3300 Cu.Yd.
2. UNSUITABLE MATERIAL FOR TRENCH BACKFILL WILL BE DISPOSED OF BY THE CONTRACTOR AT AN APPROVED DISPOSAL SITE.
3. EXCAVATED MATERIAL - WHITE - BLACK - GRAY SAND, LOOSE/SATURATED

PURPOSE: PROVIDE BETTER WATER SERVICE

DATUM: MSL = 0.00
ADJACENT PROPERTY OWNER:
BERNICE P. BISHOP ESTATE

PROPOSED 20 INCH SUBAQUEOUS WATER MAIN
IN: KALUANUI STREAM
AT: HAULUA CITY & COUNTY OF HONOLULU
APPLICATION BY: BOARD OF WATER SUPPLY

BOARD OF WATER SUPPLY
630 So. Beretania Street
Honolulu, Hawaii 96813

SHEET 2 OF 4 DATE 10/7/87
ELEV. DATUM: MSL 0.0

PROFILE
Scales: Horiz: 1" = 40'
Vert. 1" = 8'

PURPOSE: PROVIDE BETTER WATER SERVICE
DATUM: MSL = 0.00
ADJACENT PROPERTY OWNER
1. BERTRICE P. BISHOP ESTATE

PROPOSED 20-INCH SUBAQUEOUS WATER MAIN
IN: KALUANUI STREAM
AT: HAUULA
CITY & COUNTY OF HONOLULU
APPLICATION BY: BOARD OF WATER SUPPLY

BOARD OF WATER SUPPLY
630 So. Beretame Street
Honolulu, Hawaii 96843

SHEET 3 OF 4 DATE: 10/7/87
**Typical Trench Detail**

Not to Scale

**Purpose:** Provide better water service

**Datum:** MSL = 0.00

**Adjacent Property Owner:** Bernice P. Bishop Estate

**Typical Trench Detail**

Board of Water Supply
650 So. Beretania Street
Honolulu, Hawaii 96843

**Proposed 20 Inch Subaqueous Water Main**

**In:** Kaluanui Stream

**At:** Haunula

**City & County of Honolulu**

Application by: Board of Water Supply

Sheet 4 of 4 Date 10/7/87
CITY AND COUNTY OF HONOLULU
BOARD OF WATER SUPPLY

ENVIRONMENTAL IMPACT ASSESSMENT
FOR
KAMEHAMEHA HIGHWAY 20-INCH MAIN
FROM PUNALUU TO HAUULA
OAHU, HAWAII
TMK: 5-3-06, 5-3-09

This environmental document is submitted pursuant to Chapter 343, HRS

Proposing Agency: Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Contact Person: Lawrence Whang, Phone: 527-6138

Board Members:
Donna B. Goth, Chairman
Ernest A. Watari, Vice Chairman
Milton J. Agader
Sister M. Davilyn Ah Chick, O.S.F.
Edward Y. Hirata
Alfred J. Thiade
John K. Tsui

[Signature]
Date 12/30/87
Kazu Hayashida
Manager and Chief Engineer

Prepared by: Board of Water Supply
December 1987
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I. OBJECTIVE AND DESCRIPTION OF THE PROPOSED PROJECT

A. Project Objective

The project objective is to increase the carrying capacity of the Windward Water Distribution System to allow the assimilation of new wells being developed at Kaluanui into the existing water system. The main is being oversized to allow the assimilation of other future water sources being planned for development north of Kaluanui.

B. Project Description

About 6,500 feet of 20-inch transmission main is proposed to be installed along Kamehameha Highway from Halesha Road in Punaluu to Sacred Falls Trail Road in Hauula. The main will be buried along the seaward side of the road right-of-way and have a minimum cover of three (3) feet.
The main will be installed under four box culverts and one stream. At all of these crossings, the main will be concrete-jacketed with a minimum thickness of twelve (12) inches.

Alignment of the main was adjusted to avoid the removal or damage to trees along the pipeline route.

Construction work for the 20-inch main is tentatively scheduled to begin in mid-1988, and the duration of work will be about one year.

Estimated cost of the project is $1,240,000. Funding for the project would be from the Board's Fiscal Year 1988 Capital Improvement Program Budget.
C. Background

The proposed transmission main is a portion of a major transmission network being planned to convey water from future drinking water sources in Windward Oahu with excess water exported to Honolulu. Pipeline sizes will range from 12-inches at Laie to 42-inches at Kaneohe.

II. ENVIRONMENTAL SETTING

A. Climate

Temperatures along the Windward Coast is equable throughout the year. The variation between the coldest and warmest months averages about 7°F.

Average annual temperatures range from 72°F to 79°F with extreme temperatures of 49°F and 95°F.
Rainfall occurs sporadically throughout the year with most of the rainfall occurring during the winter months. Median rainfall along the coastal areas is about 60 inches and increases to over 200 inches at the crest of the Koolau Range.

B. Soils

The soil along the transmission main alignment is described as Jaucas Sand (JaC) by the U.S. Soil Conservation Service. This type of soil consists of excessively drained, calcareous soils that occur as narrow strips on coastal plains, adjacent to the ocean.

Jaucas Sand (JaC) has slopes ranging from 0 to 15 percent, but usually does not exceed 7 percent. The soil is pale brown to very pale brown, sandy, more than 60 inches deep, and is neutral to moderately alkaline throughout its profile.
C. **Flood Hazard**

According to the Flood Insurance Rate Map prepared by the U.S. Department of Housing and Urban Development, the project site is located in a Special flood hazard area inundated by the one-hundred year flood and is designated as Zone VI4 with a base flood elevation of 10 feet above mean sea level.

There are several concrete box culverts crossing the proposed pipeline alignment.

D. **Streams**

The only major stream crossing the proposed pipeline is Kaluanui Stream. Kaluanui Stream is perennial at its upper reaches, but only intermittent at its lower reaches. Most of the dry weather flow infiltrates into the streambed.
A U.S. Geological Survey gaging station is located along Kaluanui Stream at an altitude of 110 feet. Mean discharge recorded at this station was 2.78 mgd, although there were periods where no flow was recorded. The computed $Q_{90}$ at this station was 0.19 mgd and $Q_{95}$ is 0.06 mgd.

At the present time, no streamflow diversions exist.

E. Archaeology

There are no recorded archaeological or historical sites within the project area.

F. Fauna

There are no rare or endangered animal habitats within the road right-of-way.

Animals that may be seen include dogs, cats, mongoose, mynahs, sparrows, ring-necked doves, cardinals, and bulbuls.
G. Vegetation

Introduced species of plants are found along the pipeline alignment. Typical plants include the kamani tree, ironwood tree, norfolk pine tree, coconut tree, spider lily, panax, croton, hibiscus, fern, hao, plumeria, aloe, wedelia, octopus tree, palm tree, taro vine, and other various exotic plants. No rare or endangered plant species were seen along the road right-of-way.

H. Traffic

Kamehameha Highway is a two-lane asphaltic concrete roadway under the jurisdiction of the Department of Transportation, State of Hawaii. The width of the right-of-way is about 50 feet of which 30 feet is the paved roadway.

Various improvements by abutting landowners have encroached into the right-of-way. Some of these improvements include a concrete rubble masonry (CRM) wall, hedges, a chain link fence, and other fences and walls.
# 24-Hour Traffic Count-Station Summary

**Station No:** C-27-A  
**Count Type:** _____  
**Group:** _____  
**Old No:** _____  
**Location:** Kamehameha Highway at Kaipapa Bridge

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<th>STATION CHARACTERISTICS</th>
<th>ROAD SECTION</th>
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**Key Divided:** No  
**Yes**  
**Type:**  

## 24-Hour Traffic Volumes

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**Note:** The table contains data for various dates, with traffic counts for different days.
### 24-HOUR TRAFFIC COUNT-STATION SUMMARY

**Station No:** C-28-A  
**Count Type:**  
**Group:**  
**Old No:**  

**Location:** Kamakana Highway at Punaluu Bridge

#### STATION CHARACTERISTICS

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#### ROAD SECTION

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**CHANNEL B:** ON KAEHAWENA HU SE OF KANEOHE - MR 15678

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**PH-Peak hr Time** 11:30-12:00

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| A-K Factor | 8.7 |

<p>| A-K Factor | 6.7 |
| A-K Factor | 8.7 |</p>
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# 24-HOUR TRAFFIC COUNT-STATION SUMMARY

**Station No:** C-27-A  
**Count Type:**  
**Group:**  
**Old No.:**  

**Location:** Kanehamohe Highway at Kaipapau Bridge

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**Special Conditions:**

**Day Divided:** No Yes Type:

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[Diagram of traffic count station]
24-HOUR TRAFFIC COUNT-STATION SUMMARY

Station No: C-28-A  Count Type: Group: Old No:
Location: Kamehameha Highway at Punaluu Bridge

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**AN PEAK HR TIME**

| 1100-1200  | 360   |

**FM PEAK HR TIME**

| 2100-2200  | 476   |

**AN D-E (PEAK-HR)**

| 52.1  | 100.0 |

**FM D-E (PEAK-HR)**

| 100.0  | 100.0 |

**AN K FACTOR**

| 47.9  | 100.0 |

**FM K FACTOR**

| 47.9  | 100.0 |

**DIRECTIONAL TOTALS**

| CHAN-A = 5231. | CHAN-B = 4927. | CHAN-K = 48.7 |

| 24-HOUR TOTAL = 10227. |
Traffic on the highway is a mixture of automobiles, trucks, and buses. The Bus, operated by the City, has a regular schedule along this route. Private tour companies also use this route to transport tourists to the Polynesian Cultural Center and other scenic attractions along the North Shore area.

The speed limit between Punalu'u and Hauula is 35 miles per hour.

A 24-hour traffic count conducted in February 1986 showed a total of 10,227 vehicles crossing the Kaipapau Bridge with 5,331 vehicles in the Kahuku-bound direction. On the same day, 7,699 vehicles crossed the Punalu'u Bridge with 3,942 vehicles traveling in the Kahuku direction.

Peak morning traffic occurred between 11:00 to 12:00 p.m. while peak traffic in the afternoon occurred between 2:00 to 3:00 p.m. at the Kaipapau Bridge. At the Punalu'u Bridge, peak traffic occurred between 10:30 to 11:30 in the morning and 3:15 to 4:15 in the afternoon.
I. Air Quality and Noise

There are no significant sources of air pollution or noise in the project area. Ambient sound levels in rural areas are typically in the range of 40-45 DBA.

J. Utilities

Overhead utility lines for telephone and electrical service exist in the project area.

There are no municipal sewers or GASCO lines in the area. However, there is an existing 12-inch waterline located on the inland side of the State highway right-of-way. This existing waterline serves the Hauula to Punaluu "180" system.
### CONSTRUCTION EQUIPMENT NOISE RANGES

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**Note:** Based on Limited Available Data Samples

**Source:** Noise From Construction Equipment and Operations Building Equipment, and Home Appliances, EPA, 1971
K. Land Use

Lands adjacent to Kamehameha Highway are predominantly used for single-family dwellings. In addition to the single-family dwelling units, there is a Catholic church, a commercial establishment (Pat's at Punaluu), and a condominium (Manohano Hale) within the project area.

III. LAND USE CONTROLS

A. Hawaii Coastal Zone Management Program

The Hawaii Coastal Zone Management Law (Section 205A, Hawaii Revised Statutes) requires all public agencies to protect coastal ecosystems, such as the habitats of waterbirds and diadromous stream fauna.

Under Part II of Section 205A, HRS, the City and County of Honolulu established a "Special Management Area" around the perimeter of Oahu to regulate above ground development. All
development in the "Special Management Area" requires a permit that must be approved by the City Council in consideration of the Hawaii Coastal Zone Management Program objectives and policies. However, the installation of underground utilities and appurtenant above ground features less than four feet in height are exempt from the Special Management Area permit requirements (Ordinance No. 84-4, as amended).

B. Department of the Army Permit

The Department of the Army Permit is administered by the U.S. Army Corps of Engineers, Honolulu District, under Section 10 of the Rivers and Harbor's Act (33 USC 403); Section 404 of the Clean Water Act (33 USC 1344); and Section 103 of the Marine Protection, Research and Sanitation Act of 1972 (33 USC 1413). The permit is required for all work within waters of the United States, including ocean and coastal waters, inland and tidal waters, tidal ponds, fishponds, rivers, streams and adjacent wetlands, perched wetlands, and intermittent streams.
A Department of the Army permit will be required for the waterline crossing over the tidal waters of Kaluanui Stream.

C. Development Plans - City and County of Honolulu

Development within the City and County of Honolulu is guided by the City's General Plan, which is adopted by resolution and consists of eight (8) Development Plans which are enacted by ordinance.

The General Plan specifies long-range objectives reflecting desired conditions for the people of Oahu and policies which will facilitate the attainment of these objectives. The framework provided by the General Plan addresses all aspects of public health, safety, and welfare.
The Development Plans present relatively detailed schemes to implement and accomplish the objectives and policies of the General Plan with respect to development. Planned land uses and public facilities are shown on maps with an indication of the sequence in which public facilities will be developed.

Prior to construction, all proposed public facilities must be designated on the appropriate Development Plan Public Facilities Map (DPPFM). The eight DPPFMs designate proposed facilities which are intended to meet the growth objectives of the Development Plans by providing adequate facilities to accommodate existing and projected needs.
IV. ENVIRONMENTAL IMPACTS AND MITIGATIVE MEASURES

A. Traffic

Traffic congestion is anticipated once construction work begins. To minimize traffic impacts, the contractor will schedule his work between the hours of 8:30 a.m. to 3:00 p.m., Monday to Friday, excluding any State holidays.

One lane of traffic shall be open at all times.

All work shall conform with the "Administrative Rules of Hawaii Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways" and the "Manual of Uniform Traffic Control Devices for Streets Maintenance Operations."

Trenches shall be covered with safe, non-skid bridging material to handle all types of vehicular traffic. No more than 150 feet of trenching shall be exposed at any one time.
The contractor shall provide access to and from driveways and public streets at all times.

Should conditions warrant, the contractor may hire off-duty police officers to control the flow of traffic around the construction area.

Kamehameha Highway may be widened to four lanes by the State Department of Transportation which may require relocation of the main in the future.

B. **Air Quality and Noise**

There will be some deterioration of air quality from dust and exhaust fumes. Periodic water sprinkling or other approved methods will be implemented to control dust generation.
The contractor will be required to maintain his internal combustion equipment in excellent working condition to minimize the emission of exhaust fumes.

Ambient noise levels will increase temporarily for the duration of the construction work. To minimize adverse noise levels from the construction equipment, the contractor will be required to install or maintain sound attenuating devices on his equipment where it is applicable.

The contractor shall conform to the various Public Health Regulations of the Department of Health, State of Hawaii, relating to noise control (Chapters 11-42 and 11-43) and air quality (Chapters 11-59 and 11-60) in the performance of his work.
C. Archaeology

There are no known historical or archaeological sites within the construction area. However, should any subsurface archaeological resources be encountered, the contractor will be required to stop work and immediately notify the BWS inspector who will then notify the State Historic Preservation Office. No work will recommence until mitigative measures acceptable to the State can be implemented.

D. Water Quality

The proposed pipeline work is not anticipated to adversely affect streamflow. However, the pipeline will cross one stream, Kaluanui Stream. Kaluanui Stream is perennial in its upper reaches and intermittent at its lower reaches. Adequate precautions will be taken to accommodate unforeseen flood flows and intermittent flows during the installation of the pipeline across the stream.
A stream alteration permit will be required from the State's Division of Water and Land Development.

E. **Main Disinfection**

As the main is installed, it will be hydrostatically tested and disinfected. All new mains will be subjected to a hydrostatic test pressure of 250 psi by the contractor.

After the main is hydrostatically tested and all leaks are repaired, the main is disinfected, usually with chlorine at a concentration of 50 mg/L. This chlorinated water would be retained in the pipeline overnight and discharged into existing drainageways or waterways in accordance with applicable Federal, State, and City requirements.
The tentative discharge location of the chlorinated water used in the pipeline disinfection would be at Kaluanui Stream where it crosses Kamehameha Highway. If possible, another discharge point may be selected to avoid potential harm to aqua fauna in Kaluanui Stream and at the beach discharge area. Diluting the highly chlorinated water before discharging into the stream and/or aerating the water may be implemented to minimize adverse impacts to the receiving environment.

V. ALTERNATIVES

A. No Action

Without a new parallel main, water from new sources would be pumped into the existing main. However, this would require higher operating pressures which can result in fluctuating pressures, water hammer, and a greater potential for main breaks. All of these potential problems would inconvenience consumers served from the system.
B. Delay Action

The advantage to this action, depending upon the duration of the delay, would allow the Board to size the main to the amount of water actually developed from the new sources. The main is presently sized to carry the maximum estimated flow from all the new sources between Punaluu and Malaekahana.

The only obvious disadvantage is that costs for construction will be much higher, if the pipeline is installed later.

C. Alignment

No consideration was given to install the pipeline outside of the highway right-of-way as it would require the displacement of residents and remove land from the tax base.

Installation of the pipeline on the inland side of the right-of-way would require encroachment into private property and was therefore also determined unfeasible.
The other alternative alignment is to install the main in the center of Kamehameha Highway. However, this would affect both lanes and may also require constructing a temporary bypass roadway for non-local traffic.

D. Smaller/Larger Main

The proposed main size is based on the estimated optimum yield from all new sources planned between Punaluu and Malaekahana.

There will be no advantage in installing a larger pipe. It will involve a higher construction cost, may have low pressure problems and may also have water quality problems such as air entrainment.

A smaller pipe may result in a higher than normal line pressures, a lower construction cost and may require an additional pipeline if the yield from the proposed sources is much greater than the designed capacity of the pipe.
E. Main Disinfection

As the main is installed, it will be hydrostatically tested and disinfected. All new mains will be subjected to a hydrostatic test pressure of 250 psi by the contractor.

After the main is hydrostatically tested and all leaks are repaired, the main is disinfected, usually with chlorine at 50 mg/L. This chlorinated water would be retained in the pipeline overnight and discharged into existing drainageways or waterways in accordance with applicable Federal, State, and City requirements.

The tentative discharge location of the chlorinated water used in the pipeline disinfection would be at Kaluanui Stream where it crosses Kamehameha Highway.
VI. DETERMINATION

The proposed pipeline project is not anticipated to have a significant impact to archaeological, water quality, air quality, noise, existing utilities, or wildlife habitat. However, there will be moderate impacts to traffic for the duration of the project, but mitigative measures will be implemented to minimize traffic congestion.

Also, preventive measures will be implemented in the discharge of chlorinated water used in the main disinfection process to minimize impacts to the receiving environment.

All anticipated impacts will be temporary and the environmental quality of the area will return to preconstruction conditions.
VII. PARTIES CONSULTED

A. Federal

1. U.S. Army Corps of Engineers

B. State

1. Department of Land and Natural Resources
2. Department of Transportation
3. Department of Health

C. City

1. Department of Public Works
2. Department of Land Utilization
3. Department of General Planning
4. Department of Transportation Services

D. Other

1. Koolauloa Neighborhood Board No. 28
2. Punaluu Community Association
VII. COMMENTS ON ASSESSMENT
Mr. Kazu Hayashida, Director
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, HI 96843

Dear Mr. Hayashida:

Thank you for the opportunity to review and comment on the environmental assessment for Kamehameha highway 20-inch main from Punahou to Kamuela. The following comments are offered:

a. A Department of the Army permit is required for the waterfront crossing over tidal waters of the Punahou and Kalaau streams.

b. The parcels identified by tax map keys 5-2-66 and 5-2-69 are shown on the enclosed tax maps and FIRS for Kalaau area.

According to the Flood Insurance Study for the City and County of Honolulu, the project is located in a Special Flood Hazard area inundated by the 100-year flood and is designated as Zone V14 with a base flood elevation of 10 feet above mean sea level.

Sincerely,

[Signature]

Kioko Chung
Chief, Engineering Division

Enclosures
MEMORANDUM

To:      Mr. Kazu Hayashida, Manager and Chief Engineer
          Board of Water Supply, City & County of Honolulu

From:    Deputy Director for Environmental Health

Subject: Environmental Impact Assessment for Kamehameha Highway 26-Inch Main
          from Punalu'u to Houlau

Thank you for allowing us to review and comment on the subject environmental
assessment. To provide the following comments:

1. Construction activities must comply with the provisions of Title 11, Administrative
   Rules Chapter 43, Community Noise Control for Oahu.
   a. The contractor must obtain a noise permit since the noise levels from the
      construction are expected to exceed the allowable levels of the rules.
   b. The contractor must comply with the Conditional use of the permit as
      specified in the rules and conditions issued with the permit.

2. Since construction noise can have a disruptive effect on classroom activity, noisy
   construction work near Hauula Elementary School should be scheduled during
   nonschool hours.

3. Heavy vehicles travelling to and from the project site must be minimized near
   existing residential areas and Hauula Elementary School and must comply with
   the provisions of Title 11, Administrative Rules Chapter 42, Vehicular Noise Control
   for Oahu.

4. Should there be a backyard or stockpile area located adjacent to residences or the
   school, abatement measures, such as barriers or barriers, must be constructed to
   reduce the noise from such areas. Contingency plans must be developed in the event
   that complaints are received regarding noise emanating from these areas.

Thank you for your comments on the environmental assessment for our proposed waterline
project.

Construction activities will comply with Chapter 43 of Title 11, Community Noise Control for Oahu,
and Chapter 42 of Title 11, Vehicular Noise Control for Oahu.

No work is planned near Hauula Elementary School. The
pipeline ends near Kalawao Station which is about one mile
from the elementary school. Should future work be planned in
the vicinity of the school, we will implement the mitigative
measures that are mentioned in your memorandum.

If you have any questions, please contact Lawrence Ching at
527-6136.

Very truly yours,

[Signature]

[Name]
Manager and Chief Engineer

cc:  E. Hayashida
      Engineering
      L. Whang

07-1988
MEMORANDUM

TO: KAZU HAYASHIDA, MANAGER & CHIEF ENGINEER
   BOARD OF WATER SUPPLY

FROM: JOHN P. WHALEN, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT ASSESSMENT FOR KAMEHAMEHA HIGHWAY 20-INCH MAIN FROM PUNALU’U TO HAUULA

August 30, 1987

Thank you for the opportunity to review the above referenced environmental impact assessment for installation of a 20-inch main from Punalu’u to Hauula. Your evaluation of the project’s status with regard to the Special Management Area (SMA) permit requirements (Chapter 33, ROH) is accurate in that the installation of underground utilities are exempt from having to obtain a permit.

The Department of Land Utilization (DLU) is pleased to note in the assessment that the main alignment was adjusted to avoid the removal or damage to trees along the pipeline route. This effort will ensure and maintain the aesthetic value of coastal view planes along Kamehameha Highway. We request that the final plans showing existing trees and those to be removed, if any, be submitted to our Department for review.

If you have any questions, please contact Art Challacombe of our staff at 523-4648.

John P. Whalen
Director of Land Utilization

September 4, 1987

TO: JOHN P. WHALEN, DIRECTOR
   DEPARTMENT OF LAND UTILIZATION

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
   BOARD OF WATER SUPPLY

SUBJECT: YOUR MEMORANDUM ON THE ENVIRONMENTAL IMPACT ASSESSMENT FOR KAMEHAMEHA HIGHWAY 20-INCH MAIN FROM PUNALU’U TO HAUULA

Thank you for remitting the environmental assessment for our proposed underwater project.

The final construction plans will be submitted for your department’s review. Existing trees and those to be removed, if any, will be shown in the final plans.

If you have any questions, please contact Leonard Hing at 532-6138.

Kazu Hayashida

cc: Land Utilization Engineering
    A. Hing
    87-1806
DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

September 1, 1987

MEMORANDUM

TO: KAIU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: DONALD A. CLINN, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

SUBJECT: ENVIRONMENTAL IMPACT ASSESSMENT FOR KANEOHE HARBOR
HIGHWAY 20-110 CHARGE FROM PUEULUA TO Hoomal.

The Department of General Planning has reviewed the above referenced Environmental Assessment and offers the following comments:

1. The Environmental Assessment addresses anticipated adverse impacts relative to the construction of this project and further suggests appropriate measures which would serve to mitigate these impacts.

2. The proposed project is currently shown on the Development Plan Public Facilities Map for Koolau.

3. The department finds that the project is consistent with the requirements of the Ko'olau Development Plan and offers no objections to this project.

Thank you for the opportunity to review this document. Should you have any questions, please contact Bill Neidel at extension 4469.

DONALD A. CLINN
Chief Planning Officer
MEMORANDUM

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

FROM: JOHN E. HIRTH, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT ASSESSMENT FOR KAMUELENA HIGHWAY 20-INCH MAIN FROM PUIA'AU TO HAULUA

This is in response to your memorandum of August 4, 1987. We have no comments to offer regarding the subject environmental assessment.

signature

August 27, 1987
Mr. Kazu Hayashida  
Manager and Chief Engineer  
Board of Water Supply  
City & County of Honolulu  
616 S. Beretania Street  
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Environmental Assessment for 20-inch Main along  
Kamehameha Highway, Punaaleu to Hauula

Thank you for the opportunity to review this assessment. We have  
no adverse comments to offer, however we note that the project includes  
trenching and burial of the water main beneath Kahanu Stream.

It is our understanding that the main will be buried within the  
stream at a depth of three feet, covered in concrete, and covered by  
approximately 2 feet of fill material. Installation is expected to take  
from two to four weeks to complete and is planned for a dry period when  
little or no streamflow is present.

Although there will be no visible structures in the channel once  
installation is complete, the proposed work is considered to be a channel  
alteration since the work will result in the disturbance of normal stream  
conditions and possibly impact in-stream fauna and their habitat. Two  
copies of the application form for a stream channel alteration permit are  
provided for your use.

Should you have any questions regarding permit requirements or  
the application, please feel free to call Mr. Manabu Tegunori,  
Manager-Chief Engineer of the Division of Water and Land Development,  
at 148-1533.

Very truly yours,

WILLIAM M. PATY  
Chairperson of the Board

Mr. William W. Paty,  
Chairperson  
Board of Land and Natural  
Resources  
State of Hawaii  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Paty:

Subject: Your Letter of September 8, 1987 on the  
Environmental Assessment for the 20-Inch Main  
Along Kamehameha Highway, Punaaleu to Hauula

Thank you for reviewing the environmental assessment for our  
proposed waterline project.

We will apply for a stream channel alteration permit with  
your Division of Water and Land Management.

If you have any questions, please contact Lawrence Khaing at  
527-6168.

Very truly yours,

KAZU HAYASHIDA  
Manager and Chief Engineer

MSS:13  
CD: K. Hayashida  
Engineering (with incoming letter)  
J. Whang  
87-2011
Mr. Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
430 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Environmental Impact Assessment for Kanehaha Highway 20-Inch Main from Punalu'u to Hauula, Oahu

We wish to inform you that Kanehaha Highway may be widened to four lanes in the future and, therefore, may necessitate relocation of the subject water main.

Thank you for this opportunity to provide comments.

Very truly yours,

Edward Y. Hirata
Director of Transportation

Mr. Edward Y. Hirata, Director
Department of Transportation
State of Hawaii
659 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hirata:

Subject: Your Letter of September 15, 1987 on the Environmental Assessment for Kanehaha Highway 20-Inch Main, Punalu'u to Hauula

Thank you for your comments on the environmental assessment.

We will note in the revised assessment that Kanehaha Highway may be widened to four lanes which may require relocation of the main in the future.

If you have any questions, please contact Lawrence Whang at 127-6138.

Very truly yours,

Edward Y. Hirata
Director of Transportation

cc: K. Hayashida
Engineering
L. Whang
97-2118
Mr. Ken-Ichi Hashimoto
Manager and Chief Engineer
Board of Water Supply
620 South Beretania Street
Honolulu, HI 96813

Subject: Environmental Impact Assessment (EIA) for Kahului Highway 20-inch Relining Project to Punalu'u

Dear Mr. Hashimoto:

The following are Neighborhood Board 420's comments on the environmental assessment.

Page 1. Background

The community has some concern about the continued development of windward water sources to serve Honolulu's needs. This concern comes to the forefront especially since the windward communities in question are inadequately serviced as far as their own water needs. Many of these communities have inadequate transmission line plans for minimum fire flow. We understand that 8" lines are standard and that several of our communities have 6" lines. Many of the communities lack fire hydrants. If the Board of Water Supply is going to continue to develop windward water for transmission to Honolulu, the H.B. would like to suggest that the new budget be set aside to provide basic service to the windward coastline. The problem of insufficient service has resulted in residents being turned down for building permits and denied for subdivisions even though they possess the proper zoning. The H.B. requests that O.W.S begin to address the needs of the windward coastline as they continue to develop the water resources found there.

Page 2. Streams

The H.B. would like to point out that Kualolani Stream is a perennial stream and flows in all reaches year round.

Page 3. Cont. of 10 Million

The existing water line described here is it to remain in place or be replaced?

Mr. Ken-Ichi Hashimoto
September 14, 1987

Page 10 and 11, C. Development Plans - City and County of Honolulu

Is this line currently shown on the development plan public facilities map? If not, where is it in the process?

Page 11. Traffic

The H.B. does not understand how it will minimize traffic impacts to work through our identified peak hours (see page 7). However, we are pleased that you will be doing no weekend work as these are our worst traffic times.

General

We understand that the pipe will be a minimum of 3 feet below the ground; this is especially important at the culverts and stream crossings. We do not want the pipe uncovered during a storm and we look forward to seeing drainagage of the flood plain. We also look forward to seeing you all at the length of duration of the construction and when we can anticipate the start.

If you have any questions about these comments, feel free to contact me at 524-2817.

Sincerely,

[Signature]

U. W. D. L. [Name]

[Address]

cc: Senator Jimmy Wong
Representative Bob Bellinger
Councilwoman Luana Kahuna
Ms. Dee Dee Letts
Chair, Water and Transportation
Kahului Neighborhood Board, No. 28
C/o Maui Vegetable City Hall
54-010 Kukana Road
Hana, Maui 96717

Dear Ms. Letts:

Subject: Your letter dated September 14, 1987 on Environmental Impact Assessment (EIA) for Konahea Highway 20-Inch Main from Punalu'u to Hana

Thank you for reviewing and commenting on the EIA.

We have the following response to your comments:

1. Page 2, C. Background

There are many older communities where water systems meet the standards of their time, but do not meet the current water system standards. The Board of Water Supply has an ongoing program to upgrade these substandard areas and has appropriated funds annually for this specific purpose. The program is being carried out incrementally. This current fiscal year's program includes projects for the replacement of about 8,345 feet of 2-inch pipe along various streets in Waimanalo, about 7,260 feet of pipeline along various streets in Lanikai, and about 4,300 feet of pipeline along Lilihima Street in Kaneohe. This substandard pipeline problem exists throughout the island and communities may expedite the improvements by petitioning the City Council to initiate an improvement district in their area.

2. Page 4, A. Streams

The flow in Kualaula Stream is perennial in its upper reaches and at Kualaula Bridge. The attached map shows the stretch of stream between the two red marks where the stream occasionally disappears into the alluvium during dry weather. It reappears again at the lower red marked area. The pump station will be located below springs discharging into the stream and, therefore, should have no effect on the stream. However, we will monitor the stream flow when the station is put into operation to verify this.