Kamakaneld Hwy 30-in water main

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96843

PHONE (808) 527-6180

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March 11, 1996

Mr. Gary Gill, Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Gill:

Subject: Negative Declaration for the Proposed Kamehameha Highway 30-Inch Water Main Project, Kamaka Place to Kualoa Regional Park, Koolaupoko, Oahu, Hawaii, TMK: 4-8, 9

The Honolulu Board of Water Supply has reviewed the comments received during the 30-day public comment period which began on October 8, 1995. We have determined that this project will not have significant environmental effect and are issuing a negative declaration. Please publish this notice in the March 23, 1996 issue of The Environmental Notice.

We transmit the completed Office of Environmental Quality Control Bulletin Publication Form, four copies of the final Environmental Assessment and a diskette containing the project description in ASCII text format.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO
Manager and Chief Engineer

Enclosure

cc: Colette Sakoda (R.M. Towill Corporation)

1996-03-23-OA-FEA- Kamehameha Highway 30-in Water Main

FINAL ENVIRONMENTAL ASSESSMENT

Kamehameha Highway 30-Inch Water Main

KAMAKA PLACE, WAIKANE, TO NEAR KUALOA REGIONAL PARK, KUALOA, OAHU

TAX MAP KEY: Zone 4, Sections 8 & 9 (por.)

MARCH 1996

BOARD OF WATER SUPPLY
City and County of Honolulu
630 South Beretania Street
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420 Waiakamilo Road, Suite 411
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FINAL ENVIRONMENTAL ASSESSMENT

KAMEHAMEHA HIGHWAY 30-INCH WATER MAIN

FROM KAMAKA PLACE, WAIKANE, TO
NEAR KUALOA REGIONAL PARK, KUALOA, Oahu

TAX MAP KEY: Zone 4, Sections 8 & 9 (por.)

PREPARED FOR:

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

MARCH 1996

PREPARED BY:

R.M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

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SECTION 1
INTRODUCTION

The Board of Water Supply (BWS), City and County of Honolulu, plans to undertake a construction project to install a water transmission main in the Koolaupoko District. The BWS is preparing an environmental assessment (EA) to address plans and implementation, as well as potential environmental impacts and mitigation measures of the proposed project. This Environmental Assessment (EA) is the first step in the process. This is all in accordance with Chapter 343, Hawaii Revised Statutes (HRS), Act 241, Session Laws of Hawaii (SLH) 1992, and Chapter 200 of Title 11, Department of Health (DOH) Administrative Rules.

The proposing agency is the BWS, City and County of Honolulu; the approving agency is BWS, City and County of Honolulu.

For further reference, the Windward Oahu Regional Water System Improvements Plan, August 1988 provides additional information regarding the relationship of this project to the overall scope of the Windward Water System.

SECTION 2
PROPOSED ACTION

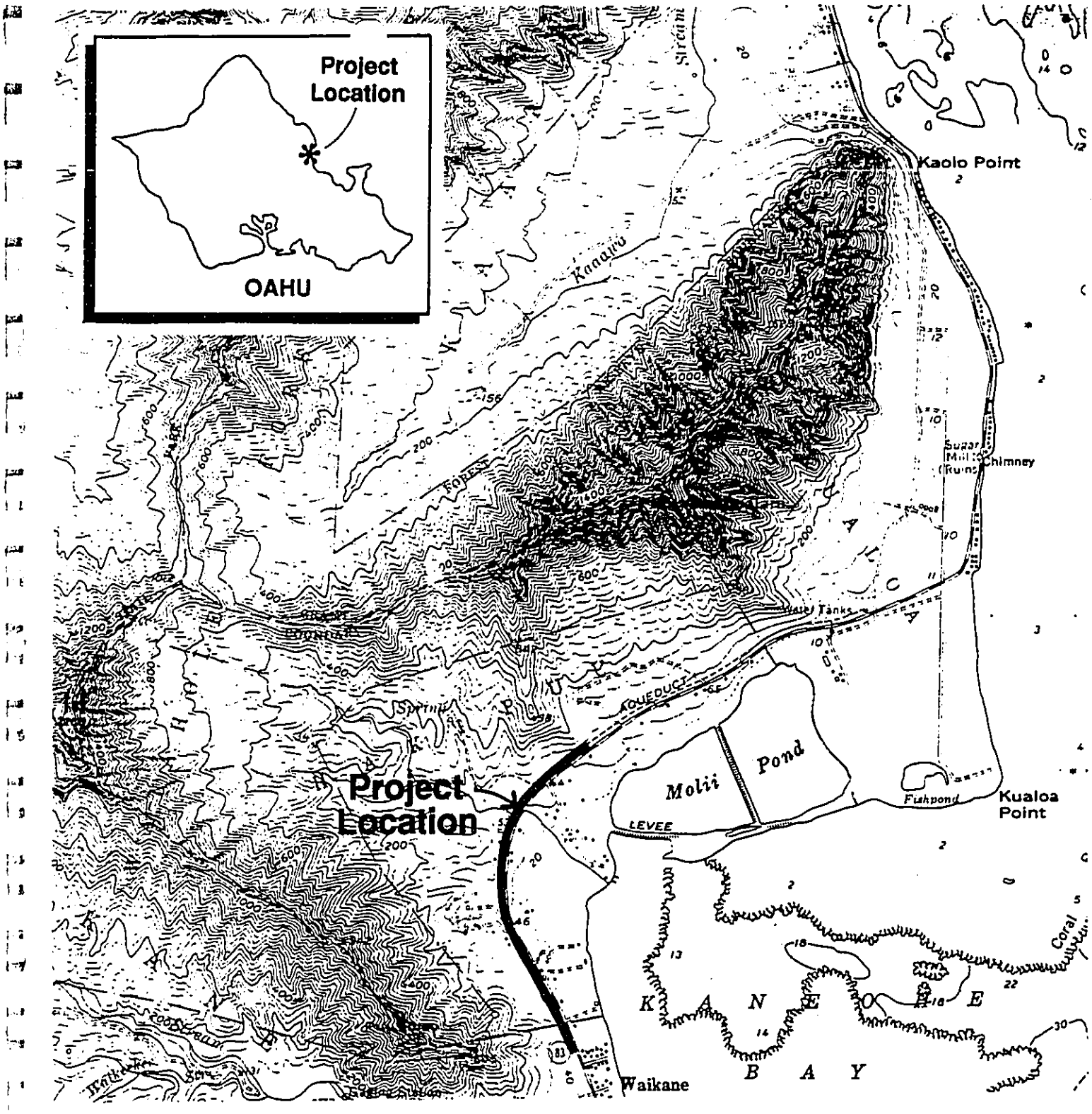
2.1 INTRODUCTION

The proposed transmission main project is part of a major network being planned to convey water from future potable water sources in the windward region of Oahu. The primary purpose of this action is to increase the carrying capacity of the Windward Water Distribution System to allow the assimilation of new wells into the existing water system. The secondary purpose is to provide back-up reliability to the existing (aging) 30-inch line. Any water unused by the windward area may be diverted around Makapuu toward Honolulu to relieve demands on importing water toward Honolulu from the Pearl Harbor aquifer.

2.2 PROJECT LOCATION AND DESCRIPTION

The project is located within the development plan district of Koolaupoko on the northeast portion of Oahu. Approximately 6,600 feet (1.25 miles) of the 30-inch transmission main will be installed within the 50-foot right-of-way of Kamehameha Highway, a public road under the jurisdiction of the State of Hawaii Department of Transportation. The transmission main will extend from Kamaka Place in Waikane to near Kualoa Regional Park in Kualoa, and will be installed in several phases, commencing from Kamaka Place and progressing in a northerly direction. (See Figures 1 and 2). This is also one phase of an overall project to install a parallel 30-inch main from the Kahana Wells to Waihee line booster.

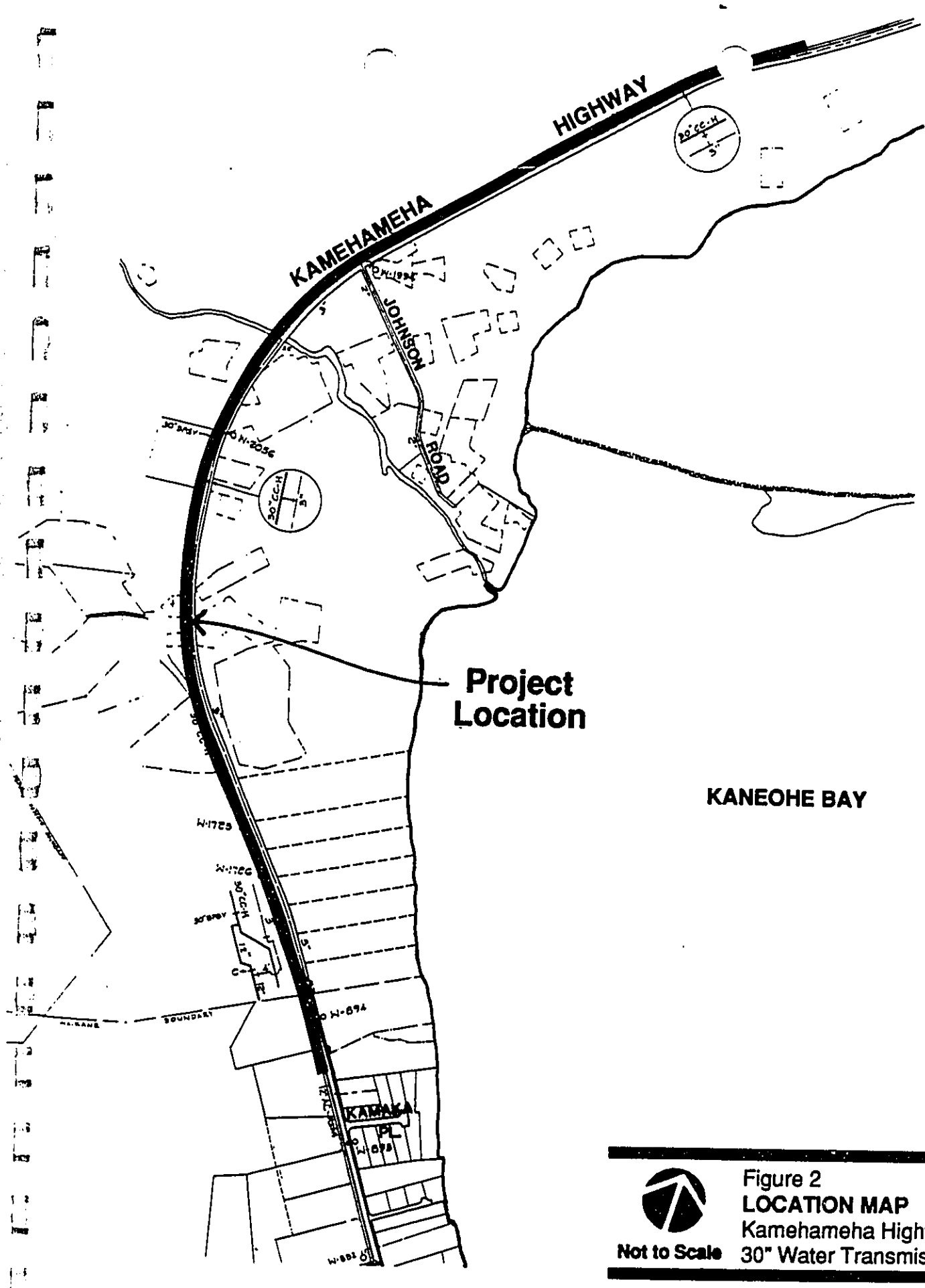
The transmission main will be buried within the Kamehameha Highway right-of-way and will have a minimum cover of three feet throughout its length. Figure 3 represents a typical cross sectioned view of the trench for the water line. Throughout the 600-foot segment between Kamaka Place and Station 5+25 ("STA. 5+25"), the new water main will be installed on the mauka side of Kamehameha Highway alongside an existing 12-inch water main. An existing 30-inch main already runs on the makai side of the highway. The new water main will then cross the road and run on the makai side of Kamehameha Highway parallel with the existing 30-inch main for the remaining 6000 feet, crossing above the Hakipuu Stream within the State highway right-of-way.



0 2000 4000 FEET

Figure 1
VICINITY MAP
Kamehameha Highway
30" Water Transmission Main

R. M. TOWILL CORPORATION
OCTOBER 1994



Not to Scale

Figure 2
LOCATION MAP
Kamehameha Highway
30" Water Transmission Main

R. M. TOWILL CORPORATION
OCTOBER 1994

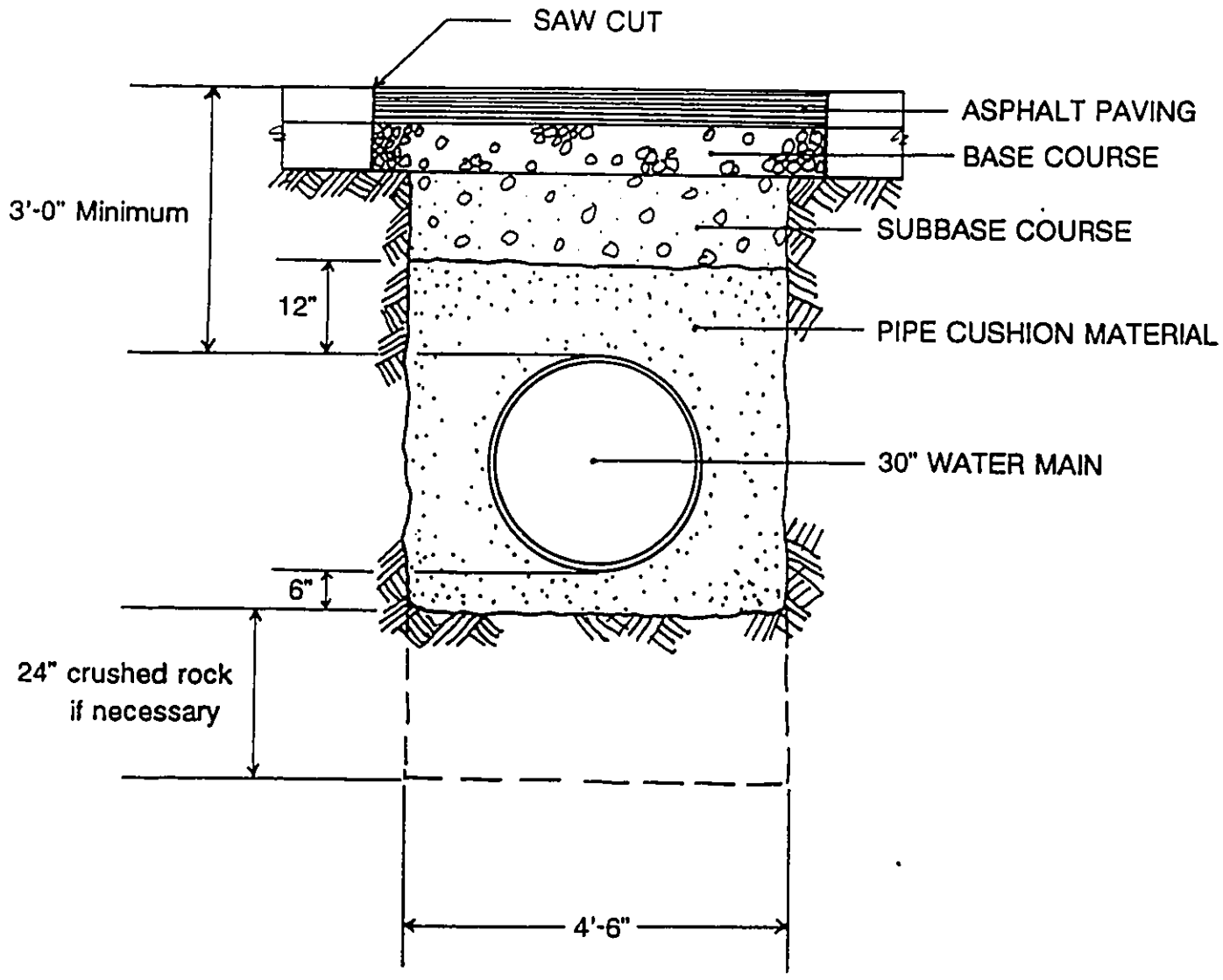


Figure 3
TYPICAL TRENCH SECTION
Kamehameha Highway
Not to Scale 30" Water Transmission Main

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OCT. 1994

Approximately 6,600 feet (1.25 miles) of 30-inch main will be installed within the 50-foot right-of-way of Kamehameha Highway, a public road under jurisdiction of the State Department of Transportation. The main will extend from Kamaka Place, Waikane, to the vicinity of Kualoa Regional Park, Kualoa. Overall construction is estimated at 360 days. The trench section anticipated to require dewatering involves approximately 2,500 lineal feet. Dewatering is estimated to last 120+ days. The midpoint of the section is in the vicinity of Hakipuu Stream. Selection of this portion for dewatering is based on information provided in Geotechnical Engineering Exploration, Kamehameha Highway 30-Inch Main, November 11, 1993, Geolabs *Hawaii; preliminary site construction drawings by R. M. Towill Corporation indicating elevation* profiles; and inspection of the site.

The contractor will schedule work activity between the hours of 8:30 a.m. to 3:00 p.m., Monday through Friday, excluding any State holidays. At least one through-lane will be open during all periods of construction. Trenches shall be covered during non-working hours with safe, non-skid bridging material to accommodate all types of vehicular traffic, and not more than the maximum permissible trenching length shall be exposed at any one time. In addition, the contractor shall provide ingress to and egress from driveways and public streets at all times. Should conditions warrant, the contractor may hire personnel to control the flow of traffic around the construction area.

The contractor shall perform all applicable construction work in accordance with the Board of Water Supply Water System Standards (1985) and the Standard Specifications for Public Works Construction (September 1986) of the Department of Public Works (DPW), City and County of Honolulu, and the Revised Ordinances of Honolulu (ROH), 1978 as amended.

Additionally, construction and restoration of the existing highway within the state right-of-way shall be performed in accordance with all applicable sections of the "Standard Specifications for Road and Bridge Construction" (1976), and "Specifications for Installation of Miscellaneous Improvements Within State Highways" (1974), of the State Highways Division. All work shall also 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 Street Maintenance Operations." Further, construction plans shall be submitted for review and approval by the State Highways Division.

Construction work for the 30-inch main is tentatively scheduled for fiscal year 1999, which begins July 1998 and continues through June 1999. The estimated cost of the project is approximately $8.3 million. Funding will come from the BWS's Capital Improvements Program budget. Construction of this main project will occur when the existing 30-inch main deteriorates beyond repair or additional water sources are developed resulting in the project's cost effectiveness.

2.3 PROJECT AREA SUMMARY

a. The following table describes the features of this water main project:

ITEM	DATA
Tax Map Key (TMK)	Zone 4, Sections 8 and 9
State Land Use Designations	Agricultural, Urban
State Water Management Area	Windward
Dev. Plan Land Use Designation	Agriculture
Dev. Plan Public Fac. Designation	W (water system) programmed for construction within 6 years
Zoning Designation	Ag-2
Flood Ins. Rate Map Designation	Zone X - area of 500-year flood
Length and Diameter of Water Line	6,600 feet, 30 inches
Land Owner	State of Hawaii
Special Management Area	City and County of Honolulu

b. Permits required for the implementation of the proposed action:

TYPE	AGENCY
Stream Channel Alteration Permit	State Dept. of Land and Natural Resources
Section 10 or Nationwide Permit	Dept. of the Army with concurrence from State Dept. of Health
Section 401 Water Quality Certi.	State Dept. of Health
Coastal Zone Management Consistency	State Office of State Planning
NPDES NOI for Dewatering and Hydrotesting	State Dept. of Health
Building Permit/Excavation Permit	City and County of Honolulu Building Dept.

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY

SEE FRAME(S) IMMEDIATELY FOLLOWING

Construction work for the 30-inch main is tentatively scheduled for fiscal year 1999, which begins July 1998 and continues through June 1999. The estimated cost of the project is approximately $8.3 million. Funding will come from the BWS's Capital Improvements Program budget. Construction of this main project will occur when the existing 30-inch main deteriorates beyond repair or additional water sources are developed resulting in the project's cost effectiveness.

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SECTION 3
AFFECTED ENVIRONMENT

3.1 PHYSICAL ENVIRONMENT

3.1.1 Geology

The project site is located at the makai edge of the Waihole-Waikane Valley at the northern end of the Koolau Shield Volcano, along the windward (northeastern) shoreline of Oahu. The Koolau volcano is formed of countless thinly bedded lava flows. Waikane Valley was formed by stream erosion that left steep sided instream ridges that project northeastward from the Koolau Range, after the Koolau volcano became quiescent. Oahu underwent a series of submergences and emergences resulting from changes in the ocean level during glacial and interglacial stages.

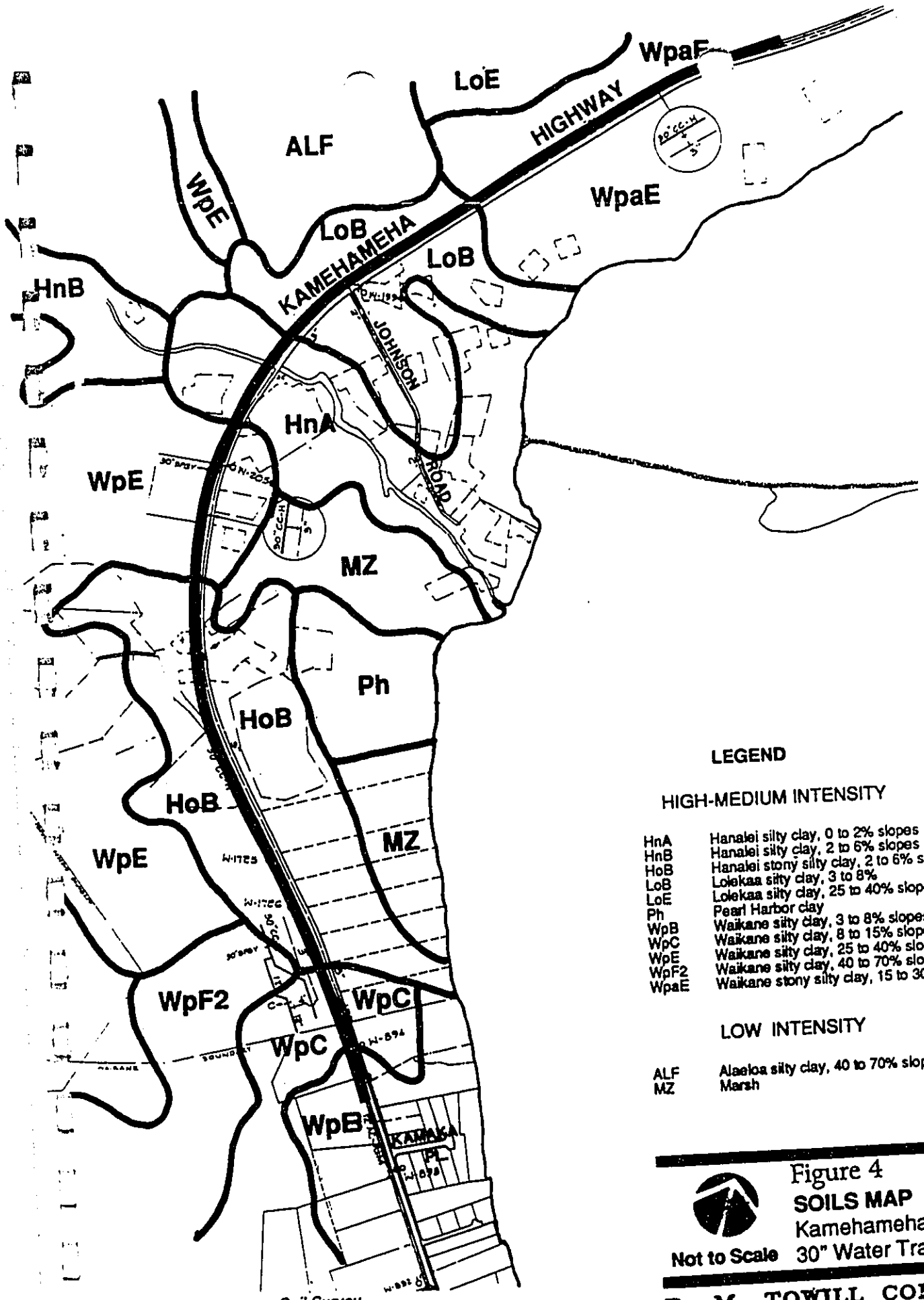
Along portions of the windward Oahu coast, terrestrial and marine coastal plain sediments formed a relatively impermeable wedge of sedimentary material known as caprock. (Source: Final Environmental Impact Statement for Windward Oahu Regional Water System Improvements, BWS, August 1988)

3.1.2 Soils

Most of Windward Oahu, including the project site, is covered by clay soils originating from old alluvium and colluvium from the Koolau Range or as residuum from the ridges between streams.

The soil types found along the proposed transmission main alignment are defined by the U. S. Soil Conservation Service (U. S. Department of Agriculture Soil Conservation Service, August 1972) as follows. Figure 4 illustrates the location of each type of soil described.

Waikane series, which consists of well-drained soils are found on alluvial fans and terraces on Oahu. These soils developed in alluvium and colluvium are derived from igneous rock. Annual



LEGEND

HIGH-MEDIUM INTENSITY

HnA	Hanalei silty clay, 0 to 2% slopes
HnB	Hanalei silty clay, 2 to 6% slopes
HoB	Hanalei stony silty clay, 2 to 6% slopes
LoB	Lolekaa silty clay, 3 to 8%
LoE	Lolekaa silty clay, 25 to 40% slopes
Ph	Pearl Harbor clay
WpB	Waikane silty clay, 3 to 8% slopes
WpC	Waikane silty clay, 8 to 15% slopes
WpE	Waikane silty clay, 25 to 40% slopes
WpF2	Waikane silty clay, 40 to 70% slopes
WpaE	Waikane stony silty clay, 15 to 30% slopes

LOW INTENSITY

ALF	Alaeloa silty clay, 40 to 70% slopes
MZ	Marsh

SOURCE: *Soil Survey*
Islands of Kauai, Oahu, Maui, Molokai, & Lanai,
State of Hawaii
U.S. Dept. of Agriculture
Soil Conservation Service
August 1972

Figure 4
SOILS MAP
Kamehameha Highway
30" Water Transmission Main

Not to Scale

R. M. TOWILL CORPORATION
OCTOBER 1994

rainfall amounts to 50 to 70 inches and is well distributed throughout the year. The different groupings vary according to elevation and are described as follows:

Waikane silty clay (WpE). This soil type is found in small areas of Alaeloa, Kaneohe and Lolekaa soils. A representative profile consists of a surface layer of dark brown silty clay about 8 inches thick. The subsoil, about 52 inches thick, is dark reddish brown silty clay. Permeability is moderately rapid; runoff is medium to rapid, and erosion hazard is moderate to severe.

Waikane silty clay (WpB). This soil type is known to occur in small, nearly level areas, where runoff is slow and erosion hazard is slight. These usually occur on 3 to 8 percent slopes.

Waikane silty clay (WpC). Workability of this soil type is slightly difficult, and runoff is slow to medium and erosion hazard is slight to moderate. These occur on 8 to 15 percent slopes.

Lolekaa silty clay (LoB). This series is found on terraces and fans; and found in small areas of Kaneohe soils on uplands and Hanalei soils in narrow drainageways. A representative profile contains dark brown silty clay about 10 inches thick. The upper part is dark brown silty clay. The soil is strongly acid in the surface layer and strongly acid to extremely acid in the subsoil.

Hanalei series consists of somewhat poorly drained to poorly drained soils on bottom lands on the islands of Kauai and Oahu. The surface layer, about 10 inches thick, is dark-gray and very dark gray silty clay that has dark brown and reddish mottles. The subsurface layer is very dark gray and dark-gray silty clay about 3 inches thick. Permeability is moderate; runoff is very slow, and the erosion hazard is no more than slight.

According to the classifications set forth in the Agricultural Lands of Importance to the State of Hawaii (ALISH) rating system, maps O-11 and O-12 indicate that a small area of "Prime" Agricultural Land is located mauka of the highway at the northern and southern ends of the

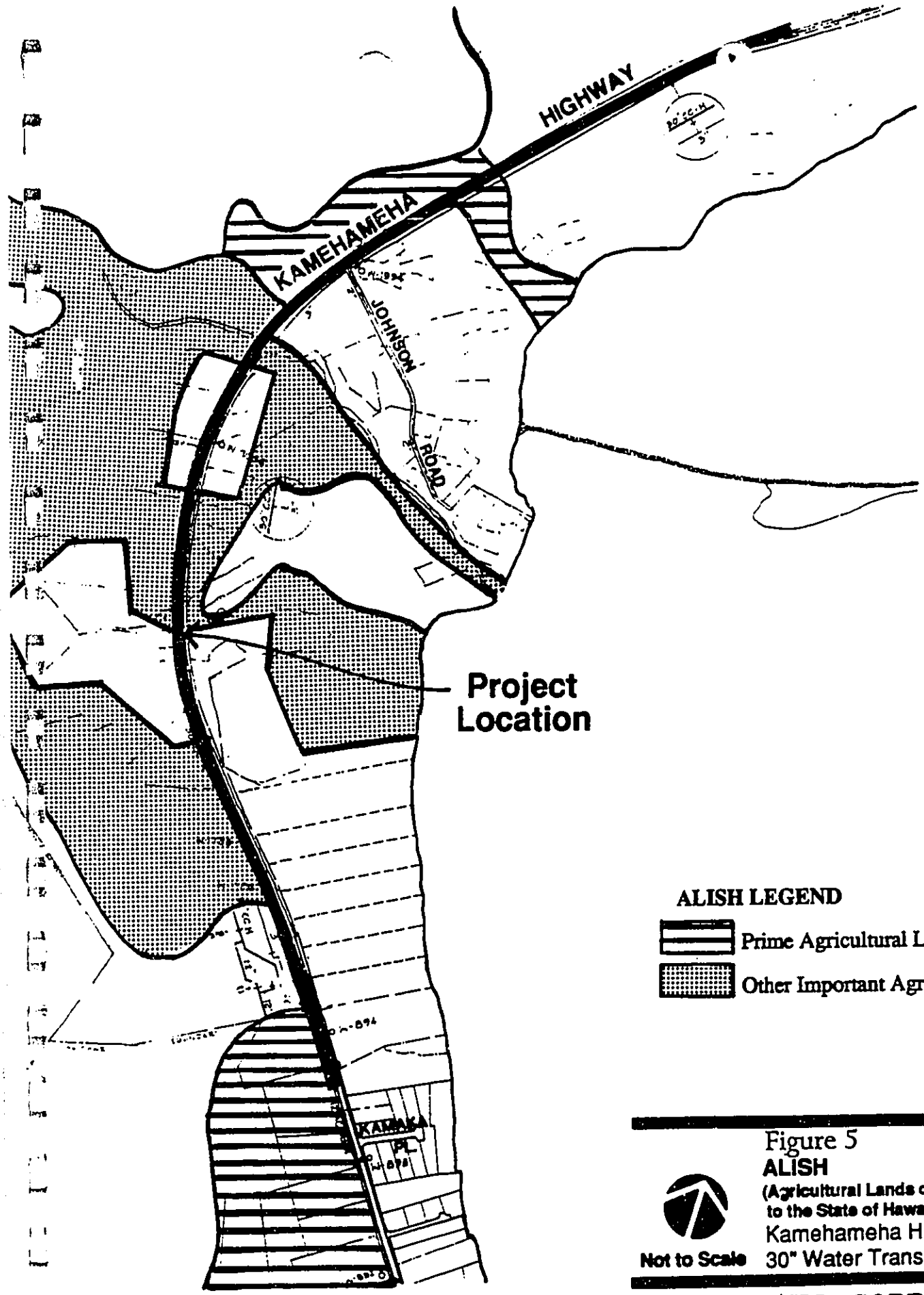
proposed 30-inch water main route near Johnson Road and Kamaka Place, respectively (Figure 5). Prime land has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed according to modern farming methods.

A portion of lands located further north along the route, on either side of Kamehameha Highway in the project area is "Other" Important Agricultural Land. Lands designated "Other" are for the most part located mauka of the highway. Around midway (3,300 foot marker) along the 6,600 foot long route of the proposed water main "Other" agricultural lands are located on either side of the highway. Land in this category is of state-wide or local importance for agricultural use.

The ALISH system is administered by the State Department of Agriculture. The system categorizes lands as follows: Prime (as defined above); Unique (has special combination of soil quality, location, growing season, moisture supply, and is used to produce sustained high quality and or high yields of a specific crop when treated and managed according to modern farming methods); Other (defined above); Existing Urban Development (land that has been developed for urban type use); and U. S. Government (currently under the jurisdiction of the U.S. Government).

The proposed project is not expected to adversely impact Prime Agricultural lands because the existing amount of Prime agricultural lands will not be reduced by the proposed activity in the long term. Trenching and other related construction activity will be confined to the area within the state right-of-way, and all affected surrounding areas will be returned to their original condition by backfilling trenched areas.

The project site has also been classified in the Detailed Land Classfication - Island of Oahu published by the University of Hawaii Land Study Bureau (LSB). This study evaluated the quality, or productive capacity, of certain lands on Oahu in two ways: (1) for selected crops or uses, and (2) for overall suitability in agricultural use. A five-class productivity rating system, ranging from A to E, was established with A representing the highest productivity and E the lowest. According to this classification, the principal productivity ratings are "C" and "D", which are defined as somewhat productive.



ALISH LEGEND

Prime Agricultural Land

Other Important Agricultural Land

Figure 5
ALISH
(Agricultural Lands of Importance to the State of Hawaii
Kamehameha Highway
30" Water Transmission Main

Not to Scale

R. M. TOWILL CORPORATION
OCT. 1994

Proposed installation of the new 30-inch water main is not expected to adversely impact the productive capacity of the project area because the construction and installation will be occurring in the State highway right-of-way which already contains existing 12- and 30-inch water lines. The surrounding lands will be returned to their original condition following the trenching and installation activities relative to the proposed project.

3.1.3 Climate and Air Quality

Temperatures along the windward coast are equitable throughout the year. The variation between the coldest and warmest months averages about 7 degrees Fahrenheit. Average annual temperatures determined at the Kahuku monitoring station located to the north of the project, ranged from 72 degrees F to 79 degrees F with extreme temperatures of 49 degrees F and 95 degrees F. (Source: State of Hawaii Data Book, 1991).

Rainfall occurs sporadically throughout the year with most of the precipitation occurring during the months from November to March. Median rainfall along the coastal areas is about 60 inches and increases to over 200 inches at the crest of the Koolau Range.

Air quality on most areas of Oahu is generally affected by vehicular traffic and stationary sources. The general lack of high volumes of both sources, combined with the normal fresh tradewinds indicates that the air quality is good for the North Shore area.

3.1.4 Coastal Hazards

According to the Civil Defense "Tsunami Inundation Maps," the project site is not located within a vulnerable inundation area. It is noted that between Kaneohe Marine Corps Air Station and Kualoa Point, waves should not exceed 4 feet above mean sea level (MSL). Therefore, evacuation is not considered necessary (Civil Defense Tsunami Evacuation Maps, March 1992-93).

The U. S. Army Corps of Engineers has indicated that a small area of Kamehameha Highway at

the Hakipuu Stream crossing is located within a flood zone, as determined by the Federal Emergency Management Agency (FEMA). This specific area is designated Zone X, which is defined as follows: areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood (Flood Insurance Rate Map, Panel 31 of 135, Community Panel No. 150001 0031 B, revised 1987). FEMA map designations are useful in helping determine whether an area proposed for construction is insurable, or if construction is possible with minimum floor elevation requirements.

No special consideration relative to tsunami inundation is necessary because the project area is not vulnerable to such hazards. Further, because the proposed facility will not be constructed for habitation, no special structural design considerations within the Hakipuu Stream crossing section (area classified as Zone X) are necessary.

3.1.5 Hydrology

3.1.5.1 Surface Water

There are two stream bodies, Hakipuu and an unnamed stream, located in the project area. Hakipuu is classified as a perennial stream. The proposed 30-inch water main will be designed and built to cross above the Hakipuu Stream thereby minimizing any potentially adverse environmental impacts on the stream and its biota.

In order to assess source water (ground water) characteristics, water samples were collected from two streams at points immediately above their respective roadway crossings. Samples were taken in conjunction with a water quality study conducted by AECOS, Inc. for the project in July, 1994. The two sampling station locations are described as follows:

Hakipu'u Stream - water obtained from pool just upstream of highway bridge (near project station 38+60).

Unnamed Stream - located approximately 0.3 mile south on Kamehameha Highway from Hakipu'u Stream bridge. Water from small pond above roadway culvert structure (near project station 23+00).

Nearshore waters (Kaneohe Bay) are classified in the State Water Quality Regulations as a Class AA embayment (HAR Section 11-54-06 (2)(A)). The samples demonstrate that ground water in the area is likely to be high in nitrates and perhaps phosphates as compared with coastal waters and the water quality criteria applicable to Kaneohe Bay. Nitrates and phosphates are generally low in the nearshore environment because of removal (uptake) by algae.

The nearest significant natural coastal wetlands to the project site are in Kualoa and Molii Ponds. See Figure 6. These are known to provide habitat for waterbirds (Office of State Planning, Draft State Land Use District Boundary Review, Oahu, March 1992). These ponds are located north of the project site, and more specifically, north of the mouth of Hakipuu Stream.

3.1.5.2 Groundwater

Most of Oahu, including the North Shore area, is underlain with permeable volcanic rock which readily transmits water. As a result, the base of the island below sea level is saturated with water of the same salinity as that encountered in ocean water. At low elevations along Oahu's coast, sedimentary deposits comprise part of an extensive coastal "caprock" that inhibits basal groundwater from moving seaward. Any fresh water penetrating the surface will accumulate and float above the saline water as a fresh water lens in a condition known as basal groundwater or the Ghyben Herzberg basal lens condition.

Contamination of the ground water by toxic substances is not known or expected. The potential presence of petrochemicals in the ground water from leaking underground fuel tanks is low because gasoline service stations are absent along this section of Kamehameha Highway (AECOS, Inc. (Sept., 1994, Water Quality Report). A commercial retail venture known as Coral Kingdom at 49-132 Kamehameha Highway is present on the mauka (west) side of the highway about midway between the two streams that were sampled. A gasoline service station was once located

on this property as part of the retail operation. The Department of Health has no records of this facility, which was apparently closed before registration requirements for underground fuel storage tanks. Because no information exists as to whether leaks had ever contaminated ground water in the area, the stream samples were tested for lead and BXTE, common contaminants of ground water from leaded fuels. The results of these tests show that none of the toxics was found.

3.1.6 Noise Quality

The existing ambient noise levels within the project area are dominated by vehicular travel along Kamehameha Highway. Vehicular use of the highway during the weekdays is sporadic and contributes relatively insignificant levels of noise, with the exception of occasional trucks or vans. During the weekends, however, noise levels may increase with the influx of beach and park users to the windward and north shore areas.

3.2 BIOLOGICAL ENVIRONMENT

3.2.1 Flora

Although a detailed botanical survey for the project site was not undertaken, review of the Final Environmental Impact Statement of 1988 by the BWS and information provided by the U. S. Department of the Interior Fish and Wildlife Service (USFWS) indicate there are no Federal or State listed or candidate for threatened or endangered plant species within the road right-of-way. However, introduced species of plants used for landscaping can be found along the pipeline alignment. Typical plants include the kamani tree, ironwood tree, norforlk pine tree, coconut tree, spider lily, croton, hibiscus, fern, hao, plumeria, aloe, widelia, palm tree, taro vine, and other various exotic plants.

3.2.2 Fauna

Introduced animal species such as dogs, cats, mongoose, rats, mice, chickens/roosters, cows,

horses, sandpipers, mynah birds, sparrows, doves, cardinals, and bulbuls exist within or near the project site. None of these species are on, or candidates for, the Federal or State list of threatened or endangered species.

3.2.3 Stream Fauna

A biological survey of 21 major streams in windward Oahu was prepared in August 1983 in conjunction with the Final EIS for the Windward Oahu Regional Water System Improvements. Hakipuu Stream was included in the biological survey. Four species of marine biota were recorded in abundance at elevations between 20 to 400 feet above sea level during the survey: the native o'pae kala'ole (*Atyoida bisulcata*); the introduced tahitian prawn (*Macrobrachium lar*); introduced stream guppies, mollies (*Poecilia spp.*); and the introduced swordtail fish (*Xiphophorus helleri*). The study also rated the Hakipuu Stream as being of moderate quality among the studied windward Oahu streams. The criteria for the ratings are the presence and abundance of native fauna and the physicochemical factors (including substantial vegetative canopy to prevent or reduce algal mat growth, high water flow velocity, clear to only slightly turbid water, and substrata consisting of cobble and boulders with little silt accumulation).

"Moderate Quality" was defined in the 1988 study as: consisting of at least 2 established native species common or more abundant; stream channels usually altered; some riffle area with high stream flow velocities; and stream water clear during base and average annual flows. Streams of High quality include those that provide extensive habitat for relatively large o'opu nakea (*Awaous stamineus)*, the most common native goby. This species were found only in the higher reaches (200 to 400 feet above mean sea level) of Hakipuu Stream.

3.3 SOCIAL ENVIRONMENT

3.3.1 Population

In 1990, the regional population of Koolaupoko was 117,694 persons, an increase of about 7.6 percent from the 1980 population figure of 109,373 persons. These data compare to about

836,231 persons on Oahu in 1990, an increase of about 9.7 percent from the 1980 population figure of 762,565 persons. (Source: U.S. Bureau of the Census, 1980 Census of Population, Number of Inhabitants, Hawaii PC80-1-A13 October 1981, table 4 and 1990 census printouts transmitted February 21, 1991). The project site lies within Waikane Census Designated Place (CDP) which encompasses the more defined area between Waikane Stream and Kaioio Point.

3.3.2 Surrounding Land Uses

Most of the North Shore of Oahu along Kamehameha Highway within the area of the project site can be characterized as rural. Low density residential and light commercial areas with varying setbacks from the coastline are interspaced with agricultural uses. In addition to private residences located alongside the Kamehameha Highway corridor, land uses in the vicinity of the project site include the Coral Kingdom site in Hakipuu, where a commercial structure with merchandise for tourists attract many visitors; and Kualoa Ranch, which has both horses and cattle. In recent years, the ranch has explored ways to provide recreational experiences to residents of Oahu and to visitors. The ranch offers dune cycle rides and other attractions to visitors.

3.3.3 Scenic and Visual Resources

The project site is highly visible to nearby residents, as well as vehicular traffic on Kamehameha Highway and other nearby roadways. During the short-term construction period, views from these vantage points may be impacted by construction equipment and operation. However, as any waste material will be removed from the premises and the project site restored to its pre-construction condition, no significant visual impacts are anticipated in the long term.

3.3.4 Archaeological and Historic Resources

Two known historic sites in the vicinity of the proposed water line are: site 50-80-06-1075, Hakipuu Taro Flats, and 50-80-06-4060, a human burial. The proposed 30-inch main route has not been inventoried for historic sites.

The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources (DLNR) indicates that it is likely that other historic sites will be discovered beneath the surface along the water line route, especially in the vicinity of the Hakipuu Stream crossing at Kamehameha Highway (letter dated March 22, 1993, Doc No. 7778, Log No. 9303TD17). The types of sites that may exist include agricultural fields and habitation sites.

Since then, an archaeological assessment was conducted for the proposed project (see Appendix B). The study concludes that cutting and filling during construction of Kamehameha Highway would have destroyed any historic remains in the path of the proposed waterline and that is unlikely that historic sites will be found during construction. It is possible that historic sites, including human burials, will be uncovered *during routine* construction activities. Work in the immediate area will be suspended until the SHPD is able to assess the impact and make further recommendations for mitigative measures if warranted.

3.3.5 Recreational Resources

There are a few developed recreational facilities in the area. Two beach parks are located in the vicinity-- Kualoa Regional Park and Waiahole Beach Park. Waiahole Park is an unimproved park with mud flats used mainly for launching small boats. The City and County of Honolulu's Kualoa Regional Park is located at the northern end of the project site and is a major recreational facility. Developed facilities (consisting of courts, etc.) in the Waiahole-Waikane area are the playcourts around Waiahole School.

3.4 TRAFFIC AND TRANSPORTATION SYSTEMS

Kamehameha Highway is a two-lane asphaltic concrete roadway under the jurisdiction of the State of Hawaii Department of Transportation (DOT). The right-of-way width is about 50 feet, with about 30 feet of paved roadway. The speed limit throughout the entire length of the project site is 35 miles per hour.

Traffic on the highway is a mix of automobiles, trucks, and buses. The Bus, Oahu's public

transportation system, operates a regular schedule along this route. Private tour companies also use this route to transport tourists to and from the Polynesian Cultural Center and other scenic attractions along the North Shore area. Various improvements by abutting landowners have moved toward the highway right-of-way. Some of these improvements include concrete rubble masonry (CRM) walls, hedges, chain link fences, and other barriers or obstructions.

SECTION 4

POTENTIAL IMPACTS AND MITIGATIVE MEASURES

4.1 PHYSICAL ENVIRONMENT

4.1.1 Geology

The installation of the 6,600-foot length of transmission main will involve excavation to a depth of approximately six to eight feet to bottom of trench over most of the project. Where the transmission main is built to bridge the Hakipuu Stream, the depths on either side of the banks of the stream will range from six to ten feet below ground level. Upon completion of the installation, the ground surface will be returned to preconstruction conditions. There will be no significant impact to the geology of the project area.

4.1.2 Soils

No significant negative impact to soils in the project area is anticipated. Small portions located at the northern and southern ends of the project site are classified Prime by the ALISH rating system, and portions of the project site are rated C and D by the Land Study Bureau (productive agricultural land). However, the project will not pose any significant negative impact because the existing amounts of Prime and productive agricultural lands will not be reduced in the long term. All affected surrounding areas will be returned to their preconstruction condition.

4.1.3 Air Quality

Some deterioration of air quality associated with road trenching and preparation activity is anticipated. These actions will create increased fugitive dust and pollutant emissions from the operation of vehicles and equipment. However, normal tradewind patterns along the windward shore area should disperse pollutant emissions generated by activities at the project site. Periodic water sprinkling or other approved methods will be implemented to mitigate the potential impacts from dust generation should this become a problem during the pipeline installation.

The contractor will be required to maintain internal combustion equipment in excellent working condition to minimize the emission of exhaust fumes. Additionally, the contractor is required to

comply with Title 11, DOH, Chapters 59 and 60, Air Pollution Control. Once the transmission main has been installed and construction is completed, there will be no long-term impacts to air quality.

4.1.4 Hydrology

4.1.4.1 Surface Water

A geotechnical survey of the proposed water main route was undertaken on Kamehameha Highway (Geotechnical Engineering Exploration, Kamehameha Highway 30-Inch Main, November 22, 1993, Geolabs Hawaii). According to the report, groundwater was only encountered on Kamehameha Highway within approximately 1,000 feet on either side of Hakipuu Stream. Depth to groundwater ranged from 7 to 13 feet below grade. In the middle section, however, the roadway dips down across the valley of Hakipu'u Stream. Thus, it can be expected that the trenching needed for installation of the 30-inch main will reach local ground water, requiring dewatering of the site during construction.

During construction and installation of the 30-inch main, particularly in the Hakipuu Stream vicinity, construction dewatering will be necessary following best management practices including:

1. Clearing and excavation/trenching will be held to the minimum necessary for site access and equipment operation.

2. Construction will be phased to minimize the exposure time of excavated/trenched areas. Areas of one phase will be stabilized to prevent comingling of runoff before another phase can be initiated. Stabilization shall be accomplished by temporarily or permanently protecting the disturbed surface from rainfall impacts and runoff.

3. The contractor will ensure that storm water control measures will be in place and functional before earth moving operations begin. The control measures shall be maintained throughout the construction period. Temporary measures may be removed at the beginning of the work day, but shall be replaced at the end of the

work day.

Stream flow will be maintained such that in-stream construction will be restricted to no more than 50 percent at a time.

Structural practices may include the following:

1. Storm water flowing toward the construction materials area shall be diverted as much as practicable using berms, channels, or other appropriate controls as determined by the contractor.

2. Storm water flowing toward open trench sections shall similarly be diverted using berms, channels, or other appropriate controls. During construction dewatering, water quality analysis of the discharge water will be undertaken in accordance with the Water Quality Monitoring Plan. The results will be forwarded to DOH, Clean Water Branch, upon completion. Dewatering effluent will not be directly discharged into any storm drain or receiving waters without prior treatment to remove pollutants.

Crossing of Hakipuu Stream will be necessary for the proposed project. The BWS considered two possible means of doing so: 1) to construct the crossing under the stream bed, or 2) cross over the stream within a separate support structure whereby the piles would straddle the stream banks. There are advantages and disadvantages to both alternative stream crossing methods. The advantage to installation of the line under the stream bed would be that upon completion of construction, the line would not be visible and therefore would not result in any potential visual impacts. The disadvantages are higher construction costs and land acquisition issues since the main would have to be constructed outside the state right-of-way.

Advantages to the above stream crossing are that construction work is not anticipated to affect stream flow and the stream biota in the long term. In this scenario, the proposed water main would be designed and built to cross over the stream within a separate support structure whereby

the piles will straddle the stream banks. By installing the 30-inch main over the stream, disturbance to the stream flow and biota will be minimized. Further, the main would be entirely within the existing state right-of-way. The disadvantages to this alternative are that the supporting structure over the stream may be considered a visual intrusion, and it would be susceptible to corrosion and vandalism. However, the line would be more easily accessible for maintenance purposes.

The BWS has decided to cross above Hakipuu Stream because the advantages to this alternative outweigh the disadvantages.

As long as the crossing of Hakipuu will be above rather than within the stream bed (as had been done in earlier phases of the Windward Water System Improvements including crossings at Waiahole Stream), review by the State of Hawaii, DLNR, Division of Water and Land Development may be limited with regard to the Stream Channel Alteration Permit (SCAP).

The main will be disinfected with chlorine at a concentration of 50 milligrams per liter (mg/L) after being hydrostatically tested and checked for leaks. This chlorinated water will be retained in the pipeline overnight and disposed of in accordance with applicable Federal, State, and City requirements. Prior to construction, a plan indicating the locations and amounts of de-chlorinated water to be discharged will be submitted by the contractor for review and approval.

4.1.4.2 Groundwater

The proposed project is not expected to have any significant adverse impact on the existing ground water sources. It is anticipated that pumping of ground water from dewatering areas into the existing highway storm drain system will contribute water of higher nitrate content and lower salinity than the nearshore waters. These substances normally enter the nearshore environment during rainy periods and through ground water springs and seeps. Brackish water and nutrients derived from the proposed dewatering will not significantly impact on the nearshore environment because quantities will be low relative to natural sources. While the receiving water can become quite turbid following storms generating high runoff in local streams, the best management practices prepared for the State Department of Health Notice of Intent (NOI) addresses methods

designed to keep the turbidity low in the dewatering discharge, thereby reducing particulates contributions.

4.1.5 Noise Quality

Noise from construction equipment and other activities will temporarily increase ambient noise levels 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 equipment. Construction activities will be limited to the hours of 8:30 a.m. and 3:00 p.m. to minimize disturbance to nearby residences. In addition, the contractor shall conform to the various Public Health Regulations in Title 11, DOH, Chapters 42, 43, 44A and 44B regarding noise control for Oahu.

4.2 BIOLOGICAL ENVIRONMENT

4.2.1 Flora

None of the plant species noted within the project site are Federal or State of Hawaii listed, or is a candidate for threatened or endangered species. To the extent possible, vegetation removal will be kept to a minimum, and the project is not expected to have a significant adverse effect on the flora of this locality. If necessary, the proposed alignment of the main will be adjusted to avoid the removal of or damage to trees along the pipeline route.

4.2.2 Fauna

None of the aforementioned animal species are listed on, or are candidates for the Federal or State threatened or endangered species lists. Some wildlife species may be displaced into surrounding areas during construction as a result of the increased activity and noise in the area, but could return to the site upon completion of the project. Thus, the project will not have a significant adverse effect on the fauna of this area of the island.

4.2.3 Stream Fauna

The native stream fauna as noted earlier are not classified under, or considered a candidate for, the threatened or endangered species list by Federal or State agencies. Should the main have been buried in the Hakipuu Stream, construction in the stream may have temporarily displaced fish and crustaceans in the area but no permanent impacts were anticipated. However, since the above stream alternative will be implemented, the existing marine biota do not face potential adverse impacts, with the proposed transmission main bridging the stream rather than being submerged in the stream bed. During construction over the stream, however, minor disturbance of the marine life may occur with the construction activity around it. To minimize the potential for any disturbance to the stream biota, construction near the stream banks will be scheduled for completion in the shortest possible time. No waste materials from construction activity will be discarded in the stream beds or flood plains.

The dewatering system that will be installed during construction will be located within the alignment of the proposed project. The system is based on use of construction trenches to serve as retention basins with built in dewatering filter sumps. This is intended to provide: 1) return percolation of dewatering effluent through the trench; and 2) filtration of additional ground water which will be discharged via flexible dewatering hoses to Hakipuu Stream.

Chlorinated water used for pipeline disinfection will be dechlorinated to water quality standards prior to discharge into any body of water or stream. Discharge of this water will be undertaken so that it will not adversely impact aquatic resources. The water main will be tested for integrity against leakage followed by preflushing of hydrostatic test water. All hydrostatic testing, preflushing, and chlorination will be undertaken using potable source water. Chlorination will be introduced to the section of water main to be disinfected. Dechlorination procedures will include the following: section of water main being disinfected will be dechlorinated using sodium thiosulfate. The solution will be mixed to an average concentration of 60 lbs/100,000 gallons. Upon satisfactory flushing of all trace levels of chlorine, use of sodium thiosulfate will be terminated. Following dechlorination, testing for bacteria will be conducted by BWS.

Kaneohe Bay is a Class AA body of marine waters where discharge is prohibited except with an individual National Pollutant Discharge Elimination System (NPDES) Permit. The volume of water expected to be diverted into the nearest stream is: 30" pipe x 6,600' x 5 turnovers min. = 1.2 mgd, to minimize the potential of flooding. Mitigation measures and effluent discharge control plan include:

1) All interior surfaces of the 30-inch main are to be kept free of dirt and debris during installation. The end of the pipe is to be capped at the end of each work day with a cap sufficient to prevent groundwater, dirt, debris, or other wastes from entering the pipe. As required, dewatering of trenches will be undertaken to ensure dry working conditions. Initial flushing is to be filtered prior to discharge to ensure removal of sediments accumulated during construction.

2) The hydrotesting contractor is to set up chlorination equipment and exercise operating procedures in accordance with safe engineering practices. The hydrotesting effluent will be dechlorinated to acceptable levels prior to discharge into receiving waters.

3) In order to control emergency discharges of chlorine from the water main, the contractor is to have the dechlorination equipment set up prior to start up. This will ensure that should the water main require immediate evacuation of effluent, that the dechlorination equipment will be mobilized and available.

4.3 SOCIO-ECONOMIC ENVIRONMENT

4.3.1 Population

The pipeline construction will be contracted by the BWS to a contractor who will be responsible for all aspects of the project, including supplying a construction crew. Crew members will most likely come from all areas of Oahu, including some workers from the Windward area. However,

the crew size is not significant when compared to the population of the Windward area, and hence, no adverse impacts on the population of the Windward area are anticipated as a result of the project.

Demand for water in Windward Oahu is projected to increase from 19.0 million gallons per day (mgd) in 1990 to 19.7 mgd in the year 2010-- an estimated increase of about 4 percent. The proposed water line is expected to provide the extra capacity and reliability to accommodate the demand in the Windward area, thereby alleviating the growing dependence on the aging potable water system and insuring adequate long-term service of potable water to the area.

4.3.2 Surrounding Land Uses

Any impact on surrounding land uses will be temporary. Disruption to individual businesses and residences will last only as long as it takes to install each phase of the transmission main. The contractor shall provide ingress to and egress from driveways and public streets at all times.

4.3.3 Scenic and Visual Resources

Visual impact of the excavated roadside corridor for the proposed water line is anticipated during the short-term construction period. However, no addition of permanent structures such as fire hydrants, pumping stations, or other appurtenances are included as part of this project, and therefore, long-term impacts to scenic and visual resources are not expected.

4.3.4 Historical and Archaeological Resources

An archaeological assessment of the project area was conducted by Cultural Surveys Hawaii in August 1994. The study findings are summarized as follows. The report in its entirety is included in this document as Appendix B.

4.3.4.1 Methodology

The scope of work involved, a) research of historic records and known historic sites to document

sensitive areas along the waterline route; b) preparation of a report to contain findings of the historical research; and c) fieldwork to determine which areas may contain natural deposits underneath the road bed.

4.3.4.2 Findings

Little archaeological research has been conducted in Hakipu'u ahupua'a. Of those that have been recorded, only one site, CSH Site 1, appears to be situated in the project area. The site, a mortuary house, is located just east (makai) of Kamehameha Highway on level ground and is surrounded by mango trees, various palms, coconut trees, and several other introduced species of trees and vines. The site was examined and recorded by Cultural Surveys Hawaii during an archaeological survey for the Mariculture Research Facility in Hakipuu just makai of the highway along Hakipuu Stream (1992, rev. 1993). Little remains of the site as it was heavily impacted by the construction of Kamehameha Highway. Roughly half of the site was destroyed with dirt, boulders, and other construction debris being piled over the remainder of the site. Due to the destruction of much of the site, Cultural Surveys Hawaii determined that the site is no longer significant (NLS).

The taro lo'i between Moli'i Pond and Hakipuu Stream, which once extended mauka along the banks of the stream were known as the Hakipuu Taro Flats. In 1970 this area was assigned State site number 50-80-06-1075 and was briefly described in a Hawaii Register of Historic Places site form. It was described as extending for as much as one mile up Hakipuu Stream and during that period consisted of a single cluster of about eight taro fields and an auwai system. Stone walls and earthen embankments are still present, particularly mauka of the highway. Makai of the highway there have been extensive modifications of the floodplain as part of the mariculture research station.

A single long bone, identified as human, was found at the junction of Kamehameha Highway and Johnson Road within the project area, just north of Hakipuu Stream in August 1987. It was assigned State site number 50-80-06-4060. Although the remains were found on the surface of the ground, they were believed to be from an ancient burial and were tentatively identified as being consistent with Polynesian ancestry by Dr. Michael Pietrusewsky of the University of

Hawaii.

4.3.4.3 Potential Impacts and Mitigation Measures

Based on the background historical research and a review of previous archaeological work in the area, as well as the present fieldwork, it is apparent that excavations for the pipeline installation along this route of Kamehameha Highway will have a low potential for archaeological impact. Only the badly disturbed remains of a 20th century mortuary house is located in the immediate vicinity on the makai side of the highway along the waterline route. Trenching along the shoulder of the highway will not disturb the intact portion of this site.

Of potential concern would be impact to adjacent agricultural sites, i.e., fields, terraces, 'auwai and associated sediments of the Hakipuu Taro Flats, Site 50-80-06-1075. However, examination of the present roadbed shows extensive cutting and/or filling within the area of the site. No impact is expected.

Human burials have been found within the vicinity of the road, as recorded by McAllister in the 1930s and more recently, with a poorly documented find of a human long bone at the junction of Kamehameha Highway and Johnson Road in 1987 (Figure 6). Again, extensive modification of the highway roadbed makes finding of human burials unlikely since intact deposits appear to have been removed or disturbed.

Given the results of this study, both the historical research and the field survey, onsite monitoring of trenching for the installation of the waterline along this portion of the highway will not be necessary. If in the unlikely event that archaeological finds are uncovered during trenching activities, the State Historic Preservation Division (SHPD) should be contacted immediately and work in the immediate area should be halted until the findings are evaluated. Work in the immediate area will be suspended until the SHPD is able to assess the impact and make further recommendations for mitigative measures if warranted.

4.3.5 Public Health, Safety and Convenience

Necessary measures to assure public health, safety, and convenience will be provided throughout all phases of construction. The Contractor shall provide, install, and maintain all necessary signs, lights, flares, barricades, markers, cones and other protective facilities. Such safety precautions shall conform with the "Rules and Regulations Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways," as adopted by the Highway Safety Coordinator and the U. S. Federal Highway Administration.

4.4 LAND USE PLANS, POLICIES, AND CONTROLS

The project is within two State of Hawaii Land Use Districts designated as Agricultural and Urban. Public facilities are a permitted use on both designated lands, and as such, the project is consistent with State of Hawaii land use plans and policies.

The project lies within the City and County of Honolulu Special Management Area (SMA) and will comply with the provisions set forth in Chapter 33, ROH as amended.

The project is consistent with the City and County Development Plan Public Facilities Map (DPPFM) which indicates water system improvements as "determined for construction within 6 years." Additionally, the designation for the project as dictated by the Development Plan Land Use (DPLU) Map is Agriculture. Under the City and County Zoning map, the project site is zoned Ag-2, which permit public facilities such as water lines. Hence, the water main project is consistent with City and County of Honolulu land use plans and policies.

4.5 TRAFFIC

Some traffic congestion is expected once construction work begins. To minimize traffic impacts, the contractor will schedule work activity between the hours of 8:30 a.m. to 3:00 p.m., Monday through Friday, excluding any State holidays. This construction schedule will help to minimize

conflicts with morning and afternoon peak traffic periods. During construction, at least one through-lane will be open to traffic. Should conditions warrant, the contractor may hire personnel to control the flow of traffic around the construction area. The contractor shall provide ingress to and egress from driveways and public streets at all times.

Since Kamehameha Highway is a public highway, a permit is required from the State DOT prior to any construction work performed on the project. In addition, a construction permit must be obtained prior to commencement of construction for work performed within the highway right-of-way.

It should be noted that the State DOT has future plans to widen and realign Kamehameha Highway. Accordingly, the location of the proposed main will be coordinated with the Highways Division of the DOT.

SECTION 5
POSSIBLE ALTERNATIVES

5.1 NO ACTION

The proposed project is part of an overall groundwater development program to meet anticipated consumer demands for potable water within the State Windward Water Management Area. The objective of the main is to allow the assimilation of new wells being developed in the Windward area and to supplement the existing (aging) 30-inch line. Under a "no action" alternative, this objective would not be achieved. The no action alternative is not considered a feasible option to the proposed project.

5.2 DELAYED ACTION

Delay of the project will not materially alter the environmental impacts of the project and will increase project costs. In addition, delaying the project would not rule out its necessity in the near future especially if new sources are developed sooner than expected or if the frequency of main breaks in the existing 30-inch make it appropriate. However, the delayed action alternative may be considered depending on the rate that new sources are developed and on the rate that the existing transmission main deteriorates.

5.3 ALTERNATIVE ALIGNMENTS

5.3.1 Kamehameha Highway Alignment

No consideration was given to install the pipeline outside of the highway right-of-way as it would require the taking or condemnation of portions of privately-owned lands, and remove land from the tax base. Another 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.

5.3.2 Hakipuu Stream Crossing

While stream water quality and in-stream biota would not be adversely impacted by an above stream crossing, this alternative will have a visual impact along the bridge. This scenario would expose the 30-inch main to damage by corrosion and vandalism, which would result in disruption of service and contamination of the water supply.

A Department of the Army Section 404 permit will be required for utility installation, backfill and temporary coffer dam, and silting basin. A State Department of Health Section 401 Water Quality Certification and State Coastal Zone Management (CZM) consistency review will also be required. A State Department of Health National Pollutant Discharge Elimination System (NPDES) Notices of Intent (NOI) for construction dewatering activity and for hydrotesting will also be required to be filed. Because the Hakipuu Stream drains into the Molii Pond, potentially serious environmental impacts from sediment transport could occur. Best Management Practices and mitigation measures, such as silt curtains and water sampling criteria would probably be costly, if not cost prohibitive.

Another permit process that has been increasingly growing in complexity is the Stream Channel Alteration Permit (SCAP) regulated by the State DLNR. The objective of the SCAP is to disclose the impacts the project would have on the stream biota and natural environment of the affected stream. By keeping the structure and related installation activity from top of the bank to top of the bank of the stream, impacts will be minimized thereby avoiding a detailed and lengthy permit review process.

Because the above stream crossing alternative provides an environmentally sensitive strategy, the BWS proposes to install the 30-water main in a separate structure that will run parallel to the existing bridge within the State highway right-of-way. This structure will straddle the stream banks thereby minimizing any disturbance to the Hakipuu Stream and surrounding wetland area. While the preferred alternative is to cross over the stream, the BWS reserves the option to cross under the stream if the situation/plans change.

5.4 ALTERNATIVE MAIN SIZES

The proposed main size is based on the estimated optimum yield from all new sources planned between Laie and Punaluu, and thus, there will be no advantage in installing a larger or smaller sized pipe. Installing a larger pipe would lower the head loss due to friction and result in lower operational costs. However, the higher construction costs would outweigh any operational cost savings. Although overall construction costs may be lower, installing a smaller pipe may result in a higher than normal line pressure, leading to frequent main breaks and may require an additional pipeline if the yield from the proposed sources is much greater than the designed capacity of the pipe.

5.5 ALTERNATIVE SOURCES

The BWS has considered a number of alternatives to potable groundwater sources, such as direct use of streamflow, desalination, blending and development of surface and brackish water sources, and the recycling of treated wastewater. However, until these alternatives become acceptable from a technical, health, environmental and/or cost perspective, BWS will continue its emphasis on the development of groundwater sources.

SECTION 6
DETERMINATION

In accordance with the provisions set forth in Chapter 343, Hawaii Revised Statutes, and the significance criteria in Section 11-200-12 of Title 11 Chapter 200, this assessment has determined that the project will have no significant adverse impact to archaeological sites, water quality, air quality, noise, existing utilities, or wildlife habitat, and that an Environmental Impact Statement is not required. However, there will be moderate impacts to traffic conditions for the duration of the project, but mitigative measures will be implemented to minimize traffic congestion. All other anticipated impacts will be temporary and the environmental quality of the area will return to preconstruction conditions.

SECTION 7

AGENCIES CONSULTED IN DRAFT EA

FEDERAL AGENCIES

1. Department of the Interior
   Fish and Wildlife Service

2. Department of the Interior
   Geological Survey

3. Department of Agriculture
   Natural Resources Conservation Service

4. National Oceanic and Atmospheric Administration

5. U.S. Army Corps of Engineers

STATE AGENCIES

1. Department of Accounting and General Services

2. Department of Health

3. Department of Land and Natural Resources

4. University of Hawaii at Manoa
   Environmental Center

5. University of Hawaii at Manoa
   Mariculture Research and Training Center

6. Department of Transportation

CITY AND COUNTY OF HONOLULU AGENCIES

1. Department of Land Utilization

2. Planning Department

3. Department of Public Works

4. Department of Wastewater Management

5. Department of Transportation Services

OTHER GROUPS/ORGANIZATIONS

1. Hakipuu Community Association

2. Kahaluu Neighborhood Board No. 29

3. City Councilman Steve Holmes

4. Senator Mike McCartney
   Twenty-third Senatorial District

5. Representative Colleen Meyer
   Forty-sixth Representative District

AGENCIES CONSULTED IN PRE-ASSESSMENT

FEDERAL AGENCIES

1. Department of the Army
   Corps of Engineers

STATE OF HAWAII

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

CITY AND COUNTY OF HONOLULU

1. Department of Land Utilization
2. Department of General Planning
3. Department of Public Works
4. Board of Water Supply

OTHER

1. HECO
2. GASCO (PRI)
3. GTE Hawaiian Tel

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CORRECTION

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

4. Department of Wastewater Management

5. Department of Transportation Services

OTHER GROUPS/ORGANIZATIONS

1. Hakipuu Community Association

2. Kahaluu Neighborhood Board No. 29

3. City Councilman Steve Holmes

4. Senator Mike McCartney
   Twenty-third Senatorial District

5. Representative Colleen Meyer
   Forty-sixth Representative District

AGENCIES CONSULTED IN PRE-ASSESSMENT

FEDERAL AGENCIES

1. Department of the Army
   Corps of Engineers

STATE OF HAWAII

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

CITY AND COUNTY OF HONOLULU

1. Department of Land Utilization
2. Department of General Planning
3. Department of Public Works
4. Board of Water Supply

OTHER

1. HECO
2. GASCO (PRI)
3. GTE Hawaiian Tel

United States Department of the Interior

U.S. GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

October 3, 1995

Mr. Raymond H. Sato
Manager and Chief Engineer
Board of Water Supply
630 South King Street
Honolulu, Hawaii 96843

Dear Mr. Sato:

Subject: Draft Environmental Assessment (DEA) for the Proposed Kamehameha Highway 30-Inch Water Main Project, Kamaka Place to Kualoa Regional Park, Koolaupoko, Oahu, Hawaii TMK: 4-8 and 9

The staff of the U.S. Geological Survey, Water Resources Division, Hawaii District, has reviewed the subject engineering report, and we have no comments to offer at this time.

We are returning the report for your future use.

Thank you for allowing us to review this report.

Sincerely,

William Meyer
District Chief

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

COPY

October 17, 1995

Mr. William Meyer, District Chief
Water Resources Division
U. S. Geological Survey
Department of the Interior
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

Dear Mr. Meyer:

Subject: Draft Environmental Assessment (DEA) for the Proposed Kamehameha Highway 30-Inch Water Main Project, Kamaka Place to Kualoa Regional Park, Koolaupoko, Oahu, Hawaii, TMK: 4-8 and 9

Thank you for reviewing the DEA for our proposed water main installation project.

We acknowledge that you have no comments to offer at this time.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO
Manager and Chief Engineer

APPENDIX A

Comments to the

Environmental Assessment

8

BENJAMIN J. CAYETANO
GOVERNOR

RECEIVED
BD OF WATER SUPPLY
OCT 5 9 05 AM '95

953053
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PE
cc: Mgr
Dept

GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813

October 4, 1995

The Honorable Raymond H. Sato, Manager & Chief Engineer
Board of Water Supply, City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Sato:

Subject: Draft Environmental Assessment (DEA) for the Proposed Kamehameha Highway 30-inch Water Main Project, Kamaka Place to Kualoa Regional Park, Koolaupoko, Oahu, Hawaii, TMK: 4-8 and 9

Having received the subject document with your September 22, 1995, letter, we wish to inform you that we will publish notice of availability of the DEA in the October 8, 1995, edition of *The Environmental Notice* (formerly known as the *OEQC Bulletin*). We would like to take this opportunity to submit the following comments on the subject document.

1. The addition of a 30 inch pipe to augment an existing 12 inch pipe entails an approximate six-fold increase in capacity. Please discuss in the final environmental assessment the potential secondary (indirect) effects that such an increase in capacity will have on growth in the service area. It is our understanding that the service area of this waterline is slated for minimal or no growth. Why then is such a large waterline being proposed? Will such an oversized line promote further urbanization in contradiction to the county's general and development plans?

Should there be any questions, please call Mr. Leslie Segundo at 586-4185. Thank you for the opportunity to comment.

Sincerely,

GARY GILL
Director

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

COPY

RAYMOND H. SATO
Manager and Chief Engineer

November 15, 1995

Mr. Gary Gill, Director
Office of Environmental Quality Control
State of Hawaii
220 South King Street
Fourth Floor
Honolulu, Hawaii 96813

Dear Mr. Gill:

Subject: Your Letter of October 4, 1995 on the Draft Environmental Assessment (EA) for the Proposed Kamehameha Highway 30-Inch Water Main Project, Kamaka Place to Kualoa Regional Park, Koolaupoko, Oahu, Hawaii, TMK: 4-8, 9

Thank you for reviewing the Draft EA for the proposed water main project.

We have the following comments to your concerns:

1. The 12-inch water main mentioned in the Draft EA provides local water service to residents in the immediate vicinity. The existing and proposed 30-inch water mains transmit water beyond the Waikane and Kualoa areas. The proposed main will provide additional transmission capacity and back-up reliability to the existing 30-inch water main which is the only transmission pipeline for the Kaneohe and Kailua areas. However, the 30-inch main will only be installed if sufficient water sources can be developed, which are in excess of localized needs.

2. The proposed 30-inch water main would provide additional transmission capacity for growth in the urban areas of East Honolulu, and therefore, not promote additional growth on the windward area. The direction of managed growth to the designated urban areas of Honolulu and Leeward Oahu will maintain the rural nature of the windward side. This is consistent with the county's general and regional development plans.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO
Manager and Chief Engineer

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953045

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

RECD. BD OF WATER

Oct 4 11 02 AM '95

FE

JEREMY HARRIS
MAYOR

FELIX B. LIMTIACO, P.E.
DIRECTOR

CHERYL K. OKUMA-SEPE, ESQ.
DEPUTY DIRECTOR

WCC 95-13

October 4, 1995

MEMORANDUM

TO: MR. RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: FELIX B. LIMTIACO, DIRECTOR
DEPARTMENT OF WASTEWATER MANAGEMENT

SUBJECT: **DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED KAMEHAMEHA HIGHWAY 30-INCH WATER MAIN PROJECT, KAMAKA PLACE TO KUALOA REGIONAL PARK, KOOLAUPOKO, OAHU, HAWAII, TAX MAP KEY: 4-8 AND 9**

We have reviewed the subject draft environmental assessment and have no objection to the project. Our department does not service the subject area.

If you have any questions, please contact Ms. Tessa Yuen of the Division of Planning and Service Control at 523-4956.

Cheryl K. Okuma-Sepe
FELIX B. LIMTIACO
Director

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

COPY

JEREMY HARRIS, MAYOR
WALTER E. WATSON, JR., CHAIR
MAURICE H. KAMIMURA, VICE CHAIR
KAZU HAYASHIDA
MELISSA M. MOY
FORREST C. MURDEN
KENNETH E. SPRAGUE
RAYMOND H. SATO
MANAGER AND CHIEF ENGINEER

October 16, 1995

TO: FELIX B. LIMTIACO, DIRECTOR
DEPARTMENT OF WASTEWATER MANAGEMENT

FROM: For RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED KAMEHAMEHA HIGHWAY 30-INCH WATER MAIN PROJECT, KAMAKA PLACE TO KUALOA REGIONAL PARK, KOOLAUPOKO, OAHU, HAWAII, TMK: 4-8 AND 9

Thank you for reviewing the Draft EA for our proposed water main installation project.

We acknowledge that you have no objections to the project as your department does not service the subject area.

If you have any questions, please contact Barry Usagawa at 527-5235.

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF

Planning Division

October 5, 1995

Mr. Raymond H. Sato
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Sato:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Proposed Kamehameha Highway 30-Inch Water Main Project, Kamaka Place to Kualoa Regional Park, Oahu (TMK 4-8 and 9). The following comments are provided pursuant to Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1960 and to issue Department of the Army (DA) permits under the Clean Water Act; the Rivers and Harbors Act of 1899; and the Marine Protection, Research and Sanctuaries Act.

a. Based on the information provided, a DA permit will be required for the proposed project. Please contact our Regulatory Branch at 438-9258 for further information and refer to file number PO96-002.

b. The flood hazard information provided on pages 3-4 and 3-5 of the DEA is correct.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering
and Technical Services

953079

PE

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

COPY

November 21, 1995

Mr. Ray H. Jyo, P. E.
Director of Engineering
and Technical Services
Department of the Army
U. S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Dear Mr. Jyo:

Subject: Your Letter of October 5, 1995 on the Draft Environmental Assessment (DEA) for the Proposed Kamehameha Highway 30-Inch Water Main Project, Kamaka Place to Kualoa Regional Park, Koolaupoko, Oahu, Hawaii, TMK: 4-8, 9

Thank you for reviewing the DEA for the proposed water main project.

We have the following comments to your concerns:

1. We propose to install the 30-inch main above Hakipuu Stream atop reinforced concrete caissons straddling the top of the stream banks in an effort to minimize any disturbance to the stream and surrounding wetland. We transmit a copy of the preliminary construction plans to provide more specific information on the stream crossing. We request a reevaluation of the Department of the Army Permit requirement because the pipeline structure is designed to minimize impact to the stream.

2. We also acknowledge that the flood hazard information provided in the DEA is correct.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO
Manager and Chief Engineer

P

BD OF [illegible]

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PE

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BENJAMIN J. CAYETANO
GOVERNOR

SAM CALLEJO
COMPTROLLER

MARY PATRICIA WATERHOUSE
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P. O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P)1677.5

OCT 9 1995

Mr. Raymond H. Sato
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
Honolulu, Hawaii

Attention: Mr. Barry Usagawa

Dear Mr. Sato:

Subject: Proposed Kamehameha Highway 30-Inch Water Main
Kamaka Place to Kualoa Regional Park
Koolaupoko, Oahu, Hawaii
Draft Environmental Assessment

Thank you for the opportunity to review the subject document. The proposed project will have no impact on our facilities. Therefore, we have no comments to offer and would have no objection to a negative declaration being filed for this project.

If there are any questions, please have your staff contact Mr. Ralph Yukumoto of the Planning Branch at 586-0488.

Very truly yours,

GORDON MATSUOKA
State Public Works Engineer

RY:jy

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

COPY

[illegible]

November 15, 1995

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

Dear Mr. Matsuoka:

Subject: Your Letter of October 9, 1995 on the Draft Environmental Assessment (DEA) for the Proposed Kamehameha Highway 30-Inch Water Main Project, Kamaka Place to Kualoa Regional Park, Koolaupoko, Oahu, Hawaii, TMK: 4-8 and 9

Thank you for reviewing the DEA for our proposed water main installation project.

We acknowledge that you have no comments to offer and would have no objections to a negative declaration being filed for this project. We understand that the proposed project will have no impact on facilities under your jurisdiction.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO
Manager and Chief Engineer

BENJAMIN J. CAYETANO
GOVERNOR

953157
KAZU HAYASHIDA
DIRECTOR
DEPUTY DIRECTORS
JERRY M. MATSUDA
GLENN M. OKIMOTO

IN REPLY REFER TO
HWY-PS
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

OCT 12 1995

Mr. Raymond H. Sato
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Sato:

Subject: Draft Environmental Assessment, Kamehameha Highway 30-Inch Water Main Project, Kamaka Place to Kualoa Regional Park, Koolaupoko, Oahu; TMK: 4-8 and 9

Thank you for requesting our review of the draft environmental assessment for the proposed project.

The proposed water main, once installed, should not impact Kamehameha Highway, our State highway.

Please be advised that our future (Long Range) plans for improving Kamehameha Highway in the project area may include realignment of the existing highway. Plans for construction work done within our highway rights-of-way must be submitted for our review and approval.

Very truly yours,

for KAZU HAYASHIDA
Director of Transportation

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

COPY

November 15, 1995

Mr. Kazu Hayashida, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Hayashida:

Subject: Your Letter of October 12, 1995 on the Draft Environmental Assessment (DEA) for the Proposed Kamehameha Highway 30-Inch Water Main Project, Kamaka Place to Kualoa Regional Park, Koolaupoko, Oahu, Hawaii, TMK: 4-8 and 9

Thank you for reviewing the DEA for our proposed water main installation project.

We acknowledge that the proposed project, once installed, should not impact Kamehameha Highway. We understand that your future plans may include realignment of the existing highway in the project area. Plans for construction work within the highway rights-of-way will be submitted for your review and approval.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO
Manager and Chief Engineer

953177

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

BD OF WATER SUPPLY
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OCT 18 1995

JEREMY HARRIS
MAYOR

PATRICK T. ONISHI
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

95-06904 (DT)

October 13, 1995

MEMORANDUM

TO: RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: PATRICK T. ONISHI, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR A 30-INCH WATER MAIN ALONG KAMEHAMEHA HIGHWAY ZONE 4, SECTIONS 8 AND 9

Thank you for the opportunity to review the above-described proposal to install an approximately 1.25-mile long water main from Kamaka Place to Kualoa Regional Park. We have the following comments:

1. The description of the dewatering system mentioned on page 4-6 should be discussed in greater detail. Details, such as the size, length, and plans of the dewatering system should be included in the Final EA.

2. The Final EA should also include a detailed description and plans of the dewatering filter sumps mentioned on page 4-6.

3. Hakipuu Stream drains into a wetland (Molii Pond). During construction over the stream, will the sediment transport and dewatering activity affect the Pond? If yes, will some type of Best Management Practice be implemented to reduce the amount of construction sediment in the stream? Although our July 10, 1995 letter indicated that the project is exempt from obtaining a Special Management Area Use Permit (SMP), an SMP may be required due to the additional information that was not supplied earlier by George A.L. Yuen and Associates, Inc.

We would like to review the Final EA when it becomes available. If you have any questions regarding this letter, please contact Dana Teramoto of our staff at Extension 4648.

PATRICK T. ONISHI
Director of Land Utilization

PTO:am

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

COPY

November 14, 1995

TO: PATRICK T. ONISHI, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: For RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED KAMEHAMEHA HIGHWAY 30-INCH WATER MAIN PROJECT, KAMAKA PLACE TO KUALOA REGIONAL PARK, KOOLAUPOKO, OAHU, HAWAII, TMK: 4-8 AND 9

Thank you for reviewing the Draft EA for our proposed water main installation project. We have the following response to your comments:

1. Specific details of the dewatering system, including the dewatering filter sumps, will be determined by the contractor who is selected to perform the water main installation work. A full description of the dewatering system will be included in the National Pollutant Discharge Elimination System (NPDES) permit application which will be submitted to the State Department of Health for review and approval prior to construction. The system will be designed to ensure discharge effluent meets State water quality standards and has minimal impact on Hakipuu Stream and Molii Pond.

2. The proposed water main will cross above Hakipuu Stream within the State highway right-of-way. Construction over the stream will not affect Molii Pond.

3. The proposed project will not have substantial environmental or ecological impact when properly mitigated for erosion control and effluent discharge management. We understand that a Special Management Area Permit is not required because the project involves the installation of underground utility lines with above ground fixtures less than four feet in height along existing corridors.

If you have any questions, please contact Barry Usagawa at 527-5235.

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

Oct 25 2 13 PM '95

JEREMY HARRIS
MAYOR

CHERYL D. SOON
CHIEF PLANNING OFFICER

CAROLL TAKAHASHI
DEPUTY CHIEF PLANNING OFFICER

ET 9/95-2003

October 20, 1995

MEMORANDUM

TO: RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: CHERYL D. SOON, CHIEF PLANNING OFFICER
PLANNING DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE PROPOSED KAMEHAMEHA HIGHWAY 30-INCH WATER MAIN PROJECT, KAMAKA PLACE TO KUALOA REGIONAL PARK, KOOLAUPOKO, OAHU, HAWAII, TAX MAP KEY: 4-8 AND 9

We have reviewed the Draft Environmental Assessment for the subject project and have no comments.

Thank you for the opportunity to comment. Should you have any questions, please contact Eugene Takahashi of our staff at 527-6022.

Cheryl D. Soon
CHERYL D. SOON
Chief Planning Officer

CDS:lh

cc: R.M. Towill Corporation
OEQC

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

COPY

JEREMY HARRIS, MAYOR
WALTER D. WENSKY, JR., DEPUTY MANAGER AND CHIEF ENGINEER
MAURICE H. KAKESAKO, ASSISTANT MANAGER AND CHIEF ENGINEER

KAZU HAYASHIDA
MELISSA L. LUM
FORREST C. MURRAY
KENNETH E. SPRAGUE

RAYMOND H. SATO
Manager and Chief Engineer

November 14, 1995

TO: CHERYL D. SOON, CHIEF PLANNING OFFICER
PLANNING DEPARTMENT

FROM: For RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED KAMEHAMEHA HIGHWAY 30-INCH WATER MAIN PROJECT, KAMAKA PLACE TO KUALOA REGIONAL PARK, KOOLAUPOKO, OAHU, HAWAII, TMK: 4-8 AND 9

Thank you for reviewing the Draft EA for our proposed water main installation project. We acknowledge that you have no comments to offer at this time.

If you have any questions, please contact Barry Usagawa at 527-5235.

953245

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

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JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER

DARWIN J. HAMAMOTO
DEPUTY DIRECTOR

ENV 95-291

October 20, 1995

MEMORANDUM:

TO: RAYMOND SATO, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: for KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA)
KAMEHAMEHA HIGHWAY 30-INCH WATER MAIN
KAMAKA PLACE TO KUALOA REGIONAL PARK
TAX MAP KEY: 4-8 AND 9

We have reviewed the subject DEA and have the following comments:

1. Since the proposed project is located within the State Department of Transportation (SDOT), SDOT should be contacted for discharge permit requirements.

2. Who owns Hakipuu Stream?

3. When will decision to "cross over" or go underground be made? Per Section 2.2, it seems that the decision has already been made to go above the stream. However, in Section 5.3.2, it appears that this is only a preferred alternative.

Should you have any questions, please call Mr. Alex Ho, Environmental Engineer, at Local 4150.

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

COPY

JEREMY HARRIS MAYOR
WALTER C. WATSON, JR. CHAIR
MAURICE H. YAMASATO VICE CHAIR
KAZU HAYASHIDA
MELISSA Y. L. LAU
FORREST C. MURPHY
KENNETH E. SPRAGUE

RAYMOND H. SATO
Manager and Chief Engineer

November 14, 1995

TO: KENNETH E. SPRAGUE, DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM: RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY
For

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED KAMEHAMEHA HIGHWAY 30-INCH WATER MAIN PROJECT, KAMAKA PLACE TO KUALOA REGIONAL PARK, KOOLAUPOKO, OAHU, HAWAII, TMK: 4-8 AND 9

Thank you for reviewing the Draft EA for our proposed water main installation project. We have the following response to your comments:

1. The State Department of Transportation will be contacted to verify any discharge permit requirements for effluent associated with the proposed construction project.

2. Streams in Hawaii are generally owned by the landowner over whose property the stream passes. In the vicinity of the proposed water main project, Hakipuu Stream is owned by Kualoa Ranch, Inc.

3. The proposed water main will cross above Hakipuu Stream within the State highway right-of-way. The Final EA will be revised to clarify this point.

If you have any questions, please contact Barry Usagawa at 527-5235.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA
711 KAPIOLANI BOULEVARD SUITE 1200
HONOLULU HAWAII 96813

JEREMY HARRIS
MAYOR

CHARLES O. SWANSON
DIRECTOR

953331

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October 29, 1995

MEMORANDUM

TO: RAYMOND H. SATO, MANAGER & CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: CHARLES O. SWANSON, DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR A PROPOSED WATER MAIN PROJECT IN WAIKANE-HAKIPUU; TMK 4-8, 4-9

This is in response to your September 22, 1995 request for comments on the DEA for the subject project.

Traffic control measures to mitigate anticipated impacts on the two-lane belt highway should be coordinated with the State DOT. The work hour restrictions to non-peak periods and provisions for access to private driveways at all times are appropriate. Since there are no City streets intersecting the project segment of the highway, we have no further traffic concerns at this time.

Thank you for providing us this opportunity to review and comment on the DEA.

for CHARLES O. SWANSON

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

COPY

November 14, 1995

TO: CHARLES O. SWANSON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: For RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT ~~(EA) FOR THE PROPOSED~~ KAMEHAMEHA HIGHWAY 30-INCH WATER MAIN PROJECT, KAMAKA PLACE TO KUALOA REGIONAL PARK, KOOLAUPOKO, OAHU, HAWAII, TMK: 4-8 AND 9

Thank you for reviewing the Draft EA for our proposed water main installation project. Traffic control measures will be coordinated with the State Department of Transportation to mitigate anticipated impacts on Kamehameha Highway. We understand that there are no City streets intersecting the project segment of the highway and that you have no further traffic concerns at this time.

If you have any questions, please contact Barry Usagawa at 527-5235.

BENJAMIN J. CAYETANO
Governor of Hawaii

DEC 5 1995

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. Box 621
Honolulu, Hawaii 96809

95362O

Chairperson
MICHAEL D. WILSON
Board of Land and Natural Resources

Deputy Director
GILBERT COLOMA-AGARAN

Aquaculture Development
Aquatic Resources
Boating and Ocean Recreation
Bureau of Conveyances
Conservation and Environmental Affairs
Conservation and Resources Enforcement
Forestry and Wildlife
Historic Preservation
Land Management
State Parks
Water and Land Development

FILE: 96-147

DEC 6 1 24 PM '95

Honorable Raymond H. Sato
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Sato:

SUBJECT: Draft Environmental Assessment (DEA) for the Proposed Kamehameha Highway 30-inch Water Main Project, Kamaka Place to Kualoa Regional Park, Koolaupoko, Oahu, Hawaii (TMK: 4-8 & 9)

We have completed our review of the subject matter and have the following comments:

Division of Aquatic Resources

The applicant should take appropriate mitigative measures to minimize erosion and prevent chlorinated water, cement products, oil, fuel and other toxic substances associated with the use of heavy machinery from spilling or leaching to Hakipuu Stream.

Historic Preservation Division

During the pre-assessment consultation for this proposed project (DOC. NO. 9303TD17) we commented as follows:

"A review of our records shows that there are two known historic sites in the vicinity of the proposed transmission line: sites 50-80-06-1075, Hakipu'u Taro Flats, and 50-80-06-4060, a human burial. The transmission line route has not been inventoried for historic sites, so the nature and extent of damage to historic sites from road construction and subsequent activities are not known. We believe it is likely that other historic sites will be discovered beneath the surface along the transmission line route, especially in the vicinity of the stream at Hakipu'u. We expect that these sites would include human burials (although the clay soils along the route indicate that human burials are unlikely to be common), agricultural fields (especially on alluvial soils), and habitation sites."

"Although it is preferable to conduct historic sites inventory surveys prior to construction, the location of the proposed project along a heavily traveled highway might make this approach unfeasible. If this is the case, then archaeological monitoring, with a plan for the identification and subsequent treatment of historic sites discovered during construction, would be recommended."

The DEA contains as Appendix B and Archaeological Assessment of Hakipuu Waterline (Hammatt 1994). This assessment concludes that cutting and filling during construction of Kamehameha Highway would have destroyed any historic remains in the path of the proposed water line and that is unlikely that historic sites will be found during construction. We concur with this assessment and retract our previous recommendation for archaeological monitoring, with a plan for the identification and subsequent treatment of historic sites discovered during construction.

It is possible that historic sites, including human burials, will be uncovered during routine construction activities. Should this be the case all work in the vicinity must stop and the Historic Preservation Division must be contacted at 587-0047.

Division of Water and Land Development

We concur that a portion of the proposed project located at Hakipuu Stream crossing is designated Zone X, an area located within a Flood zone. Also, the proposed facility will not be constructed for habitation, therefore, no special structural design considerations are necessary.

Thank you for your cooperation in this matter. Please contact Cathy Tilton of our Office of Conservation and Environmental Affairs at 587-0447, should you have any questions.

Aloha,

Gilbert S. Coloma-Agaran
for MICHAEL D. WILSON

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843
PHONE (808) 527-6180
FAX (808) 533-2714

COPY

December 28, 1995

Mr. Michael Wilson, Chairperson
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Subject: Your Letter on the Draft Environmental Assessment (DEA) for the Proposed Kamehameha Highway 30-Inch Water Main Project, File: 96-147, Kamaka Place to Kualoa Regional Park, Koolaupoko, Oahu, Hawaii, TMK: 4-8 and 9

Thank you for reviewing the DEA for our proposed water main installation project. We have the following responses to your comments:

Division of Aquatic Resources

Appropriate mitigative measures will be taken to minimize erosion and prevent chlorinated water, cement products, oil, fuel and other toxic substances associated with the use of heavy machinery from spilling or leaching into Hakipuu Stream.

Historic Preservation Division

We understand that you concur with the archaeological assessment contained in the DEA and retract your previous recommendation of archaeological monitoring during construction with the understanding that a plan for the identification and subsequent treatment of historic sites discovered during construction is developed. Should construction activities uncover historic sites, including human burials, all work in the vicinity will be stopped and the Historic Preservation Division will be contacted.

Division of Water and Land Development

We understand that you concur with the Zone X designation of the Hakipuu Stream crossing. No above ground structures will be constructed that would require special structural design considerations.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO
Manager and Chief Engineer

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

BD OF WATER SUPPLY
Dec 11 12 24 PM '95

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LAWRENCE MIIKE
DIRECTOR OF HEALTH

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

Mgr
Dep
PE

DEC 14 1995

In reply, please refer to

Dec 13 8 56 AM '95

December 6, 1995 95-190/epo

Mr. Raymond H. Sato
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Sato:

Subject: Draft Environmental Assessment (DEA)
Proposed Kamehameha Highway 30-Inch Water Main Project
Kamaka Place to Kualoa Regional Park
Koolaupoko, Oahu
TMK: 4-8 and 4-9

Water Pollution Concerns

1. The applicant should contact the Army Corps of Engineers to identify whether a Federal permit is required for this project. A Section 401 Water Quality Certification is required from the Department of Health for "Any applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...," pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act").

2. If the project involves the following activities with discharges into State waters, a National Pollutant Discharge Elimination System (NPDES) general permit is required for each activity:

   a. Discharge of storm water runoff associated with construction activities, including clearing, grading, and excavation that result in the disturbance of equal to or greater than five (5) acres of total land area;

   b. Construction dewatering effluent;

   c. Non-contact cooling water;

   d. Hydrotesting water; and

   e. Treated contaminated groundwater from underground storage tank remedial activity.

3. If there is any type of process wastewater discharge from the facility into State waters, the applicant may be required to apply for an Individual NPDES permit.

Should you have any questions regarding this matter, please contact Ms. Hong Chen, Engineering Section of the Clean Water Branch at 586-4309.

Sincerely,

Lawrence Miike
Director of Health

c: Clean Water Branch

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843
PHONE (808) 527-6180
FAX (808) 533-2714

COPY

December 29, 1995

Lawrence Miike, Ph.D.
Director
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Dr. Miike:

Subject: Your Letter of December 6, 1995 on the Draft Environmental Assessment (DEA) for the Proposed Kamehameha Highway 30-Inch Water Main Project, Kamaka Place to Kualoa Regional Park, Koolaupoko, Oahu, Hawaii, TMK: 4-8 and 9

Thank you for reviewing the DEA for our proposed water main installation project. We have the following response to your comments:

1. We are currently consulting with the Army Corps of Engineers to identify whether a Federal permit is required for this project. The construction plans have been specifically designed to avoid impacts on Hakipuu Stream and the stream banks. We will submit an application for a Section 401 Water Quality Certification if a Federal permit is required.

2. The project's discharge requirements will be determined by the construction contractor who is selected to perform the water main installation work. We understand that National Pollutant Discharge Elimination System (NPDES) permits will be required for the discharge of effluent to State receiving waters.

3. The discharge of any type of process wastewater from this facility to State waters is not anticipated and an Individual NPDES permit will not be required.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO
Manager and Chief Engineer

APPENDIX B

Archaeological Assessment

TABLE OF CONTENTS

Archaeological Assessment of Hakipuu Waterline

TMK 4-9-01

by

Hallett H. Hammatt, Ph.D.

for

R.M. Towill Corporation

Cultural Surveys Hawaii
August 1994

LIST OF FIGURES

PHOTO APPENDIX

I. INTRODUCTION

Project Area Description

This project assessment was performed at the request of Ms. Colette Sakoda of R.M. Towill for the purposes of evaluating potential archaeological impact of a portion of a proposed waterline route. The portion to be evaluated is to run on the *makai* side of Kamehameha Hwy. extending northward from 300 ft. south of the Hakipuu/Waikane *ahupua'a* boundary to approximately 500 ft. north (Kahuku side) of Johnson Road at the southeastern edge of Moli'i Pond (Figs. 1-3).

The length of the project area along Kamehameha Hwy. is approximately one mile and includes the portion of the road which curves through Hakipuu and across Hakipuu Stream.

Scope of Work

The scope of work contains the following items:

1) Research of historic records and known historic sites to document sensitive areas along waterline route.

2) Preparation of a report to contain findings of the historical research as well as a map indicating sensitive areas that may contain archaeological materials.

3) Fieldwork will be limited to a few hours of examination of the highway right-of-way to determine which areas are cut and fill and which areas may contain natural deposits underneath the road bed.

Fieldwork consisted of one person walking on the *makai* side along the one-mile stretch of highway evaluating the potential for archaeological remains. Of particular importance was to estimate the amount of cutting and filling which went into the construction of the present highway alignment. The assumption being that in areas of cutting and filling, excavations for the water line along the highway shoulder would only penetrate into previously cut deposits which predate human occupation or disturbed fill deposits which have no archaeological potential.

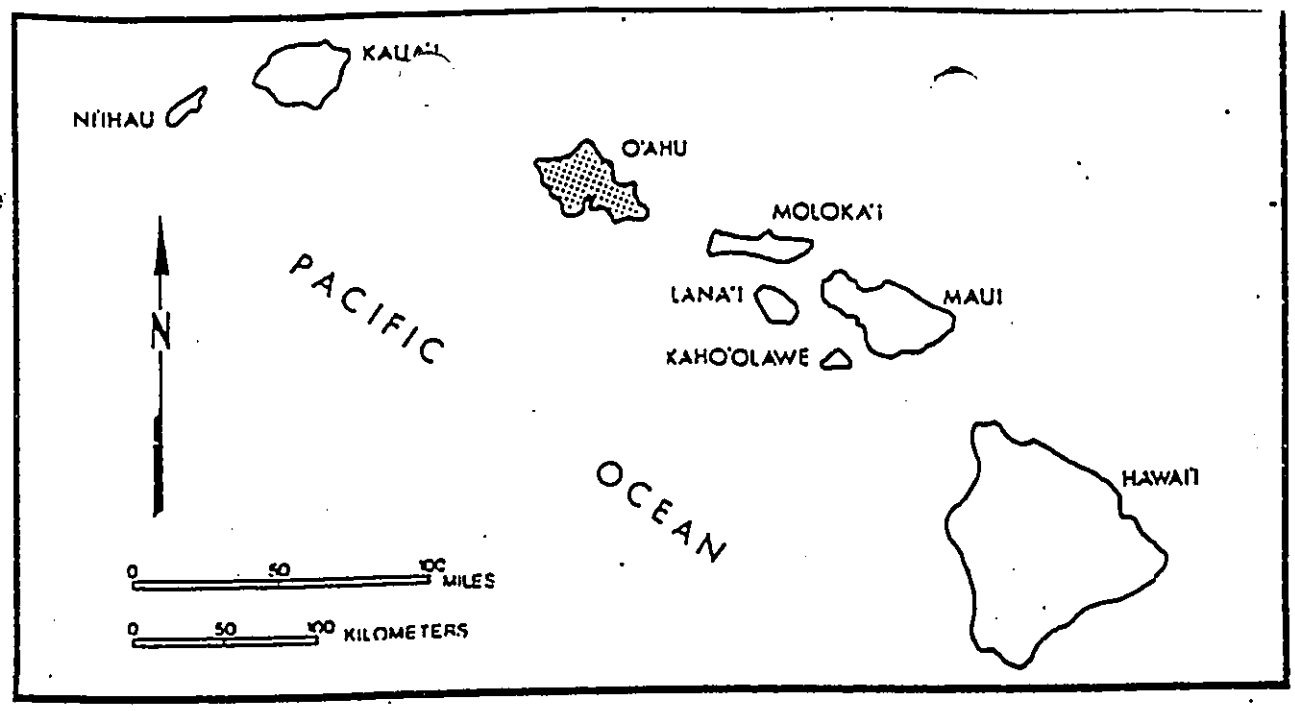

Fig. 1 State of Hawai'i

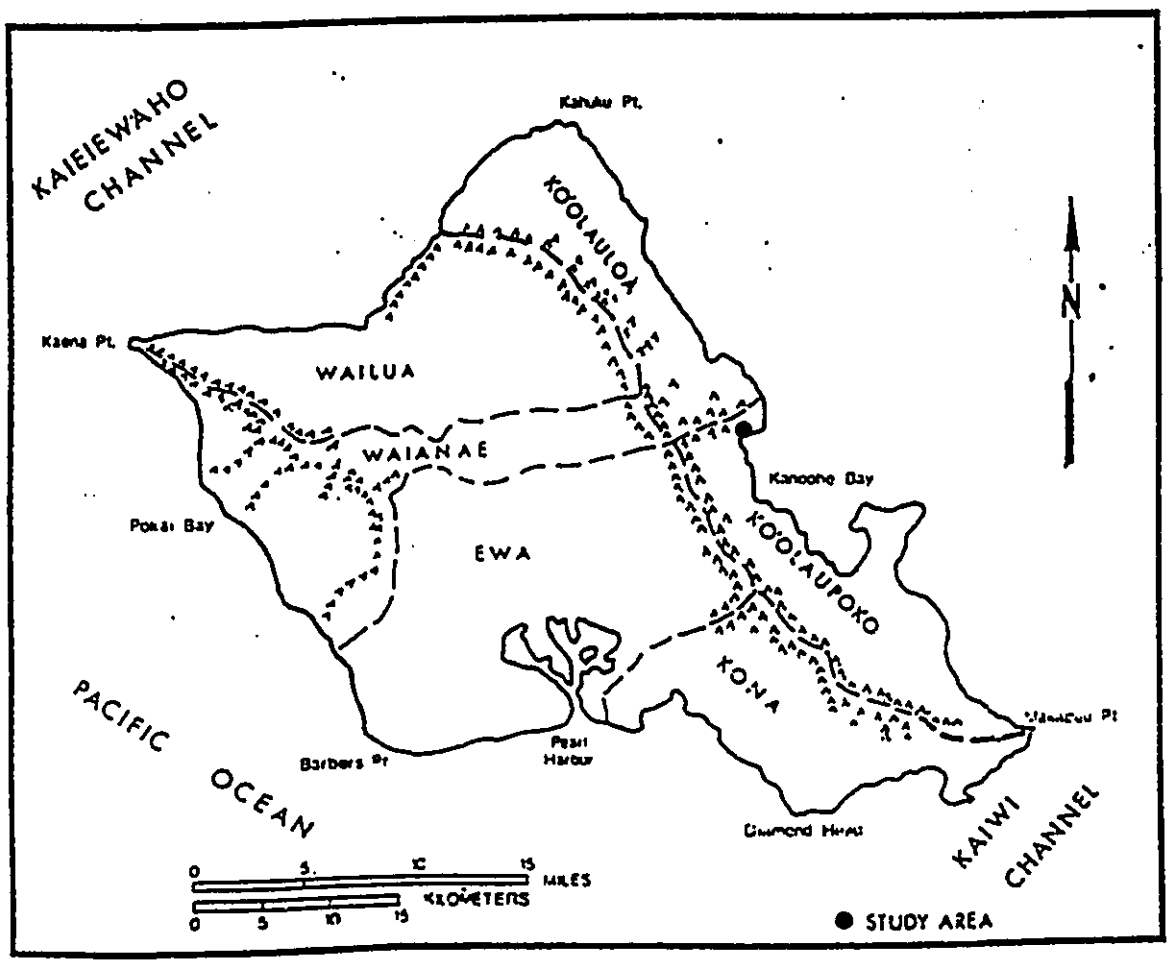

Fig. 2 O'ahu Island Location Map

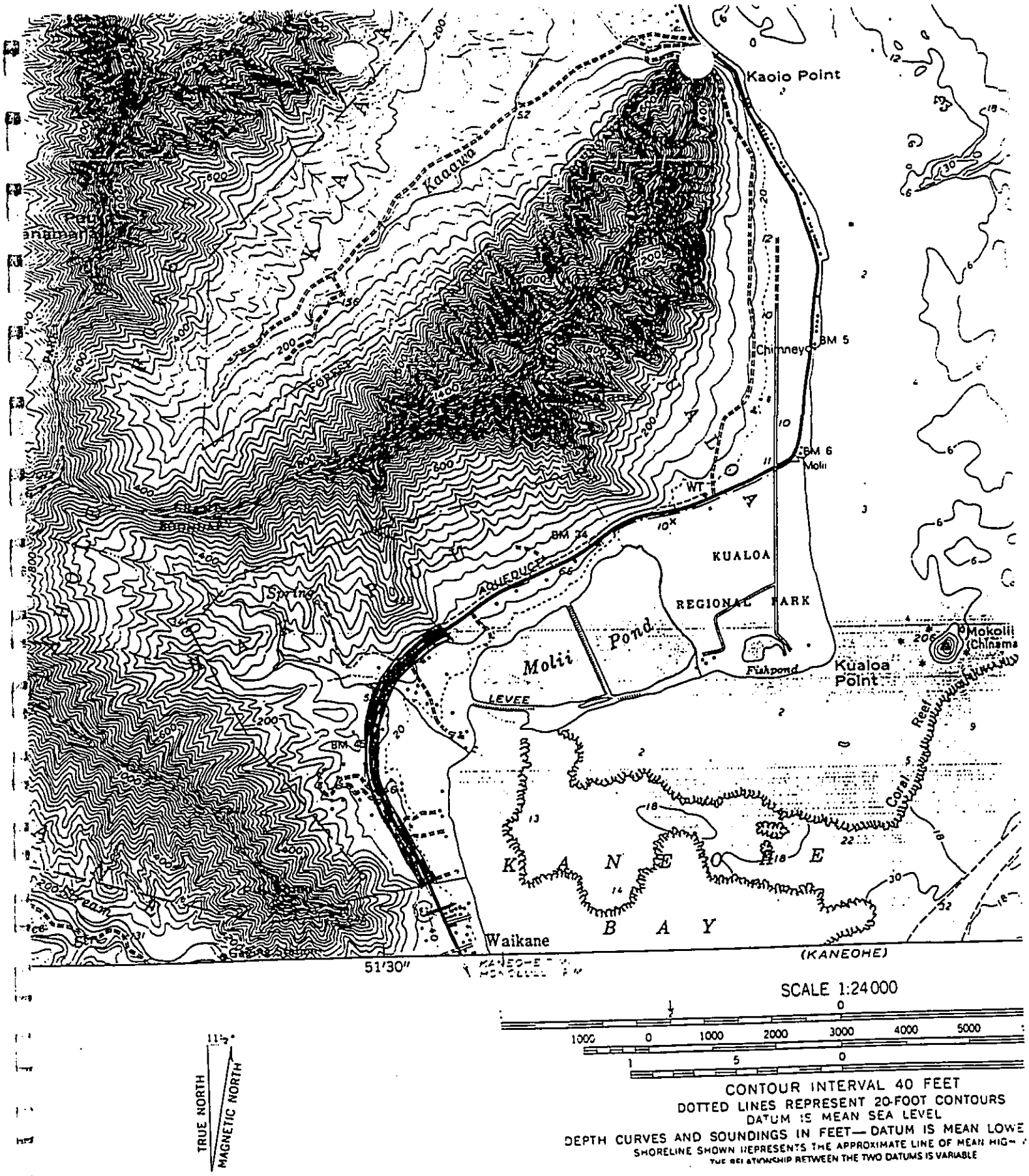

Fig. 3 USGS 7.5 Minute Series Topographic Map of Kahana Quad, Showing Project Location

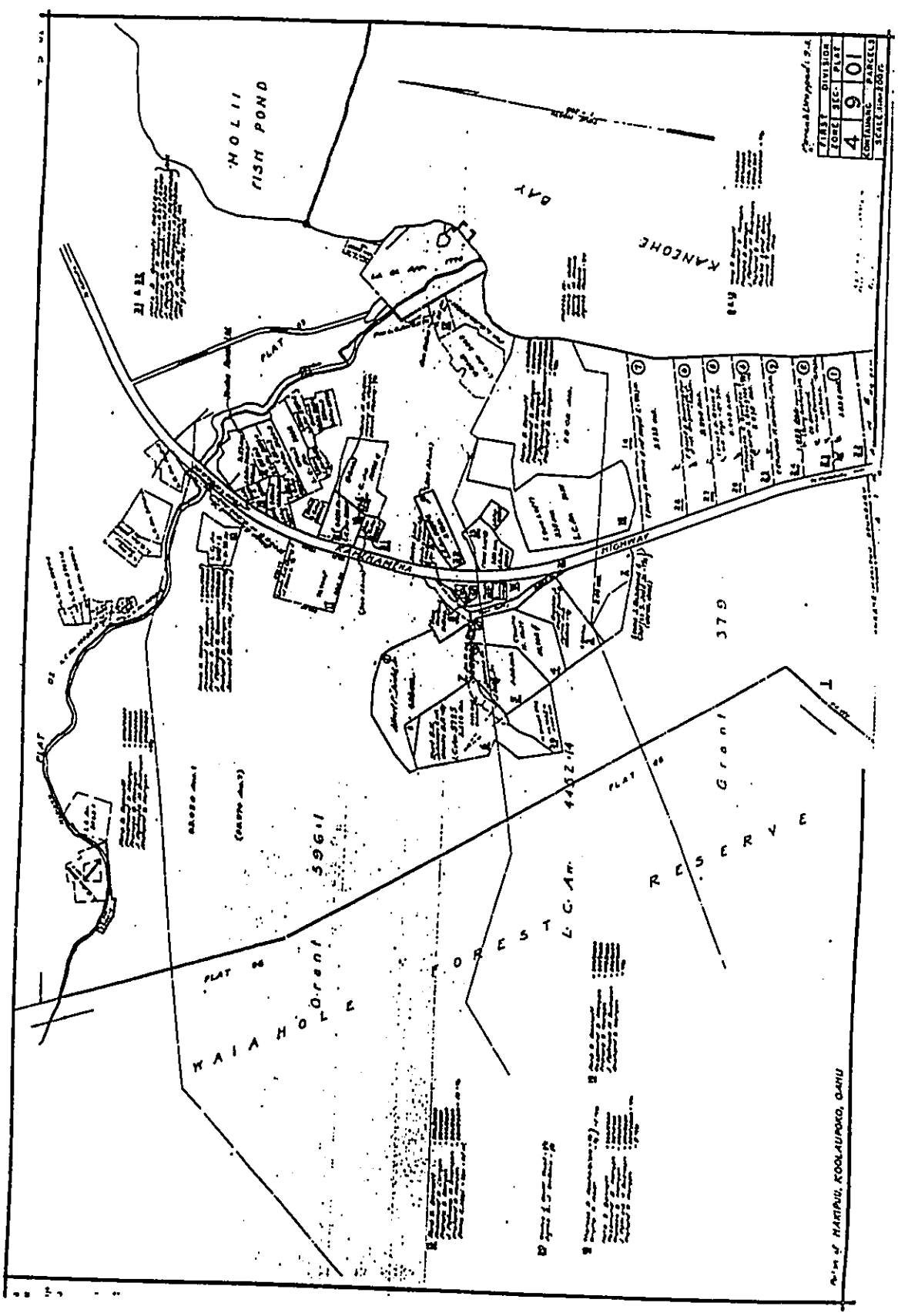

Fig. 4 Tax Map Key 4-0-01 Showing Project Area

II. PREVIOUS ARCHAEOLOGICAL RESEARCH

Sites Recorded by McAllister

Little archaeological research has been conducted in Hakipu'u *ahupua'a*. McAllister in his O'ahu-wide survey in the early 30s mentions four sites within the *ahupua'a*, sites #313 is Moli'i Pond (Fig. 6). Moli'i Fishpond is often thought to be a part of Kualoa because it is included as a part of Kualoa Park, but it actually lies within the *ahupua'a* of Hakipu'u. McAllister gives the following description:

> Formed by inclosing [sic] a bay-like area covering 124 acres. The eastern portion of the wall is now a rather wide sand embankment with stone facings in narrow portions. The southwestern portion of the wall is narrower and of stone construction. The entire wall approximates 4000 feet in length. Just to the east is a smaller pond, now not used. The walls here are a sand embarkment with a stone wall on the sea side (1985:168).

Site #315 is Nanahoa and is described as a geologic formation on the cliff which in legend was thought to have been a phallus. Site #315, Puakea Heiau is situated above the road at the foot of a ridge. It is far from the present project area and was described by McAllister as a large three-terrace structure. Site #316 is a flexed burial, located *mauka* of the road, slightly southwest of Hakipuu Stream. The site of the burial is described as being on the side of a slope that had been exposed by erosion. It was found partly exposed by Mr. A.F. Judd. Another site, reported by McAllister, within the vicinity of the project area, is at the northern end of Waikane, Site #317. This site is Kukuianiani Heiau, at the foot of Puu Pueo. It is located *mauka* of the road.

Hakipuu Taro Flats

The taro *lo'i* between Moli'i Pond and Hakipuu Stream, which once extended *mauka* along the banks of the stream were known as the Hakipuu Taro Flats. Handy and Handy provided a description of these taro lands:

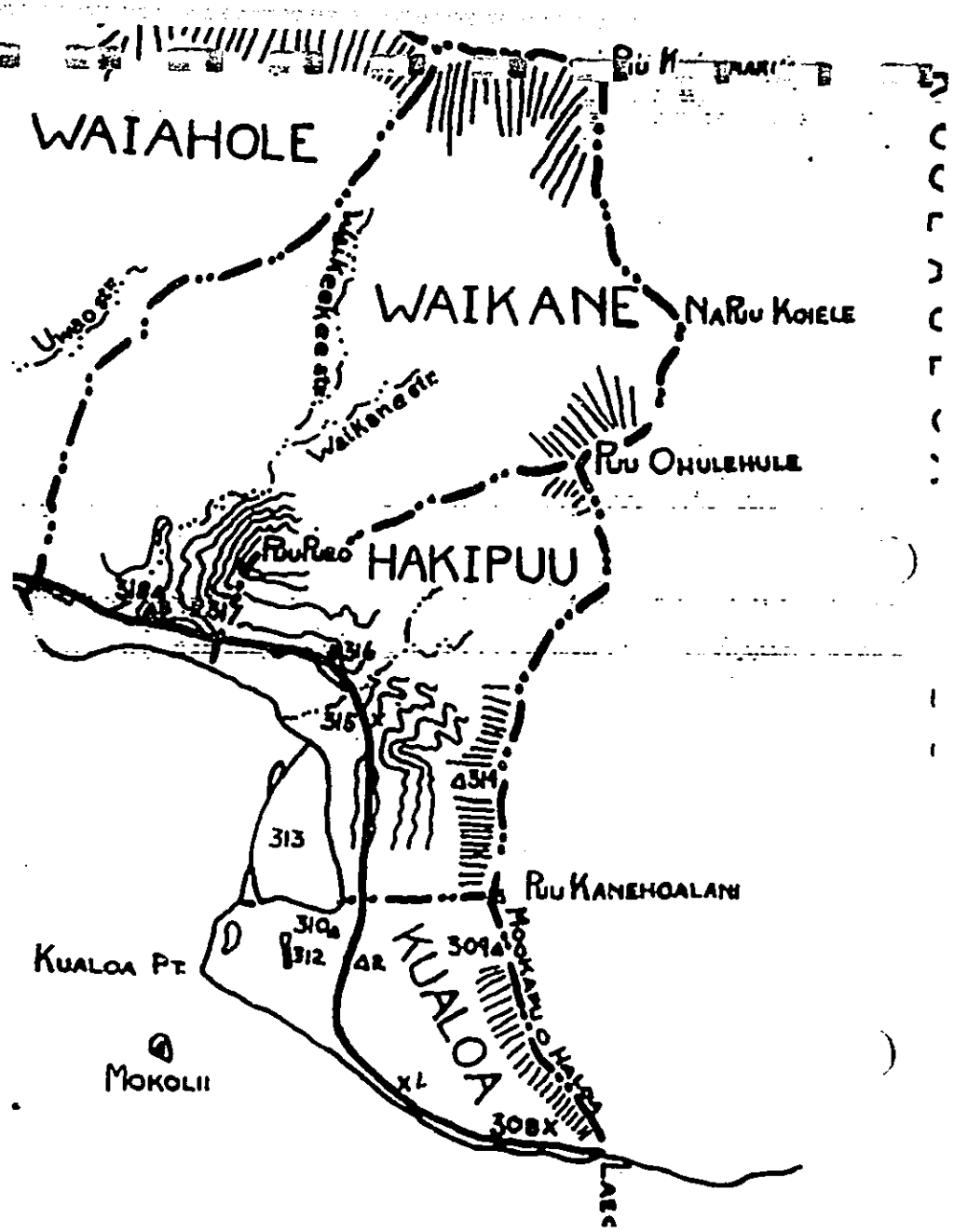

Fig. 5 Map of Koolaupoko Showing Location of McAllister sites in Hakipuu (Sterling and Summers 1978:257)

...partly enclosed to the east by the southernmost prong of Kualoa; and its lateral extent forms the upper, or northernmost, border of the great bay of Kane'ohe. Old *lo'i* areas once covered the swampy flats *makai* of the present Kamehameha Highway, and here as late as 1935 about a dozen *lo'i* were still cultivated along the Hakipu'u stream, with about the same number *mauka*. This area was quite extensive originally running for something more than a half mile southward from Moli'i Fishpond, and throughout the level land up along the stream. An interesting series of abandoned *lo'i* was noted filling a small valley bottom in an S curve from Moli'i Fishpond to a point up beyond the highway. This was formerly watered from Kailau Spring on the hillside above the fishpond. In 1935, a marshland patch just below the road to the southwest was being cultivated by an energetic Hawaiian using the old mounding method. It was the only swampy plantation of this type found on Oahu in the area survey of that year (Handy and Handy with Pukui 1972:443).

In 1970 this area was assigned a State site number - 50-80-06-1075 and was briefly described in a Hawaii Register of Historic Places site form. It was described as extending for as much as one mile up Hakipuu Stream which during that period consisted a single cluster of about eight taro fields and an *'auwai* system. These taro *lo'i*, which were presumably progressively abandoned during this century correspond in location to the thick concentration of Land Commission Awards found along both sides of Hakipuu Stream, particularly *makai* of the present road (Fig. 6). According to a local informant, Mr. Henry "Hanalei" Kaawa, the last taro *lo'i* was cultivated by Mr. Kaawa's family up to 1989. Stone walls and earthen embankments are still present, particularly *mauka* of the highway. *makai* of the highway there have been extensive modifications of the floodplain as part of the mariculture research station.

Human Bone Found at Johnson Road

A single long bone, identified as human, was found at the junction of Kamehameha Hwy. and Johnson Road within the project area, just north of Hakipuu Stream in August 1987. It appears to have been found on the surface and showed signs of previous contact with water. It was identified as human by the City and County Medical Examiner and the find was subsequently assigned State site number #50-80-06-4060. Although the remains were found on the surface of the ground, they were believed to be from an ancient burial and were

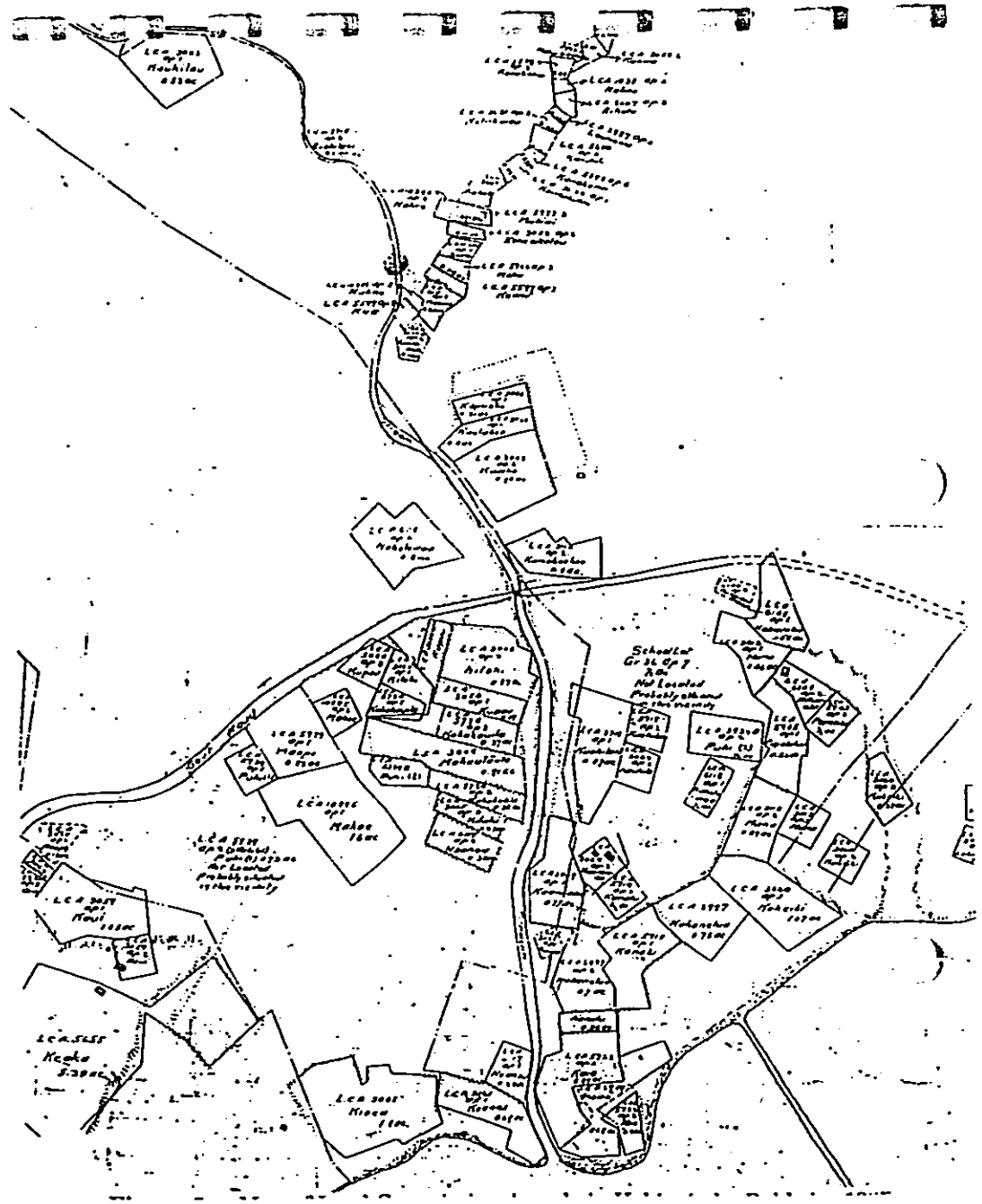

Fig. 6 Map of Land Commission Awards in Hakipuu by E.D. Baldwin in 1907 (R.M. #2651)

tentatively identified as being consistent with Polynesian ancestry by Dr. Michael Pietrusewsky of the University of Hawaii.

The Mortuary House

Only one site, CSH Site 1, appears to be actually situated in the project area. The site is located just east (*makai*) of Kamehameha Highway on level ground and is surrounded by mango trees, various palms, coconut trees, and several other introduced species of trees and vines. The site was examined and recorded by Cultural Surveys Hawaii during an archaeological survey for the Mariculture Research Facility in Hakipuu just *makai* of the highway along Hakipuu Stream (Pfeffer, Smith and Hammatt, 1992, rev. 1993). Little remains of the site as it was heavily impacted by the construction of Kamehameha Highway. Roughly half of the site was destroyed with dirt, boulders, and other construction debris being piled over the remainder of the site.

The present site consists of a portion of the basement of a historical building that was constructed of cement. The remaining wall sections measure approximately 4.6 m. E/W (*mauka/makai*) by 3.2 m. N/S, with a height of .95 m. at the southwest corner. The basement is believed to have been used as a storage facility for deceased individuals before the modern road was constructed. Bodies were packed in salt and stored until they could be removed to Honolulu (Mr. H. Kaawa, personal communication). Mr. Kaawa reported that the house was inhabited until the modern highway was constructed (ca. 1929). Although several shards of glass and metal were noted near the site, extensive looting of the site's refuse dump by bottle collectors and recent and past bulldozer activity have disturbed much of the area, leaving little of value to determine the site's age, use, and length of habitation. However, based on the construction materials utilized and informant knowledge, it would appear that the site

was used until ca. 1929 when it was abandoned due to the construction of Kamehameha Highway. Due to the destruction of much of the site Cultural Surveys Hawaii determined that the site is no longer significant (NLS).

A summary of Hakipu'u settlement pattern and land use history, including discussion of Land Commission Awards is to be found in Pfeffer, Smith and Hammatt (1992, rev. 1993). Of particular interest is the historical section of Ms. Wong-Smith. By comparing the various historic maps of Hakipu'u, it appears as if the Old Government Road and the present highway follow much the same route within the present project area. However, there is clearly a straightening of curves and some realignment.

III. SURVEY RESULTS

The project area was inspected on foot from the south end within a few hundred feet of the Hakipuu/Waikane boundary progressing to the north end at a prominent ridge 400 or 500 feet past Johnson Road, on the north side of Hakipuu Stream. This route is described as follows:

At the southern end of the project to and north of the project boundary of Hakipuu the road is fairly level with a cut at the *mauka* end of two to three feet and fill on the *makai* end of one to two feet. As the road moves northward and begins to curve to the northeast the *mauka* cut increases to a maximum of eight feet. On the *makai* side the road is within one to two feet of the surrounding ground surface. Presumably, in these steeper cuts, both the *mauka* and *makai* sides of the road show removal of large amounts of the original ground surface.

At the peak of the incline both sides of the road are cut, on the *mauka* side, slightly more than on the *makai* side. Here there is little or no potential for surviving archaeological material within the original ground surface.

Slightly north of the crest of the hill is Coral Kingdom which is in approximate center of the project route. The area of Coral Kingdom extending northwards to the bridge crossing Hakipuu Stream shows road filling rather than cutting.

The road then descends north of the stream crossing to a small tributary. Plentiful fill in the roadbed is evident within this low-lying area. As the road rises once again to and beyond its junction with Johnson road, the roadbed is cut between six and eight feet on the *mauka* side and is filled one to three feet at the *makai* side. Again, there is little potential for intact archaeological remains. The road exits the project area along the base of a ridge with a six to eight foot cut for the roadbed.

IV. SUMMARY AND RECOMMENDATIONS

Summary

Based on the background historical research and a review of previous archeological work in the area, as well as the present fieldwork, it is apparent that excavations for pipeline installation along this route of Kamehameha Hwy, will have a low potential for archaeological impact. Only one site is located in the immediate vicinity on the *makai* side of the highway along the waterline route, that is the badly disturbed remains of a 20th century mortuary house. Digging along the shoulder of the highway will not disturb the intact portion of this site.

Of potential concern would be impact to adjacent agricultural sites, *i.e.* fields, terraces, *'auwai* and associated sediments of the Hakipuu Taro Flats, Site 50-80-06-1075. However, examination of the present roadbed shows extensive cutting and/or filling within the area of the site. No impact is expected.

Human burials have been found within the vicinity of the road, as recorded by McAllister in the 1930s and more recently, with a poorly documented find of a human long bone at the junction of Kamehameha Hwy and Johnson Road in 1987. Again, extensive modification of the highway roadbed makes finding of human burials unlikely since intact deposits appear to have been removed or disturbed.

Recommendations

Given the results of this study - both the historical research and the field survey, on-site monitoring of trenching for installation of the waterline along this portion of the highway is not recommended. However, if in the unlikely event that archaeological finds are uncovered during these excavations, the State Historic Preservation Division should be contacted

immediately (Tel. no. 587-0047) and work in the immediate area should be halted until the findings are evaluated.

V. REFERENCES

Handy, E.S. Craighill and Elizabeth G. Handy
1972 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*, Bishop Museum Bulletin 233, Honolulu, HI.

McAllister, J.G.
1933 *Archaeology of O'ahu*, Bishop Museum, Bulletin 104, Honolulu, HI.

Pfeffer, Michael, Helen Wong-Smith, and Hallett Hammatt
1992 *Archaeological Inventory Survey of the Proposed Kualoa Oceanit Mariculture Pond Expansion Area, Hakipu'u, Koolaupoko, O'ahu*, Cultural Surveys Hawaii, Kailua, HI.

Sterling, Elspeth P. and Catherine C. Summers
1978 *Sites of O'ahu*, Dept. of Anthropology, B.P. Bishop Museum, Honolulu, HI.

PHOTO APPENDIX

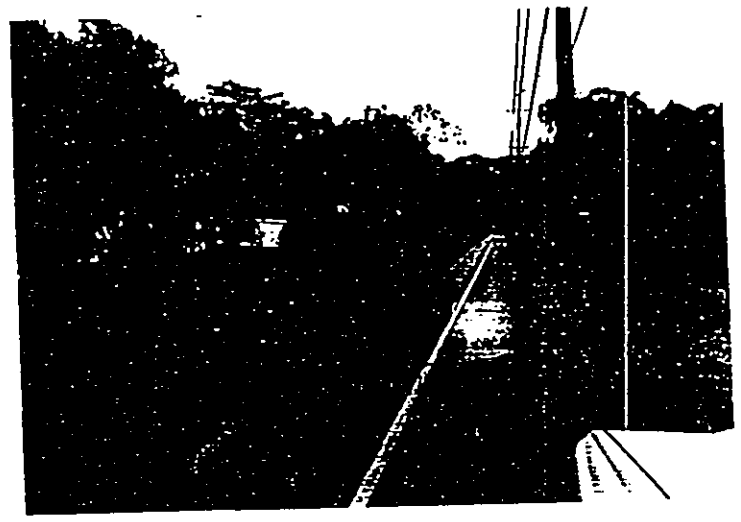

Fig. 7 Kamehameha Hwy near Hakipuu Boundary, View to North

Fig. 8 Hakipuu Taro Flats Showing Fill on Both Sides of Road, View to South